4.0 Potential Impacts and Proposed Mitigation

This section presents the results of the studies and analyses undertaken on the various parts of Alternative 8, the FEIR Alternative, including project-related impacts and alternatives designed to minimize or avoid these impacts. Where the impacts could not be either avoided or minimized, mitigation measures are proposed. Many of these analyses are preliminary and based on conceptual-level engineering. As the MEPA process concludes, a rigorous design and permitting process will begin and the level of impact and details concerning mitigation will be refined. Many of the questions posed in the comment letters on the DEIR, SDEIR and echoed in the Certificates on these documents have been addressed in this FEIR, at least on a conceptual level. However, some of the comments will not be addressed until the projects have progress through to fully design, which is beyond the scope of the MEPA process.

4.1 Floodplains, Watershed Hydrology, and Riverine Hydraulics

The FEIR Alternative (Alternative 8) looked at improving the SDEIR Alternative 7 based on the comments received on the SDEIR. To accomplish this, additional background data was collected, channel geometry was optimized, land surveys were performed and conceptual-level designs were prepared. The resulting FEIR Alternative represents the preferred flood mitigation project for the Town of Winchester. The major changes from the SDEIR Alternative are for Project 2. The Town Team significantly modified the project since the submittal of the SDEIR, ultimately reducing the proposed cross-sectional area and impacts. Other changes to the FEIR included refinement of the upstream and downstream mitigation projects based on feasibility studies and additional design. Model results show that the flood improvements in Winchester from the FEIR Alternative are predicted to be slightly less than the SDEIR Alternative, but that the FEIR Alternative has fewer environmental impacts and the improvements physically fit better into the existing built environment. The following sections report on the impacts from the FEIR Alternative and proposed mitigation for those impacts.

4.1.1 Impacts on Watershed Hydrology and Hydraulics

The FEIR alternative still uses the existing conditions hydrology as a basis for analysis, with appropriate modifications to include completed flood mitigation projects and additional survey data obtained for Project 2. The model results indicate that the hydraulics of the Aberjona River will be changed in high flow events. The model results also show significant reductions in the floodplains and associated peak water elevations at all frequency storm events. A series of water surface profiles showing this are included in Appendix M. Figures 4-1 and 4-2 show the 100-year and 50-year floodplains in Winchester resulting from implementation of the FEIR Alternative and the proposed upstream and downstream mitigation measures.

As stated in the SDEIR, the Aberjona and Mystic Rivers currently have unnatural constriction points that lower channel velocities and cause increased flooding. A comparison of velocities for Alternative 8 and the No Action Alternative (existing conditions) show an increase in some areas and a decrease in other areas. Table 4-1 compares velocity at the peak water stage from the No Action Alternative to Alternative 8 for the one percent annual chance event (100-year storm). Velocity comparisons are provided just upstream, just downstream, and within the bridge or culvert. The reaches above Mt. Vernon Street and above the Railroad Crossing at Muraco School have the biggest increases in velocity; this is caused by the removal of existing bridge constrictions in the vicinity. Once the bridge openings are less

Figure 4-1
Alternative 8
Comparing Existing and Proposed
100-year Floodplain Boundaries

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-1_FloodplainScenario_100yr_FEIR.mxd

Figure 4-2
Alternative 8
Comparing Existing and Proposed
50-year Floodplain Boundaries

AECOM

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-2.mxd

constricted, there will be less of a backwater effect to lower the in-stream velocities. The peak stages in these areas will also be considerably lowered during these flood events, reducing the flood hazard. Velocities within the structures that create the constrictions are proposed to be reduced, since pressurized flow through the structures is reduced

The ability of a stream to move sediment is associated with the power of the stream, which is equal to the product of the velocity, width, depth and slope of energy. Although the velocities are predicted to rise in several locations, the flow depths will be reduced. Therefore, the power of the stream is not changing significantly. Since the power is not changing, the level of erosion and sediment transport is not predicted to change. The main power changes would be at bridges that are not being revised and were located in the backwater of bridge constriction that is being enlarged. The largest increase is in the reach upstream of Muraco School to just above Washington Street. During the design of the Muraco School culvert project, the design team will analyze increases in stream power at bridges in the backwater of the current culvert. Armoring or other scour prevention measures may have to be considered in the designs for these bridges and reaches to prevent scour in those critical areas. The design team will consider j-hooks, cross-veins, and other scour prevention measures, as well as slope bioengineering methods (as opposed to rip-rap) during the design phases of the projects.

Table 4-1: Velocity Comparison (100 - year event, feet per second)

	Downstream			Within Culvert or Bridge			Upstream		
Location [1]	**Exist.**	**Alt. 8**	**Diff.**	**Exist.**	**Alt. 8**	**Diff.**	**Exist.**	**Alt. 8**	**Diff.**
Amelia Earhart Dam	N/A			N/A			0.5	0.5	---
Main St – Craddock Locks	1.8	1.8	---	4.1	2.7	- 1.4	1.4	1.5	+ 0.1
Confluence with Alewife Brook	0.9	1.0	+ 0.1	N/A			1.1	1.2	+ 0.1
High St	1.1	1.2	+ 0.1	4.3	4.2	- 0.1	1.1	1.2	+ 0.1
Mystic Valley Parkway (Winchester)	0.7	0.7	---	4.2	4.3	+ 0.1	2.7	2.7	---
RR Crossing	4.7	4.7	---	7	7.1	+ 0.1	5.2	5.2	---
Bacon St	1.3	1.6	+ 0.3	7.2	5.2	- 2.0	3.1	2.9	- 0.2
Main St	2.8	3.4	+ 0.6	6.3	6	- 0.3	2.1	2.5	+ 0.4
Mt Vernon St	2.5	2.9	+ 0.4	10.3	7.7	- 2.6	2.6	4.0	+ 1.4
Shore Rd	0.9	1.5	+ 0.6	3.7	5.4	+ 1.7	1.9	3.3	+ 1.4
Skillings Rd	1.9	2.6	+ 0.7	0.4	1.2	+ 0.8	0.6	1.4	+ 0.8
High School Playground Culvert	0.6	1.4	+ 0.8	3.6	4.9	+ 1.3	2.0	2.6	+ 0.6
Swanton St	3.0	3.6	+ 0.6	8.5	6.1	- 2.4	1.4	1.8	+ 0.4
Muraco School	0.7	1.2	+ 0.5	12.3	7.3	- 5.0	0.5	1.3	+ 0.8
Cross St	1.3	3.2	+ 1.9	0.8	3.7	+ 2.9	0.2	0.5	+ 0.3
Washington St	2.0	3.9	+ 1.9	2.6	8.7	+ 6.1	1.8	3.2	+ 1.4

[1] Predicted model velocities taken from just upstream bridge, culvert, or location. The velocity reported is associated with the velocity at the peak stage from the model run, the value is not necessarily the peak velocity.

The structural changes being proposed in this FEIR focus on conditions under high flow events. During low-flow and average flow conditions the velocities in the channel will remain approximately as they are today for most stretches of the river. The structural conveyance improvements will be designed to mimic existing carrying capacities during these flow regimes.

The low-flow and average velocities of Project 2 reach will be the most affected, but will stay very similar to how they are currently. In this section of the River, some velocities will likely increase and other segments velocities will decrease. The channel stretch downstream of the USGS gage is currently in the backwater of the Upper Mystic Lake (Mid-Lakes) Dam, and this stretch will remain in the backwater following both the improvements currently underway at the dam and following implementation of Project 2. The stretch upstream of the USGS gage to Center Falls Dam, which is currently in the backwater of the USGS gage, will have a normal water elevation lower than existing conditions once the gage is removed. This reach will then also be in the backwater of the Upper Mystic Lake Dam.

Figure 4-3 presents the differences in existing and proposed channel inverts between the Wedgemere Train Station and Center Falls Dam. The light gray line illustrates current bottom inverts (based on 2008 detailed survey), the solid black line illustrates the invert of the proposed 35-foot wide channel, and the dashed black line illustrates the proposed invert of the 8-foot wide low flow channel. The proposed low-flow channel in this reach will be 2-feet deeper than the main channel. Based on the detailed cross-sectional survey that the Town performed for this FEIR, adverse slopes downstream of the USGS gage were not as severe as previously thought based on the original survey performed for FEMA, which focused mainly upstream and downstream cross sections at bridges. However, channel work in this reach is still required to get the proposed channel configuration and install the low-flow channel.

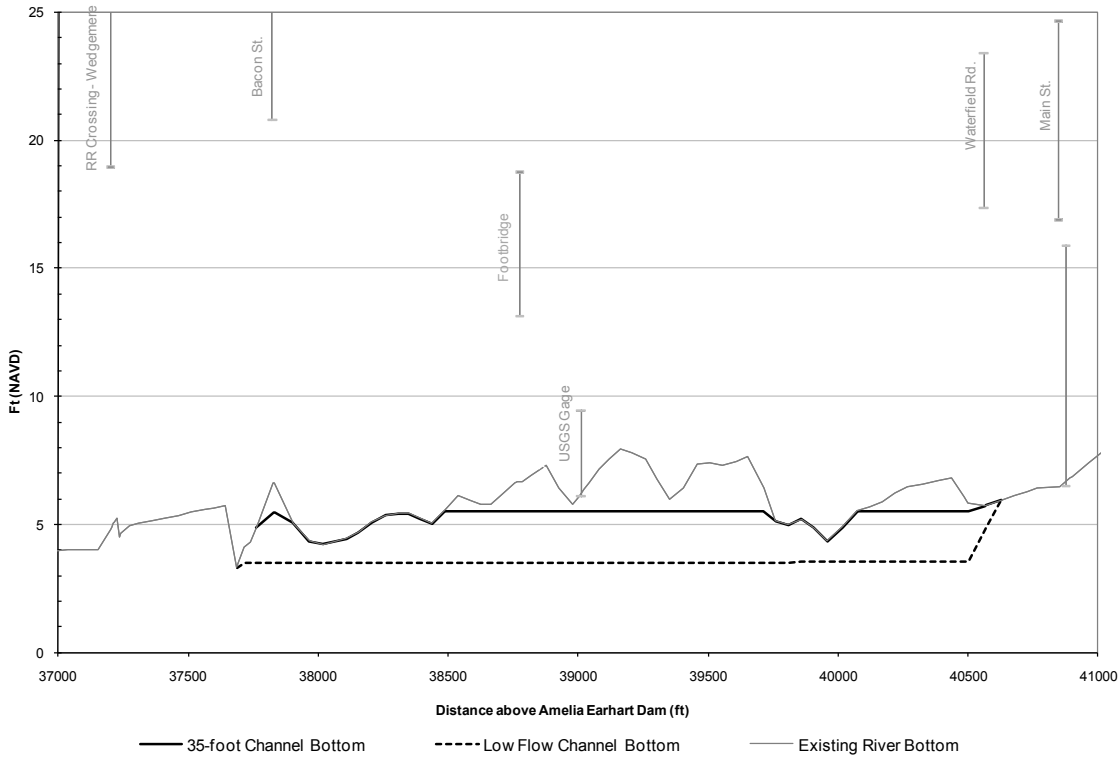


Figure 4-3: Channel Inverts (Existing and Proposed)

Another concern with regard to Project 2 involves the removal of the USGS gage and the maintenance of long term flow records at this location without gaps. The Town of Winchester has been working with the USGS in regards to replacement of the gage. Current plans include installing a bottom mounted velocity and stage sensor, with a telemetric recorder under Bacon Street or Waterfield Road. The new gage will be installed by the USGS six months to one year prior to removal of the current gage. This will allow a long enough period of record overlap to correlate the two data sets.

The Town of Winchester will fund the cost of the installation and equipment costs for the new gage, estimated to be approximately $20,000. The Town of Winchester will also pay the operational costs for the new gage while the two gages are in service. The current USGS gage operational costs are currently funded by DCR. Upon removal of the current gage, DCR's funding would now cover the new gage.

4.1.2 Upstream Flow Regulation

As with the SDEIR Alternative, hydrologic/hydraulic evaluation of the FEIR Alternative continued to show that if just the conveyance improvements in Winchester were completed, downstream flood elevations would be increased slightly. This includes a predicted rise in the 100-year flood elevation in the lower Mystic River and Alewife Brook of approximately 0.2 feet, which would be considered unacceptable by Winchester and the downstream communities.

Horn Pond, in the City of Woburn, with a surface area of approximately 100 acres lies directly upstream of Winchester. For the SDEIR, the hydrologic/hydraulic model was used to evaluate the impact of changing the configuration and operation of the outlet structure and secondary spillway at Scalley Dam (Horn Pond Dam) on flood levels. This analysis showed that if the gated spillway was made larger (by doubling the width of the existing primary spillway, and raising the secondary spillway 1-foot) that storage volume in the pond could increase and be used more efficiently, resulting in lower downstream flood flows and no increases in flood elevation upstream.

Since the SDEIR, Winchester worked with the City of Woburn and conducted a feasibility study to further investigate the changes proposed in the SDEIR. The City of Woburn expressed concern over any changes to the secondary spillway elevation and concern over effects to the Lake Avenue Culvert immediately downstream. The feasibility study showed that if the secondary spillway remained at the same elevation, similar improvements as proposed in the SDEIR could be realized if an additional 8-foot wide sluice gate was added, essentially creating an opening 2.6 times the size of the current primary spillway.

This larger primary spillway would result in lower peak water levels in Horn Pond and would lessen the uncontrolled flows over the dam and secondary spillway, which would ultimately reduce the peak flows in Horn Pond Brook. The model also predicted since flows would be reduced that conditions at Lake Avenue would also improve, a major concern of Woburn.

The FEIR Alternative includes the additional primary spillway opening. For the FEIR Alternative the model was run with the existing and proposed additional primary spillway being fully opened at hour 6 of the model run, with no initial drawdown of Horn Pond. Model results predict that in addition to mitigating for impacts downstream of Winchester, the Scalley Dam improvements would also further improve flood stages within the Town of Winchester. Flood stages along the Aberjona River downstream of the confluence with Horn Pond Brook within Winchester would be reduced by approximately 0.3 feet more in the 100 year flood. Flood stages would also be reduced along Horn Pond Brook itself. Flood reductions vary from 0 to 1 foot. A cost analysis of the construction of the new spillway was conducted

as part of the feasibility study, and improvements to Scalley Dam are estimated at approximately $520,000.

In addition to the Scalley Dam improvements, as with the SDEIR Alternative, the FEIR Alternative still includes the a rain barrel program, increased infiltration in the upstream watershed, and a new regulation dealing with the infiltration of stormwater from development and redevelopment projects.

4.1.3 Downstream Flow Regulation

The SDEIR Alternative included two downstream mitigation measures, modifications the Main Street Bridge (Craddock Locks) in Medford and improvements to the Upper Mystic Lakes Dam. Both of these downstream measures are still carried as mitigation measures for the FEIR Alternative.

Since filing the SDEIR, the DCR has advanced the project at the Upper Mystic Lake Dam through design, permitting, and now into construction. The DCR rehabilitation proposes to replace the primary stop log spillways with bottom-hinged crest gate bays and ogee bays. This will give the DCR better control of the Upper Mystic Lake pool elevation prior to a storm event and better control of the overflow during the event. Prior to projected storm event DCR plans on drawing down the normal pool 2.2-feet to allow for more flood storage. This will increase the flood flow buffering capacity in Upper Mystic Lake. This new control structure and operation has been added to the FEMA HEC-RAS model as part of the FEIR Alternative. The Mid-Lakes Dam is currently under construction and expected to be complete in the spring of 2011.

As stated in the SDEIR, the Craddock Locks Bridge in Medford causes a restriction to flow in the Mystic River exacerbating the flooding problems in the Alewife Brook area. Removal of the remainder of the lock structure from under the bridge would allow additional flow to pass through without requiring operation during a storm event. Since the filing of the SDEIR, the Town of Winchester had a feasibility study performed that investigated the possibility of removing the remaining lock structure remnants prior to the full bridge rehabilitation being proposed by MassDOT. The feasibility study concluded that portions of the remaining concrete panels that are part of the remaining lock mechanisms could be removed prior to the full bridge rehabilitation project. Design and construction of these temporary measures is estimated at a cost approximately $400,000. If the current schedule for the bridge rehabilitation remains, it is likely that the interim measure of removing the concrete panels will not be required. If the schedule does get pushed, Winchester will consider performing the interim improvements so they can proceed with their in town projects.

The model results continue to show that the modification to the Craddock Locks alone would result in increases to flood elevations in the reach downstream of Craddock Locks. However, this would not necessarily result in increased flooding in this reach of the river, since the conveyance capacity of the Mystic River in this area is large, drainage outfalls are at higher elevations, and water elevations in this reach are primarily controlled by the three flood pumps at the Amelia Earhart Dam. Model results also indicate that relatively small modification of the pumping regime (still assuming that only two of three pumps are available at the Amelia Earhart Dam), could lower water surfaces to below existing conditions. Model results also show that once the improvements created by Mid-lakes Dam and Scalley Dam are incorporated, there will be a slight decrease in flood elevations downstream of Main Street Bridge. Therefore, the FEIR Alternative includes the upstream mitigation measure of Scalley Dam, and the downstream mitigation measures of Mid-Lakes and Craddock Locks;the FEIR Alternative does not rely on any changes to Amelia Earhart Dam.

Model results do indicate if three pumps were available at Amelia Earhart Dam that water levels could be maintained at significantly decreased elevations for a 100-year storm in this reach. For that reason we are still recommending that a fourth pump be added to the Amelia Earhart Dam, but it is not included as part of the required mitigation for this project. Installation of the fourth pump has been estimated to cost approximately $5.0 million.

4.2 Wetland Resource Areas

The impacts of the projects with respect to wetland resource areas and compliance of the projects with the Massachusetts Wetland Protection Act performance standards has been a primary concern of many commenters since the filing of the ENF. The FEIR Alternative further seeks to minimize impacts to resource areas and includes mitigation which will effectively improve the habitat along significant reaches of this urbanized stream. To give some insight into the progression of the alternatives with respect to minimizing impact, Table 4-2 presents a summary of the evolution of the preferred alternative since the filing of the ENF. Table 4-3 presents a summary of resource area impacts by project for the FEIR Alternative. The following section describes the impacts to the various wetland resource areas at the six proposed in town projects (Projects 2, 3, 4, 6, 8, and 10) and mitigation projects being designed and permitted by Winchester.

Table 4-2: Impacts to Wetland Protection Act Resource Area

Alternative	Bank (l.f.)	LUW (s.f.)	BVW (s.f.)	Riverfront Area (s.f.)	BLSF (s.f.)
ENF	9,730	127,970	4,000	480	80
DEIR	7,420	116,916	11,000	80	80
SDEIR	1,720	87,720	1,000	21,500	0
FEIR	2,240	101,970	1,000	63,390	63,390

Changes to the impact numbers from the SDEIR to the FEIR, specifically the LUW and Riverfront Area numbers, have resulted from more advanced designs of the projects, more accurate mapping of the resource areas, and a more detailed (and conservative) analysis of impacts. While these numbers have increased due to refinements in the analyses the work proposed within these resource areas is either the same or less than the work proposed in the SDEIR Alternative. Impacts in these areas will be temporary and will the resource areas will be restored (or additional area added) resulting in a net increase in the area and quality of these resources.

Table 4-3: Summary of Resource Area Impacts, FEIR Alternative

Project No.	Bank (l.f.) [1]	LUW (s.f.)	BVW (s.f.)	Riverfront Area (s.f.) [2]	BLSF (s.f.)
2	1,540	98,990	0	53,720	53,720
3	50	540	0	670	670
4	100	200	0	1500	1500
6	100	300	0	1000	1000
8	100	300	0	1000	1000
10	320	1000	1,000	4000	4000
Craddock Locks	0	0	0	0	0
Scalley Dam	30	640	0	1500	1500
Sum	**2,240**	**101,970**	**1,000**	**63,390**	**63,390**

1 All in town projects involve the temporary alternation of Bank which will be restored in-place and in-kind resulting in no loss.

2 All projects that involve impacts to the Riverfront Area will, in most cases, result in the replacement in-kind in a slightly different location due to the relocation of the river channel.

4.2.1 Bordering Vegetated Wetland

Bordering Vegetated Wetland will only be permanently impacted at one of the six projects. Project 10 (Railroad Bridge near Muraco School) will result in 1,000 s.f. of impacts to Bordering Vegetated Wetland. This proposed project includes installing two 7-foot diameter conduits under the MBTA railroad bridge to supplement the two existing 6.5 by 7-foot bridge openings. There is a fringing wetland on the downstream east bank and approximately 1,000 s.f. will be lost in this area due to the taper required for the new culvert. The Town proposes construction of a 2,000 s.f. Bordering Vegetated Wetland replication area as mitigation for this loss. As this project undergoes detailed design, the exact location of Bordering Vegetated Wetland replication will be decided, but there is ample opportunity to create a replication area on the Town-owned parcel at this project location.

4.2.2 Bank

A total of 2,240 l.f. of temporary Bank impact will occur over the six in town projects (Projects 2, 3, 4, 6, 8, and 10) and mitigation projects as described below. All temporary alternations of the Bank will be restored in-place and in-kind resulting in no loss. Therefore, mitigation is not required. The habitat value of the new Bank will represent an improvement over the existing condition, potentially qualifying the project as a restoration effort. Restoration of the Banks is described below.

- **Project No. 2 – River Channel Modification -** The preliminary design calls for the entire east bank from Waterfield Road downstream approximately 1,300 l.f. to Manchester Road to be rebuilt using bio-engineering methods (cellular confinement system) and re-vegetated with indigenous, non-invasive, shrubs and herbaceous vegetation. An additional 240 l.f. of bank will be disturbed due to removal of the USGS gage weir, which will be rebuilt using bio-engineering methods (cellular confinement system) and re-vegetated with indigenous, non-invasive, shrubs and herbaceous vegetation. A meandering 8-foot wide by 2-feet deep pilot channel with bio-engineered banks will be incised within the main river channel between Waterfield Road and Bacon Street. In addition, because the FEIR proposed 35 feet of bottom width (as opposed to the SDEIR-proposed 39 foot cross section), there is an opportunity to create a tree planting strip at the top of the bank. The lack of space for re-vegetation associated with the Project 2 channel widening was a primary concern expressed by several reviewers in comments on the SDEIR. The goal of the mitigation program along this reach is to provide bank stability in both the low-flow and high flow channels, and to provide vegetation and in-stream structures for fish and wildlife habitat. The shrub and tree plantings will provide shade along this reach of the river, and the vegetation along the west bank will be left undisturbed. The new east bank will be set at the same angle of repose as the existing bank (approximately 1:1) but it will be made of bioengineered ~~"g~~eo-cells" planted with indigenous vegetation as opposed to the current granite block revetment. This will represent an improvement to the habitat quality of this reach.

  Along the remainder of the Project 2 reach from Manchester Road to Bacon Street (approximately 1,450 l.f.), the banks will remain undisturbed as there will not be any river widening in this reach. Adverse slopes along the channel bottom will be removed and the pilot channel will be continued through this reach; it will terminate in a natural pool just downstream of Bacon Street.

- **Project No. 3 – Center Falls Dam -** The Center Falls Dam project consists of replacing the one remaining gate valve with a new sluice valve; replacement of the first gate valve was completed in 2003. This minor project will temporarily alter approximately 50 l.f. of Bank. Restoration of Bank will be in-place and in-kind, resulting in no loss. Permitting for the replacement of both gate valves was completed along with the original construction in 2003.

- **Project No. 4 – Mount Vernon Street Bridge Improvements -** An estimated 100 l.f. of Bank will be temporarily impacted and will be re-graded and re-planted as Bank to allow for a taper at the downstream end of the new culvert on the bank adjacent to Town Hall. Restoration of Bank will be in-place and in-kind, resulting in no loss.
- **Project No. 6 – High School Playing Field -** At each end of the culvert the disturbed area will be limited to approximately 50 l.f. of Bank for a total of 100 l.f. of impact. Restoration of the Bank will be in-place and in-kind, resulting in no loss.
- **Project No. 8 – Swanton Street Bridge Improvement -** Approximately 100 l.f. of Bank will be altered by this project. Restoration of Bank will be in-place and in-kind, resulting in no loss.
- **Project No. 10 – Railroad Bridge Near Muraco School -** This proposed project includes installing two 7-foot diameter conduits under the MBTA railroad bridge to supplement the two existing two 6.5 by 7-foot bridge openings. A total of 320 l.f. of temporary alteration to Bank is projected, which will be restored in-place and in-kind resulting in no loss.
- **Craddock Locks – Removal of remaining lock components –** Alterations are to concrete portion of bridge, will have no impact to banks.
- **Scalley Dam – Additional of second Sluiceway -** Approximately 30 l.f. of Bank will be altered by this project. Restoration of Bank will be in-place and in-kind, resulting in no loss.

4.2.3 Bordering Land Subject to Flooding

By necessity all of the projects proposed in the FEIR Alternative will involve work in floodplains (Bordering Land Subject to Flooding). For that reason the numbers presented in this FEIR represent the area of BLSF where work is proposed. BLSF can overlap Bank, RA, and BVW so the footprint area of ~~im~~pact" is hard to separate out from these other Resource Areas. None of the projects propose any additional fill in a floodplain, nor will they act as a restriction to flow. Therefore it has been determined that there are no permanent impacts to BLSF even though work is being performed in floodplains. Loss of floodplain area will occur as a result of the project as the intent of the project is to mitigate for past man-made alterations and impacts within the watershed which have caused flooding impacts. This work provides positive mitigation for flood control and reduces storm damage caused by flooding. The projects also will reduce the extent of the 10-year floodplain which is cited in the Wetlands Protection Act as critical to wildlife habitat. Where work is occurring within the 10-year floodplain currently serving as wildlife habitat the improvements being made will increase the capacity of that area to serve as wildlife habitat. Along the river corridor the area of 10 year floodplain which may be reduced (lost) is either developed or grassed. Therefore that portion of the 10-year floodplain does not currently serve as wildlife habitat. Therefore, all of the projects are in compliance with the performance standards of Bordering Land Subject to Flooding.

One of the questions raised in the Certificate on the SDEIR related to how the projects could result in a decrease in regulated floodplain, and therefore a reduction in jurisdiction over activities in those areas. The issue seems to be twofold; first it was assumed that a reduction in floodplain area would result in new areas opened for development, and second, there appeared to be a question as to whether these new development areas would contribute (negatively) to stormwater runoff. The purpose of these projects is to reduce flooding in already-developed areas, not to reduce the floodplain in undeveloped areas (of which there are few in this heavily urbanized corridor). While undeveloped areas on individual lots may be brought out of the floodplain and therefore not regulated as Bordering Land Subject to Flooding, it is a Town regulation that any site development in Winchester (including the expansion of an existing use) requires that any new impervious surfaces have stormwater runoff mitigated (infiltrated) both for increases in the rate of flow as well as the total volume of flow. Therefore any increase in

development on these individual lots would be ~~c~~aptured" by the Town review process and mitigation would be required. Any former floodplain area that is developed will, therefore, not cause an increase in stormwater flow to the Aberjona River. The only significant open spaces that will benefit from a reduction in floodplain are Town-owned or DCR-owned properties such as the fields at the High School, Manchester Field, Ginn Field, and the Mystic Valley Parkway greenspace. Most of the areas being either brought out of the floodplain or which will experience a decrease in the depth of flooding are already fully developed, thus reducing the potential for damage of property from flood waters.

4.2.4 Riverfront Area

In Section 2.0 of this FEIR the method used to evaluate the baseline Riverfront Area was described. Because the area of each project is not contained on a traditional ~~l~~ot" a conservative estimation of lot area was used. For each project any conversion of Riverfront Area into another Resource Area was considered as a loss of Riverfront Area. For example, widening a channel 15 feet entails a transformation of a 15 foot strip of Riverfront Area because that area is being converted into Bank and Land Under Water. Of course moving a bank out 15 feet also means that the outer edge of Riverfront Area is extended by 15 feet. For that reason the Inner and Outer Riparian Zones were evaluated separately. Figures 4-4 through 4-10 show this analysis graphically and also contain tabular information. For the FEIR Alternative approximately 63,390 s.f. (or 1.47 acres) of Riverfront Area will be affected by the projects. This equates to only 2.0% of total impacts to the Riverfront Area located within the lots. The greatest disturbance is located in Project 2 which will result in 9.0% of the Riverfront Area to be disturbed. No one project exceeds the 10% threshold provided by 310 CMR 10.58(4)(c)2.b.vi; therefore, a variance from the Wetlands Protection Act will not be required for any of the projects proposed as part of the FEIR Alternative. Table 4-4 provides a summary of the assessment of the Riverfront Area by inner and outer riparian zones. Table 4-5 provides the calculations of the percent of Riverfront Area impacted by project. Table 4-6 provides a summary of new area within the Riverfront Area and conversion of Riverfront Area to other regulated resource areas.

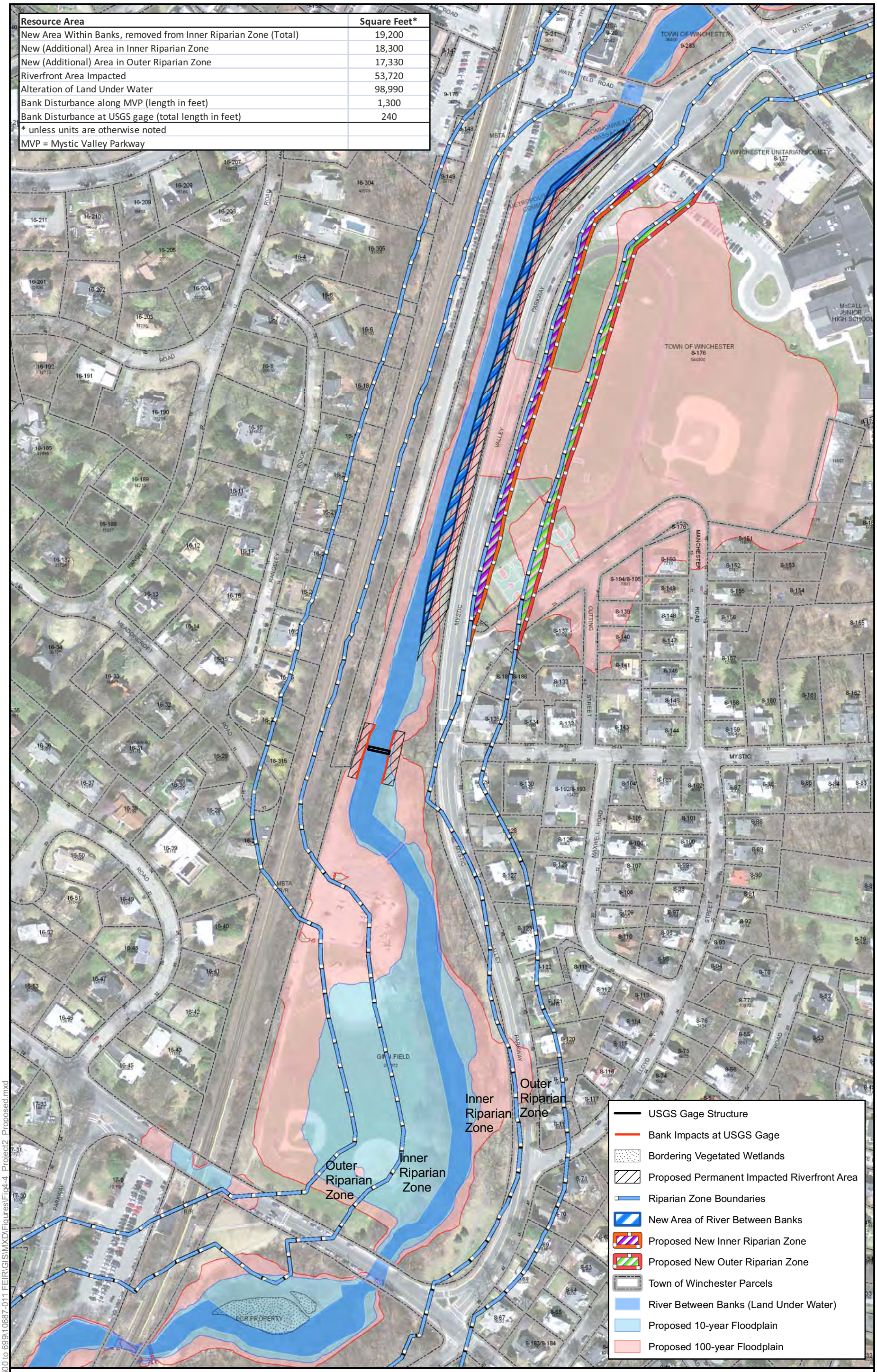
Even though there will be a transformation of 15 feet of inner riparian area from Riverfront Area to Bank and Land Under Water, the widening of the Aberjona River by 15 feet will increase the amount of Riverfront Area by 15 feet, thus increasing the amount of land subject to jurisdiction and protection under the Massachusetts Wetlands Protection Act. There will be no net loss of wetland area, in fact, there will be an increase because of the enlarging of the Riverfront Area.

Table 4-4: Riverfront Area Analysis—Area Disturbed

Project	Disturbance Area of Inner Riparian Zone (square feet)	Disturbance of Outer Riparian Zone (square feet)	Total Area Disturbed (square feet)	Total Area Disturbed (acres)
2	53,720	0	53,720	1.23
3	670	0	670	0.02
4	1,500	0	1,500	0.03
6	1,000	0	1,000	0.02
8	1,000	0	1,000	0.02
10	4,000	0	4,000	0.09
Craddock	0	0	0	0.00
Scalley	1,500	0	1,500	0.03
Totals	**63,390**	**0**	**63,890**	**1.47**[1]

1. Due to rounding inconsistencies, we have used the higher number.

Resource Area	Square Feet*
New Area Within Banks, removed from Inner Riparian Zone (Total)	19,200
New (Additional) Area in Inner Riparian Zone	18,300
New (Additional) Area in Outer Riparian Zone	17,330
Riverfront Area Impacted	53,720
Alteration of Land Under Water	98,990
Bank Disturbance along MVP (length in feet)	1,300
Bank Disturbance at USGS gage (total length in feet)	240
* unless units are otherwise noted	
MVP = Mystic Valley Parkway	

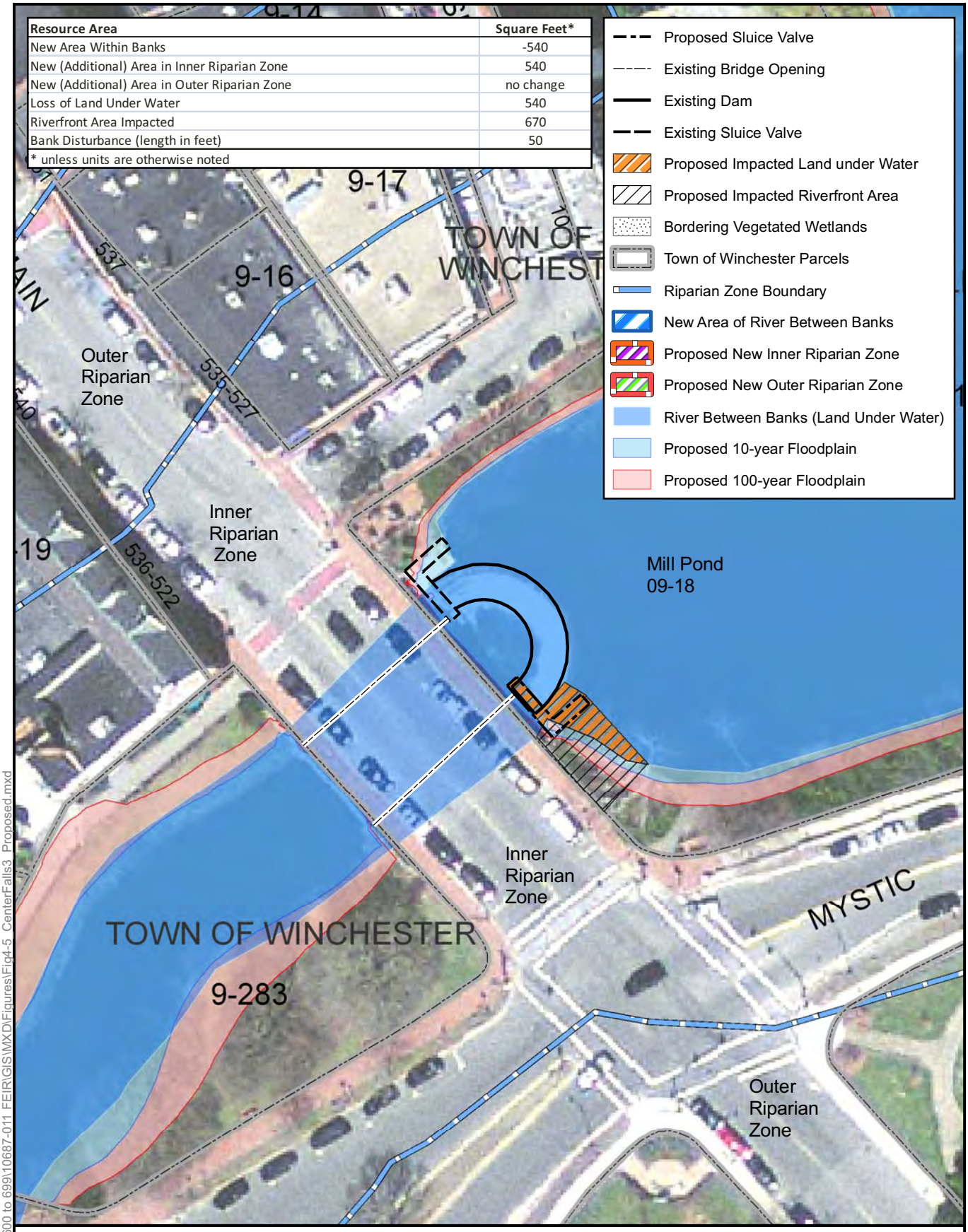


AECOM

Figure 4-4 Project 2 Waterfield Road to Bacon Street
Comparing Existing and Proposed Resource Areas
Including: Riverfront Area, Area within Banks, Bordering
Vegetated Wetlands, and Floodplain Boundaries

0 100 200 400 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-4_Project2_Proposed.mxd



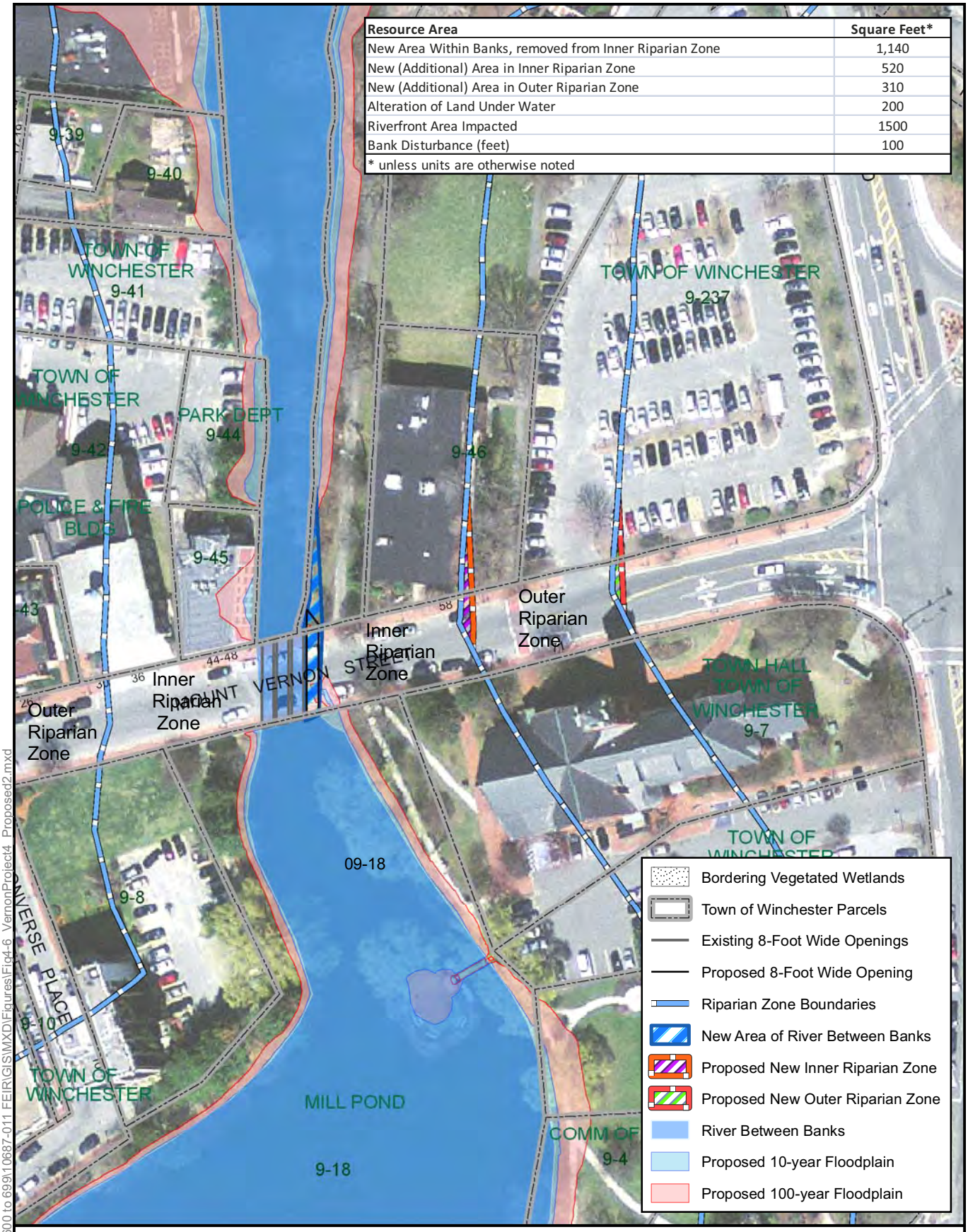
Resource Area	Square Feet*
New Area Within Banks	-540
New (Additional) Area in Inner Riparian Zone	540
New (Additional) Area in Outer Riparian Zone	no change
Loss of Land Under Water	540
Riverfront Area Impacted	670
Bank Disturbance (length in feet)	50
* unless units are otherwise noted	

AECOM

Figure 4-5 Project 3 Center Falls Dam
Comparing Existing and Proposed Resource Areas
Including: Riverfront Area, Area within Banks, and Bordering Vegetated Wetlands, and Floodplain Boundaries

0 25 50 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-5_CenterFalls3_Proposed.mxd



Resource Area	Square Feet*
New Area Within Banks, removed from Inner Riparian Zone	1,140
New (Additional) Area in Inner Riparian Zone	520
New (Additional) Area in Outer Riparian Zone	310
Alteration of Land Under Water	200
Riverfront Area Impacted	1500
Bank Disturbance (feet)	100
* unless units are otherwise noted	

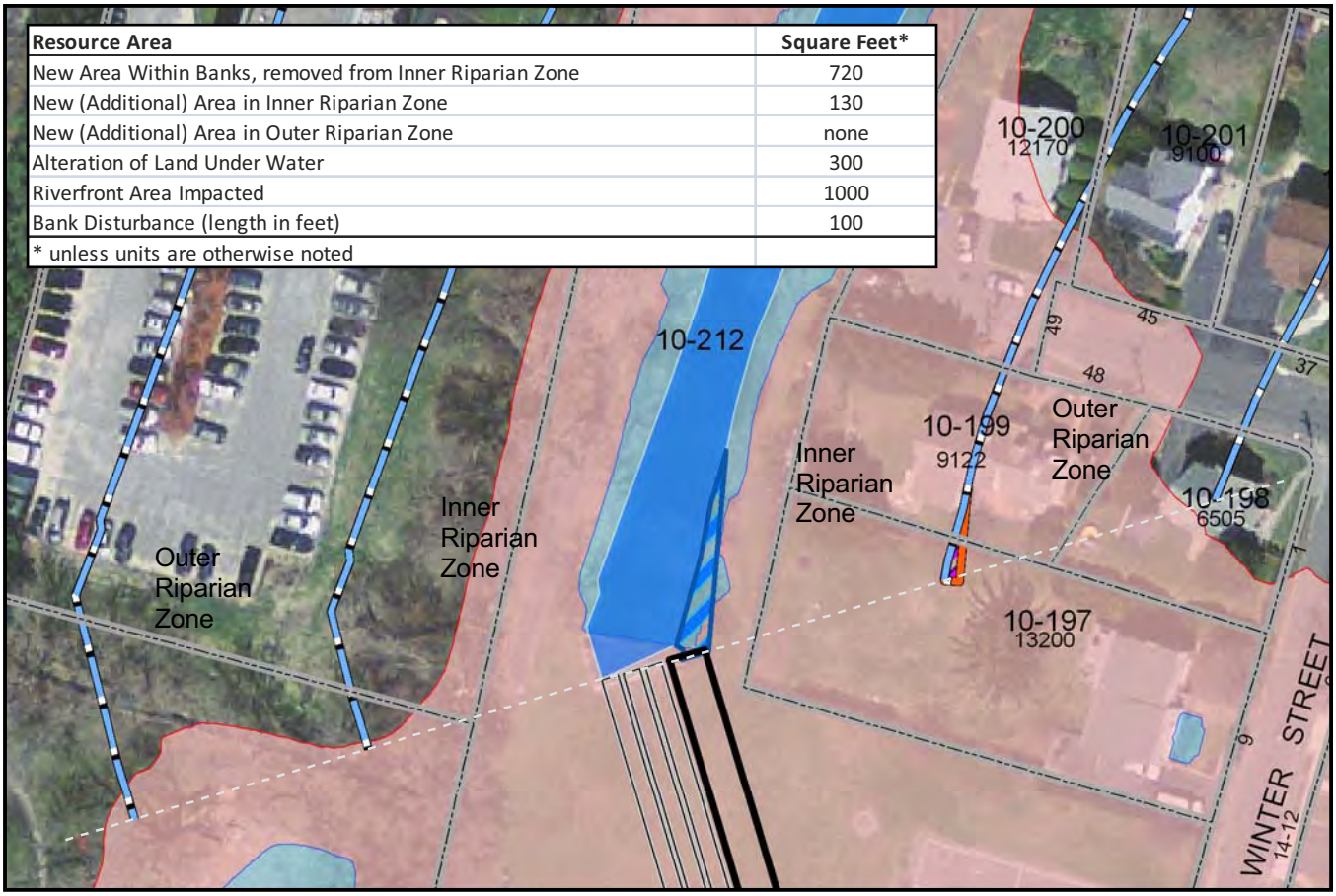
AECOM

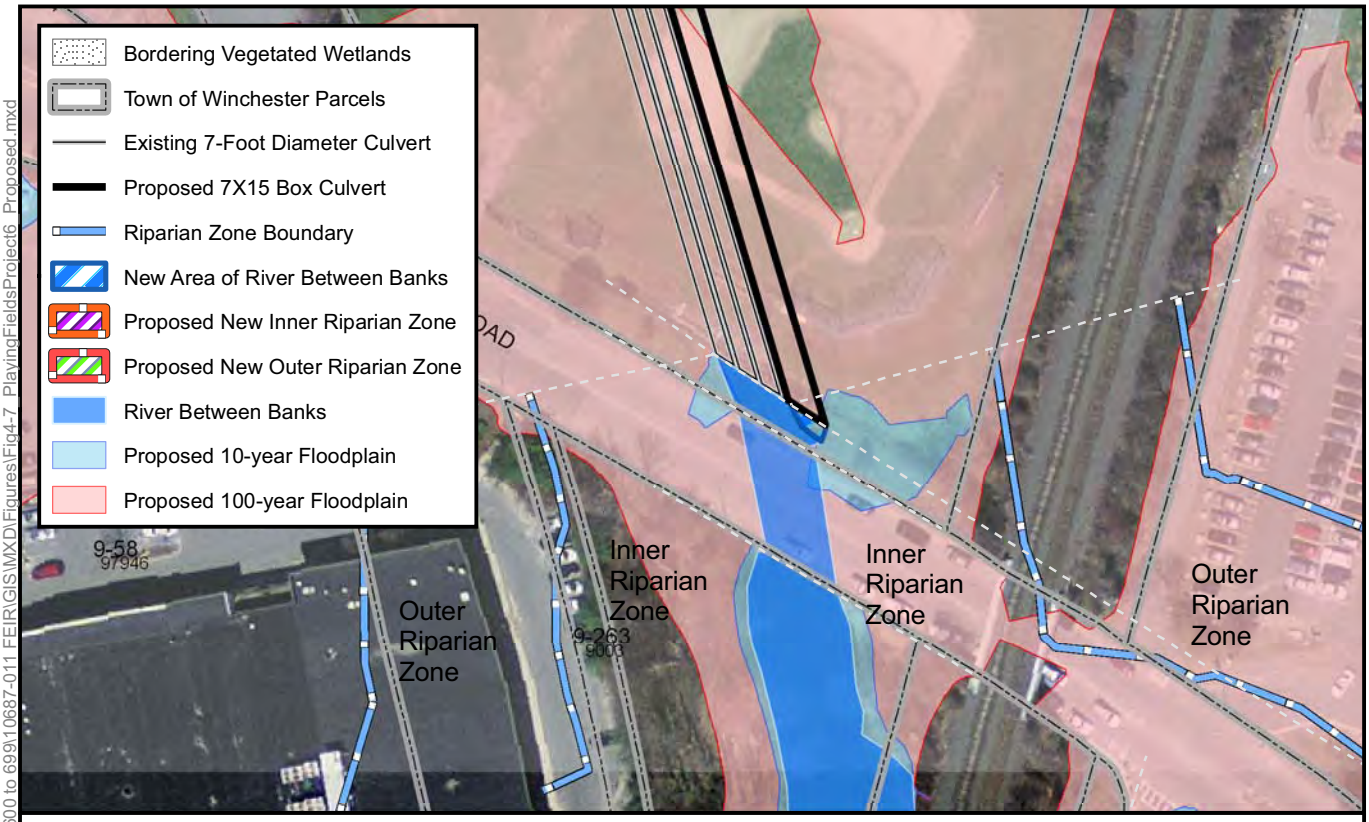
Figure 4-6 Project 4 Mt. Vernon Street Bridge
Comparing Existing and Proposed Resource Areas
Including: Riverfront Area, Area within Banks, Bordering
Vegetated Wetlands, and Floodplain Boundaries

0 50 100 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-6_VernonProject4_Proposed2.mxd

Resource Area	Square Feet*
New Area Within Banks, removed from Inner Riparian Zone	720
New (Additional) Area in Inner Riparian Zone	130
New (Additional) Area in Outer Riparian Zone	none
Alteration of Land Under Water	300
Riverfront Area Impacted	1000
Bank Disturbance (length in feet)	100
* unless units are otherwise noted	





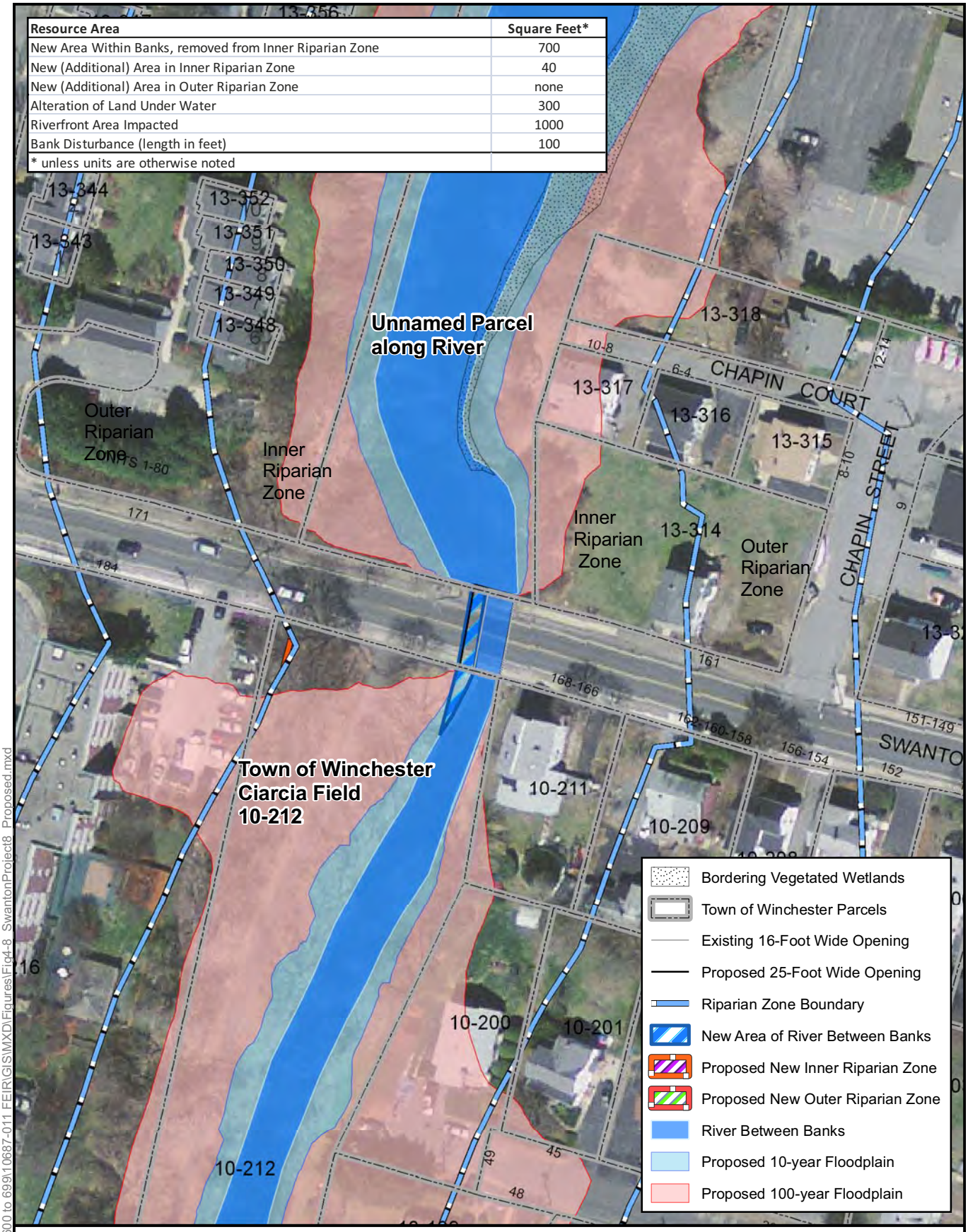
AECOM

Figure 4-7 Project 6 High School Playing Fields
Comparing Existing and Proposed Resource Areas
Including: Riverfront Area, Area within Banks, Bordering
Vegetated Wetlands, and Floodplain Boundaries

0 50 100 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-7_PlayingFieldsProject6_Proposed.mxd

Resource Area	Square Feet*
New Area Within Banks, removed from Inner Riparian Zone	700
New (Additional) Area in Inner Riparian Zone	40
New (Additional) Area in Outer Riparian Zone	none
Alteration of Land Under Water	300
Riverfront Area Impacted	1000
Bank Disturbance (length in feet)	100
* unless units are otherwise noted	



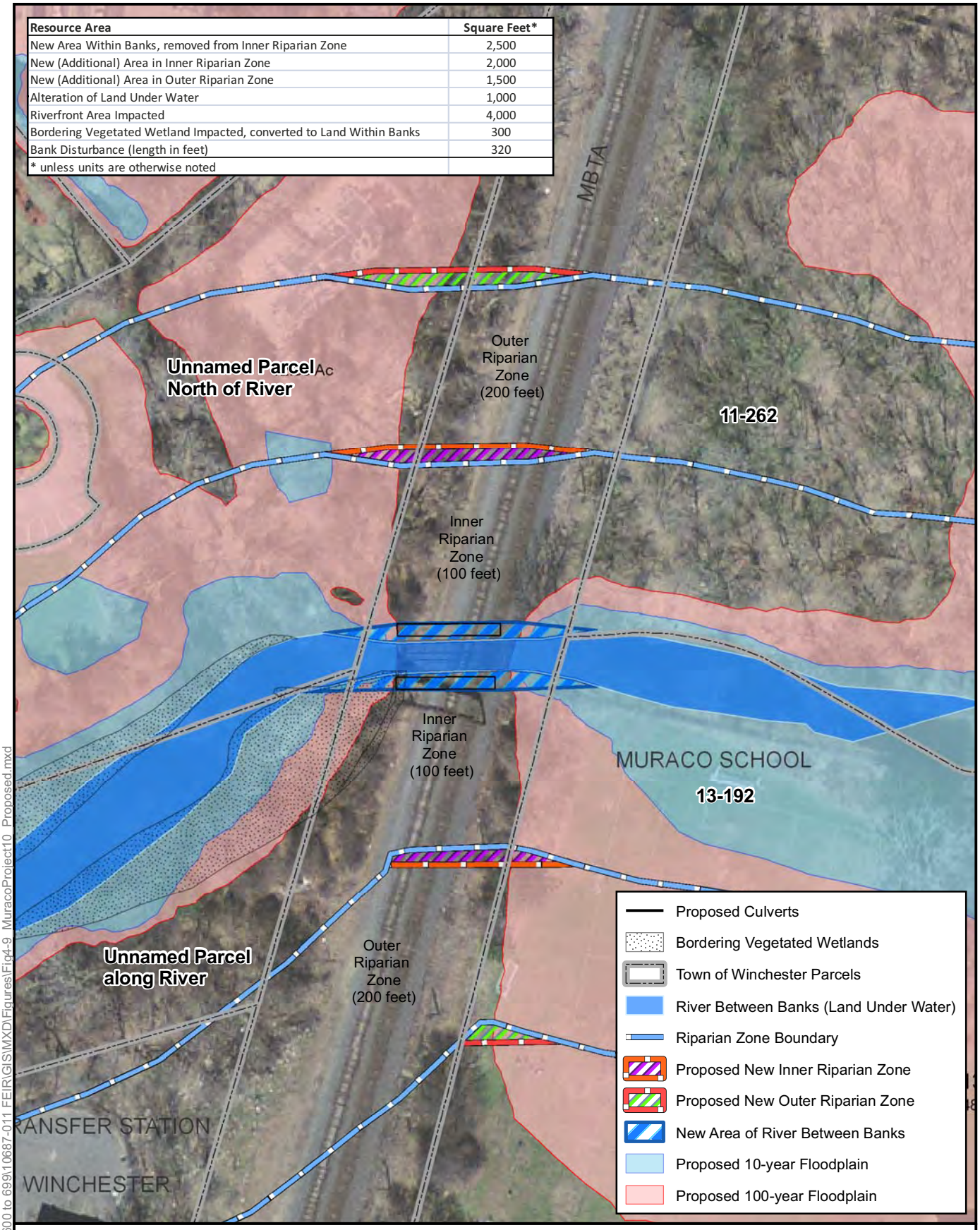
AECOM

Figure 4-8 Project 8 Swanton Street Bridge
Comparing Existing and Proposed Resource Areas
Including: Riverfront Area, Area within Banks, Bordering Vegetated Wetlands, and Floodplain Boundaries

0 50 100 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-8_SwantonProject8_Proposed.mxd

Resource Area	Square Feet*
New Area Within Banks, removed from Inner Riparian Zone	2,500
New (Additional) Area in Inner Riparian Zone	2,000
New (Additional) Area in Outer Riparian Zone	1,500
Alteration of Land Under Water	1,000
Riverfront Area Impacted	4,000
Bordering Vegetated Wetland Impacted, converted to Land Within Banks	300
Bank Disturbance (length in feet)	320
* unless units are otherwise noted	



AECOM

Figure 4-9 Project 10 Railroad Bridge at Muraco School Comparing Existing and Proposed Resource Areas Including: Riverfront Area, Area within Banks, Bordering Vegetated Wetlands, and Floodplain Boundary

0 50 100 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig4-9_MuracoProject10_Proposed.mxd

Resource Area	Square Feet*
New Area Within Banks, removed from Inner Riparian Zone (Total)	350
New (Additional) Area in Inner Riparian Zone	0
New (Additional) Area in Outer Riparian Zone	0
Alteration of Land Under Water	640
Riverfront Area Impacted	1,500
Bank Disturbance (length in feet)	30
* unless units are otherwise noted	

AECOM

Figure 4-10 Scalley Dam
Comparing Existing and Proposed Resource Areas
Including: Riverfront Area, Area within Banks, Bordering Vegetated Wetlands, and Floodplain Boundaries

0 10 20 Feet

J:\ESP\Projects\P100\600 to 699\10687-011 FEIR\GIS\MXD\Figures\Fig_4-10_ScalleyDam_Proposed.mxd

Table 4-5: Riverfront Area Analysis—Percent of Total RA Disturbed

Project	Total Riverfront Area (acres)	Total Disturbed Riverfront Area (acres)	% Disturbed Riverfront Area
2	13.72	1.23	9.0%
3	0.58	0.02	3.4%
4	2.62	0.03	1.1%
6	1.11	0.02	1.8%
8	1.63	0.02	1.2%
10	12.43	0.09	0.7%
Craddock	N/A	0.00	0.0%
Scalley	39.65	0.03	0.1%
Totals	**71.74**	**1.47**	**2.0%**

Table 4-6: Riverfront Area Analysis—New Riverfront Area Created

Project	New Inner Riparian Zone Area (square feet)	New Outer Riparian Zone Area (square feet)	Net Conversion to Other Resource Areas (square feet)
2	18,300	17,330	19,200
3	540	0	540
4	520	310	1,140
6	130	0	720
8	40	0	700
10	2,000	1,500	2,500
Craddock	0	0	0
Scalley	0	0	350

Each of the project areas are described below relative to Riverfront Area impacts.

- **Project No. 2 – River Channel Modification -** The preliminary design calls for the expansion of the channel bottom from its current 20 to 25 feet width to 35 feet width for approximately 1,300 of the 2,750 l.f. reach between Waterfield Road and Bacon Street. This will involve ~~"m~~oving" the east bank out towards the Mystic Valley Parkway and rebuilding it using bio-engineering methods (cellular confinement system and re-vegetated with indigenous, non-invasive, shrubs and herbaceous vegetation). The purpose and goal of the mitigation program along this reach is to provide bank stability in both the low-flow and high flow channels, and to provide vegetation and in-stream structure for fish and wildlife habitat. By moving the Bank out towards the Mystic Valley Parkway, Land Under Waterway will be created and the existing Inner Riparian Zone of Riverfront Area will be affected. Additional Outer Riparian Zone (17,330 s.f.) will be created in Manchester Field. Without taking credit for the new Riverfront Area created, approximately 9.0% of the Riverfront Area (53,720 s.f. or 1.23 acres) on the ~~"lot~~" which contains Project 2 will be affected by the project. All of that will be restored as Land Under Water, Bank, or Riverfront Area following channel enlargement, therefore there will not be a loss of Resource Areas due to the project.

- **Project No. 3 – Center Falls Dam -** The Center Falls Dam project consists of replacing an existing gate valve with a new sluice valve. Approximately 3.4% of the Riverfront Area (670 s.f. or 0.02 acres) on the ~~lot~~" which contains Project 3 will be affected by the project and all of that will be restored as Land Under Water, Bank, or Riverfront Area.
- **Project No. 4 – Mount Vernon Street Bridge Improvements -** Approximately 1,140 s.f. of Riverfront Area will be disturbed as part of this project. The Riverfront Area will be re-graded and re-planted as Bank to allow for a taper at the upstream end of the new culvert on the bank adjacent to the walking path. Approximately 1.1% of the Riverfront Area (1,500 s.f. or 0.03 acres) on the ~~lot~~" which contains Project 4 will be affected by the project and all of that will be restored as Land Under Water, Bank, or Riverfront Area.
- **Project No. 6 – High School Playing Field -** Riverfront Area is not present along the length of the culvert because in areas ~~W~~here a river runs through a culvert more than 200 feet in length, the riverfront area stops at a perpendicular line at the upstream end of the culvert and resumes at the downstream end" [310 CMR 10.58 (2)(a)3.c.], but the area does contain Bordering Land Subject to Flooding. At the upstream and downstream ends of the new culvert, tapers in the Bank will affect Riverfront Area. Approximately 1.8% of the Riverfront Area (1000 s.f. or 0.02 acres) on the ~~lot~~" which contains Project 6 will be affected by the project and all of that will be restored as Land Under Water, Bank, or Riverfront Area.
- **Project No. 8 – Swanton Street Bridge Improvement -** Approximately 700 s.f. of Riverfront Area would be re-graded and re-planted as Bank to allow for tapers at the widened bridge opening. Approximately 1.2% of the Riverfront Area (1000 s.f. or 0.02 acres) on the ~~lot~~" which contains Project 8 will be affected by the project and all of that will be restored as Land Under Water, Bank, or Riverfront Area.
- **Project No. 10 – Railroad Bridge near Muraco School -** This proposed project would include installing two 7-foot diameter conduits under the MBTA railroad bridge to supplement the existing two 6.5 by 7-foot bridge openings. Approximately 0.7% of the Riverfront Area (4,000 s.f. or 0.09 acres) on the ~~lot~~" which contains Project 10 will be affected by the project and all of that will be restored as Land Under Water, Bank, or Riverfront Area.
- **Craddock Locks – Removal of Remaining Lock Components –** Alterations are to concrete portion of bridge, will have no impact to Riverfront Area.
- **Scalley Dam – Additional of Second Sluiceway -** This proposed project includes installing a new 8-foot primary spillway to supplement the existing 5-foot primary spillway. Approximately 0.1% of the Riverfront Area (1,500 s.f. or 0.03 acres) on the ~~lot~~" which contains the Scalley Dam will be affected by the project and all of that will be restored as Land Under Water, Bank, or Riverfront Area.

4.2.5 Land Under Waterbodies and Waterways

Each of the projects involves some work in the Aberjona River, so each project will have a temporary impact on Land Under Water (shown in Table 4-3). Following construction Projects 2, 4, 6, 8, 10, and Scalley will result in the creation of additional new Land Under Water (19,200 s.f., 1,140 s.f., 720 s.f., 700 s.f., 2,500 s.f., and 350 s.f., respectively). Project 3 will result in the loss of approximately 540 s.f. of Land Under Water due to the construction of the new sluice gate. Therefore, although 101,970 s.f. will be disturbed due to the projects only 540 s.f. will be lost, 24,610 s.f. will be created, and 101,430 s.f. will be restored.

4.3 Waterways

As detailed in Chapter 2 work subject to Licensing (Projects 3, 4, 6, 8, and 10) or Permitting (Project 2) will occur and the Town of Winchester will apply for the appropriate permit or license during the design and permitting phases of the project. The areas of impact to waterways have been minimized to the greatest extent feasible and there is no alternative to constructing the proposed improvements that would not involve work below MHW in the Aberjona River. A comprehensive stormwater control plan that includes cofferdams, silt curtains, dewatering/filtration areas, and haybale/silt fence barriers will help to avoid alterations to federal and state wetland areas. All river banks will be restored using bi-engineering methods and native plants. Public access to the river will not be adversely affected by the projects. The navigability of the river will not be adversely affected by the projects. As this project is intended to mitigate for flooding impacts and will retain and restore open space and public access associated with the projects, no Chapter 91-related long-term impacts to waterways or public access is anticipated

4.4 Sediment, Soil, and Water Quality

The Aberjona River is listed by the DEP as an impaired waterbody and a warmwater fishery. Comments on the SDEIR focused on Project 2, so this section focus on Project 2. The reader is directed to Section 4.2.3 and 4.5.4 for water quality impacts due to the other projects. The DEP expressed concern regarding the loss of canopy in Project 2 and the potential impacts that could have on water quality, as well as habitat quality. From Waterfield Road downstream to Manchester Road Project 2 calls for the expansion of the channel from its current 15 to 20 feet bottom width to a 35 feet bottom width main channel, which will contain an 8 feet wide by 2 feet deep pilot channel. The purpose of the pilot channel is to increase water depths during low-flow periods. This will, in turn, help to keep water temperatures more moderate and provide better cover and foraging habitat for fish. The cutting of the vegetation on the left (east) bank of the channel will have a short term impact on water temperatures. This 1,300 l.f. reach of the stream has a thin but dense buffer of vegetation between the river and the Mystic Valley Parkway. Undoubtedly this vegetated buffer provides shade in the morning hours and removing it will expose more of the river to morning sun. Project 2 calls for this bank to be stabilized using bioengineering methods and shrub/herbaceous plantings on the bank and trees planted at the top of bank in a 2:1 ratio for every tree removed. Over the longer term, this bank treatment will be far superior from a habitat standpoint than the current bank which is made of granite blocks. In addition, the incised pilot channel will provide greater water depths at low-flow than currently exists in this reach, enhancing the long-term viability of the fishery resource in the river.

4.4.1 Water Quality Impacts related to Project 2

In relation to Project 2, the removal of the granite revetment and bank vegetation on the east bank of the river will have some short-term, adverse impacts to water quality. The removal of cover from this short reach of river will temporarily increase water temperatures. The new channel bank will be bio-engineered and will contain low growing vegetation. At the top of the new bank trees will be replanted in a 2:1 ratio to those removed. The new plantings will provide shading to the banks and the water surface, resulting in lower water temperatures. In addition, the proposed channel will be wider and the incorporation of a 2-foot deep meandering low-flow channel will provide adequate water depths, favorable flow conditions, and aid in maintaining cooler water temperatures.

4.4.2 Dredging Impacts related to Project 2

Several of the proposed projects from the ENF that would have required dredging in the Aberjona River were eliminated in the DEIR from further consideration because the flood reduction benefits accrued

from those projects were not significant and the environmental and capital costs of the projects were substantial. The only remaining dredging impacts remaining in the DEIR Alternative were associated with Project 2, which proposed the dredging of approximately 32,000 cubic yards of material from the river from Waterfield Road downstream to the Wedgemere Train Station. As a result of further refinements and modeling analysis, the SDEIR and FEIR Alternatives eliminated the need for work downstream of the Bacon Street Bridge, therefore reducing the volume of dredged materials.

The DEIR and the SDEIR contained detailed descriptions of a variety of dredging methods, dewatering methods, and dredge disposal options currently approved for use by the DEP on numerous projects in the Commonwealth. The exact means and methods to be used in a specific project are derived through the permitting and detailed design processes, but based on the conceptual design performed for this FEIR it appears that coffer damming and excavation in the dry may be the most feasible dredging alternative for Project 2.

Since the DEIR and SDEIR were published, Project 2 has been modified significantly due to additional studies of this reach of the river by the USACE and the Town team. Project 2 has been shortened (it now extends from Waterfield Road downstream to Bacon Street instead of downstream to the Wedgemere Train Station), and the proposed widening has been limited to a 35 feet wide bottom width for approximately 1,300 linear feet downstream of Waterfield Road.

Project 2, as presented in the FEIR Alternative, still requires a significant level of dredging to create the pilot channel from Waterfield Road downstream to Manchester Road, and to remove the adverse slopes from Manchester Road downstream to Bacon Street. Approximately 16,000 cubic yards of material are proposed to be removed in this reach, including bank soils. Current plans for Project 2 construction involve performing the work activities from upstream to downstream in three phases, dividing the project into three reaches. Each phase involves installing coffer-dams at the upstream and downstream ends, dewatering, and performing excavation and restoration activities in the dry using mechanical methods. Specifically, the 1,300 feet long reach of the river to be widened to 35-feet will coffer dammed, dewatered, and allowed to dry in-situ first. This portion of the River will then be excavated and materials will be directly loaded into trucks for off-site disposal. The flow of the river will be bypass pumped around the contained area. Once the material is removed, the channel bottom, pilot channel, and left bank will be shaped and the bio-engineering materials installed. Only after the area is re-constructed and stabilized will flow be reintroduced to the channel and the upstream cofferdam removed. The downstream cofferdam will remain in place for the next phase.

Following this completion of the first phase the next reach (including the USGS weir and Ginn Field footbridge) will be coffer-dammed, dewatered, and excavated in a similar manner. The third reach (from downstream of the footbridge to just downstream of Bacon Street) will be worked on following completion of the second reach. After all three reaches have been completed natural flow in the river will be restored.

Because dewatering within the coffer dammed area will be required, an elutriate testing and treatment program will be developed during design and permitting to address this issue. Dewatering operations will comply with the Massachusetts Surface Water Quality Standards, 314 CMR 4.00. If analytical testing and pre-treatment of dewatering fluid is required prior to discharge to prevent pollution of the river, a plan that addresses the removal of specifically identified contaminants will be proposed prior to the startup of dredging operations. This will be reviewed by the DEP during the Water Quality Certification process.

4.4.2.1 Management of Dredged Material from Project 2

As discussed in Section 4.4.2, soils and sediments associated with Project 2 will be dewatered and allowed to dry in-situ prior to being directly transported to a receiving facility. It is likely that some portion of sediments or soil will require additional dewatering or require additional analysis due to field observations that are inconsistent with those observed during pre-characterization activities. The current areas that lend themselves to temporary stockpiling and dewatering include a portion of Manchester Field, Ginn Field, and/or the town-owned parking area west of the river. In accordance with 314 CMR 9.07(4)(a), (b), and (c), stockpiled materials will be placed in a secure manner and potential for runoff and loss through erosion will be minimized. Materials will be placed on impermeable material and regularly covered when not being accessed.

4.4.2.2 Assessment of Sediments associated with Project 2

Given previous industrial activities in the watershed, the Aberjona River sediment has a high likelihood of contamination and the water quality of the river is impaired. The SDEIR started with this understanding and recommended a sediment and water quality sampling program during project design and permitting to fully characterize environmental conditions before permits are sought for the project. Based on comments from DEP during the SDEIR review, AECOM implemented a Sediment Sampling Analyses Plan (SSAP) in support of the design phase of Project 2 in August and September 2008, as detailed in Section 2.4. The results of the SSAP are summarized in Appendix E, Sediment Sampling and Riparian Soil Analysis Report for Aberjona River Flood Mitigation Program Project #2 – 25% Design Phase. This effort sufficiently characterized sediments in the work area and provides data for disposition selection as discussed in Section 4.4.2.4.

4.4.2.3 Potential Dewatering Technologies

By excavating in the dry inside of a cofferdam, most of the dewatering will be ~~"In~~-place dewatering", which involves temporarily removing the water from a river to allow the sediments to dry in-situ. Once sufficiently dry the sediment is removed using standard earthmoving practices. In-place drying times vary depending on the sediment composition, with more organic sediments taking longer to dry than mineral soils. A significant disadvantage of this method is that if the dewatering operation is breached by a storm event or high groundwater levels beyond the capabilities of the mud pumps inside the cofferdam the excavation re-fills and re-wets the sediment.

4.4.2.4 Range of Disposal Options

The third part of a successful dredging project is the cost-effective disposal or, hopefully, reuse of the dewatered sediments. The nature and characteristics of dredged material needs to be assessed to see if they are suitable for disposal in a variety of situations and would not require disposal as hazardous materials at a licensed landfill. At the time of publication of this FEIR, contamination along portions of the Aberjona River in the vicinity of Project 2 is known to be an issue and has been confirmed based upon the results of the SSAP. While the exact off-site location of the final permitted receiving facility is not known, all dredging-derived waste material will eventually be shipped off-site under Bills of Lading (BOLs) and/or Uniform Waste Manifests. Contaminated sediments will be disposed of off-site at appropriately permitted receiving facilities. Once the final volume of sediment to be disposed of has been established and the permitted receiving facility has been selected, a robust in-situ sampling program may be required to meet receiving facility acceptance criteria and to facilitate direct loading of the sediments.

Preliminary chemical characterizations of the bank/riparian soils were compared against acceptance criteria provided by the aforementioned potential receiving facilities (Section 2.4.2). Based on a

comparison of the analytical results with potential acceptance criteria, there are no apparent limitations to disposal options at these receiving facilities. However, acceptance of these soils can only be confirmed through application with the receiving facilities. Additionally, based on the low levels of compounds identified in the soils, alternative less costly reuse options will be explored. Once the final volume of soil to be disposed of has been established and the receiving facility has been selected, a robust in-situ sampling program may be required to meet receiving facility acceptance criteria and to facilitate direct loading of the soils.

4.5 Wildlife Habitat

Wildlife habitat impacts will occur due to the alternation of Bank, Land Under Water, Bordering Vegetated Wetland, and Riverfront Area. These impacts were discussed in detail in Section 4.2. Most impacts will be construction-related and will result in the re-grading and restoration of the resource areas impacted, resulting in no net loss of area of wetland resource and subsequent wildlife habitat function. In these areas, impacts to wildlife habitat will be temporary in nature. As most of the wildlife utilizing these areas are adapted to urban environments, we do not anticipate that the temporary disturbances will result in long-term adverse impacts to any species. The work is being performed primarily in urban settings where human alterations have reduced or impacted the wildlife habitat functions of these resource areas.

The impacts associated with Project 2 as a result of the proposed channel widening between Waterfield Road and Manchester Road represent the largest potential impact to wildlife habitat of all the projects proposed in the FEIR Alternative. Potential impacts include construction-related disruption to the wildlife habitat, as well as long-term changes as a result of the proposed channel widening. The Town has significantly modified this project since the SDEIR Alternative to minimize the long-term impacts. The proposed 25% design for this project includes the following mitigation measures:

- Reduced width of the proposed channel widening between Waterfield and Manchester Roads from 39-feet (SDEIR Alternative) to 35-feet (FEIR Alternative) to allow for a sidewalk and planting strip at the top of the slope;
- Preservation of existing vegetative cover on the west bank of the River in the vicinity of the channel widening and preservation of all existing vegetation in the stretch between Manchester Road and Bacon Street;
- Removal of the weir associated with the USGS gaging station to allow for unimpeded movement of species between the Upper Mystic Lake and the Center Falls Dam;
- Installation of a low-flow channel in the River between Waterfield Road and Bacon Street to provide minimum flow depth to accommodate Alewife during the spawning season (March through May) and minimum flow depth during the low-flow season; and
- Restrictions on the time of year during which in-stream dredging and dewatering activities will occur to prevent impacts to anadromous fish.
- Planting a minimum of two 3-inch caliper replacements for each 4-inch caliper tree removed
- Removal of existing granite revetment on the east bank, and restoration with low growing vegetation.

Several measures, including re-vegetation of the eastern bank, installation of the low-flow channel, and removal of the USGS weir, are specifically designed to address concerns expressed by several SDEIR reviewers that the channel widening could result in increased water temperatures in the stretch between Waterfield Road and Bacon Street. Appendix G includes a preliminary plant list for the various planting

zones associated with Project 2 and draft planting plans based on the 25% design. Appendix G also includes two illustrative perspectives, one depicting the reach where the proposed channel will be encroaching on the MVP and one depicting where the sidewalk will still be able to meander. The following sections address the potential habitat and water quality impacts associated with the Project 2 dredging, as well as the short and long-term impacts to the fish and benthic communities.

4.5.1 Potential Habitat and Water Quality Impacts from Dredging

Project 2 involves the widening of the Aberjona River, which requires the entire east bank (1,300 l.f.) to be rebuilt using bio-engineering methods (cellular confinement system) and re-vegetated with indigenous, non-invasive shrubs and herbaceous vegetation. Project 2 also includes channel bottom modifications, which requires coffer damming the river and performing excavation and restoration activities using the dry dredging technique. To facilitate sediment removal for dry dredging and reconstruction of the bed and banks, the river section within the cofferdam would be pumped dry. The flow of the river would be pumped around the area of operations entirely. This method would impact Bank (1,300 l.f. on the east bank due to widening and 240 l.f. on both banks due to removal of the USGS gage weir) and Land Under Water (98,990 s.f.) resource areas during the construction process and would result in mitigation for those impacts taking place at the location of impact. The new channel would be wider (35 feet versus the existing 18 foot average) and would contain a pilot channel approximately 8 feet wide and 2 feet deep. This new pilot channel would contain the low-flows and prevent the project from decreasing water depth during low-flow periods. The edges of the new low-flow channel would be lined with coir fiber rolls or other bio-engineered materials, which provide both stability and a growth medium for vegetation, enhancing the habitat value of the low-flow channel. At the edges of the new channel bottom there would be riprap toe protection to both keep the granite blocks on the west bank and the cellular confinement system on the east bank from being undercut. The result would be an increase in Land Under Water (17,330 s.f. after mitigation) in this reach of the river.

Together this new pilot channel, the bioengineered banks, and the plantings along the river will help enhance the habitat value of this altered section of river. The resulting channel banks and river bed will be stable and will offer low flow refuge for fish and a more natural bank condition than currently exists.

As discussed in Chapter 2, at the proposed location of Projects 3 and 4 the river is heavily influenced by the ponding behind Center Falls Dam and the adjacent urban parkland setting. The proposed projects (new sluice gate and an additional culvert under the Mount Vernon Street Bridge) will not have an adverse impact on the habitat characteristics of this ponded section of the river. At the Project 6 location the new culvert under the High School Playing fields will offer little in the way of fish or wildlife habitat but does not represent a degradation of the existing conditions in the area. Unfortunately because of site constraints day lighting of the river through this area was not an option. Projects 8 and 10 are increases to bridge sections over the river. Options for incorporating fish habitat and wildlife passage in the reconstruction of the Swanton Street bridge and the addition of a culvert under the MBTA bridge near Muroco School will be evaluated during the design of these projects and incorporated in the permitting processes.

4.5.2 Fish and Benthic Communities Impacts

The existing bank in the Project 2 reach between Waterfield Road and Bacon Street is armored with large granite blocks which have some vegetation (including trees) growing in the joints between blocks. The loss of approximately 1,200 l.f. of bank vegetation on the east bank of the river between Waterfield Road and Manchester Road will have some short-term, adverse impacts to fish species and benthic communities. The removal of cover from this short reach of river will temporarily expose species to increased water temperatures and vulnerability to predators. The new channel bank will be bio-

engineered and will contain low growing vegetation. At the top of the new bank trees will be replanted in a 2:1 ratio to those removed. The new plantings will provide shading to the banks and the water surface. The proposed channel will be wider and the incorporation of a 2-foot deep meandering low-flow channel will provide adequate water depths, favorable flow conditions, and aid in maintaining cooler water temperatures to allow for the reestablishment of a benthic community and passage of fish, including anadromous species.

The dry dredging technique, when applied properly, results in a major overhaul of waterbody conditions, and can greatly improve conditions for the future, but short-term impacts to the benthic community and fish species may be substantial and unavoidable. Dredging has the potential to reshape benthic habitats but also to dislodge or eliminate existing biotic communities. Due to the removal of water and the fact that much of the bottom is scraped or removed, widespread impact to non-mobile and water dependent species is expected in the short-term. Re-establishment of benthic fauna may take several years and may involve a community of different composition. Potential long-term impacts to fisheries and other wildlife are largely a function of altered habitat, and for most dredging projects, habitat is considered to be improved for the majority of species. Short-term disruption of populations in the immediate and downstream areas can occur and the intended change in bottom conditions for improved conveyance might represent a negative change for some species. A review of several dredging studies suggests most impacts are short-lived and generally acceptable relative to long-term benefits of the technique.

The restoration of anadromous fish to the Mystic River and its tributaries, including the Aberjona River, is a primary objective of the Mystic River Action Plan. As part of the restoration effort a new fish ladder is being installed at the Upper Mystic Lake Dam to allow anadromous fish, such as herring and alewife, to reach Upper Mystic Lake for spawning. With the construction of the fish ladder, anadromous fish will be able to access the reach of river being considered for this project. While there are several other impediments to fish migration upstream of Waterfield Road, the proposed project will actually result in increased water depths during low-flow periods and enhanced habitat conditions for most fish species, including anadromous species. Construction activities associated with the project should be restricted to avoid the time of year during which anadromous fish are not present in the project area. It is proposed that construction be restricted to August through February to avoid the ascending and descending herring.

In summary, re-configuration of the channel will not permanently adversely affect fish and benthic communities, in fact, the river habitat in this reach will be enhanced by the channel reconfiguration project.

4.6 Open Space and Recreational Resources

Several of the proposed projects within the FEIR Alternative will have short term (construction-related) impacts to open space and recreational resources in Winchester. Project 2 may require the use of a portion of Ginn Field for construction staging operations. For safe operations this may require closing a portion of the active playfields at Ginn Field and will require temporary perimeter fencing around the construction operations area as well as at the access/egress locations. Project 2 will also cause the temporary closure of the walking path along the Mystic Valley Parkway and the closure of the foot bridge across the Aberjona River which connects the Manchester Field and Ginn Field areas. Project 3 may require the temporary closure of a portion of the pocket park behind the Winchester Town Hall as the new sluice gate is added to Center Falls Dam. Project 6 will require the closure of Ciarcia Field (Winchester High School playing fields) off Skillings Road for the installation of the new box culvert under the fields. For safe operations this may require closing all of the active playfields and will require temporary perimeter fencing around the construction operations area as well as at the access/egress

locations. Access to Project 10 (the new culverts under the railroad bridge at Muraco School) may require the temporary closure of a portion of the open space play area behind the school for safe operations.

None of these projects will result in a long-term impact to open space and recreational resources as all areas will be restored following construction. None of the projects foreclose any opportunities for the potential future bikepath being discussed in Winchester.

4.7 Historic and Cultural Resources Impacts

The cultural resources surveys undertaken for the Aberjona River FMP were designed to identify archaeological and aboveground properties that are listed or potentially eligible for listing in the State/National Registers. Impacts on historic properties are assessed by applying the Criteria of Adverse Effect in accordance with 36 CFR 805(a)(1). The Criteria state that adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the Register. Reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative also need to be considered.

4.7.1 Impacts to Archaeological Resources

An intensive (locational) archaeological survey was conducted in archaeologically sensitive areas where proposed ground disturbing activities are anticipated. No archaeological sites were encountered. Consequently, the proposed Aberjona River Flood Mitigation Program will have no impact on archaeological resources.

4.7.2 Impacts to Historic Architectural Resources

The historic architectural assessment and intensive survey identified a number of properties that are listed in or eligible for listing in the National Register of Historic Places (National Register).

Winchester Center Historic District - Project 4 will result in the physical alteration of the Mount Vernon Street Bridge, a contributing structure within the Winchester Center Historic District. The project will involve the construction of a fourth 8-foot wide opening. This additional opening will alter the structure's original design as a three-span bridge, resulting in a potential adverse effect. Project 2 will involve temporary construction activities at the south edge of the Winchester Center Historic District near the Waterfield Road Bridge and widening of the river channel south of Waterfield Road. These activities are not anticipated to alter the historic characteristics that qualify the district for the National Register or qualify the Waterfield Road Bridge as a contributing property to the National Register district. Views from the district toward the river are currently obstructed by dense vegetation along the river banks. The physical alteration of the bridge will not change viewsheds within the district or impact the qualities for which any other property within the district is significant. No other project elements have the potential to impact the Winchester Center Historic District.

Mystic Valley Parkway - Project 2 will directly and indirectly impact the Mystic Valley Parkway, resulting in an adverse effect. Widening of the river channel toward its east bank would change views from the parkway roadbed by taking the abutting land, introducing a guard rail into the landscape, removing trees, and relocating the extant sidewalk. No other project elements have the potential to impact the Mystic Valley Parkway Historic District.

Kellaway Landscape - Project 2 will impact a non-contributiing portion of the potential Kellaway Landscape Historic District. That section of the district was altered significantly in 1946 when the river

channel was straightened and relocated from the east side of Manchester Field to the west side. The Project will widen and deepen the existing river channel and will alter the slope of the east bank of the river. A portion of granite block wall at the base of the bank will be removed. Vegetation along the east side of the river will be cleared and views to and from the river may change slightly. These changes will have no adverse effect on the potential Kellaway Landscape Historic District because they will be conducted in a non-contributing area that was altered after the district's period of significance (1911-1940). No other project elements have the potential to impact the Kellaway Landscape.

USGS Stream Gaging Station and Weir – Since the SDEIR, Project 2 has been modified to retain the USGS Stream Gaging Station Gage House, thereby minimizing impacts to the historic property. The removal of the associated concrete weir, however, constitutes an adverse effect on a property that is potentially eligible for listing in the State/National Registers. No other project elements have the potential to impact the USGS Stream Gaging Station and Weir.

Bacon Street Bridge - Project 2 would deepen the Aberjona River channel immediately upstream of the bridge but would preserve the vegetation along both stream banks. This work will not alter the characteristics that qualify the bridge for the National Register and therefore will have no effect on the historic structure. No other project elements have the potential to impact the Bacon Street Bridge.

4.7.3 Mitigation Measures

Projects determined to have an adverse effect on historic properties require consultation to seek ways to avoid, minimize, or mitigate adverse effects in accordance with 36 CFR 800.6. The consultation is considered completed when a Memorandum of Agreement (MOA) that stipulates measures that will be carried out before and/or during project construction is executed in accordance with 800.6(b)(2).(iv). Proposed measures to mitigate project impacts are listed below.

Winchester Center Historic District - The Town and consulting parties will explore ways to avoid or minimize effects to the Mt. Vernon Street Bridge by adhering to the Secretary of the Interior's Standards for Rehabilitation in designing the construction of a bypass culvert. Such work would use context-sensitive stone masonry compatible with, yet differentiated from, the structure's historic fabric. Recordation of the bridge according to Massachusetts state-level documentation standards would be another means to mitigate the impacts of the proposed work. Any construction activities involving the bridge could be undertaken sensitively to avoid disturbing the landscaping and viewsheds in the surrounding historic environment.

Mystic Valley Parkway - The Town continue to work with a landscape architect and participate in the design of preferred alternative for Project 2, in conjunction with the WHC and MHC. The introduction of a wood guard rail into the landscape could incorporate a context sensitive design compatible with the surrounding natural environment that would retain open views between the parkway and river. The presence of pedestrian circulation and vegetation along the parkway are integral components of the parkway system. Replanting of grass and trees along the east bank of the river would help maintain the feeling of the Mystic Valley Parkway as a component of a planned park system. Consideration should be given to the design concepts of Herbert Kellaway's plans for the river corridor, such as the retention of public green space adjacent to the river, pedestrian recreational access, open views of the river, and plantings along the riverbanks.

USGS Stream Gauging Station and Weir – The redesign of Project 2 to allow for the retential of the USGS Stream Gauging Station Gauge House, which is the most important element of the complex, will minimize the effect of the undertaken on the qualities of significance that make the property eligible for

listing in the State/National Registers. The adverse effect caused by the removal of the associated concrete weir may be mitigated through the recordation of the entire complex to Massachusetts state-level documentation standards.

4.8 Construction Period Impacts and Proposed Construction Sequence

The flood mitigation projects proposed as part of the FEIR Alternative improvements includes widening of one existing roadway bridge, work under another roadway bridge and under one railroad embankment, work within existing streets, work adjacent to a railroad easement, work along the Mystic Valley Parkway and work with the Abejorna River itself. Indirect impacts from the projects will likely include the temporary disruption of vehicular and pedestrian traffic patterns and added traffic on neighboring streets due to re-routing. Other impacts may include permissions/permits required to work close to the railroad and secondary impacts to local businesses, schools, municipal buildings, and access to the commuter rail station and parking lots. Coordination with DCR will be required for work adjacent to the Mystic Valley Parkway, with the City of Medford for work at the Craddock Locks, with the City of Woburn for work at the Scalley Dam, and with MassDOT for work along Route 16 in Medford. Local emergency management officials will be consulted prior to final development of the traffic management plans for each respective project. Coordination with MWRA will also be required for several of the projects that are in close proximity to the existing MWRA sewer lines.

4.8.1 Erosion and Sedimentation

During construction each of the projects identified in the FEIR Alternative will comply with all applicable federal, state and local regulations and the conditions of all permits obtained for the various projects. A Stormwater Pollution Prevention Plan (SWPPP) will be developed in accordance with the NPDES Phase II General Permit and a Notice of Intent for Stormwater Discharges Associated with Construction Activities will be submitted to the US Environmental Protection Agency prior to the start of construction for any projects that are expected to disturb more than an acre (Project 2 is the only project that this would apply to). During construction the contractor will be required to comply with the NPDES General Permit and the SWPPP for the project. Erosion controls that will be implemented for all the projects are detailed below.

4.8.2 Controls During Construction

The following Best Managements Practices (BMPs) will be used to minimize and prevent erosion and sedimentation of adjacent resource areas during construction of the various projects.

- Disturbed areas will be kept as small as possible; the limit of work area will be marked to prevent work in areas that should not be disturbed.
- Disturbed areas that are completed, or disturbed areas that will not be re-disturbed for 30 days or more, will be temporarily stabilized. Stabilization will be accomplished by temporary seeding, permanent seeding, mulching or other equivalent practice.
- Silt fences/haybales will be installed along all side slope and down slope boundaries of the work areas.
- Coffer Dams or floating turbidity curtains will be used to prevent siltation from traveling downstream for work associated with bridge abutments.
- Rip rap aprons will be constructed at all drain outlets.
- Construction entrances will be used to minimize off-site movement of soil with vehicles.

In addition to the erosion and sediment control BMPs, the following good housekeeping BMPs will be implemented to control pollutants in stormwater.

- Construction waste material and trash will be properly contained on site, and will be disposed of at an off-site location subject to the regulations and requirements of the authorities governing disposal of such materials.
- Material staging will be limited to staging areas determined.
- Street cleaning during the active excavation process, and periodically to prevent dust due to construction.
- Wetting agents will be used in areas of exposed soil to reduce dust.

4.8.3 Traffic

The construction periods will generate additional truck traffic and construction employee traffic. The construction of the various projects will involve the use of designated routes, defined in coordination with the various Town and City staff, prior to the start of construction for each Project. Traffic impacts related to Project 2 will also be coordinated with DCR and traffic impacts relating to the Craddock Locks project will be coordinated with MassDOT.

The Town of Winchester is committed to working with various town and city staff and DCR officials to help ensure appropriate maintenance and protection measures are in place during construction of each project in the FEIR Alternative. Appropriate traffic management plans will also be developed during the design phase of each project.

4.8.4 Clean Construction Equipment Initiative/ Diesel Retrofit Program

As stated in the SDEIR, the Town of Winchester commits to bidding these projects with a requirement that the successful bidder complies with the DEP State Revolving Fund Diesel Retrofit Program, formerly called the Clean Construction Equipment Initiative. The program requires diesel construction equipment to have exhaust emission controls such as diesel oxidation catalysts.

4.8.5 Proposed Project Sequence or Phasing

The conveyance, storage, infiltration, and flow regulation measures proposed as the FEIR Alternative should be viewed as a ―package" of efforts designed to relieve flooding in Winchester. As a secondary benefit, several of the projects will provided need flood relief to several of the downstream communities in the Mystic River watershed. The capital costs and construction-related disruptions of implementing all these individual projects preclude their being constructed at the same time. Many of the projects (including those described as flood flow mitigation) are being proposed and built by jurisdictions other than the Town of Winchester.

As stated in the DEIR and SDEIR, in general it is recommended that the proposed improvements be built from downstream to upstream with the exception of Project 3, which does not create any adverse upstream or downstream impacts. This project has been fully permitted and one of the two gate valves was replaced in 2003; replacement of the second and final valve may occur at any time. The current plan for the order of project completion is as follows:

- **Mid Lakes Dam** will be completed first. This project is being included as mitigation but has been designed and constructed through the DCR. The Mid-lakes Dam is currently under construction, and should be completed by the spring of 2011.

- **Project 2 (Waterfield Road to Bacon Street)** should be completed next. The 25 percent design has been completed, and will be brought to construction ready after completion of the MEPA process. Project 2 creates additional conveyance in the channel from bank to bank, but does not increase the conveyance of the River which includes the channel and overbanks. Therefore, the flow rates downstream do not change and will not have an adverse affect on flooding downstream.
- Th**e Main Street Bridge (Craddock Locks)** mitigatio**n** project will be completed prior to Projects 4, 6, 8, and 10 as proposed in the FEIR Alternative. The modeling performed for the SDEIR showed that the Craddock Locks project could be performed prior to the Scalley Dam project if the minor operational changes were made at the Amelia Earhardt Dam. The modeling performed for this FEIR showed that with Craddock Locks could be completed after completion of Mid Lakes with no adverse effects downstream and no operation changes at Amelia Earhardt Dam.
- The **Scalley Dam** mitigation project should be completed prior to Projects 4, 6, 8, and 10 as proposed in the FEIR Alternative. Without the mitigation effects of the changes at Scalley Dam, these projects showed increase in peak water surface elevations downstream
- **Project 4 (Mount Vernon Street Bridge Improvement)** should be completed after the Scalley Dam mitigation project is completed
- **Project 6 (High School Playing Fields culverts)** should be completed after Project 4 is completed.
- **Project 8 (Swanton Street Bridge Improvements)** should be completed after Project 6 is completed.
- **Project 10 (Railroad Bridge Near Muraco School)** should be completed after Project 8 is completed.

Winchester is cognizant of the possibility for undesired affects downstream if the projects are not completed in an order that prevents any downstream impacts. Several model runs were made looking at sequencing the projects in various orders. Appendix M includes a series of water surface profiles for the 100-year storm event that step through each project as they would be performed, and the model predicts that if the projects are completed in the order laid out above that no downstream impacts would be realized.

The SDEIR stated that the FEIR would investigate performing Project 4, 8, and 10 prior to the installation of mitigation projects. The results of this analysis showed that these projects could not be performed without prior mitigation.

4.9 Summary of Mitigation Commitments

Table 4-6 presents of summary of the mitigation measures that The Town of Winchester commits for implementation of the FEIR Alternative.

Table 4-7: Summary of Mitigation Commitments

Mitigation Measure	Timeline/Phasing	FEIR Section
Wetland Resource Areas		
Erosion and sedimentation control	Throughout construction activities	4.8.1
Stormwater management	Throughout construction activities	4.8.1
Replacement on a 2 to 1 ratio for BVW disturbed	Prior to completion of the Project	4.2.1
Restoration of disturbed resource areas	Prior to completion of the Project	4.2
Installation of Low flow Channel (Project 2)	Prior to completion of the Project	3.3.2, 4.5
Replacement of lost trees on 2 to 1 ratio (Project 2)	Prior to completion of the Project	4.5
Upstream/Downstream Flood Impacts		
Upper Mystic Lakes Dam Improvements	Prior to start of construction on in town projects	3.3.4.1
Craddock Locks (Main Street Bridge)	Prior to start of construction on in town projects, except Project 2	3.3.4.2
Scalley Dam Improvements	Prior to start of construction on in town projects, except Project 2	3.3.3
Stormwater management		
Infrastructure Improvements	Ongoing	3.3.6.1
Engineering Department Project Reviews	Ongoing	3.3.6.3
Rain Barrel Program	Ongoing	3.3.6.4
Measures to reduce existing stormwater runoff	Ongoing	3.3.6.1
Implementation of additional stormwater regulations	Complete	3.3.6.2
Transportation		
Coordination with various town and state entities	Prior to start of construction	4.8.3
Development of traffic management plans if required	Prior to start of construction	4.8.3
Historical and Archaeological Resources		
Development of Memorandum of Agreement	Prior to completion of design	4.7.3
Construction Period		
Minimize disturbed areas	Throughout construction activities	4.8.2
Temporary stabilization of disturbed areas	Throughout construction activities	4.8.2
Erosion and sedimentation control measures	Throughout construction activities	4.8.2
Construction entrances	Throughout construction activities	4.8.2
Diesel Retrofit Program	Throughout construction activities	4.8.4

5.0 Draft Section 61 Findings

This Chapter provides draft Section 61 Findings pursuant to the Secretary's Certificate on the Supplemental Draft Environmental Impact Report (SDEIR) and in accordance with MGL Ch. 30, Sec. 61, which states: "Any determination made by any agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." Two state permits requiring Section 61 Findings are needed for the project:

- Clean Water Act Section 401 Water Quality Certification from the DEP, and
- Public Waterfront Act (MGL Ch. 91) Waterways License/Permit from the DEP.

The DEP Northeast Regional Office (NERO) in its comment letter on the SDEIR also asked for a Section 61 Finding for ~~"~~wetlands in the event a Superseding Order of Conditions is applicable". Therefore, a draft Section 61 Finding for a Superseding Order of Conditions under the Wetlands Protection Act has been added to this FEIR.

The proposed project may also require an 8M Permit from the MWRA due to close proximaty to sewer lines for Project 2. During final design the Town team will coordinate with MWRA and file for an 8M Permit if deemed necessary. Approvals from the MBTA will be required for Project 10: Railroad Bridge by Muraco School.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF RESOURCE PROTECTION

DIVISION OF WETLANDS AND WATERWAYS

WATER QUALITY CERTIFICATION PROGRAM

DRAFT FINDING PURSUANT TO MGL CHAPTER 30, SECTION 61

PROJECT NAME: Aberjona River Flood Mitigation Program

PROJECT LOCATION: Winchester, Massachusetts

PROJECT PROPONENT: Town of Winchester

EOEEA NUMBER: 13046

PERMIT NAME: Water Quality Certificate

PROJECT DESCRIPTION

The project consists of a set of proposed structural measures and best management practices intended to reduce the frequency and intensity of backwater flooding of the Aberjona River in Winchester. Over the past decade (in 1996, 1998, 2001, 2004, and 2006), the Town of Winchester has experienced significant flooding and flood damages (approximately $25 million) emanating from the Aberjona River. In 1999, the Town commissioned a study of the causes of flooding. This study resulted in the recommendation of 17 conveyance modifications along the Aberjona River in Winchester, five of which have been completed (Shore Road culvert addition, removal of the dam near Muraco School, one of two new sluice gates at Center Falls Dam, a new culvert at Cross Street, and localized stormdrain improvements).

The channel conveyance project downstream of downtown Winchester (Project 2 of the FEIR Alternative) includes work in Waters of the United States. The proposed project will widen the river for approximately 1,300 linear feet downstream of the Waterfield Road Bridge. In this reach the river will be widened from its current 15 to 20-foot bottom width to a 35-foot bottom width channel by cutting into the left (looking downstream) river bank. The new bank will be set at a 1:1 slope and stabilized using bio-engineering methods (geo grid or a similar approach). This bank will be re-vegetated with herbaceous vegetation and shrubs and trees will be planted at the top of bank in a 2:1 ratio to those removed (above 4-inch-diameter caliper). An 8 feet-wide by 2-feet deep pilot channel will be incised in the main channel in a meandering pattern and its banks will be stabilized using bioengineering methods. Downstream of this reach, the USGS gage weir will be removed, adverse bottom slopes at the weir, footbridge to Ginn Field, and Bacon Street bridge will be removed, and the pilot channel will be continued to Bacon Street. The banks in this reach will not be affected as the river is already greater than 35-feet wide. This second reach of Project 2 is 1,450 linear feet in length.

In 2004, the Federal Emergency Management Agency (FEMA) began a flood study of the Mystic River Basin, including the Aberjona River. Using the new FEMA model, the floodplain of the Aberjona River

was re-evaluated, as were the restrictions to flow along the river and its tributaries. This model has undergone rigorous peer review and the resulting mapping is scheduled for implementation in June 2010.

On June 24, 2002 an Environmental Notification Form (ENF) was filed along with a request for a Phase 1 Waiver for 3 of 17 conveyance improvements proposed. On June 30, 2003 the EOEA Secretary issued a Certificate on the ENF requiring preparation of an Environmental Impact Report (EIR) and denying the Phase 1 Waiver request. On December 1, 2003 a Notice of Project Change (NPC) was filed requesting a Phase 1 Waiver for one project (new culvert at Cross Street), which was granted by the Executive Office of Environmental Affairs (EOEA) Secretary on February 23, 2004. A Draft Environmental Impact Report (DEIR) was prepared, pursuant to M.G.L. Ch. 30 § 61 and 62A-H of the Massachusetts Environmental Policy Act (MEPA), and submitted to the EOEA on February 15, 2006. This DEIR presented five alternatives to reduce flooding along the Aberjona River. Two significant mitigation projects (a new control structure at Scalley Dam in Woburn and modifications to the Craddock Locks in Medford) were also discussed. On April 28, 2006 the EOEA Secretary issued a Certificate on the DEIR requiring preparation of a Supplemental DEIR (SDEIR) to include additional alternatives, modeling, and watershed-wide mitigation. On April 20, 2007, the Executive Office of Energy and Environmental Affairs (EOEEA) Secretary issued a Certificate on the SDEIR, including issues to be addressed in the Final Environmental Impact Report (FEIR). The proponent filed the FEIR on _____ and a Certificate was issued by the EOEEA Secretary's Office on_____, stating that the FEIR adequately and properly complied with MEPA and its implementing regulations.

The Conservation Commissions in the Towns of Winchester and the Cities of Medford and Woburn have reviewed each project Notices of Intent filed for the projects pursuant to the Massachusetts Wetlands Protection act and local bylaw/ordinances. The Commissions issued Orders of Conditions on the following dates: [insert list here]

A Water Quality Certification application, prepared in accordance with Section 401 of the Clean Water Act and Regulations (314 CMR 4.00, 314 CMR 9.00) was submitted to the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office (NERO) on_____ and noticed in the *Winchester Star* on _____ for Projects _____. An Individual Permit application under Section 404 of the Clean Water Act was filed with the U.S. Army Corps of Engineers on _____ for Projects _____.

PROJECT IMPACTS AND MITIGATION

Project 2 will result in the removal of approximately 16,000 cubic yards of sediment (including bank soils above the mean high water - MHW) from the Aberjona River. This amount of dredging (which exceeds the threshold at 314 CMR 9.04(12)) and will require a permit from the USACE under Section 404 of the Clean Water Act (which exceeds the threshold at 314 CMR 9.04(9)). The other projects proposed by the Town of Winchester meet the standards of 314 CMR 9.03(1), (3), and (5). Therefore individual Water Quality Certification applications for those projects are not required.

The current design scenario for Project 2 calls for the 1,300 feet long reach of the river to be widened to 35-feet to be coffer-dammed at the upstream and downstream ends, dewatered, and for excavation to occur in the dry. This will be done during a period of low to moderate flows and the river will be bypass pumped around the contained area. This will allow for sediment dewatering to occur in place rather than hydraulically pumping the material to temporary drying beds or belt filter presses. Best Management Practices (BMPs) and turbidity controls will be put in place prior to coffer-damming and dewatering the work zone. Discharged water from the construction zone will be tested for turbidity on at least a daily

basis and any rise in turbidity above 10 ntu shall be cause to temporarily halt dewatering to allow time to address the source of turbidity. If other analytical testing and pre-treatment of dewatering fluid is required prior to discharge to prevent pollution of the river, a plan that addresses the removal of specifically identified contaminants will be proposed prior to the startup of dredging operations. This will be reviewed by the DEP prior to implementation.

Once the material is removed, the channel bottom, the pilot channel, and left bank will be shaped and the bio-engineering materials installed. Only after the area is re-constructed and stabilized will flow be reintroduced to the channel and the upstream cofferdam removed. The downstream cofferdam will remain in place as the next reach is dredged.

Following this excavation activity the next reach (including the USGS weir and Ginn Field footbridge) will be coffer-dammed, dewatered, and excavated in a similar manner. The third reach (from downstream of the footbridge to just downstream of Bacon Street) will be worked on following completion of the second reach. After all three reaches have been completed flow in the river will be restored.

The soil and sediment in the 2,650-foot long stretch of the Aberjona River associated with Project 2 has been thoroughly tested and analyzed for the contaminants in accordance with 314 CMR 9.07(2) and dredging will take place in accordance with 314 CMR 9.07(3) and (5). Dewatered material will be loaded onto trucks and testing of the material will occur for excavations in those areas pre-characterized during the sampling program as having potential exceedences of standards.

The Town hopes to be able to beneficially reuse all of the uncontaminated material excavated as part of this project under 314 CMR 9.07(9). The material will be transported to an upland storage area for stockpiling and reuse. Excess material will be used for landfill daily cover, or disposed of in an approved landfill per 314 CMR 9.07(8).

FINDINGS

For the reasons stated above, the Massachusetts Department of Environmental Protection (DEP), Bureau of Resource Protection (BRP), Division of Wetlands and Waterways (DWW) hereby finds that, with implementation by the proponent of the mitigation measures described above, all practicable and feasible means and measures will be taken to avoid or minimize adverse impacts to the environment associated with the proposed channel conveyance and floodplain mitigation project in Winchester. Appropriate conditions consistent with this Section 61 Finding will be included in the Section 401 Water Quality Certification issued by the DEP to describe more fully and ensure implementation of said measures.

_____ _____

Date DEP BRP DWW

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF RESOURCE PROTECTION

DIVISION OF WETLANDS AND WATERWAYS

WATERWAYS LICENSING AND PERMITTING PROGRAM

DRAFT FINDING PURSUANT TO MGL CHAPTER 30, SECTION 61

PROJECT NAME: Aberjona River Flood Mitigation Program

PROJECT LOCATION: Winchester, Massachusetts

PROJECT PROPONENT: Town of Winchester

EOEEA NUMBER: 13046

PERMIT NAME: Chapter 91 Waterways License and/or Permit

PROJECT DESCRIPTION

The project consists of a set of proposed structural measures and best management practices intended to reduce the frequency and intensity of backwater flooding of the Aberjona River in Winchester. Over the past decade (in 1996, 1998, 2001, 2004, and 2006), the Town of Winchester has experienced significant flooding and flood damages (approximately $25 million) emanating from the Aberjona River. In 1999, the Town commissioned a study of the causes of flooding. This study resulted in the recommendation of 17 conveyance modifications along the Aberjona River in Winchester, five of which have been completed (Shore Road culvert addition, removal of the dam near Muraco School, one of two new sluice gates at Center Falls Dam, new culvert at Cross Street, and localized stormdrain improvements).

In 2004, the Federal Emergency Management Agency (FEMA) began a flood study of the Mystic River Basin, including the Aberjona River. Using the new FEMA model, the floodplain of the Aberjona River was re-evaluated, as were the restrictions to flow along the river and its tributaries. This model has undergone rigorous peer review and the resulting mapping is scheduled for implementation in 2010.

On June 24, 2002 an Environmental Notification Form (ENF) was filed along with a request for a Phase 1 Waiver for 3 of 17 conveyance improvements proposed. On June 30, 2003, the EOEA Secretary issued a Certificate on the ENF requiring preparation of an Environmental Impact Report (EIR) and denying the Phase 1 Waiver request. On December 1, 2003, a Notice of Project Change (NPC) was filed requesting a Phase 1 Waiver for one project (new culvert at Cross Street), which was granted by the Executive Office of Environmental Affairs (EOEA) Secretary on February 23, 2004. A Draft Environmental Impact Report (DEIR) was prepared, pursuant to M.G.L. Ch. 30 § 61 and 62A-H of the Massachusetts Environmental Policy Act (MEPA), and submitted to the EOEA on February 15, 2006. This DEIR presented five alternatives to reduce flooding along the Aberjona River. Two significant mitigation projects (a new control structure at Scalley Dam in Woburn and modifications to the Craddock Locks in Medford) were also discussed. On April 28, 2006, the EOEA Secretary issued a Certificate on the DEIR requiring preparation of a Supplemental DEIR (SDEIR) to include additional alternatives,

modeling, and watershed-wide mitigation. On April 27, 2007, the Executive Office of Energy and Environmental Affairs (EOEEA) Secretary issued a Certificate on the SDEIR, including issues to be addressed in the Final Environmental Impact Report (FEIR). The proponent filed the FEIR on _____ and a Certificate was issued by the EOEA Secretary's Office on_____, stating that the FEIR adequately and properly complied with MEPA and its implementing regulations.

The Winchester Conservation Commission, under Wetlands Protection Act Notices of Intent (NOIs) filed for the projects, has reviewed each project proposal. The Commission issued Orders of Conditions under the Massachusetts Wetlands Protection Act and Regulations (310 CMR 10.00) on _____ permitting the projects. The Massachusetts Department of Environmental Protection (DEP) DEP Division of Wetlands and Waterways Water Quality Certification Program has reviewed Project 2 and issued a Water Quality Certification under Section 401 of the Clean Water Act and 314 CMR 9.00 on _____ permitting the projects

Waterways License/Permit applications, prepared in accordance with the Massachusetts Public Waterfront Act (MGL C. 91) and Regulations (310 CMR 9.00) for Projects _____, were submitted to the DEP Waterways Program on_____ and noticed in the *Winchester Star* on _____.

PROJECT IMPACTS AND MITIGATION

The channel conveyance projects include work in Waters of the Commonwealth. The proposed projects have the following impacts below the mean high water (MHW) along the Aberjona River which are subject to Waterways Licensing or Permitting as Water-Dependent Projects:

Waterways Permit

- **Project 2: Channel Widening, Waterfield Road to Bacon Street** – Widen the River channel between Waterfield Road and Manchester Road from an average bottom wideth of 15 to 20-feet to approximately 35-feet. Re-grade and deepen the channel between Waterfield Road and Bacon Street. Remove and replace the USGS gage and associated weir.

Waterways Licenses

- **Project 3: Center Falls Dam** – Replace one of the two remaining 30-inch gate valves on either side of Center Falls Dam with 5 by 5-foot butterfly gates and 4 by 6-foot discharge boxes. The first valve was replaced in 2003.
- **Project 4: Mount Vernon Street Bridge Improvements** – Expansion of the hydraulic opening at the Mount Vernon Street Bridge.
- **Project 8: Swanton Street Bridge Improvement** – Replacement of the existing 10 by 16-foot bridge opening under Swanton Street with a 10 by 25-foot bridge opening.
- **Project 10: Railroad Bridge Near Muraco School** – Installation of two seven-foot diameter conduits under the MBTA railroad near the Muraco School to supplement the two existing 6.5 by 7-foot bridge openings.

The areas of impact to waterways have been minimized to the greatest extent feasible and there is no alternative to constructing the proposed improvements that would not involve work below MHW in the Aberjona River. A comprehensive stormwater control plan that includes cofferdams, silt curtains, dewatering/filtration areas, and haybale/silt fence barriers will help to avoid alterations to federal and state wetland areas. All river banks will be restored using bi-engineering methods and native plants.

Public access to the river will not be adversely affected by the projects. The navigability of the river would not be adversely affected by the projects.

FINDINGS

For the reasons stated above, the Massachusetts Department of Environmental Protection (DEP), Bureau of Resource Protection (BRP), Waterways Regulation Program hereby finds that, with implementation by the proponent of the mitigation measures described above, all practicable and feasible means and measures will be taken to avoid or minimize adverse wetland and related impacts to the environment associated with the proposed channel conveyance and floodplain mitigation project in Winchester. Appropriate conditions consistent with this Section 61 Finding will be included in the Water Dependent Waterways License or Permit for each project issued by the DEP to describe more fully and ensure implementation of said measures.

_____ _____

Date DEP BRP Waterways Program

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF RESOURCE PROTECTION

DIVISION OF WETLANDS AND WATERWAYS

WETLANDS PROGRAM

DRAFT FINDING PURSUANT TO MGL CHAPTER 30, SECTION 61

PROJECT NAME: Aberjona River Flood Mitigation Program

PROJECT LOCATION: Winchester, Massachusetts

PROJECT PROPONENT: Town of Winchester

EOEEA NUMBER: 13046

PERMIT NAME: Superseding Order of Conditions

PROJECT DESCRIPTION

The project consists of a set of proposed structural measures and best management practices intended to reduce the frequency and intensity of backwater flooding of the Aberjona River in Winchester. Over the past decade (in 1996, 1998, 2001, 2004, and 2006), the Town of Winchester has experienced significant flooding and flood damages (approximately $25 million) emanating from the Aberjona River. In 1999, the Town commissioned a study of the causes of flooding. This study resulted in the recommendation of 17 conveyance modifications along the Aberjona River in Winchester, five of which have been completed (Shore Road culvert addition, removal of the dam near Muraco School, one of two new sluice gates at Center Falls Dam, new culvert at Cross Street, and localized stormdrain improvements).

In 2004, the Federal Emergency Management Agency (FEMA) began a flood study of the Mystic River Basin, including the Aberjona River. Using the new FEMA model, the floodplain of the Aberjona River was re-evaluated, as were the restrictions to flow along the river and its tributaries. This model has undergone rigorous peer review and the resulting mapping is scheduled for implementation in June 2010.

On June 24, 2002, an Environmental Notification Form (ENF) was filed along with a request for a Phase 1 Waiver for 3 of 17 conveyance improvements proposed. On June 30, 2003, the EOEA Secretary issued a Certificate on the ENF requiring preparation of an Environmental Impact Report (EIR) and denying the Phase 1 Waiver request. On December 1, 2003, a Notice of Project Change (NPC) was filed requesting a Phase 1 Waiver for one project (new culvert at Cross Street), which was granted by the Executive Office of Environmental Affairs (EOEA) Secretary on February 23, 2004. A Draft Environmental Impact Report (DEIR) was prepared, pursuant to M.G.L. Ch. 30 § 61 and 62A-H of the Massachusetts Environmental Policy Act (MEPA), and submitted to the EOEA on February 15, 2006. This DEIR presented five alternatives to reduce flooding along the Aberjona River. Two significant

mitigation projects (a new control structure at Scalley Dam in Woburn and modifications to the Craddock Locks in Medford) were also discussed. On April 28, 2006 the EOEA Secretary issued a Certificate on the DEIR requiring preparation of a Supplemental DEIR (SDEIR) to include additional alternatives, modeling, and watershed-wide mitigation. On April 20, 2007, the Executive Office of Energy and Environmental Affairs (EOEEA) Secretary issued a Certificate on the SDEIR, including issues to be addressed in the Final Environmental Impact Report (FEIR). The proponent filed the FEIR on _____ and a Certificate was issued by the EOEEA Secretary's Office on_____, stating that the FEIR adequately and properly complied with MEPA and its implementing regulations.

The Conservation Commissions in the Towns of Winchester and the Cities of Medford and Woburn have reviewed each project Notices of Intent filed for the projects pursuant to the Massachusetts Wetlands Protection act and local bylaw/ordinances. The Commissions issued Orders of Conditions on the following dates: [insert list here]

A Water Quality Certification application, prepared in accordance with Section 401 of the Clean Water Act and Regulations (314 CMR 4.00, 314 CMR 9.00) was submitted to the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office (NERO) on_____ and noticed in the *Winchester Star* on _____ for Projects _____. An Individual Permit application under Section 404 of the Clean Water Act was filed with the U.S. Army Corps of Engineers on _____ for Projects _____.

Waterways License/Permit applications, prepared in accordance with the Massachusetts Public Waterfront Act (MGL C. 91) and Regulations (310 CMR 9.00) for Projects _____, were submitted to the DEP Waterways Program on_____ and noticed in the *Winchester Star* on _____.

PROJECT IMPACTS AND MITIGATION

The channel conveyance projects include work in Waters of the United States. The proposed projects have the following impacts below the top of Bank along the Aberjona River, in Bordering Vegetated Wetland (BVW), in Land Under Waterbodies (LUW), in Riverfront Area (RA), and in Bordering Land Subject to Flooding (BLSF):

Summary of Resource Area Impacts, Winchester Flood Mitigation Program

Project No.	Bank (l.f.) [1]	LUW (s.f.)	BVW (s.f.)	Riverfront Area (s.f.) [2]	BLSF (s.f.)
2	1,540	98,990	0	53,720	53,720
3	50	540	0	670	670
4	100	200	0	1500	1500
6	100	300	0	1000	1000
8	100	300	0	1000	1000
10	320	1000	1,000	4000	4000
Craddock Locks	0	0	0	0	0
Scalley Dam	30	640	0	1500	1500
Sum	**2,240**	**101,970**	**1,000**	**63,390**	**63,390**

1 All in town projects involve the temporary alternation of Bank which will be restored in-place and in-kind resulting in no loss.

2 All projects that involve impacts to the Riverfront Area will, in most cases, result in the replacement in-kind in a slightly different location due to the relocation of the river channel.

Mitigation of impacts includes creation of approximately 2,000 square feet of Bordering Vegetated Wetland replacement area, 2,240 linear feet of Bank restoration, and 125,000 square feet of Land Under Waterways restoration, and over 40,000 square feet of Riverfront Area restoration. None of the projects propose any additional fill in a floodplain, nor will they act as a restriction to flow. Therefore it has been determined that there are no permanent impacts to BLSF even though work is being performed in floodplains. The alteration areas have been minimized to the greatest extent feasible and all mitigation is in excess of 1:1. A comprehensive stormwater control plan that includes cofferdams, silt curtains, dewatering/filtration areas, and haybale/silt fence barriers will help to avoid alterations to federal and state resource areas.

The projects meet all performance standards of the Wetland Protection Act for work in Banks (310 CMR 10.54(4)), Bordering Vegetated Wetlands (310 CMR 10.55(4)), Land Under Water Bodies and Waterways (310 CMR 10.56(4)), Bordering Land Subject to Flooding (310 CMR 10.57(4)), and Riverfront Area (310 CMR 10.58(4)). The project is not located in an area of Estimated Habitat of Rare Wetlands Wildlife as defined by the Natural Heritage and Endangered Species Program of the Massachusetts Department of Fish and Game.

FINDINGS

For the reasons stated above, the Massachusetts Department of Environmental Protection (DEP), Bureau of Resource Protection (BRP), Division of Wetlands and Waterways (DWW), Northeast Regional Office (NERO) hereby finds that, with implementation by the proponent of the mitigation measures described above, all practicable and feasible means and measures will be taken to avoid or minimize adverse wetland and related impacts to the environment associated with the proposed channel conveyance and floodplain mitigation project in Winchester. Appropriate conditions consistent with this Section 61 Finding will be included in the Superseding Order of Conditions issued by the DEP-NERO to describe more fully and ensure implementation of said measures.

_____ _____

Date DEP NERO BRP DWW

6.0 Comment Letters and Responses to Comments

This chapter contains the comment letter on the SDEIR, and responses to those letters. The following letters were received.

- Department of Conservation and Recreation (DCR) – April 6, 2007
- Department of Environmental Protection Northeast Regional Office (DEP NERO) – April 6, 2007
- Massachusetts Water Resource Authority (MWRA) – March 23, 2007
- Senator Patricia D. Jehlen – April 6, 2007
- Town of Arlington Board of Selectman – April 6, 2007
- Town of Arlington Conservation Commission – April 5, 2007
- City of Cambridge Executive Department – April 5, 2007
- Town of Winchester Planning Board – April 5, 2007
- Town of Winchester Conservation Commission – March 19, 2007
- Town of Winchester Historical Commission – April 5, 2007
- ABC Flooding Board – April 6, 2007
- Mystic River Watershed Association – April 6, 2007
- Water Supply Citizens Advisory Committee (WSCAC) – March 9, 2007
- Massachusetts Historical Commission (MHC) – April 6, 2007
- Henry J. Curtis, Jr. – March 14, 2007
- Stephen H. Kaiser – April 6, 2007
- Ellen Knight – March 17, 2007
- Jean M. Marrone – March 13, 2007
- John and Gay Mohrbacher – March 9, 2007
- George Murphy – March 22, 2007
- Robert C Pasciuto – March 19, 2007
- Anthony Perrotta – March 14, 2007
- John F. Shawcross – March 21, 2007
- Paul J. Welliver – March 13, 2007

Each comment letter received has been annotated with numbers in the right column by each comment that required a response, following the letter is a matrix with responses to comments corresponding to the number assigned.

dcr
Massachusetts

April 6, 2007

Secretary Ian Bowles
EOEA, Attn: MEPA Office
Deirdre Buckley, EOEEA No. 13046
100 Cambridge St., Suite 900
Boston, MA 02114

Re: Aberjona River Flood Mitigation Program - EOEEA No. 13046.

Dear Secretary Bowles:

The Department of Conservation and Recreation (DCR) has reviewed the Supplemental DEIR for the Aberjona River Flood Mitigation Program proposal. The Department provides the following information, recommendations and questions related to the adjacent DCR-managed Mystic Valley Parkway in Winchester and DCR facilities located downstream. While DCR believes that the SDEIR is a notable improvement over the DEIR and generally adequate in that regard, some remaining issues exist that the proponent still needs to address, and we ask that the proponent properly respond to these concerns in a Final Environmental Impact Report (FEIR) and in regard to these concerns offer comments:

Article 97

- DCR maintains that the proposal to widen the river by removing river bank and associated vegetation of DCR parkland along the Aberjona River would result in a change of use and physical control to Article 97 parkland owned by the Commonwealth. The proposed work would eliminate an upland portion of parkland adjacent to the river. Please note that the land in question was not acquired for flood control purposes. The specific area of land was acquired by the Metropolitan Parks Commission, a predecessor parks agency to DCR, for parkland and parkway purposes. DCR's position continues to be that the proposed uses of DCR property, such as the right to construct and maintain permanent channel modifications and perpetual flowage rights upon the land, would require, at least, the conveyance of an easement by the Commonwealth. Conveyance of an easement or the fee interest would require an act of the Legislature. DCR also understands that the proponent may need to acquire an easement, in any event, to comply with site control requirements of the Army Corps of Engineers. The FEIR must describe how the project will minimize and mitigate impacts to protected parkland, and must address compliance with EOEEA's Land Disposition Policy, particularly addressing the 'no net loss' of parkland for the benefit of the public. As part of this analysis the proponent should discuss whether conveyance of a suitably-tailored easement or the fee interest is appropriate under the circumstances. In the SDEIR, DCR notes with interest that some public access walkway improvements are under consideration in this regard. As part of any further discussion in the FEIR, DCR would like to better understand the 1

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119
617-626-1250 617-626-1351 Fax
www.mass.gov/dcr

Deval L. Patrick
Governor

Timothy P. Murray
Lt. Governor

Ian A. Bowles, Secretary
Executive Office of Environmental Affairs

Priscilla E. Geigis, Acting Commissioner
Department of Conservation & Recreation

proposal, the maintenance responsibilities of the town for these improvements, and the design details, such as how public safety will be addressed, for example, the need for an appropriate railing to avoid the risk of pedestrians slipping into the channel. Please contact DCR General Counsel Tom LaRosa (617) 626-4944 for additional information regarding the land disposition process.

Natural and Historic Resources

- Vegetated riparian areas serve a number of beneficial functions for fisheries. The tree canopy provides shade that helps to moderate water temperatures, contributing to conditions that maintain adequate dissolved oxygen levels. Detritus from decaying leaves and twigs that fall into rivers and streams provide a key energy source to fuel the base of the aquatic food chain. Insects that fall from overhanging branches are an important food source for fish in rivers and streams. Tributaries with a buffer of riparian vegetation can contribute clean, cool water to the mainstems, as well as providing organic matter needed by aquatic organisms. The FEIR should clarify how removal of bank and associated upland vegetation might impact riverine habitat related to anadromous fish restoration efforts in the overall watershed. 2
- The Public Archaeology Lab (PAL) prepared a "Technical Memorandum, Aberjona Flood Control Project, Winchester, MA". They concluded that at least nine of the proposed twelve individual projects potentially contain intact archaeological resources, and that an Intensive (Locational) Archaeological Survey should be conducted for these archaeologically sensitive portions of the project. The Massachusetts Historical Commission (MHC) concurred with this recommendation. A copy of any additional archaeological survey information that will be provided to MHC should also be provided for review by DCR's Archaeologist as soon as it is available and prior to any work activities. 3
- The Mystic Valley Parkway is listed on the National Register of Historic Places. EOEEA has recognized this significance through its creation of the Historic Parkways Initiative, a collaborative historic preservation effort to support the protection of parkways as historic landscapes with Article 97 protection. The FEIR should describe how alterations to the landscape located between the Mystic Valley Parkway and the Aberjona River are consistent with DCR's Historic Parkway Guidelines. 4

Bridges and Dams

- The proposed flood mitigation strategy is likely to increase water elevations immediately downstream during storm events, potentially resulting in localized flooding. Proposed DCR engineering projects located downstream of Winchester's focus stretch, i.e. installation of an additional pump at the Amelia Earhart Dam, rehabilitation of the Upper Mystic Lake Dam, and removal of the Cradock Bridge obstruction, should be implemented in advance of the Aberjona River alterations proposed by the Town of Winchester. Detailed engineering cost breakdowns need to be considered for the three projects listed above. The proponent must recognize budgetary and staffing constraints related to DCR's timetable for implementing the proposed dam improvements. Also, it can not be assumed that the Massachusetts Highway Department (MHD) 5

will undertake the obstruction removal for the Cradock Bridge as part of any upcoming MHD bridge rehabilitation work.

- Spot Pond is not part of the tributary system to the Aberjona River as stated on page 2-1 of the SDEIR. Spot Pond drains to the Malden River via Spot Pond Brook in Stoneham. If the contributory watershed area of Spot Pond was used in the predictive modeling of the Aberjona River, then a correction for predicted flows may be necessary. 6
- The SDEIR provides some information on flow velocities. The FEIR should include flow velocities in the vicinity of the Mystic Valley Parkway Bridge. DCR is concerned that the project might increase scour velocity at this location. 7

Riverside Design and Construction Considerations

- DCR must have final approval of any proposed landscape design along the Mystic Valley Parkway. A qualified landscape architect must be part of the team that would coordinate with DCR to ensure that historic parkway character and recreational value along the corridor will be enhanced. DCR's field staff should also be consulted at the design stage. Work activities will require a DCR Construction Permit. 8

Thank you for taking these comments into consideration. Please contact Paul DiPietro in the Division of Planning and Engineering at (617) 626-1436 with any additional questions.

Sincerely,

Priscilla Geigis
Acting Commissioner

cc Michael J. Toohill, ENSR Environmental Scientist
Mark Twogood, Assistant Town Manager, Winchester
Wade Welch, Town Counsel, Winchester

Response to Comments from DCR, April 10, 2007

Comment Number	Response
1	Subsequent to issuance of the SDEIR Certificate, the Town held a series of meetings with representatives of the U.S. Army Corps of Engineers and DCR to discuss alternative configurations for Project 2 to address the issues presented in the SDEIR comments, including application of Article 97. These discussions led a re-design of Project 2, described in Section 3.3.2 of the FEIR, that reduced the proposed width of the channel bottom from 39 feet to 35 feet, or by approximately 10%. In addition, the sidewalk running between the river channel and the Mystic Valley Parkway will be retained an not below street grade. Reducing the channel bottom width to 35 feet, however, disqualifies Project 2 from funding under Section 205 of the federal 1948 Flood Control Act of 1948 (Public law 80-858), as amended. The USACE concluded that a channel width of less than 39 feet would not provide sufficient flood relief to meet the 1:1 cost-to-benefit ratio required by that statute to qualify for federal funding. As a consequence, redesigning Project 2 to a 35-foot channel width eliminates approximately $800,000 in federal funding that would be available to the project if it retained a 39-foot channel width. Because Project 2 no longer qualifies for USACE funding, a permanent easement regarding the channel modification or perpetual flowage within that channel is not required. The narrower channel width substantially reduces the amount of parkland that physically altered by Project 2, and the redesigned project retains the sidewalk running between the river channel and the parkway. These changes reduce the potential impacts to public use of the parkland, and avoids any loss in DCR's physical control of the project area. Based on recent discussions with DCR staff, it is the Town's understanding that DCR will not request application of Article 97 and EOEA's Article 97 Land Disposition Policy to the redesigned Project 2.
2	The restoration of anadromous fish to the Mystic River and its tributaries, including the Aberjona River is a primary objective of the Mystic River Action Plan. As part of the restoration effort a new fish ladder in the Upper Mystic Lake Dam is being installed to allow anadromous fish to reach Upper Mystic Lake for spawning. While there are several other impediments to fish migration upstream of Waterfield Road that prevent the fish from migrating further upstream to spawn, the proposed Project 2 will actually result in increased water depths during low flow periods and enhanced habitat conditions. In the short term there will be a loss of bank vegetation on the east bank of the river for a distance of approximately 1,300 linear feet. The existing bank in this reach is armored with large granite blocks, which has some vegetation (including trees) growing in the joints between blocks. The new channel bank will be bio-engineered, the granite blocks will be removed, and the bank will be planted with low growing vegetation. At the top of the new bank trees will be replanted in a 2:1 ratio to those removed. The elevation change from the top of Bank to the ordinary water level is only 4 feet and the new plantings will provide shading to the banks and the water surface. The proposed channel will be wider and the incorporation of a 2-foot deep meandering low flow channel will provide adequate water depths, favorable flow conditions, and aid in maintaining cooler water temperatures to allow for the passage of anadromous fish. In summary, re-configuration of the channel will not adversely affect anadromous fish

restoration efforts, in fact, the river habitat in this reach will be enhanced by the channel reconfiguration project.

3 A copy of the archeological report was sent to the attention of Rick Sullivan at DCR on February 5, 2010. No pre- or post- contact cultural materials or features potentially eligible for listing in the National Register of Historic Places were identified during archeological testing at Project 2 and no further archaeological testing is recommended.

4 The FEIR describes the proposed alterations to the landscape between the Mystic Valley Parkway (MVP) and the River, as well as proposed modifications that will occur within the National Register of Historic Places boundaries of the MVP. DCR will be invited to participate in the consultation under Section 106 of the National Historic Preservation Act and 950 CMR 71 regarding the effects of Project 2 on the historic MVP. The consultation will focus on producing a final design that minimizes the effect to the extent possible and is developed in accordance with Historic Parkway Preservation Treatment Guidelines issued by DCR in 2006. A Memorandum of Agreement (MOA) among the consulting parties will stipulate measures that will be undertaken to avoid, minimize, or mitigate Project effects will be included in the FEIR.

5 The flood mitigation strategy proposed as part of the FEIR Alternative will not result in increase of water levels downstream, with the implementation of upstream and downstream flood mitigation measures. It is our understanding that Upper Mystic Lake Dam project is currently under construction and is scheduled for completion in 2011. MassDOT improvements to the Craddock Bridge at Main Street in Medford are in design. As part of its work since the SDEIR filing, the Town of Winchester and its consultants performed a study that showed the panels in the Craddock Locks could be removed before the bridge is reconstructed to provide the same mitigation benefits. The FEIR Alternative does not require improvements to the Amelia Earhart dam as a downstream mitigation measure; however installation of an additional pump would be helpful for the lower Mystic Basin towns.

6 Thank you for pointing this out. This was a factual error in the text of the SDEIR. The watershed was not modeled with Spot Pond as part of it.

7 The velocities upstream and downstream of the Mystic Valley Parkway Bridge are not predicted to change. The model results show a 0.1 feet-per-second increase within the bridge, a minor change which should not affect scour through the bridge. Table 4-1 in Section 4.1.1 of this FEIR, now includes velocity comparison at the Mystic Valley Bridge.

8 The landscape architecture firm Pressley Associates, Inc. will be working with AECOM on the final design of Project #2 that affects the MVP. The design team is committed to coordinating each phase of the design with DCR.

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST REGIONAL OFFICE
205B Lowell Street, Wilmington, MA 01887 • (978) 694-3200

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

ARLEEN O'DONNELL
Commissioner

April 6, 2007

Ian A. Bowles
Executive Office of
Environmental Affairs
100 Cambridge Street
Boston MA, 02114

RE: Winchester
Aberjona Flood Mitigation
Program
EOEA # 13046

Attn: MEPA Unit

Dear Secretary Bowles:

The Department of Environmental Protection (MassDEP) has reviewed the Supplemental Draft Environmental Impact Report (SDEIR) submitted by town of Winchester for implementation of flood control improvements at various locations along the Aberjona River between Washington Street and the MBTA railroad tracks in Winchester (EOEA# 13046). The preferred alternative in the SDEIR (Alternative 7) is a revision of the Modified Aberjona River Conveyance Improvements, (Alternative 5) in the DEIR. The revisions result in a reduction in wetlands impacts and the volume of dredge sediments from the Aberjona River. The Department is very encouraged by the progress that has been made to incorporate watershed-based alternatives, and MassDEP requests that the following comments be addressed in a Final Environmental Impact Report (FEIR).

The town of Winchester is susceptible to flooding as a result of urbanization of the Aberjona River watershed, which has contributed to increasing peak streamflow rates. In March 2001 a record streamflow of 1,580 cfs was recorded. The river's flow also is constricted in the town of Winchester by three dams/weirs and 20 bridges/culverts. By eliminating these constrictions and undertaking projects to improve flow and capacity, the town's goal is to minimize economic losses from damaging floods, such as the five storms (October 1996, June 1998, March 2001, April 2004, and May 2006), which caused over $20 million in loss in the past ten years.

The SDEIR has identified and modeled new alternatives that incorporate best management practices and several preliminary designs for Project 2, which originate from the US Army Corps of Engineers (USACE) Feasibility Study for the channel-widening project. According to the SDEIR the channel-widening project is necessary, based on the modeled results, to achieve significant retraction of the floodplain. The model is calibrated and now

appears to more properly reflect actual flooding conditions. MassDEP requests that the FEIR include a comparison between the model and the USGS Aberjona gage for discharges at the 1-, 10-, 25-, 50- and 100-year floods, to verify that the model is a good fit. 1

The Department appreciates the efforts of the town of Winchester in refining the preferred alternative, and improving the balance between human needs for flood control and the ecological functions and riparian habitat. The preferred plan, as now proposed is more congruent with the wetlands performance standards. The plan now consists of seven discrete projects that change the flow conveyance structures and widen and deepen the river channel. In addition to the reduced profile channel-widening project (Project 2), the plan is to complete Project 3 at the Center Falls by replacing 30" valves with 5'x5'sluice gates, Project 4 at the Vernon Street Bridge, Project 6 at the high school fields plans to add parallel 7' x 15' box culverts or an open channel adjacent to the 3 existing 7' culverts, Project 8 at Swanton Street entails replacement of the existing 10'x16' bridge opening with a 10'x25' opening, or an equivalent bypass culvert, Project 10 at the railroad bridge near Muraco School proposes Installation of two 7'conduits to supplement existing twin 6.5' x 7' bridge openings, and Project at 15 Davidson Park will remove the remaining pieces of the dam. In addition, Project 1, an MWRA project will reduce flooding impacts. A new siphon chamber at Wedgemere Train Station is due for construction in 2007. The river channel will be widened from 19' to 30' be reconstructing the siphon.

The plan is to schedule the work downstream before the upstream projects. However, the SDEIR indicates that Projects 4, 8, and 10 may be studied further to determine whether they can proceed prior to downstream projects, without causing flooding. The downstream mitigation controlled by the Department of Conservation and Recreation (DCR) needs to be completed prior to the upstream projects, because if the Aberjona River is widened without this downstream mitigation, there would be increased flooding in Arlington, Somerville, Cambridge, and Medford. The downstream mitigation improves the control structure at the Upper Mystic Lake and removes the Craddock Locks in Medford. The new modeling done for the SDEIR also shows that the Craddock Locks are a cause of backwater flooding on the Alewife River (p. 3-31). Therefore, the FEIR should make it clear that these projects will proceed before others upstream. The fourth pump at the Amelia Earhart dam apparently is not essential to complete early in the flood improvement project; it was not included in the modeled preferred alternative. 2

Section 61 Finding (for FEIR)

The Department requests that the FEIR include a Section 61 Finding, describing those measures to avoid, minimize, and mitigate environmental impacts from the project that relate to the MassDEP permits, including a Section 61 Finding for wetlands in the event a Superseding Order of Conditions is applicable. The Finding also should identify the parties responsible for implementing these measures, and an approximate schedule for completing the work after the environment is impacted. Inclusion of a tabular presentation of the mitigation measures that will be implemented for the project simplifies the preparation of Section 61 Findings, by assembling in order the information required in 310 CMR 11.07 (6)(k). MassDEP supports the proponent's efforts to expand on the mitigation commitments and responses to MassDEP's comments in the FEIR. 3

Wetlands

The proposed flood control projects would impact land under water and waterways (LUW), inland bank, bordering vegetated wetland (BVW), bordering land subject to flooding (BLSF) and riverfront area will occur.

PROJECT	BANK (LF)	LUW (SF)	BVW (SF)	RA (SF)	BLSF (SF)
Alternative 7 - SDEIR Alternative					
2	1,210	84,600	0	15,700	0
3	20	1,500	0	0	0
4	50	160	0	1,000	0
6	40	400	0	800	0
8	200	260	0	1,200	0
10	200	800	1,000	2,800	0
SUM:	*1,720*	*87,720*	*1,000*	*21,500*	*0*

Despite the fact that 11,000 square feet of BVW impact has been eliminated, MassDEP remains concerned about the Project 2 channel widening from Waterfield Road to Bacon Street. This reach of the river supports a mature tree canopy on both sides of the river, and the proposed removal of riparian vegetation along the downstream left bank may result in further water quality impacts in an already stressed basin, such as increased water temperatures. 4

Implementation of Project 2 will need to incorporate a low-flow channel, as described on p. 4-33, and more review will be needed to consider the dimensions of this "pilot channel," and the design of wildlife habitat improvements, mentioned on p. 2-30. The low flow or pilot channel will need to be carefully designed and constructed to ensure that it serves its primary purpose to allow for fish passage. Additional shading along the banks of the Aberjona River also should be considered in the restored river reach design to promote wildlife habitat and fish passage. 5

The SDEIR indicates that the USACE Feasibility Study of alternatives for the river widening project between Waterfield Road and Wedgemere siphon will be available prior to the FEIR. This timing makes it possible to include in the FEIR any new information or changes to Project 2 alternatives in the USACE study that were not provided in the SDEIR. In particular, MassDEP asks that the FEIR highlight any information on damage to wetland resources, which has not been considered or explained fully previously. In addition, if Project 2 is scheduled to take place after the construction of the fish ladder at the mid-lakes dam, the FEIR should propose time-of-year restrictions on construction to avoid impacting the spawning of herring. 6

The FEIR also should acknowledge that by widening the river, the boundaries of the Riverfront Area may no longer be located where they are currently, which could affect permitting for properties near the river. 7

The hydraulics of the Aberjona River are expected to change in high flow events, although Alternative 7 shows areas of increase and decrease in flow velocities, with the highest level increase in the reaches above Mt. Vernon Street (p.4-11). In discussing levels of erosion and sediment transport relating to changes in flow velocities, the SDEIR (p. 4-11) notes, "The main power changes would be at the revised bridges…. During design, a more detailed look at

the stream power at bridges will be analyzed and armoring may have to be built into the designs immediately upstream of the bridges to prevent scour in those critical areas." As part of this analysis, MassDEP recommends consideration of alternatives to armoring, including in-stream structures such as cross-vanes and J-hooks, which are designed to redirect the energy of the current without the armoring of banks. 8

Wetlands Limited Project Provisions

The proposed channel widening is no longer proposed under the Limited Project provisions specified in 310 CMR 10.53 because the BVW alteration has been reduced significantly. Although BVW alteration in the preferred alterative has been reduced to approximately 1,000 square feet, it is possible that a Variance still may be required because of the amount of proposed alteration to Riverfront Area. The wetland regulation, pursuant to 310 CMR 10.58(4)(d) provides that within 200-foot Riverfront Areas, issuing authorities may allow up to 5,000 square feet or 10 percent of the Riverfront Area within the lot, whichever is greater. To address this issue, the FEIR should consider whether the Riverfront Area threshold of 5,000 square feet or 10 percent disturbance of the riverfront area within a lot is exceeded, in order to determine whether a Variance would be required. (One approach would be to add up the disturbance of the Riverfront Area in all affected lots, and determine whether alteration exceeds 10 percent of the Riverfront Area in the combined lots.) 9

Stormwater Controls

The town of Winchester is making significant progress in planning and implementing stormwater controls. The Department applauds the town's efforts to include stormwater best management practices in the preferred alternative, and for reaching out to other watershed communities to follow the town of Winchester's lead. As stated in the SDEIR, 10

> The Town of Winchester fully understands that the long-term success of the proposed flood mitigation program outlined in this SDEIR is dependent upon the Town implementing programs to:
> • Reduce existing stormwater flows,
> • Improve stormwater management for new and redevelopment projects, and
> • Carry out Best Management Practice (BMP) retrofits of existing stormwater management systems. The Town of Winchester is committed to instituting these actions through a variety of policy controls and technical measures,

The Section 61 Findings for this project should incorporate the stormwater commitments. In the Findings, the town also should make commitments to acquire and preserve the area that will be redefined as bordering land subject to flooding to ensure that new construction will not intrude in BLSF or that new stormwater discharges will be introduced into the River, which could lead to a renewed effort to widen the river further. The SDEIR noted that some projects are currently being built in the BLSF or lands near the Aberjona River (that aren't in BLSF, but may be based on the new maps). 11

Some mitigation, such as acquisition of the Marotta Property, was not fully investigated in the SDEIR. MassDEP also understands that a contract has recently been signed to study the use of 16.5 acres of the "Kraft property" for flood storage. This parcel is located on the 12

Woburn/Winchester line and would provide storage during peak storm events. MassDEP is supportive of this creative alternative to help address the town's flooding issues. It is possible that acquisition of these sites could reduce some of the widening proposed. The potential for flood relief that can be achieved on these sites should be evaluated in the FEIR, and commitments should be made to develop the sites for flood control in the Section 61 Finding. By organizing the mitigation commitments in a Section 61 Finding, the conservation commission and MassDEP will have direction on how to proceed when the Notices Of Intent is filed.

Sediment and Erosion Control

The SDEIR indicates that the town of Winchester also is collaborating with the Massachusetts Community Assistance Partnership (MassCAP) to assess areas where the town can improve the methods used to address sedimentation and erosion to better control the sediment that is discharged to the Aberjona River. As a result of that program, the town is revising its catch basin cleaning program to increase the cleanout frequency of catchbasins in areas abutting wetlands, waterbodies, and natural resources. In addition, catchbasins that have had excessive sediment loads previously will get more frequent treatment.

Dredging

Under the revised plans in the SDEIR, enlargement of the Aberjona River channel would necessitate dredging of 16,000 yd^3 of sediment. The dredging information provided in the SDEIR is too general. The Department recommends that the final EIR consider the requirements in the revised 401 Water Quality Certification regulations for dredging, 314 CMR 9.00, which were promulgated on 12/29/06. 13

The MassDEP appreciates the opportunity to comment on this proposed project. Please contact Heidi Davis at (978) 694-3255 for further information on the wetlands and 401 water quality certification issues, and Ken Chin at (617) 292-5893 for information on dredging issues. Please contact Nancy Baker, MEPA Review Coordinator, for further information on the stormwater issues and for any general questions regarding these comments at (978) 694-3338.

Sincerely,

John D. Viola
Assistant Regional Director

cc: Brona Simon, Massachusetts Historical Commission
Marianne Connolly, MWRA
Tom Mahin, Jill Provencal, Heidi Davis, MassDEP NERO
Mike Stroman, Tom Maguire, Ken Chin, Lisa Rhodes MassDEP-Boston

Response to Comments from DEP NERO, April 6, 2007

Comment Number	Response
1	The FEIR now includes a comparison of model and USGS gage discharges for the 2-, 10-, 50-, and 100-year flood events, see Table 2-1 in Section 2.1.3 of this FEIR. Prior to publishing this document AECOM and DEP reviewed the model and the DEP agrees that the model accurately portays the empirical evidence.
2	As part of the FEIR, several projects were evaluated for their potential to be constructed ahead of the Scalley Dam and Craddock Locks mitigation projects. This additional analysis determined that Project 2 (Waterfield Road to Bacon Street) could be built after completion of Upper Mystic Lakes Dam improvements are complete, but ahead of the other mitigation projects with no adverse effect. Projects 4 (Mount Vernon Street Bridge Improvements), Project 8 (Swanton Street Bridge Improvements), and Project 10 (Railroad Bridge near Muraco School) were evaluated but each required that other projects and/or the Scalley Dam/Craddock Locks projects be completed first. The mitigation at Craddock Locks becomes required as the flows released from Project 4 (Mount Vernon Street Bridge) come into play. Section 4.8.5 of the FEIR presents the proposed sequence for project completion.
3	Section 5 of this FEIR now includes a Draft Section 61 finding for wetlands in the event a Superseding Order of Conditions is required.
4	In the short term, there will be a loss of bank vegetation on the east bank of the river for a distance of approximately 1,300 linear feet associated with Project 2. The existing bank in this reach is armored with large granite blocks, which has some vegetation (including trees) growing in the joints between blocks. The new channel bank on the east side of the River will be bio-engineered, the granite blocks will be removed, and the bank will be planted with low growing vegetation. At the top of the new bank trees will be replanted in a 2:1 ratio to those removed. The elevation change from the top of Bank to the ordinary water level is only 4 feet and the new plantings will provide shading to the banks and the water surface. The proposed channel will be wider and the incorporation of a 2-foot deep meandering low flow channel will provide adequate water depths, favorable flow conditions, and aid in maintaining cooler water temperatures to allow for the passage of anadromous fish. The existing vegetation on the western bank will remain.
5	The pilot channel proposed as part of Project 2 has been sized to be 2-feet-deep, have an 8-feet bottom width, and be set in a meandering pattern within the main channel bottom between Waterfield Road and Bacon Street. Normal pool elevation from the Mid-Lakes Dam is currently 7.5-feet NAVD88, the proposed bottom of the low flow channel is approximately 3.5-feet NAVD88, which results in a normal depth of 4-feet. Prior to major storms it is proposed by DCR that Upper Mystic Lake will be drawn down 2.2-feet to provide additional storage. The low flow channel will, therefore, contain water evne during these drawdown events. The low flow channel will be sized to maintain a minimum depth of 2-feet given the average annual low flow of 7 cubic-feet-per second. The structural integrity and need for maintenance of the pilot channel will be issuea addressed during final design, but velocities in this reach of the Aberjona River are fairly low due to the backwater from Upper Mystic Lake and the relatively flat slope of

the channel. The side slopes of the pilot channel will be bio-engineered, but not planted since during normal flows (and even during low flows) the channel will be completely submerged. Planting will occur in the new bank of the main channel adjacent to the Mystic Valley Parkway (east side) and trees will be planted at the top of the river bank.

6 As stated in the FEIR, the USACE is no longer associated with the design or construction of Project 2. Since the SDEIR, the proposed channel widening has been reduced from a bottom width of 39-feet to 35-feet to allow for greater recreational and landscaping opportunities. Alewife and blueback herring are anadromous species that live primarily in the sea, but enter freshwater streams and rivers to spawn. They spawn in ponds and in sluggish stretches of streams and rivers, Alewives tend to begin their spawning runs upstream earlier than the blueback herring. Spawning typically takes place at temperatures of 55 to 60° F for alewives and slightly warmer at 70 to 75° F for blueback herring. The first alewives entering from Massachusetts Bay typically appear upstream in April, but date of arrival varies from stream to stream, according to local conditions. Successive runs follow, peaking in June. Spawning only lasts a few days, with the spent individuals returning quickly to the sea. The young herring begin working their way downstream soon after hatching (approximately one week). The majority of individuals have found their way downstream by mid-summer. Although, alewives have been seen descending as late as August, in Massachusetts steams, and blueback herring have been found to descend as late as October (Bigelow and Schroeder, 1953).

The Mystic River has a significant annual herring run, which includes alewife and blueback herring. With the construction of the fish ladder at the Mid-Lakes Dam and the subsequent access to Upper Mystic Lake and the reach of river being considered for this project, construction activities should be restricted to avoid impacting the spawning run of herring. It is proposed that construction be restricted to August through February to avoid the ascending and descending herring.

7 An analysis was performed that assessed pre- and post-project Riverfront Area. The expansion of Riverfront Area will primarily occur in Manchester Field, a town-owned property. Graphics showing the existing and proposed Riverfront Area are included in this Section 4.2.4 of this FEIR.

8 During design alternatives to armoring will be considered. More discussion is included in FEIR Section 4.1.1

9 An assessment of Riverfront Area impacts related to Project 2 was performed and a conservative approach was taken. The ~~l~~ot" area used was limited to the DCR property within the affected reach as opposed to the true lot size along the entire river. This understates the amount of Riverfront Area present and overstates impact percentages. Previously developed areas such as sidewalks were not counted. After this conservative approach it was found that less than 10% of the Riverfront Area on the affected lot was being disturbed as part of this process, and far less than that was being converted to Bank and Land Under Waterbodies and Waterways. Therefore a Variance from the Wetland Protection Act is not required.

10 The Town is still committed to implementing stormwater controls. The Town is currently upgrading one of their playfields, and is including stormwater upgrades including underground detention and infiltration systems which will help reduce flooding from surcharging catch basins and increase groundwater infiltration.

11 The Town has no plans to acquire any other land being removed from the floodplain due to this project nor is that a reasonable requirement given the location and use of the flooplain fringe areas. The Town of Winchester has strict site development standards which include maintenance of existing discharge volumes and rates from new development and redevelopment projects. The floodplain fringe areas being removed from the floodplain are currently developed or Town-owned lands. Reduction of the floodplain will not open up new areas for development within this heavily urbanized river corridor.

12 The Town met with property owner of the Marotta property to investigate the possibility of acquiring the property. It was determined that purchasing the property for the amount requested was not cost-effective and it was staff's opinion that it could not recommend the purchase to Town Meeting.

As discussed in Section 2.6.1 of the FEIR, the Town of Winchester funded a feasibility study to evaluate potential wetland restoration and flood storage potential on approximately 16-acres of land owned by the General Foods Corporation (i.e. Kraft Foods) in Winchester and Woburn. The study concluded that the site could provide storage for up to 6.5 million gallons of floodwater for the 25-year storm event, while at the same time improving the riparian habitat and providing water quality treatment of attenuated flood waters from a highly urbanized watershed. Kraft Foods would retain ownership of the land. The Town is actively seeking funding to complete the design and construction of this project. Unfortunately, the Kraft Foods site is inundated during the 100-year storm event, and therefore does not reduce the need for downstream improvements proposed as part of the FEIR Alternative, nor would it provide effective flood storage during the 100-year event.

13 The FEIR now includes additional detail on the dredging impacts, see Sections 2.4 and 4.4.

MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
Fax: (617) 788-4899
TTY: (617) 788-4971

March 23, 2007

RECEIVED
MAR 23 2007
ENGINEERING/PLANNING

Mr. Ian A. Bowles, Secretary
Executive Office of Energy and Environment Affairs
100 Cambridge St, Suite 900
Attn: MEPA Office, Deirdre Buckley
Boston, MA 02114

Subject: Supplement Draft Environmental Impact Report - EOEA #13046
Aberjona River Flood Mitigation Program, Winchester

Dear Secretary Bowles:

The Massachusetts Water Resources Authority (MWRA) appreciates the opportunity to comment on the above-mentioned Supplemental Draft Environmental Impact Report DEIR proposed by the Town of Winchester.

The Aberjona River Flood Mitigation Program, as recommended in the SDEIR, continues to comprise structural improvements and best management practices to reduce the frequency and intensity of backwater flooding of the Aberjona River in Winchester. MWRA submits the following comments both to support the Town of Winchester's goals and efforts to mitigate flooding impacts and to help ensure that the proposed work will not cause harm to MWRA's wastewater facilities or sewer operations in the project areas. Most of these comments reiterate concerns raised in our comments on previous MEPA filings for this project.

Project 1: Reconstruction of Sewer Siphon Near Wedgemere Train Station (by MWRA)

This project involves relocating a sewer siphon chamber from its current position within the banks of the Aberjona River to a location downstream. This MWRA project requires building a new chamber at the downstream end of the siphon, extending the existing siphon conduits, dismantling the existing downstream chamber, and repairing the existing upstream chamber in an area bordered by Fenwick Road, Grove Place and Bacon Street, adjacent to the Wedgemere Commuter Rail Station in Winchester.

The project calls for constructing a cofferdam in a portion of the river to allow the contractor to dismantle the existing downstream siphon chamber and install the siphon conduit extensions to the new chamber. Because the sewer system must remain operational through construction, the contractor is required to provide temporary by-pass pipes to move the wastewater flow around the construction area. Construction will also include installing erosion and sediment controls, clearing trees, and building a new access roadway along what is commonly referred to as Skunk Hollow Road off Fenwick Road in Winchester. All work will occur in the wooded area on both sides of the Aberjona River. Once completed, the contractor will restore the river bank.

Printed on 100% Recycled Paper

MWRA recently awarded the construction contract. Most of the work is scheduled to occur from April to October, 2007. MWRA worked closely with the Winchester Conservation Commission, the Massachusetts Department of Conservation and Recreation, and the surrounding community during the design stage of this project. MWRA will hold a public meeting to review the planned construction on Wednesday, March 28, 2007, 7:00 PM, at the Winchester Room in Town Hall, 71 Mount Vernon Street.

Other Proposed Flood Control Projects

Other projects proposed by Winchester and/or the U.S. Army Corps of Engineers (ACOE) under the flood control program, especially Project 2 (widening, regrading and deepening portions of the Aberjona River from Waterfield Road to Bacon Street), are located near MWRA facilities, as was described in the DEIR and referenced in the Secretary's Certificate on the DEIR, dated April 28, 2006:

The DEIR identifies the many MWRA structures, including siphon chambers and sewer lines that could be affected by this project. Four sewer lines are located within the vicinity of Project #2 and, in several locations, are located within 10 feet of the riverbank. The proponent should coordinate with the MWRA regarding the project's impacts on these structures and the need for relocations or other mitigation measures and report on this coordination in the SDEIR. The proponent should be aware that the MWRA has indicated that any costs associated with moving or altering these structures will be borne by the project proponent. In addition, the proponent should consult with the MWRA regarding ongoing or planned efforts to remove extraneous flow (Inflow/Infiltration (I/IA)) in this area and whether it would have an impact on stormwater flow in the area.

In the DEIR, the Town of Winchester developed its recommended plan in part with the objective of avoiding or minimizing impacts to MWRA infrastructure. In its SDEIR recommended plan, the Town of Winchester has modified its recommendations in certain areas to provide further assurance that impacts to MWRA's sewer system will be avoided. The recommended plan for Project 2 has been changed to include widening of the river on the east bank only, where an MWRA sewer is located further away from the river than other MWRA sewers along the west bank. An alternative for Project 6, involving day lighting the river near Winchester High School, would conflict with the MWRA sewer in this area and has been dropped by the Town for that reason.

The recommended plan may continue to change in some areas. This is especially the case for Project 2, which is the subject of a separate Feasibility Study and Environmental Assessment prepared by the U.S. Army Corps of Engineers (ACOE) and due this spring. Among other factors considered by the ACOE in its recommendations is constructability. Protection of the MWRA sewer system in this area should be a key consideration with respect to constructability and cost. It is imperative that detailed impacts and costs related to protecting MWRA's facilities be evaluated before a final recommendation is made. Detailed information on the location of the sewers, including information from land surveys, is needed. The ACOE and the Town of Winchester should continue to coordinate their evaluations with MWRA. 1

2

In addition to the potential for direct conflicts with MWRA wastewater infrastructure and operations, access by MWRA to its sewers and the stability of the ground supporting these sewers are concerns. Therefore, impacts from bank and surface restorations also warrant careful review. The proponent will need to obtain permits from MWRA for any work near its facilities.

Thank you for the opportunity to comment. The MWRA understands the importance of this project to the Town, a member community of the MWRA, and will continue to assist and work with the town officials as this project is constructed. If you have any questions or require additional information, please contact David Kubiak at 617 305-5460.

Sincerely,

Marianne Connolly

Marianne Connolly
Program Manager, Regulatory Compliance

cc: David Kubiak, MWRA
Elizabeth Gowen, MWRA
Tom Lindberg, MWRA
Robert Conway, Winchester Town Engineer

Response to Comments from Massachusetts Water Resource Authority (MWRA) – March 23, 2007

Comment Number	Response
1	The USACE is no longer involved in the design or construction of Project 2. The project has been reduced from a 39-foot to a 35-foot bottom width. The project is being designed to avoid impacts to the MWRA sewers. During design the Town will coordinate with the MWRA and develop specific plans and notes that will protect the sewers during construction.
2	As the design of projects near MWRA facilities move forward, the Town will work with MWRA to mitigate any conflicts. The town will also obtain MWRA permits (as necessary) when the designs are nearing construction.

SENATOR PATRICIA JEHLEN
SECOND MIDDLESEX DISTRICT
STATE HOUSE OF MASSACHUSETTS
ROOM 213-A
BOSTON, MA 02133

April 6, 2007

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attn: Deirdre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: Aberjona River Flood Control
Winchester, MA
EOEA #13046

Dear Secretary Bowles:

I am writing to comment on Winchester's Flood Mitigation plans.

As the State Senator who represents Winchester, my priority is to reduce flooding and to ensure Winchester does not face an unfair financial burden for their efforts. Five major floods along the Aberjona River have inflicted an estimated $20,000,000 in damages within the past decade. Winchester has expended a great deal of its own resources to prevent further flood damage to the town's public and private property. Thus, as you move forward on the SDEIR, I ask you to be mindful of the resources Winchester has devoted to this project.

With this in mind, I write in support of Winchester's SDEIR. I support the elimination of projects that were unnecessary. I also support Winchester's plan to dredge and widen the river. My hope is to establish an effective water management plan throughout the entire Mystic River Watershed. We need to ensure water flows effectively from Horn Pond through the Amelia Earhardt Dam.

As a Senator who represents down stream communities as well, I want to make sure that water flow is properly managed. To that end, I am hopeful that the removal of the Craddock Locks will benefit the region by allowing water to flow downstream

uninterrupted. It is also my hope that included in the Department of Conservation and Recreation's capital plan are funds earmarked to address issues at the Upper Mystic Dam. However, we must also study water management at the Amelia Earhardt Dam. It is important to note that legislators representing lower Mystic River communities are seeking funds to study this issue in order to ensure we fully understand how to best control the pumps at the dam.

With regards to mitigation for widening the river and dredging, I urge you to remain sensitive to Winchester's concerns and the financial burden they have been asked to bear over the past decade. We need to find a fair and equitable solution to the flooding crisis in Winchester as well as a sustainable and affordable way to manage water throughout the entire Mystic River Watershed.

Sincerely,

Patricia D. Jehlen
State Senator

Response to Comments from Senator Patricia D. Jehlen – April 6, 2007

Comment Number	Response
	No response necessary.

D13

OFFICE OF THE BOARD OF SELECTMEN

KEVIN F. GREELEY, CHAIR
ANNIE LACOURT, VICE-CHAIR
JOHN W. HURD
DIANE M. MAHON
CLARISSA ROWE

730 MASSACHUSETTS AVENUE
TELEPHONE
781-316-3020
781-316-3029 FAX

TOWN OF ARLINGTON
MASSACHUSETTS 02476-4908

RECEIVED
APR 6 - 2007
MEPA

April 6, 2007

BY FAX: 617-626-1181

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attn: MEPA Office
MEPA Analyst: Deirdra Buckley
100 Cambridge St., Suite 900
Boston, MA 02114

RE: Supplementary Draft Environmental Impact Report
Aberjona River Flood Mitigation Program, Town of Winchester, MA
EOEA No. 13046

Dear Secretary Bowles:

The Town of Arlington wishes to express our strong concerns that the Supplemental Draft Environmental Impact Report (SDEIR) for the Aberjona River Flood Mitigation Program does not adequately address the potential negative impacts of the project on downstream properties.

We are pleased to have been included in discussions conducted by the Town of Winchester and share its concerns and goals in attempting this difficult project. We also commend ENSR in conducting such a comprehensive study of the Mystic River Basin. The Commission appreciates its efforts to model and report on both the upstream and downstream impacts of Winchester's proposed improvements, but we are convinced that even the supplemental study does not adequately describe the potential downstream flooding.

We are concerned that the preferred alternative will exacerbate, not alleviate, downstream flooding. We have doubts that the channel widening along the Aberjona River, will provide much additional storage for alleviating flood waters, and because of the lack of land available for needed additional detention or storage capacity, we fear that the widening will in fact facilitate the flow downstream to neighboring communities. Further, 1

we lack the confidence that identified lands in Winchester can be acquired for flood storage.

The Town's advisors have expressed doubt about the way the hydraulic model was calibrated especially as the results do not seem to comport with the extensive observation of flooding in the Alewife area. The Town requests to see more extensive peer review of the modeling. Additional frustration arises out of the Town's lack of access to the new Flood Insurance Rate Maps and model that ENSR apparently has been able to use in completing the SDEIR. We strongly recommend that no approvals be issued before the Town has the ability to evaluate the proposals with the best information available. 2

The Town recognizes that Winchester like Arlington does not want to delay action that will provide relief from flooding, but we firmly believe that on the basis of the information we now have, the installation of an additional pump at the Amelia Earhart Dam should be the first priority in the overall system of improvements that are needed to address this regional problem. We have confidence that this project will benefit Winchester and Arlington as well as other upstream and downstream communities. It is crucial to Arlington that this hydraulic constriction be removed prior to any further flood mitigation project within the borders of Winchester. There is controversy over the amount of flow constriction represented by the Cradock Dam and feel this needs to be further investigated. We remain open to consideration of other projects or another priority order of projects that might serve all communities better. We commit to continue working with the communities and the State to make this happen. 3 4

I reiterate that we remain committed to working cooperatively with Winchester, the other communities and the State in solving this difficult flooding problem. We advocate that all affected communities and the State work together to determine a plan that meets the region's needs in an equitable manner. We have made great progress in determining the possibilities, and the work done by Winchester and ENSR has contributed greatly to this effort. It may well be that the order in which various improvements are made will be the most important decision remaining in this process. Again, we appreciate the fact that the function of this MEPA review process is to ensure to everyone that there will be no adverse flooding impacts downstream, and we commit to work together in this process. Thank you for your consideration.

Yours truly,

Kevin F. Greeley

Kevin F. Greeley, Chair
Board of Selectmen

Response to Comments from Town of Arlington Board of Selectman – April 6, 2007

Comment Number	Response
1	The Town of Winchester understands your concern. This is why the Town hired AECOM to complete the analysis presented during the MEPA process using a model that includes all the major rivers/streams in the watershed including the ones downstream of Winchester. The preferred alternative includes several mitigation measures, including Craddock Locks that will actually reduce flood levels downstream even after the flood mitigation improvements within the Town of Winchester are completed. The Aberjona Channel widening, Project 2, is not designed to provide additional storage. The channel is being designed to restore the original channel size, which was reduced during the 1950's when the Mystic Valley Parkway was straightened and the River was relocated. The project will widen a 1300-foot stretch towards the eastern bank and will remove adverse slopes from the remainder of the stretch between Bacon Street and Waterfield Road. The widening will keep most storms within in the channel, but will not increase the rate of flow. Under existing conditions, floodwaters in this area travel downstream in the overbanks. This is unlike the case of an undersized culvert, where if the channel banks upstream of the culvert overtop, the floodwaters are stored until they can pass through the culvert limiting the flow downstream.
2	The model developed for FEMA has been calibrated to the available information in the watershed. At the time of the initial study the only calibration point available was the USGS gage in Winchester. Following the initial calibration and study submittal to FEMA, the USGS installed the gage on the Alewife. The model was then validated to the May 2006 storm event. The model matched the data from the Alewife gage for this storm. No issues with the calibration were raised during the FEMA peer review process. The Town of Winchester and AECOM were also frustrated with the schedule with which the preliminary FIRMs were issued. FEMA sent the preliminary maps to all Middlesex communities in September 2007, as also held public meetings presenting the study and allowing the public to comment. FEMA also provided to those who wanted a copy the full model files. The City of Cambridge contracted SEA Consultants to review the model and FEMA study. SEA came to the conclusions that the FIRMs and FIS were conducted in a reasonable fashion and with reasonable assumptions. No appeals were filed during the FEMA's official comment period.
3	The preferred FEIR Alternative does not include the installation of an additional pump at the Amelia Earhardt Dam. The Town of Winchester agrees that this project would help reduce flooding in the downstream communities affected by the backwater from the dam, however, it is not necessary to be completed as mitigation prior to the implementation of the Winchester's preferred FEIR Alternative. The only mitigation measures necessary to complete the FEIR Alternative are DCR's Mid Lake Dam which is currently under construction, an increased outlet size at Scalley Dam in Woburn, and modifications to Craddock Locks in Medford. Winchester is committed to performing the mitigation projects before projects that would impact flood levels downstream. Section 4.8.5 contains additional detail on the proposed project sequencing.

4	Since the SDEIR was filed, MassDOT (formerly MassHighway) performed their own hydraulic study of the Main Street Bridge. MassDOT concluded that the current bridge opening is a minor restriction to Mystic River flood flows, and that upstream to downstream stage elevation differential ranged from 0.7 feet to 0.75-feet for the 10, 50, and 100-year return period flows. MassDOT's study should hopefully resolve the controversy over the amount of flow constriction at Craddock Dam.

DB

TOWN OF ARLINGTON

MASSACHUSETTS

CONSERVATION COMMISSION

RECEIVED

APR 10 2007

MEPA

April 5, 2007

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attn: Dierdre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge St., Suite 900
Boston, MA 02114

RE: Comment on the SDEIR EOEA No. 13046 for the Aberjona River Flood Mitigation Program, Town of Winchester,

Dear Secretary Bowles,

I have reviewed the additional information in the Supplemental Draft Environmental Impact Report (SDEIR) for the Aberjona River Flood Mitigation Program and have the following comments.

As you are probably already aware, the Aberjona River system drains to the Mystic River. The Mystic River controls the drainage from Arlington through two streams, Mill Brook and Alewife Brook. Arlington has had a long history of flooding along these two waterways, especially Alewife Brook.

Of the proposed alternatives, the 100-year flood profile shown in Figure B2-15 presented with Alternative 7b shows an increase in the flood elevation for the confluence of Mystic River and Alewife Brook. This would obviously be detrimental to low-lying neighborhoods in Arlington. Therefore, this alternative should be avoided. Even if, the upstream and downstream mitigation projects are not owned and controlled by the Town of Winchester, these projects must be accomplished prior to those within Winchester in order to avoid dumping Winchester's flooding problems onto Arlington and downstream communities. 1

The SDEIR discusses the evolution of the hydrologic modeling achieved by ENSR. The hydrologic model parameter descriptions are presented in depth and detail showing to what degree the model utilizes GIS and physical basin and flow characteristic information.

TOWN HALL, 730 MASSACHUSETTS AVENUE, ARLINGTON, MA 02476
(781) 316-3012

ENSR has used the new flow monitor gage installed on the Alewife Brook at the Massachusetts Avenue bridge to calibrate the model to its flow. More detailed information supporting the calibration was presented in Appendix B1, Section 4.3. The Figure 4.10 shows the flow model compared to the observed May 2006 flow and the curves are quite different. Figures 4-9 and Figure 4-11 show stage and velocity respectively are well simulated for this same event. The final statements made in this section, regarding the model "results do a good job of predicting flooding risks," need to be supported with the QA/QC report that was done as a part of the FEMA review. 2

Importantly, the elevation of the new Alewife gage is not confirmed, thus casting doubt about the accuracy of the calibration of the model for stage. The SDEIR states that it "has not been tied to a know vertical reference datum, so the observed stages were adjusted downward by 2.3 feet to approximate NAVD88 elevations." The stated justification is that the bottom of the channel of the brook is –2.3 feet NAVD at this location. The model is then calibrated to this stage elevation from the gage. It is not clear that this adjustment to the stage is correct. It is imperative to have accurate information in this critical area. 3

The lack of fit for the flow characteristics in Figure 4-10, for the May 2006 event, is then explained with a description of how the gage is probably not measuring the Alewife Brook flows accurately due the constriction at the Massachusetts Ave bridge. It is contradictory to have one statement made that the gage is inaccurate while claiming elsewhere in the SDEIR that the model is now "well-calibrated" based upon this same information. Figure 4-11 shows velocities for this same event and while "Overall ENSR feels that the results of the May 2006 simulation agree well with the observed data", this statement must be backed up with more and better model verification and information from the independent review that confirmed the model accuracy. 4

Thank you for your consideration.

Sincerely,

Cori Beckwith
Conservation Administrator

Cb/cc
Cc:file

TOWN HALL, 730 MASSACHUSETTS AVENUE, ARLINGTON, MA 02476
(781) 316-3012

Response to Comments from Town of Arlington Conservation Commission – April 5, 2007

Comment Number	Response
1	Alternative 7b was run based on a requirement in the EOEEA Secretary's Certificate on the DEIR. It is not a preferred alternative, or even an alternative that Winchester would consider. The Town understands that they cannot pass their problem further downstream, and need to mitigate any increases that results from any of their proposed projects.
2	FEMA does not issue a final QA/QC report. The review contractor makes comments and then comments are resolved. The final reports and products include all resolved comments. The FIRMs and FIS' for Middlesex County are scheduled to become effective in June 2010. Cambridge hired SEA to review the preliminary FEMA study and maps. SEA came to the conclusions that the FIRMs and FIS were conducted in a reasonable fashion and with reasonable assumptions.
3	The Alewife USGS gage has not been hard surveyed, so AECOM does not have an accurate adjustment. The adjustment that was made matches the water level pre- and post-storm, so even if the exact elevations are not knon the relative increase in water level could still be compared.
4	Since the predicted velocities match so closely to those observed, and the predicted water levels match well with observed levels, the observed flows seem inconsistent. AECOM was not saying that the gage is not accurate; but rather questioning the rating curve that transforms velocity and stage to flow. Since the model matches well with the two values actually measured, AECOM still feels that the model results for the May 2006 simulation agree well with the observed data.

12B

CITY OF CAMBRIDGE • EXECUTIVE DEPARTMENT

Robert W. Healy, City Manager *Richard C. Rossi, Deputy City Manager*

April 5, 2007

RECEIVED
APR 6 – 2007
MEPA

Secretary Ian Bowles,
Executive Office of Environmental Affairs
Attn: Deidre Buckley, MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Supplemental Draft Environmental Impact Report
Aberjona River Flood Mitigation Program
Town of Winchester
EOEA #13046

Dear Secretary Bowles,

The City of Cambridge is pleased to submit comments with reference to the Supplement to the Draft Environmental Report (SDEIR) submitted on behalf on the Town of Winchester by their consultants ENSR specific to the Town's flood mitigation program for the Aberjona River. As was stated in our letter of April 20th 2006, our concerns center around the project's potential impact on residential and commercial properties in the North Cambridge and Alewife areas of the city. These areas of the city are susceptible to frequent flooding due to the Alewife Brook overtopping its banks and the inability of our drainage systems to function properly during significant rain events when the elevation of the Alewife rises, thus impacting conveyance capacity in the local drainage systems.

We note from Secretary Pritchard's Certificate on the Draft EIR, dated April 28th 2006, that he directed the Department of Conservation and Recreation (DCR) to work with Winchester and the other communities to achieve the cooperation and coordination necessary for basin wide flood management efforts. Unfortunately, no such initiative has taken place. The City of Cambridge is prepared to make our engineering resources available to participate in such an initiave and we welcome the opportunity to explore the various hydrologic/hydraulic options to further the goal of flood management within the watershed. 1

We are presently awaiting the delivery of the new Federal Emergency Management Agency (FEMA) flood study report and maps showing the new and revised flood plain in the Mystic River. We have been informed by FEMA that this information will be made available to us in May/June 2007. ENSR, the consultants working on behalf of the Town of Winchester are also contracted to FEMA to complete this revised study. Such being the case, the Town of Winchester has a level of access to the study and mapping which 2

795 Massachusetts Avenue, Cambridge, Massachusetts 02139
Voice: 617.349.4300 Fax: 617.349.4307 TTY: 617.349.4242 Web: www.ci.cambridge.ma.us

has not been afforded the other communities impacted by flooding in the area. This places us at a considerable disadvantage when reviewing this document.

The SDEIR document contains valuable and informative visual information as to the likely horizontal and vertical impact the new flood maps will have on the various reaches within Winchester and these maps are further used to illustrate the benefits associated with the various alternatives analyzed. However, it is unfortunate, that while the SDEIR, speaks in detail as to what the likely "vertical" impacts and benefits of certain mitigation measures or projects proposed in the preferred alternative (SDEIR Alternative 7) would be along the Alewife Brook, no maps or indeed tables have been provided illustrating the extent of the horizontal impact on the Alewife Brook. Paragraph 1 of Section 4.1.3.2 states in relation to the conveyance improvements alone, that "Because of the flat topography in this (Alewife) area, even a few tenths of a foot vertical rise could increase the floodplain extent considerably." It is imperative that we are provided with sufficient information to allow us to fully comprehend what this could mean. This issue is all the more resonant as the report goes on to state in the first paragraph of section 4.1.3.3 that "The revised Scalley Dam would mitigate for the increase in flood elevation downstream of Winchester, but relies on timely and correct operation of the spillway during a storm event." This implies that if the dam is not effectively controlled there will be an adverse effect on flooding downstream. 3 4

The report evaluated mitigating downstream flood increases through modifications to the Craddock Dam in Medford. As matters stand today the remnant of the old dam at this bridge in Medford has an adverse impact on flood flows within the Alewife Brook during significant storm events. ENSR estimates that the cost associated with the removal of the remainder of this superstructure would be approximately $50,000. It is imperative that this structure be removed immediately. Bearing in mind the extent of property damage in both the Alewife and Winchester areas this work needs to be addressed as an emergency measure. We would further assert that the removal of this obstruction and the consequent improvement to flood flow characteristics should be viewed as the baseline condition. It is unacceptable that the removal of a remnant portion of an obsolete structure, which should have been removed a long time ago, be considered as a mitigation measure to offset increased flood flows upstream in the Aberjona River. 5

Appendix B Figures B2 – 15 and B2 -17 illustrate that if the proposed mitigation strategies are not incorporated and properly managed, then the water elevation at the confluence with the Alewife could rise by almost 4 inches in the 100 year event, the horizontal extent of this increase is unknown. We are concerned that the mitigation strategies at the Scalley Dam and the Upper Mystic Dam are dependent on timely and correct human intervention. We strongly recommend that the Town of Winchester consider a more reliable form of mitigation that does not rely upon timely human intervention. 6

The report alludes to the possibility of increasing the capacity of the pumps at the Amelia Earheart dam by installing a fourth pump at that location. ENSR estimates that including a fourth pump would drop flood flows by up to 1.5 feet in the Alewife Brook during the 100 year event. This is a significant reduction and would have a profound impact on levels of service in the City of Cambridge and other communities. Unfortunately, this option is not pursued in the report and does not constitute a project in the preferred SDEIR Alternative 7. ENSR estimates that the cost associated with adding a fourth pump at this dam would cost approximately $5m. This is a relatively insignificant figure given the extent of flooding upstream of the Amelia Earheart dam and the potential flood relief to this affected area. Including a fourth pump at the Amelia Earhart Dam would constitute a more reasonable downstream mitigation project than that proposed at the Craddock Dam. 7

In summary, being a community that experiences damaging flooding on a frequent basis, both in the Alewife and in the Charles River Watersheds, we are genuinely sympathetic and broadly supportive of the significant effort being made by the Town of Winchester to address this issue. We appreciate the extent to which background information concerning the FEMA model has been provided in this report, but continue to be very concerned about the insufficient details on how the proposed project will impact our community. This report and the potential impacts on our portion of the watershed can only be fully appreciated when the new FEMA study and maps are made available to us. Until that time, it would be premature to advance this project any further. Again, we welcome the opportunity to work with Winchester and the other communities to find rigorous engineering solutions to address flooding in both the Alewife Brook and the Aberjona River.

Sincerely,

Robert W. Healy
City Manager

Response to Comments from City of Cambridge Executive Department – April 5, 2007

Comment Number	Response
1	To-date, there have been at least two meetings (with MyRWA, the DCR, State Legislators, and representatives from neighboring communities) where the Town of Winchester EIR team members and the City of Cambridge Engineering Department have participated in discussions concerning regional approaches to flood mitigation. The City Engineering Department has been involved in the issues regarding Amelia Earhardt Dam, Craddock Locks, and the Upper Mystic Lake Dam project. It is our understanding that the City of Cambridge is working with the DCR on several projects intended to address flood control issues. The Town of Winchester commits to continuing its supportive role as a partner in addressing flood mitigation on a watershed-wide basis. The projects discussed in this FEIR help to alleviate flooding in Winchester while not exporting the problem to its downstream neighbors including the City of Cambridge. The Town of Winchester is also a sitting member of the Mystic River Watershed Steering Committee established by EPA.
2	FEMA sent the preliminary maps to all Middlesex communities in September 2007, and also held public meetings presenting the study and allowing the public to comment. FEMA also provided a copy the full model files to those who wanted. The Town of Winchester agrees that you were at a disadvantage since the revised study and mapping were not yet issued prior to the submittal of the SDEIR. Winchester prolonged the submittal of the SDEIR in hopes that the FEMA study would be distributed prior the SDEIR filing, but ultimately decided it could not wait for FEMA since the issuance date kept slipping.
3	Winchester's improvements and mitigation projects are being designed and will be constructed in such a manner as to not increase downstream flood elevations. In fact flood elevations downstream will be reduced due to Winchester's efforts. The FEIR includes flood profile tables which show baseline conditions on Alewife Brook as compared to the proposed alternative. Given that flood elevations are either constant or decreasing due to Winchester's improvements, and due to the cost of producing maps, floodplain mapping along Alewife Brook was not produced for this FEIR.
4	Proper operation of the proposed Scalley Dam spillway would be required to see full benefits and is part of the commitment being made in this FEIR. The Town of Winchester has a good working relationship with the City of Woburn (the owner and operator of the dam) and will continue to work cooperatively with the City of Woburn as this project moves forward into operation. If the Scalley Dam project is not included, as in Alternative 7c in the SDEIR, the model results show a decrease in flood elevations above Main Street (Craddock), and a slight increase downstream of Main Street.
5	The Town of Winchester agrees that Craddock Bridge should be either renovated to a three span bridge, or the remnants of the locks be saw-cut and removed. We disagree that this structure cannot count as mitigation. At the time of the FEIR the obstructions at the Craddock Bridge have not been removed, therefore as in the FEMA FIRMs and FIS the obstructions still should be included in the baseline condition. The Town of Winchester has expended a lot of effort to identify constrictions and opportunities for mitigation downstream, including performing a feasibility assessment of removing the remaining locks. Since the Town identified and performed the analysis to show that

	removing portions of the structure could reduce flood impacts, it is fair that the Town claim these improvements as mitigation. The Town of Winchester does not view a proposed project which it identified, analyzed, and performed engineering on as a ~~"~~baseline" condition. This is consistent with the view of all of the current engineering efforts in this area conducted by FEMA and MassDOT. It is important to note, however, that once the obstructions at the Craddock Locks are removed, there will be excess capacity in the system beyond what is necessary to mitigate for Winchester flood control improvements.
6	Other than the headloss across Craddock Bridge, AECOM has not identified any other structures will significant loss across them. Proper control and management appear to be the only option. Structural changes at Scalley Dam and Mid-lakes Dam will allow for easier management than previously available.
7	The Town agrees that installing a fourth pump at the Amelia Earhardt Dam could result in a significant improvement to the operation of the dam for flood control. However, installation of the fourth pump is not required as mitigation for the preferred alternative.

DB

TOWN OF WINCHESTER
MIDDLESEX COUNTY, MASSACHUSETTS
PLANNING BOARD
TOWN HALL
WINCHESTER, MASSACHUSETTS 01890
Phone: 781-721-7120 Fax: 781-721-7166

April 5, 2007

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attn: Deirdre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

RECEIVED
APR 9 2007
MEPA

Dear Mr. Bowles:

The Winchester Planning Board has reviewed the Draft SDEIR, dated February 15, 2007, and is addressing its comments to you in the hopes that the Town of Winchester will soon be able to make further progress on its flood mitigation programs. The Planning Board, like the Board of Selectmen, is very mindful of the hazards of flooding to Winchester, its businesses, residents and economy, and we are pleased to support this submission and the Town's flood mitigation efforts

The Planning Board also is very conscious of the negative impact of flooding and the flood plain on land use in Winchester. Much of this land is commercial and institutional which is concentrated in the center of the valley along the Aberjona River. It is essential that the current conditions be mitigated. At the same time, these changes should be sensitive to the Herbert J. Kellaway plan of the early 1900's to create a "greenway" along the Aberjona in the Olmstead tradition.

The report itself has been significantly improved upon further review and we are happy to see that the elements, which have already seen a considerable amount of work, are still in place, notably the proposed changes at the Mt Vernon St. Bridge. It is also gratifying to see that the widening of the river below the Post Office has been skillfully redesigned to accommodate the need for greater water flow while still allowing for pedestrian uses in that key connecting area. We are pleased to see that the need for widening is not as great as initially envisioned which will better retain the natural aspects of the river through Ginn Field.

We are likewise very pleased to see that the MWRA is moving forward with its plans for replacing the inverted siphon at Bacon St.

All of these projects will provide significant relief for the Town in terms of flood mitigation as well as coordinating with other projects in that vicinity such as the Tri-Community Bikeway Project. The culverts to be enlarged under Ciarcia Field will help the flow, but other potential projects in that area should be considered in their placement.

In particular, the proposal to reroute a portion of the river's flow along the western edge of the field to provide additional capacity in times of flood, should remain a potential option to another culvert in our opinion. Balanced decision-making is always called for as these plans are further developed.

The Planning Board also lends support to the notion of completing the various flood mitigation projects from downstream upward as this will prevent residents in the north of Town from backwater impacts if projects were to be completed in the reverse order.

The Planning Board also supports the Selectmen in efforts to reach out and create ties with other communities as we deal with regional issues such as flooding, in this instance with Woburn as upstream developments impact on Winchester as well as supporting in its Medford in improvement at the Amelia Earhart Dam and Somerville with their connected issues.

We thank you this opportunity to comment and look forward to working with you on these projects, which are so important to the businesses and residents of Winchester.

Respectfully submitted,

Peter T. Van Aken, chairman

Winchester Planning Board
Peter Van Aken, Chairman
Lance Grenzeback, Vice-Chairman
Elizabeth M. Cregger
Maureen Meister
Drew Bottaro

cc: Board of Selectmen
Conservation Commission
Winchester Historical Commission

Response to Town of Winchester Planning Board – April 5, 2007

Comment Number	Response
	No response necessary.

DB

Town of Winchester

71 Mount Vernon Street • Winchester, Massachusetts 01890
Department of Planning and Community Development
Conservation Commission Division

March 19, 2007

RECEIVED
MAR 21 2007
MEPA

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attention: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

The Conservation Commission was impressed by the extent of the work and the new information in the SDEIR. We were also pleased that Project 2 will no longer include the section between Bacon Street and the Wedgemere Station, thus preserving a large area of bordering vegetated wetlands.

We still have several concerns about Project 2. It appears that the trees that are removed on the east side of the river cannot be replaced for technical reasons. Perching, hunting, foraging and nesting habitat for birds and other wildlife will be eliminated. Loss of shade, which results in an increase in water temperature, will change river habitat for fish. This problem will be aggravated if the bike path has to be built on west side of the river and requires removal of trees on that side of the river also. In the final design, every effort should be made to include replacement trees on the east side of the river and to make room for the bike path on the east side of the river. 1

We are also concerned about the lack of information on restoration of the river bed and river bank in Project 2. While the commitment to provide peer review for the Conservation Commission during permitting is appreciated, the applicant should also ensure that the final design is a team effort involving both an engineer and a scientist experienced in river restoration. 2

Phone: (781) 721-7152 • Fax: (781) 721-7166 • E-Mail: evreeland@ci.winchester.ma.us

Considering the environmental impacts, aesthetic impacts, and impacts to the use of the path, we recommend a closer look at the widening portion of Project 2. The benefits of Project 2 to buildings are unclear from just looking at Tables 4-4 and Figures 4-3 and 4-6 (although the flood profile in Figure B2-10 shows a drop of about 1.5 feet for the center of town, only the LOS in reach 6 for buildings changes from acceptable (C) to D). Removing the weir and the adverse slope could be done independently of the rest of Project 2. More detail should be provided for the alternatives mentioned on page 3-5. Consideration should be given to alternative culverts in the area where the widening is proposed. 3

In the opinion of the Commission, there are projects that would provide more cost effective flood relief than Project 2 and should be prioritized for the benefit of Winchester and other Mystic Valley communities, including improvements to the Amelia Earhardt Dam, Craddock Locks, Mystic Lake Dam, and the Scalley Dam at Horn Pond.

On Behalf of the Conservation Commission,

Stephen R. Parkhurst

Cc: Mel Kleckner, Winchester Town Manager
Board of Selectmen, Town of Winchester

DB

TOWN OF WINCHESTER
CONSERVATION COMMISSION
TOWN HALL
71 MT. VERNON STREET
WINCHESTER, MASSACHUSETTS 01890
(781) 721-7152

April 5, 2007

RECEIVED
APR 6 – 2007
MEPA

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attn: Deirdre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, Ma 02114

Dear Secretary Bowles:

This letter is to clarify our letter of March 19, 2007.

In our letter to MEPA dated March 19, 2007 the Commission expressed some concerns about Project 2. It was not the intention of the Commission to imply disapproval of Project 2, nor that projects downstream, although important to long term flood mitigation in the Mystic River watershed, are an alternative to Project 2.

The SDEIR Flood Mitigation Plan as a whole is a substantial improvement over previous plans. In addition, the SDEIR document has answered many of our questions, including those raised in our previous comment letters to MEPA on the DEIR and other questions raised at meetings with Town staff and the Town's consultant, ENSR.

The Conservation Commission has long recognized and has been concerned about flooding along the Aberjona River in Winchester, and the recurring losses have been substantial. It is a very serious problem for residents and businesses along the river. We strongly support the program of measures to reduce flooding, and we are looking forward to continuing our work with the Town on this very serious problem.

Very truly yours,

Erin Graham

Erin Graham
Chair Winchester Conservation Commission

cc: Board of Selectmen

Response to Comments from Town of Winchester Conservation Commission – March 19, 2007 and revised letter dated April 5, 2007

Comment Number	Response
1	AECOM believes that there is still a misconception that Project #2 includes widening the Aberjona River between Waterfield Road and Bacon Street (approximately 2,750 feet). The widening is only required from Waterfield Road to Manchester Road (approximately 1,300 feet) where the original channel was moved and narrowed as a result of building the Mystic Valley Parkway. Downstream of this point to Bacon Street the project only includes the removal of adverse slopes and the installation of the low flow pilot channel. Channel work will be limit to between the banks, which will maintain the trees along the banks on both sides of the river. In the reach from Waterfield Road to Manchester Road there will be a loss of trees along the east bank during construction. Following construction the proposed project includes planting a minimum of two 3-inch caliper replacements for each 4-inch-plus caliper tree removed. The project team now includes Pressley Associates, Inc landscape architects who will be assisting in developing the landscape and tree replacement plans. Existing vegetation on the western bank will be maintained. Since the submittal of the SDEIR, the design of Project 2 has been further developed. The channel has been reduced from 39 feet to a currently proposed bottom width of 35-feet. A pinch point was also determined which is going to require converting a portion of the Mystic Valley Parkway breakdown lane into sidewalk, in order to achieve the 35-feet bottom width. In order to place the bike path on the east side, the sidewalk would need to be a minimum 10-foot width, which would encroach into the Mystic Valley Parkway travel way. As a result, the current design of the bikeway calls for it to be installed on the western side of the river between the parking lot and existing vegetated buffer.
2	The Town of Winchester agrees that the design of the restoration needs to be accomplished by a team which includes aquatic ecologists with experience in river restoration, wildlife biologists, fisheries biologists and engineers familiar with ecological design. The Town will continue to work with the Commission in formulating appropriate restoration designs during the remaining phases of the project.
3	Removing the weir and adverse slope does not address the flow restriction upstream of Manchester Road. For the SDEIR we evaluated the effectiveness of the preferred alternative (Alternative 7) without Project 2 (we called this Alternative 7a; described on pages 4-15 through 4-19). The analyses showed that without Project 2, the flooding improvements in downtown Winchester were significantly reduced (1.5 feet of improvement with Project 2 versus 0.5 feet of improvement without it). Clearly, Project 2 is a critical link. We agree that LOS levels do not improve in all cases, but we had to balance the size of the conveyance improvements against floodplain reductions, economic considerations, and environmental impact. As discussed on page 3-5 of the SDEIR, we also evaluated the size and cost requirements of providing conveyance in culverts versus channel enlargement in this reach and found that both the sizes required, the difficulty in installing them (Mystic River Valley Parkway and utilities on one side, and the MWRA sewer on the other) and the anticipated costs associated with such improvements preclude their use.

HISTORICAL COMMISSION

TOWN OF WINCHESTER

MIDDLESEX COUNTY, MASSACHUSETTS

TOWN HALL

WINCHESTER, MASSACHUSETTS 01890

5 April 2007

Secretary Ian A. Bowles
The Executive Office of Environmental Affairs
Attn: Deirdre Buckley, MEPA Unit, EOEA No. 13046
100 Cambridge Street - Suite 900
Boston, MA 02114

Re: Aberjona River Flood Mitigation Program, Winchester; EOEA No. 13046, MHC# 32555
Supplemental Draft Environmental Impact Report (SDEIR) dated 15 Feb. 2007

Dear Secretary Bowles:

The Winchester Historical Commission has reviewed the Supplemental Draft Environmental Impact Report (SDEIR) dated 15 Feb. 2007, prepared by the Town of Winchester and its consultants (ENSR, PAL, et. al.), and offers the following comments.

SUMMARY FINDINGS ON THE SDEIR

The Winchester Historical Commission (WHC) views these efforts to mitigate flooding problems as potentially of great benefit to the historic resources of low-lying and flood-prone Winchester, particularly the historic buildings in and around the Winchester Center (National) Historic District and at other points along the Aberjona River. These projects also offer potential opportunities for enhancement of these and other historic resources within and abutting the areas of work. The Winchester Historical Commission offers our strong support to these efforts to mitigate the flooding problems.

The WHC is pleased to note that the Town's Consultants and/or Town Staff have cooperatively engaged in productive discussion and dialogue with the WHC on multiple occasions prior to submission of the SDEIR, to hear, consider, and incorporate our potential concerns and comments in advance of their SDEIR submission.

Our comment letter to you on the DEIR dated 20 April 2006 encouraged the Town to explore opportunities for enhancements of the recreational uses of the Kellaway Landscape along the

Aberjona River, possibly in conjunction with a planned bikepath to Woburn. We also advocated that the proposed flood improvement projects be designed and executed in such a way that they would not preclude the future construction of unrealized portions of the Kellaway Landscape, and perhaps even explore the possibility that some unrealized portions of the Kellaway Landscape could be completed in conjunction with flood control projects or a contemplated bikeway to Woburn. We are extremely pleased to report positive action by the Town on this front.

The Town has secured funding for a Tri-town Bikeway/Greenway along the Aberjona River that will enhance recreational opportunities along the Aberjona River, in the spirit of the Kellaway Plan. Preliminary design is now underway, and Town Staff and the Town's Consultants solicited the Historical Commissions input at the earliest stage of preliminary design, so that they could consider and incorporate our early input on how the design of the Greenway/Bikeway could enhance the Kellaway Landscape, the Winchester Center (National) Historic District, and the Mystic Valley Parkway (Metropolitan Parkways System National Historic District). The proposed Greenway/Bikeway will run through many of the project areas for the Flood Control Projects. A leg of the Greenway/Bikeway may even follow Florence Street – a Florence Street Greenway that was planned by Kellaway in the early twentieth century as part of his landscape plan, but never realized. While the Greenways/Bikeways Project is proceeding independent of the Flood Control Projects (because of separate funding sources, and timetables), we feel strongly that as part of the SDEIR and the FEIR review, EOEA should give credit to the Town for these recreational enhancements along the Aberjona River, and along and through the three most significant historic resources affected by the flood control mitigation program [in alphabetical order, the Kellaway Landscape, the Mystic Valley Parkway (Metropolitan Parkways System National Historic District), and The Winchester Center (National) Historic District].

Our comment letter to you dated 20 April 2006 on the DEIR included discussion of three major issues relating to the historic and archaeological resources that we felt merited further study or clarification at that stage of this process:

- Assessment of the Mystic Valley Parkway, (which is listed on the National Register of Historic Places as part of the Metropolitan Parkway System) as an historic resource proximate to and potentially affected by the projects.
- Assessment of the Kellaway Landscape (which appears potentially eligible for listing on the National Register of Historic Places) as an historic resource proximate to and potentially affected by the projects.
- Clarification of the proposed alterations, potential project impacts to, and proposed mitigation for Project #4 at the historic Mt. Vernon Street Bridge, which is a contributing resource within the Winchester Center (National) Historic District.

The WHC is pleased to report that the SDEIR adequately addresses these issues and other issues that were not previously well-addressed in the DEIR. Thus, we find the SDEIR to be acceptable, and we recommend acceptance of the SDEIR by EOEA.

WHC COMMENTS TOWARD THE FINAL ENVIRONMENTAL IMPACT REPORT (FEIR)

In the spirit of this ongoing cooperation and coordination established during the SDEIR phase, we offer the following comments toward development of the Final Environmental Impact Report (FEIR) that will follow acceptance of this SDEIR:

Kellaway Landscape:

- We are pleased to see that since the DEIR, the Kellaway Landscape has been added to the SDEIR, and described and evaluated as an historic resource potentially eligible for listing on the National Register of Historic Places.
- We are also pleased to read in the SDEIR the Technical Memorandum from PAL to ENSR dated 6 Feb. 2007 (appendix C2), that PAL recommends that an "MHC Inventory Form H –Landscape" form be completed as part of the upcoming intensive architecture survey to further evaluate the landscape and its individual components.
- Davidson Park is an integral component of the historic Kellaway Landscape. We understand from the Technical Memorandum from P.A.L. to ENSR dated 6 Feb. 2007 (appendix C2 of the SDEIR), that Projects #14 and 15, which were previously proposed for Davidson Park, were dropped from consideration. We assume that is the reason those two projects and Davidson Park are not listed in *Table 2-9, "Known and Potential Historic Architectural Properties"*, or in *Table 4-12 "Proposed Impacts and Proposed mitigation for Historic Architectural Resources"* of the SDEIR.

Mt. Vernon Street Bridge:

- We noted in our comment letter on the DEIR that the DEIR did not explicitly state that a previous schematic plan from the ENF to demolish and replace the historic bridge is no longer under consideration. We are pleased to read in the SDEIR (page 6-47) that this alternative is no longer under consideration, and is not being carried forward.
- While the WHC preferred the detached bypass culvert option for hydraulic improvement of the bridge, as we previously stated in our letter to the Board of Selectmen (attached as Appendix D5 of the SDEIR), we find the expansion of the historic bridge with a fourth opening to be acceptable if 1) the new fourth opening were granite to match the existing, and 2) the unsympathetic concrete parapet were removed and replaced with a metal railing that is more compatible with the character of the bridge and the historic district. We are pleased that both these conditions are explicitly proposed in the SDEIR (p. 6-46 and 6-47). Thus, we find this proposal for the bridge to be acceptable. We wish to review further details of this design as they are developed.
- We are pleased that an image of this proposal is included in the SDEIR (Fig. 3-8), as we requested in the DEIR. For the FEIR, we suggest that the image be modified to include a metal railing that is sympathetic to the historic character of the bridge, as described on pages 6-46 and 6-47 of the SDEIR. 1
- The SDEIR proposes, and the WHC supports and encourages, removal of the unsympathetic concrete parapet (superstructure) of the bridge, and replacement with a 2

metal railing that is more sympathetic to the historic character of the bridge. The SDEIR appears to contain an error in Appendix C2, page 7 of 17 of the Technical Memo from PAL to ENSR, where it states that ".. every effort will be made to preserve the superstructure of the bridge". The word "superstructure" (the portion above the roadway, i.e., the concrete parapet) should be changed to "substructure" (the portion below the roadway, i.e., the historic granite structure).

Mystic Valley Parkway:

- We are pleased to see that the historic Mystic Valley Parkway, listed on the National Register of Historic Places as part of the Metropolitan Parkway System Historic District, is now described and evaluated in the SDEIR.
- The depiction of the properties and districts either listed on, or potentially eligible for listing on the National Register of Historic Places, as depicted on Figures 1a and 1b of Appendix C2 may need refinement for the FEIR.
    - On Figure 1a, the National Register District boundary line appears to show only the roadway, and does not appear to include the adjacent parkland owned by DCR 3
      that is also part of the Metropolitan Parkway System Historic District (which includes the Mystic Valley Parkway). DCR literature on the historic parkways emphasizes that the Parkways are not roads, but rather, are parks with a road through them. We do not yet have definitive maps of the boundaries of the Metropolitan Parkway System Historic District, but the boundaries on Figures 1a and 1b should be checked and refined if necessary. At the very least, this linear parkland along the Mystic Valley Parkway, owned by DCR, appears eligible for listing on the National Register, and should be shown on the figure as potentially eligible for listing, and should be evaluated.
    - Manchester Field, adjacent to the east side of Mystic Valley Parkway 4
      (Metropolitan Parkway System National Historic), and abutting the Winchester Center Historic District, also appears eligible for listing on the National Register of Historic Places, and should be indicated as such on Figure 1b. It is an integral landscape component of the Metropolitan Parkway System. As described in Appendix C2 of the SDEIR, "The MPC (Metropolitan Park Commission) built Manchester Field, named after an early commissioner, in 1900 in the bottomland between the railroad and the Aberjona River. In 1946, the Metropolitan District Commission (MDC) acquired additional land... and then rebuilt Manchester Field east of the Parkway."
    - On Figure 1b, the Metropolitan Parkway System National Historic district extends 5
      through, and overlaps with, the Winchester Center (National) Historic District. The boundary line for the former appears to be absent from Figure 1b.

- For Project #2, the SDEIR considers several options for the cross section of the sidewalk 6
  along the Mystic Valley Parkway and the Aberjona river, and states a preference for the cross section illustrated in Figures 3-1 and 3-2. We also prefer this cross section to the others. We recommend that the wood guardrail shown in Figs. 3-1 and 3-2 be replaced with a stone or stone-faced wall of the same height. This solid wall would provide a visual screen and protective barrier between the heads of adults, and the tires of passing

cars, which would be at approximately the same height (see Figs. 3-1 and 3-2). Precedent for this cross section of the Mystic Valley Parkway roadway and sidewalk exists very nearby, near the Mill Pond, Town Library and the Lincoln School (all historic resources) at a historically significant and picturesque area of the Town Center where the Mystic Valley Parkway, Winchester Center Historic District, and the Kellaway Landscape all converge. This sidewalk (with the stone wall) along the Mystic Valley Parkway is well used by pedestrians, and offers a pleasant experience of the landscape, mill pond, and the historic center that is not disrupted by automobiles passing at roughly head height.

- Under Section 4.11, "Project Permitting", most projects within or proximate to Historic Districts (e.g., Projects 3 and 4) note that the projects will be coordinated with the Mass. Historical Commission (MHC) and the Winchester Historical Commission. Similarly, Project #2, the "Waterfield Road to Bacon Street Conveyance improvements" is also within or proximate to two historic districts – The Winchester Center Historic District, and the Metropolitan Parkways Historic District (Mystic Valley Parkway). We recommend that this project should similarly coordinate with the Mass. Historical Commission (MHC) and the Winchester Historical Commission. 7
- Section 4.11, "Project Planning", subsection 4.11.3 titled "Project 3 – Center Falls Dam" (page 4-69) notes that the Center Falls Dam is proximate to the Winchester Center Historic District. This text should be corrected to note that the Center Falls Dam is within the Winchester Center Historic District, and is also proximate to the Metropolitan Parkways National Historic District (Mystic Valley Parkway). 8

Sincerely,
Winchester Historical Commission

Matthew B. Bronski

Matthew Bronski, Chair
On Behalf of the Commission

cc: Massachusetts Historical Commission
Winchester Asst. Town Engineer
Winchester Asst. Town Manager
Winchester Board of Selectmen
Winchester Conservation Commission
Winchester Design Review Committee
Winchester Planning Board

Response to Comments from Town of Winchester Historical Commission – April 5, 2007

Comment Number	Response
1	The proposed design of Mount Vernon Street Bridge has not been altered since the SDEIR. At this time, an updated rendering is not included, but the design team will consult with the Historical Commission as the design progresses.
2	The language referenced by the Winchester Historical Commission is contained within the original historic assessment survey memorandum dated 2006. SDEIR Appendix C2 – Historic Architectural Assessment (2007) supersedes the original study and states that preliminary design plans have been developed for replacement of the incompatible concrete with a wrought iron railing.
3	Per the National Register of Historic Places nomination form (Adams et. al. 2008) for the Metropolitan Parkway System National Historic District the boundary for the Mystic Valley Parkway is drawn to encompass property historically and currently associated with the roadway, including the parkway corridor and adjacent planting strips and sidewalks where they exist. Where they do not, the boundary extends 10 feet from the edge of pavement. The boundary does not include adjacent MDC-owned property not directly associated with the parkway.
4	Manchester Field was evaluated as a non-contributing element in the Kellaway Landscape Historic District and does not appear to be eligible for listing as part of the Mystic Valley Parkway. The original field was laid out in a collaborative effort by the Town of Winchester and the Metropolitan Parkway Commission during the construction of the Mystic Valley Parkway. The original park was destroyed when the river channel was straightened in 1946. The straightening project was not in conformance with the Kellaway Plan and was completed after the period of significance identified in the National Register evaluation completed for the Kellaway Landscape Historic District as part of the historic architectural survey conducted in advance of the FEIR.
5	The boundary line for the Metropolitan Parkway System National Historic District was omitted on Figure 1b, but was depicted on Figure 1a where potential impacts to the district were identified. The area of the district encompassed by Figure 1b will not be impacted by the Project.
6	Since the filing of the SDEIR, Project #2 was further evaluated the Town of Winchester and the project was significantly modified. Project #2 now includes widening the Aberjona River from Waterfield Road Bridge to approximately 1300-feet downstream with a minimum bottom width of 35-feet. The preferred alternative in the SDEIR had a sunken sidewalk; in the FEIR the preferred alternative is to convert a portion of the Mystic Valley Parkway Shoulder to sidewalk and a vegetative buffer. The design is still progressing; a landscape architect is under contract to work with the design team to ensure that the design is consistent with DCR's Historic Parkway Guidelines. During the design guardrail or alternative options will be explored.
7	The project permitting section of the FEIR includes coordination with MHC and WHC for Project #2.
8	The update of the project permitting section in the FEIR includes the revisions suggested on this section of the SDEIR.

DB

ABC Flooding Board

RECEIVED
APR 10 2007
MEPA

April 6, 2007

Secretary Ian Bowles,
Executive Office of Environmental Affairs
Attn: Deirdre Buckley, MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Supplemental Draft Environmental Impact Report
Aberjona River Flood Mitigation Program
Town of Winchester
EOEA #13046

Dear Secretary Bowles,

The ABC Stormwater Flooding Board (Board), a board comprised of representatives from the Towns of Arlington and Belmont and the City of Cambridge, submits the following comments on the Supplemental Draft Environmental Impact Report. First, we would like to express our gratitude to the Secretary of the Executive Office of Environmental Affairs for providing us with the opportunity to comment on this important Supplemental Draft Environmental Impact Report (SDEIR). We are also thankful to the Town of Winchester for extending the comment period so as to allow more time to consider this significant proposal.

The Board was formed and entered into an Environmental Joint Powers Agreement (EJPA) in 2005 as defined by M.G.L. c. 21A, Section 20. The primary focus of the EJPA is for the communities to work jointly and cooperatively to identify and implement cost effective solutions to reduce or eliminate the devastating effects of flooding and other hazards in the Little River and Alewife Brook sub basins of the Mystic River Watershed. The Board consists of one appointed member of each of the three communities. We understand and are sympathetic to the Town of Winchester's wishes to address the severe flooding issues in their community. This SDEIR has boldly pointed out the paramount need to work watershed wide to find solutions to flooding so that relief/mitigation provided for one sub basin does not negatively impact the hydrologic/hydraulic dynamics of another. Our communities on the Mystic River downstream from the Town of Winchester, and as such, the proposed flood mitigation project is of considerable importance to us.

As was the case outlined in our earlier letter on the DEIR, the revised Flood Insurance Rate Maps have not yet been released by the Federal Emergency Management Agency (FEMA) for the Mystic River watershed. It is impossible to fully evaluate the SDEIR alternatives unless information is provided in more detail on the FEMA model and revised flood plain elevations in our flood prone communities. We have been advised that their release is imminent, but unfortunately not within the timeframe for this review. 1

Since ENSR, the consultant working on the Flood Mitigation Project for the Town of Winchester, is the same consultant working on the FIRM model and mapping for FEMA, the SDEIR contains modeling information showing the vertical and lateral extent of flooding and improvements to the Winchester flood plain under various scenarios. Unfortunately the same level of detail is not shown for the impacts to our communities, which is characterized by very flat topography. The FEMA model and revised FIRMs are needed for us to evaluate in real terms what the alternative recommended by the Town of Winchester will mean for our communities. Our original concern over the use of the model based upon the unreleased maps remains a serious concern.

We are supportive of former Secretary Pritchard's directive to the Department of Conservation and Recreation (DCR) "to work with the Town of Winchester and other communities to achieve the required cooperation and coordination necessary for basin-wide flood management efforts," in his April 28, 2006 Certificate for the Draft EIR. Unfortunately our communities have not had an opportunity to meet and work with DCR on this issue, despite requests to meet on this issue. The benefits from flood mitigation efforts in this area, which include those derived from any modifications or changes at the Craddock Bridge and Locks must be shared equitably between all of the impacted communities upstream of this structure, both in terms of flood level of service and flood elevation reductions. 2

In conclusion, we would like to reiterate our broad support for the Town of Winchester and its efforts to manage flooding in its community, but remain concerned with potential negative impacts to our own flood prone communities. Modeling efforts by Winchester's consultant have shown some potential mitigation measures that could benefit our communities in the Alewife watershed such as the removal of obstructions at Craddock Bridge and Locks. Unfortunately, one project not included in the recommended alternative, increasing the capacity of the pumps at the Alewife Pump Station, was not include nor analyzed as part of this document despite its potential to have a significant benefit for the upstream areas. Our support for the work proposed under the SDEIR is dependent upon assurances that an equitable approach to sharing level of service improvements can be achieved. We welcome the opportunity to work with Winchester, DCR and other communities to ensure an equitable approach to sharing level of service improvements with the other impacted communities within the watershed is achieved. If you have any questions concerning this letter, please contact me at crowe@brownrowe.com, or by calling me at 617-542-8552. 3

Sincerely,

Clarissa Rowe

Clarissa Rowe
ABC Flooding Board, Chairman
Selectman, Town of Arlington

Response to Comments from ABC Flooding Board – April 6, 2007

Comment Number	Response
1	FEMA sent the preliminary maps to all Middlesex communities in September 2007, and also held public meetings presenting the study and allowing the public to comment. FEMA also provided a copy the full model files to those who wanted it. The Town of Winchester agrees that reviewers were at a disadvantage since the revised study and mapping were not yet issued prior to the submittal of the SDEIR. Winchester prolonged the submittal of the SDEIR in hopes that the FEMA study would be distributed prior the SDEIR filing, but ultimately decided it could not wait for FEMA since the issuance date kept slipping.
2	The headloss at Craddock Bridge for most storm events is approximately 0.7-feet. If the projects as proposed are performed without any mitigation, including Craddock, Mid Lakes Dam and Scalley Dam, the increase in flood elevation downstream of Mid Lakes is approximately 0.5-feet in the 100-year storm. With all the mitigation proposed in the preferred alternative flood elevations are expected to decrease 0.5-feet in the 100-year storm. We believe that since the preferred alternative will result in a decrease in flood elevation, the Winchester Flood program actually benefits the downstream communities, and the mitigation is shared among the communities.
3	The Town agrees that installing a fourth pump at the Amelia Earhardt Dam could result in a significant improvement to the operation of the dam for flood control. However, installation of the pump is not required for the successful mitigation of the projects proposed as part of the FEIR Alternative.

D13

MYSTIC RIVER WATERSHED ASSOCIATION
20 ACADEMY STREET, SUITE 203
ARLINGTON, MA 02476

PHONE: 781-316-3438 • FAX: 781-641-2103
WEBSITE: WWW.MYSTICRIVER.ORG

By Fax: 617-626-1181

April 6, 2007

RECEIVED
APR 6 - 2007
MEPA

Ian A. Bowles, Secretary
Executive Office of Environmental Affairs
Attn: Deirdre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Aberjona River Flood Mitigation Program, SDEIR, EOEA File #13046

Dear Secretary Bowles:

The Mystic River Watershed Association (MyRWA) is a non-profit organization dedicated to protecting and restoring the watershed's water quality, open space, and habitat. The Mystic River watershed encompasses 21 communities and is home to about 8% of the state's population (more than half a million people) in less than 1% of its land area. The Mystic is one of the most densely populated and urban watersheds in Massachusetts. Ten out of the twenty Massachusetts communities found in a recent study by Professor Daniel Faber to be "most intensively overburdenod" by cumulative environmental hazards lie within this watershed. The Mystic River watershed includes the Aberjona River, the entire Town of Winchester, and all projects proposed or discussed in the Town's SDEIR.

Winchester's SDEIR has responded effectively to our comments on the DEIR and shows a significant improvement over the DEIR. We appreciate in particular the regulatory measures the Town has taken with respect to reducing post-development run-off volumes and increasing infiltration, the Town's commitment to mitigating for downstream flooding impacts, and the reduction in the area subject to channel-widening under Project 2.

Accordingly, our comments on the SDEIR are limited to the following:

1. Restoration of Riverbank Vegetation.

In reviewing the textual description and the landscape architects' rendering of the USACE alternatives for Project 2, we note that no alternative includes replacement of the mature forest on the east bank of the river in the upstream reach of Project 2. This reach is now fully shaded by a dense buffer of mature trees with limbs overhanging the river. The east bank of the reach will be clear cut and excavated in connection with Project 2. The failure to replace the mature forest will drastically impact the ecology of the river in that reach permanently. Cover, nesting habitat and perches for wildlife will be 1

eliminated and the temperature of the water will increase substantially, particularly in the warm weather months. The increase in water temperature will negatively affect aquatic habitat and improve conditions for bacterial growth. Even under the existing shaded conditions, our water sampling data show high bacterial counts in that reach during the summer months. In July of 2006, for example, our data for this reach (samples taken at the USGS gauge) showed an E. coli count of 12,600 colony-forming units: 10 times the Massachusetts Water Quality Standard for secondary contact (1260 cfu) and 60 times the Standard for swimming (235 cfu).

Failure to replace the forest on the riverbank in this reach is not only ecologically unsound, it triggers the protection of state parkland under Article 97 of the Articles of Amendment to the Constitution of Massachusetts. This riverbank is owned by the state Department of Conservation and Recreation. Ecological features of parkland are protected "uses" of the parkland that may not be "changed" without a two-thirds approval of each branch of the Massachusetts General Court. See, e.g.: Gould v. Greylock Reservation Commission, 350 Mass. 410 (1966); Abbott v. Commissioners of Dukes County, 357 Mass. 784 (1970). These cases stand for the proposition that clear cutting of vegetation is an "inconsistent use" of parkland and therefore triggers Article 97 protection. 2

It is our informal understanding, based on discussions with Town representatives and ENSR, that the replacement of mature trees on the riverbank in this reach was determined to be infeasible for technical reasons. We suggest that the USACE and the Town revisit this issue and offer an alternative that includes replacement of mature trees on the riverbank and takes other measures to offset any impact of the trees on the flood reduction benefits. 3

2. Sequencing

Given the potential for downstream impacts from the proposed project, the sequencing of project components is very important. It is our understanding that the channel-widening portions of this project will not occur until the Craddock Locks restrictions are removed. We recommend that approvals of the project be conditioned on this sequencing, so that mitigation measures are in place before project components that would have downstream impacts are implemented. 4

3. FEMA Mapping Changes.

We also request that Winchester commit to a reevaluation of the preferred alternative, to verify that there will be no impacts downstream, should comments on the forthcoming FEMA floodplain maps result in any significant changes to the model used to prepare the maps and to analyze the Winchester proposal. 5

Thank you for requesting the SDEIR in this case, and for the renewed opportunity to comment.

Sincerely,

Patrick Johnston

Patrick Johnston
Chair, Policy Committee

Response to Comments from Mystic River Watershed Association – April 6, 2007

Comment Number	Response
1	AECOM believes that there is still a misconception that Project #2 includes widening the Aberjona River from Waterfield Road to Bacon Street (approximately 2,750 feet). The widening is only required from Waterfield Road to Manchester Road (approximately 1,200 feet). Downstream of this point to Bacon Street, the project only includes the removal of adverse slopes and the installation of a low flow pilot channel. Channel work will be limited to between the banks, which will maintain the trees along the banks on both sides of the river. In the reach from Waterfield Road to Manchester Road there will be a loss of trees along the bank during construction. Following construction the proposed project includes planting a minimum of two 3-inch caliper replacements for each 4-inch-plus caliper tree removed. The project team now includes Pressley Associates, Inc landscape architects who will be assisting in developing the landscape and tree replacement plans. Ecologically, this reach is not characterized by a ~~"~~mature forest with branches overhanging the river" as noted in the comment letter. This reach is the result of the river being moved from its natural course due to reconstruction of the Mystic Valley Parkway. In fact in this straightened, narrowed, and armored reach of river, only 8 trees over 4-inch diameter will be removed as part of the project along this 1,300 foot reach of the river. In the reaches downstream of Waterfield Road, the tree canopy is more significant and these banks will not be cut. Since the submittal of the SDEIR the design of Project 2 has been further developed. The channel has been reduced from 39 feet to a currently proposed bottom width of 35-feet. A pinch point was also determined that will require converting a portion of the Mystic Valley Parkway breakdown lane into sidewalk, in order to achieve the 35-feet bottom width. In the short term there will be a loss of bank vegetation on the east bank of the river for a distance of approximately 1,300 linear feet. The existing bank in this reach is armored with large granite blocks, which has some vegetation (including trees) growing in the joints between blocks. The new channel bank will be bio-engineered, the granite blocks will be removed, and will the banks will be plantedwith low growing vegetation. At the top of the new bank trees will be replanted in a 2:1 ratio to those removed. The elevation change from the top of Bank to the ordinary water level is only 4 feet and the new plantings will provide shading to the banks and the water surface. The proposed channel will be wider and the incorporation of a 2-foot deep meandering low flow channel will provide adequate water depths, favorable flow conditions, and aid in maintaining cooler water temperatures to allow for the passage of anadromous fish.
2	Subsequent to issuance of the SDEIR Certificate, the Town held a series of meetings with representatives of the U.S. Army Corps of Engineers and DCR to discuss alternative configurations for Project 2 to address the issues presented in the SDEIR comments, including application of Article 97. These discussions led a re-design of Project 2 (described in Section 3.3.2 of the FEIR) that reduced the proposed width of the channel bottom from 39 feet to 35 feet, or by approximately 10%. In addition, the sidewalk running between the river channel and the Mystic Valley Parkway will be retained and not below street grade. Reducing the

channel bottom width to 35 feet, however, disqualifies Project 2 from funding under Section 205 of the federal 1948 Flood Control Act of 1948 (Public law 80-858), as amended. The USACE concluded that a channel width of less than 39 feet would not provide sufficient flood relief to meet the 1:1 cost-to-benefit ratio required by that statute to qualify for federal funding. As a consequence, redesigning Project 2 to a 35-foot channel width eliminates approximately $800,000 in federal funding that would be available to the project if it retained a 39-foot channel width.

Because Project 2 no longer qualifies for USACE funding, a permanent easement regarding the channel modification or perpetual flowage within that channel is not required. The narrower channel width substantially reduces the amount of parkland that physically altered by Project 2, and the redesigned project retains the sidewalk running between the river channel and the parkway. These changes reduce the potential impacts to public use of the parkland, and avoids any loss in DCR's physical control of the project area. Based on recent discussions with DCR staff, it is the Town's understanding that DCR will not request application of Article 97 and EOEA's Article 97 Land Disposition Policy to the redesigned Project 2.

3 Project 2 has been substantially revised since the SDEIR filing and trees are now proposed to be planted at the top of the riverbank in this reach in a 2:1 ratio to those removed. Trees will be planted where there is enough buffer between the top of bank and Mystic Valley Parkway.

4 The Town of Winchester and its consultants have spent a significant effort looking at possible sequencing for the project. Model runs were made where each project was run independently to see what projects could be performed without causing downstream impact. Section 4.8.5 includes a detailed discussion of project sequencing.

5 The preferred alternative has been re-evaluated for the FEIR, the model has been updated to include changes to Project 2, Cradock Locks, and Scalley Dam as presented in Section 3.3. Based on the recent Letter of Final Determination, issued by FEMA, there were no appeals on the preliminary base flood elevation, thus no changes to the model used were required.

DB

WATER SUPPLY CITIZENS ADVISORY COMMITTEE
to the Mass. Water Resources Authority

8 River Drive • P.O. Box 478
Hadley, Massachusetts 01035-0478
(413) 586-8861
FAX: (413) 585-9257
E-mail: wscac@rcn.com

March 9, 2007

Secretary Ian Bowles, EOEA
100 Cambridge/ 900
Boston 02114

RECEIVED
MAR 22 2007
MEPA

Attn Deirdre Buckley, MEPA Analyst

Re: EOEA #13046: SDEIR Aberjona River Flood Control

Dear Secretary Bowles:

The proposals in this SDEIR are a great improvement over the previous proposals. The 11,000 square-foot wetlands loss has been avoided, and river work will not take place between Bacon Street and Wedgemore.

The town has adopted a floodplain control bylaw, although it is not a no-build bylaw and Winchester will have to be alert in preventing the loss of gains from river improvement consequent upon development in the floodplain. The FEMA rules do not prevent the construction of non-residential buildings in the floodplain if they are "floodproofed", and although residential buildings must be elevated, fill is allowed under the elevated portion. The compensatory storage provisions of the Wetlands Act must be used to prevent this kind of filling.

The main remaining impact will be from Project 2, which will double the size of the streambed in the heavily used Mystic Valley Parkway parkland. This is a serious impact that can interfere with public walking, biking, jogging, and picnicking. In spite of the lawyer's letter, DCR might consider designating this as a change of use under Article 97 as it is a flood-control project and not a public recreation project. We are told DCR is now engaged in discussions with the town about this design. 1

Sincerely,

Alexandra Dawson

Alexandra Dawson
Co-Executive Director, WSCAC
Also writing as Director of Legal Affairs, Mass. Assoc. of Conservation Commissions

Response to Comments from Water Supply Citizens Advisory Committee (WSCAC) – March 9, 2007

Comment Number	Response
1	Subsequent to issuance of the SDEIR Certificate, the Town held a series of meetings with representatives of the U.S. Army Corps of Engineers and DCR to discuss alternative configurations for Project 2 to address the issues presented in the SDEIR comments, including application of Article 97. These discussions led a re-design of Project 2, described in Section 3.3.2 of the FEIR, that reduced the proposed width of the channel bottom from 39 feet to 35 feet, or by approximately 10%. In addition, the sidewalk running between the river channel and the Mystic Valley Parkway will be retained an not below street grade. Reducing the channel bottom width to 35 feet, however, disqualifies Project 2 from funding under Section 205 of the federal 1948 Flood Control Act of 1948 (Public law 80-858), as amended. The USACE concluded that a channel width of less than 39 feet would not provide sufficient flood relief to meet the 1:1 cost-to-benefit ratio required by that statute to qualify for federal funding. As a consequence, redesigning Project 2 to a 35-foot channel width eliminates approximately $800,000 in federal funding that would be available to the project if it retained a 39-foot channel width. Because Project 2 no longer qualifies for USACE funding, a permanent easement regarding the channel modification or perpetual flowage within that channel is not required. The narrower channel width substantially reduces the amount of parkland that physically altered by Project 2, and the redesigned project retains the sidewalk running between the river channel and the parkway. These changes reduce the potential impacts to public use of the parkland, and avoids any loss in DCR's physical control of the project area. Based on recent discussions with DCR staff, it is the Town's understanding that DCR will not request application of Article 97 and EOEA's Article 97 Land Disposition Policy to the redesigned Project 2.

DB

RECEIVED
APR 12 2007
MEPA

April 6, 2007

The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Secretary Ian A. Bowles
Executive Office of Environmental Affairs
Attn.: Deirdre Buckley, MEPA Unit
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Aberjona River Flood Improvements Project, Winchester, MA. MHC #RC.32555, **EOEA #13046.**

Dear Secretary Bowles:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the Supplemental Draft Environmental Impact Report (SDEIR) for the proposed project referenced above.

MHC understands that the project will include continued consultation with this office, and that a cultural resource survey and an intensive (locational) archaeological survey (950 CMR 70) will be conducted as MHC requested in our letter submitted in response to the Draft Environmental Impact Report, dated March 21, 2006. MHC looks forward to reviewing a scope for these investigations as part of a State Archaeologist's permit application (950 CMR 70) for the archaeological survey, and to further consultation with the federal, state, and local agencies regarding prudent and feasible measures to avoid, minimize, or mitigate and adverse effects to any significant cultural resources that may be affected by the project.

Concerning historic architectural resources, the MHC looks forward to receiving and reviewing the comments of the Winchester Historical Commission (WHC) concerning the SDEIR. The WHC has formerly provided substantial comments on early report submissions and the MHC looks forward to evaluating these comments to more accurately discern the direct and visual effects to historic architectural resources.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71), and MEPA (301 CMR 11). If you have any questions or comments concerning this review, please feel free to contact Jonathan K. Patton, Archaeologist, or Ryan T. Maciej, Preservation Planner, at this office.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: Mark Twogood, Town of Winchester
Philip C. Kennedy, Camp Dresser & McKee, Inc.
Crystal I. Gardner, USACOE-NED, Regulatory
Kate Atwood, USACOE-NED
Cheryl Andrews-Maltais, THPO, WTGH(A)
John Felix, DEP
Nancy Baker, DEP-NERO
Marianne Connolly, MWRA
Andrew Brennan, MBTA
Matthew Bronski, Winchester Historical Commission
Deborah C. Cox, PAL

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

Response to Comments from Massachusetts Historical Commission (MHC) – April 6, 2007.

Comment Number	Response
	No response necessary

DP

CURTIS LAW OFFICE
CHESTNUT GREEN
EIGHT CEDAR STREET, SUITE 55
WOBURN, MASSACHUSETTS 01801-6361

HENRY J. CURTIS, JR.
GEOFFREY A. CURTIS

TEL (781) 933-0940
FAX (781) 933-0941
WWW.CURTISLAWOFFICE.COM

March 14, 2007

RECEIVED
MAR 16 2007
MEPA

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attention: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Winchester's Flood Mitigation Effort

Dear Ms. Buckley:

As a resident of Winchester for over 45 years I urge you to review and approve the Flood Mitigation Program as proposed in the SDEIR for the Aberjona River. The Board of Selectman filed the Report on February 15, 2007.

I have witnessed the flooding that has occurred and the havoc and disruption it has caused.

My office is in Woburn, and in times of heavy rains, I observe excessive amounts of water run-off from the roofs and paved parking lots in the Cummings Park area that eventually flow into and flood Winchester via the Aberjona River.

Thank you for your consideration and hopefully, your approval.

Very truly yours,

Henry J. Curtis, Jr.

Response to Comments from Henry J. Curtis, Jr. – March 14, 2007

Comment Number	Response
	No response necessary

Stephen H. Kaiser
191 Hamilton St.
Cambridge Mass. 02139

To : Ian Bowles, Secretary of Energy and Environmental Affairs
MEPA Review Unit, 100 Cambridge Street Room 900
Attention : Deirdre Buckley

From : Stephen H. Kaiser, PhD

Supplemental Draft EIR on Winchester Flooding

I appreciate the additional time extension provided by the proponent, and I hope that other reviewers and commenters will also benefit from the additional time. One of the primary deficiencies of the SDEIR is its almost total lack of data on modeling results for Alewife Brook. The key results that anyone would be looking for are the peak flood elevations during the 50-year and 100-year storms with and without any effects of the Winchester proposals. These result are almost inaccessible.

The SDEIR has one advantage in electronic format : one can search for all references to "Alewife" and I counted a total of 56 references to the word in the entire EIR, including the appendices. Of these only 11 referred to expected flood elevations on Alewife Brook, and nine of these were hidden away in Appendix B2, in charts with a very faint identification of Alewife Brook. The format is almost impossible for most readers to comprehend, and I doubt that one reader in 100 would be able to comprehend what the diagram says about Alewife Brook, without having some sort of technical assistance. Impacts on Alewife Brook are described generally, without illustration of what and when the independent flood peak of Alewife Brook would be.

Within the basic 302-page EIR, there are only two references to flood elevations expected on Alewife Brook, and neither of them refers to what the results would be if the project were completed as proposed. Here we have a massive flood relief project,

with associated concerns about the impacts on Alewife Brook, and the EIR text says nothing about what the actual impacts are. I don't know of any more fundamental EIR failure than this -- since the simple function of an EIR is to tell us what the impacts are. It is not an exercise based on trust, but requires a certain "show me" as an demonstration of proof, with the ability to check the results.

The checking of results is what technical appendices are all about. The original Draft EIR contained the 100-year computer model results. The model was called HEC-RAS and listed the water elevations, flow velocities and flow volumes for each segment of the riverine system, from the Aberjona River to Little River, and down to the Mystic Basin. It was very difficult to sort one's way through the numbers, but I was able to identify all the bridges (which were not labeled in the EIR). As best as I can tell from the comments received, I was the only commenter who ventured into the data and sought to assess the meaning and accuracy of the model results. I submitted two detailed comments to MEPA, including a spreadsheet summary.

The response to my comments was printed on pages 6-87&88 and 6-106&107 of the SDEIR.

And I was stiffed.

And I do not care for it one bit.

The unresponsiveness and blindness of ENSR's response is particularly unwise given that ENSR is also the consultant for FEMA and in May is scheduled to present the new flood maps for the Mystic watershed. If anyone thought for a moment that the public would accept their peremptory treatment of public comments, they are sadly mistaken in at least one case. The ENSR attitude appears to be that they are the experts and thus they do not need to write reports that anyone can comprehend. In this view, anyone commenting on an EIR should automatically yield to their expertise, a status exalted because it has allegedly been peer-reviewed through the FEMA process.

If the experts were always so absolutely correct, there would be no need for a MEPA process. We could simply bow down and automatically trust the experts -- who of course never make mistakes. That is not what the MEPA process is about. Experts can be wrong and their work can be affected by interference from clients and other interested parties. Computer models have an especially rich history of such interventions, with the first example I have found dating back to 1952. The entire goal of MEPA is not regulatory, but instead to shine light and commentary on projects as a way of resolving conflicts, concerns and mitigation. If the result is that we get reports that no one can read and do not even list the results in an accessible fashion, we have failed and ENSR has failed and Winchester has failed.

If ENSR compounds these problems by refusing to be responsive to comments and falls back on the gospel that they are the experts who have been peer reviewed, the process of failure is simply worse. And it is symbolic of the extent of failure that we can expect when FEMA releases their ENSR-based flood plain maps. From what I have seen so far, I foresee nothing but disaster for both the Winchester and FEMA processes.

I did have the benefit of one support element sent to me by ENSR. When I saw that the SDEIR did not included even the HEC-RAS computer output that was in the original Draft EIR, I requested a copy of the SDEIR results, and with the assistance of the MEPA office was able to obtain copies of the HEC-RAS printouts for the 50-year and the 100-year floods. This information could easily have been included on the CD-ROM disks, but was not. But at least I had it and later was able to share the two files with Cambridge Public Works.

If I had not been extremely busy with other issues such as Chapter 91, I could have circulated the files to many other recipients of the SDEIR .... but isn't that the proponent's job? Not everyone can read computer output, but at least the reader should be given the opportunity -- especially since the computer model results are the only source of what the flood elevations are up and down Alewife Brook and Little River.

In reading some of the comments from the Tri-Community group and Cambridge/Arlington there is a recurring theme for more information and more openness, and what we are seeing in this SDEIR is less openness. I am afraid I can do nothing to disguise my disappointment. ENSR must realize that they are working with a computer model so complex that even the Army Corps of Engineers can't understand it. Because ENSR may be just about the only one who really understands the model, the danger is all the more serious that their monopoly will impede the review and understanding by others. 1

I have participated in sessions advertised as "peer review sessions" when the result was more show-and-tell using PowerPoint and Q&A formats -- with no consensus. But the sponsors later claim the model was "peer reviewed." MEPA must insist on a broader peer review process and to open up all models and files for review. Arlington should have the chance. Cambridge should have the chance. DCR and DEP should have the chance. This is too large a project to be left in the innards of a computer with the protective sign "Trust Us." 2

Unfortunately, this EIR is more than simply a failure to inform, to be inclusive and to be responsive. It also includes a result which carries over from the Draft EIR and which I had not noticed before. A comparison of the two flood profiles B2.15 and B2-15 demonstrates the extraordinary claim of the EIR that in a 50-year flood the Mystic River basin would be at elevation 0 baseline, while the 100-year flood would be about elevation 4.2 feet. What this result tells me is that the difference between a 50-year and 100-year event is a rise in the Mystic Basin of more than four feet!! This rise is all the more extraordinary because the increase in 24-hour rainfall is only 1.4 of an inch -- from 7.1 inches to 8.5 inches. I cannot conceive how any 20% increase in rainfall is going to cause the Mystic Basin to rise up by four feet in elevation. If the computer comes up with such a conclusion, why did the EIRs not identify this key result and attempt to explain it, to justify it in some way -- if indeed it were correct?? I could see a rise of four inches but not four feet. My immediate sense is that something is terribly wrong with the model, and we need to find out what it was. We need everyone's assistance and understanding, including everyone involved in peer reviews. 3

I recall during the initial phases of the MDC/DCR flood study of January 2003 how the preliminary results indicated a three-foot drop across the Massachusetts Avenue bridge during a 50-year flood. I suspected that the calibration data was in error and challenged the result, waiting almost five months for new analyses to appear. In the end, the mistake was found and the actual drop at the bridge was closer to three inches, not three feet. Such errors can be made, using today's complex computer models. We need to identify anything strange, find out if a mistake was made and make the correction. Any effort to shrink behind peer review and stiff the commenters is totally inappropriate.

I could have presented detailed comments on the SDEIR and also engaged in more detailed spreadsheet analysis of the flooding conditions on Alewife Brook, Mystic River and Aberjona River. I simply do not have the heart for it, given the way my comments on the DEIR were fluffed off. Let ENSR take both the comments above and 4
my comments on the Draft EIR, and engage in a proper and fair response to those comments. Then and only then will I have any faith that ENSR, Winchester and MEPA are complying with the legal requirements of Chapter 30, Section 62 and the regulations implementing the MEPA process.

The half-a page devoted to the Wetlands Act (page 4-44) is totally inadequate. Winchester seeks to segment the impacts into small pieces, which is contrary to MEPA 5
regulations. Every project site should be listed for the area of its wetlands impacts : does the total exceed 5,000 square feet and trigger the need for a variance?

One last disturbing point is the manner in which the SDEIR handled the question of Article 97 impacts on DCR parklands. DCR is the owner of extensive parkland at the lower end of the Aberjona River, and the April 27, 2006 e-mail from the DCR 6
General Counsel, Thomas LaRosa, represented a reasonable set of requests from the owner and custodian of those parklands, with regard to Article 97 protections. The response in the SDEIR on page 8-17 is even more disgraceful that the treatment I received. There is simply the claim that the project "does not result in the disposal or

change of use of any public parkland; therefore Article 97 does not apply and the project is consistent with EOEA policy." This attitude is extraordinary coming from an abutter who does not own the land, is seeking to use public parkland, and appears to have no concerns for the beliefs and rights of the landowner. It is municipal arrogance in the extreme.

The town's position is that allowing state parkland to be modified to meet Winchester's flooding needs is also consistent with DCR's flood control interests, as long as the project is carried out with "DCR's collaboration and supervision." This position is absurd since any city or town could take over DCR land and build a town-only recreation site there, claiming there is no change of use. That is clearly a transgression of DCR land. In the extreme case, the Army Corps of Engineers could come in and take over the entire Mystic Lakes reservation area, remove all the above-water parkland, and create a massive flood storage basin entirely on DCR land. They could claim the parkland is still there (underwater) and that there has been no change of use -- using similar logic to the town of Winchester. This so-called "logic" is simply illogical. The original position of DCR that there are Article 97 issues is still entirely valid and is a proper issue of discussion in the EIR.

The situation is worsened by the analysis of Article 97 referenced in the SDEIR and contained primarily in Appendix D.4. The document is a identified as a "legal memorandum from Special Environmental Counsel to the Town" of Winchester, although the document itself has no letter head and no identification for the author, Caroline Broderick. Ms. Broderick also serves as Secretary to the Friends of the Upper Mystic Lake, and has served as a member of the Winchester Conservation Commission. She assisted in the preparation of the MEPA comments on both the DEIR and the SDEIR that were submitted by the Mystic River Watershed Association. Clearly there is a conflict in one person holding so many different positions in the review of this flood control project, and as a minimum the Watershed Association will suffer from a diminution in the credibility of its very important input which traditionally has meant so much to the protection of the entire Mystic River watershed.

I recall quite well my awareness of the singular role of Dr. Herbert Meyer when he was the President of the Watershed Association for so many years in the 1970s and 1980s, and how he worked so hard to build up a strong and credible association for the protection of all elements of the watershed, including the Aberjona River and Alewife Brook. I suspect that if he could see the current situation, he would not be pleased.

Sincerely yours,

Stephen H. Kaiser, PhD
Citizen Engineer

cc. Michael Toohill, ENSR
Mark Twogood, Winchester
Thomas LaRosa, DCR
Mike Galvin, DCR
Nancy Baker, DEP
Brona Simon, MHC
Arlington Board of Selectmen
Cambridge Public Works
Rep. Will Brownsberger
Sue Bass, President MWRA
Elsie Fiore
Carolyn Mieth

Response to Comments from Mystic Stephen H. Kaiser – April 6, 2007

Comment Number	Response
1	The model is complex, but the Mystic Watershed system is also complex. Previous studies used simplified models but since timing in this system is important the unsteady flow model was required. We disagree that the model is so complex that others can't understand it. Several other companies and agencies are currently using the model. For instance the ACOE, MassDOT, and DCR have successfully used the model and SEA Consultants were able to review the model.
2	During the FEMA process the model was peer reviewed by Dewberry. During the FEMA process the model was also made available to anyone who wanted it. Several Towns downloaded the model. Your community, the City of Cambridge hired SEA Consultants to review the model, and they found the model results and assumptions to be reasonable. Prior to submittal of the FEIR we have also met with you several times and have offered to provide you full copies of all model files.
3	Once the pump capacity is overwhelmed the basin can fill up quickly, this is not an error of the model.
4	We feel we responded fairly to your comments on the DEIR when they applied to technical issues. We did not respond directly to your comments that questioned our ethics. At great expense to the Town of Winchester we have also met with you on several occasions, provided you copious amounts of data, and we feel that we have responded adequately, completely, and honestly to your questions. We understand that you do not agree with our findings, however other peer reviewers have agreed with us. At this point we must agree to disagree.
5	The SDEIR contained 14 pages in Chapter 4 (excluding graphics) which discussed the Wetland Protection Act implications of the projects in great detail. The conclusion on page 44 was correct, a Variance process is not required because the threshold required to enter into such a process was not exceeded. This subject is discussed again in this FEIR and the same conclusion has been reached. These projects are allowed under the Wetlands Protection Act to be reviewed, and ruled on, by the Winchester Conservation Commission. The DEP and USACE also have review authority over these projects under several state and federal statutes.
6	Subsequent to issuance of the SDEIR Certificate, the Town held a series of meetings with representatives of the U.S. Army Corps of Engineers and DCR to discuss alternative configurations for Project 2 to address the issues presented in the SDEIR comments, including application of Article 97. These discussions led a re-design of Project 2 (described in Section 3.3.2 of the FEIR) that reduced the proposed width of the channel bottom from 39 feet to 35 feet, or by approximately 10%. In addition, the sidewalk running between the river channel and the Mystic Valley Parkway will be retained and not below street grade. Reducing the channel bottom width to 35 feet, however, disqualifies Project 2 from funding under Section 205 of the federal 1948 Flood Control Act of 1948 (Public law 80-858), as amended. The USACE concluded that a channel width of less than 39 feet would not

provide sufficient flood relief to meet the 1:1 cost-to-benefit ratio required by that statute to qualify for federal funding. As a consequence, redesigning Project 2 to a 35-foot channel width eliminates approximately $800,000 in federal funding that would be available to the project if it retained a 39-foot channel width.

Because Project 2 no longer qualifies for USACE funding, a permanent easement regarding the channel modification or perpetual flowage within that channel is not required. The narrower channel width substantially reduces the amount of parkland that physically altered by Project 2, and the redesigned project retains the sidewalk running between the river channel and the parkway. These changes reduce the potential impacts to public use of the parkland, and avoids any loss in DCR's physical control of the project area. Based on recent discussions with DCR staff, it is the Town's understanding that DCR will not request application of Article 97 and EOEA's Article 97 Land Disposition Policy to the redesigned Project 2.

DB

ELLEN KNIGHT, Ph.D.

HISTORIAN

55 Boutwell Street
Wilmington, MA 01887-2612
978-657-8516 eeknight@juno.com

March 17, 2006

RECEIVED
MAR 19 2007
MEPA

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attn: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Bowles:

Upon receipt of a copy of the SDEIR, I reviewed the sections concerning archeological and historic architectural resources and have noted that previously incorrect data has been corrected. I have noted a few new corrections on the following pages. All of these are minor changes. None would alter any of the project assessments or have any impact on the program design. They are offered simply to assist in the accuracy of the historical data in the FDEIR.

Since my role as an historical consultant for the Town of Winchester has been limited to providing historical background, I do not comment on historic preservation issues, those being the province of the Winchester Historical Commission. As before, my comments should not be interpreted as criticism of the program or the recommendations presented by ENSR or mitigate expressions of support for the program or any of its component parts.

Sincerely,

Ellen Knight

Ellen Knight, Ph.D.
Consultant to the Town of Winchester Flood Team

ABERJONA RIVER SDEIR, EOEA No. 13046

Existing Conditions Section 2.8.2
The following paragraph (p. 2-33) should be revised to correspond to PAL's corrected (and correct) paragraph in its Architectural Assessment, p. 8.

> Kellaway's plans were comprehensive and required the acquisition of large tracts of land from public and private property owners. The negotiations and costs associated with these purchases in many instances proved too high, particularly in the face of the Great Depression. However, with the aid of local philanthropists and the WPA, most of As a consequence, much of the so-called "Kellaway's recommendations were implemented. Some sections were subsequently altered, but many Landscape Plan" remained strictly conceptual. Several elements of the plan, however, were implemented and survive within the ARFMP.

Figure 3-8
This illustration should include, if possible, a steel railing in place of the concrete parapet. Although not a flood-mitigation measure itself, the railing was extensively discussed at the public meetings and was included in the design concept chosen by the Board of Selectmen.

4.5.2.3
Regarding Hamilton Farm, subsequent to the filing of the SDEIR, the Town did exercise its option to purchase the property.

APPENDIX C: PAL ARCHAEOLOGICAL ASSESSMENT

Site File Research page 3
The second paragraph should be revised as follows:

> Supplemental documentation provided by Dena Dincauze Knight states that local tradition remembered the spot as an "Indian fishing station" into the nineteenth century, and that in the 1960s Dr. Maurice Robbins, Dr. Frank Schambach, and Dr. Dena Dincauze had identified Late Archaic and Woodland projectile points, arrowheads, and tools (e.g., pestle, axehead, gouge) had been recovered from the area, although the exact types of points were not specified.

> At least two collections of pre-contact cultural material exist in Winchester, purportedly collected from the Mystic Lakes area also are housed at the Winchester Town Hall one a private collection containing items purportedly collected from the Mystic Lakes area (the collection examined in the 1960s, which was on display at Town Hall during PAL's study) and another held by the Winchester Historical Society. (Knight 2006:10; Ellen Knight, personal communication 2006).

Mystic Valley Parkway
Since the parkway and river were both straightened in the 1940s, the current alignment of the parkway does not follow the former curve of the river. Therefore, the sentence below (on page 5) should be modified. The corresponding section in ENSR's Section 2.8.2 is accurate.

Until the mid-twentieth century, the original river channel curved rather sharply to the east~~, closely paralleling what is the current alignment of the Mystic Valley Parkway~~.

Page 5, same paragraph:

~~By~~ In the 1890s, however, this complex was razed to make room for a park dubbed Manchester Field.

APPENDIX C: HISTORIC ARCHITECTURAL ASSESSMENT

Mt. Vernon Street Bridge

The Winchester Board of Selectmen has conducted a number of ~~hearings~~ meetings on the question of the appropriate approach for the bridge and by vote selected the fourth span option as the preferred alternative.

Mystic Valley Parkway

As originally written on p. 8, the statement below suggests the MDC initiated the change, which it did not; therefore, a small clarification is suggested.

Due to the Town's desire to enlarge Manchester Field, ~~I~~in 1946, the Metropolitan District Commission (MDC) acquired additional land in Winchester Center to straighten the Aberjona River so that it followed closely the rail bed of the Boston & Maine Railroad. The MDC then rebuilt Manchester Field east of the parkway.

Kellaway Landscape

Subsequent to the development of the Mystic Valley Parkway in Winchester, Herbert Kellaway, a Boston landscape architect and former employee of the Olmsted firm, was contracted by the town to make recommendations concerning the "improvement" of the Aberjona River, both along its alignment with the new parkway as well as the river course north of ~~Main Street~~ Manchester Field to the Winchester/Woburn line (Kellaway 1911, 1928).

Response to Comments from Ellen Knight – March 17, 2007

Comment Number	Response
1	We note your thoughtful comments and will incorporate your edits in future reports.

DB

March 12, 2007
Joseph D. & Jean M. Marrone
81 Brookside Avenue
Winchester, MA 01890

RECEIVED
MAR 13 2007
MEPA

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attention: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA. 02114

Dear Secretary Bowles;

I am writing to you as a homeowner on Brookside Avenue in Winchester, MA. Brookside Avenue is located on the Aberjona River at Davidson Park. As you know the Town is undertaking flood mitigation efforts to reduce flooding in Winchester. The proposed Flood Mitigation project as outlined by the town will widen the river channel from Waterfield Road to Manchester Road in Winchester, where there are no homes affected by flooding. The proposed flood mitigation project will not reduce the frequency of flooding of Brookside Avenue, Forest St. and Cross Street. The widening and deepening of the Aberjona River at Davidson Park is **not** in the proposed plan, although our homes have been severely flooded 5 times in the last 10 years. I have had 5 feet of water in my basement 5 different times, since 1996, because the river has no depth. My elderly mother had to be taken out of the house by boat during one flood. We were forced to evacuate our homes on all occasions and suffered several thousand dollars in damages each time we experienced a flood. I have lived at this location all my life and in the past the Town dredged the river. Now, as I understand it, the dredging is monitored by Environmental agencies, etc. and just can't be done as simply as it was done in the past.

I know the Army Corps of Engineers is in the process of completing a feasibility study to determine if projects are eligible under their 205 Program. Please help our neighborhood and include the dredging and widening of the Aberjona River at Davidson Park project in the plans. Our neighborhood has suffered more damage that any location in the Town of Winchester. 1

Thank you for your time and consideration.

Sincerely,

Jean M. Marrone

Jean M. Marrone

cc: Mark Twogood, Town of Winchester
Tom Howley, Chairman, Board of Selectmen, Town of Winchester

Response to Comments from Jean M. Marrone – March 13, 2007

Comment Number	Response
1	The widening and deepening at Davidson Park that was proposed in the ENF Alternative was, unfortunately, shown by modeling to be ineffective at reducing flooding in the neighborhood. The Brookside Road neighborhood was built in close proximity to the River and at a fairly low elevation. Flooding will unfortunately continue to be an issue in this area.

D13

John & Gay Mohrbacher
11 Cutting Street
Winchester, MA 01890

RECEIVED
MAR 12 2007
MEPA

March 9, 2007

Secretary Ian Bowles
Exec. Office of Environmental Affairs
Attn: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Bowles and Ms. Buckley,

The Winchester Board of Selectmen have informed us that our town has filed the SDEIR for the Aberjona River Flood Mitigation Program. We are writing now to ask that you please review and approve this Program as soon as feasible.

Our home has suffered from over a half-dozen serious floods since 1997. 'Serious' means 2-3' water in the street and 4-5' in the basement. Just last week, some fairly normal rains, combined with ice on the ground, resulted in 2' water at the intersection of Cutting Street and Manchester Road.

We have taken responsibility and pay for National Flood Insurance -- however, we can only claim one more time before we become ineligible to continue carrying that insurance. Something needs to be done as soon as possible!

Thank you,

Gay Mohrbacher

Gay Mohrbacher

Response to Comments from John and Gay Mohrbacher – March 9, 2007

Comment Number	Response
	No response necessary

RECEIVED
MAR 22 2007
MEPA

March 20, 200

DP

Secretary Ian Bowles :

My name is George E. Murphy. I live at 55 Brookside Ave Winchester. My wife has been in the Winchester Nursing Center since last the last four years at Christmas. We are 85 years o

I moved here in July 1957, my back fence abutts Davidson Park through which the Aberjona River flows. The river was 10 f deep and 15 feet wide when I first came h Periodically the river was dredged by the tow and the silt was spread throughout the cemetery. The river never overflowed the banks until the dredging stopped.

The town claimed there was toxic elem in the riverbed and it could no longer be dredged. The river banks eventually were washed into the river from Washington S to Cross St. This caused the river to lose its depth as it filled up with soil of the river. The muskrats that lived along the banks could no longer build their lodges and forced them to evacuate the are

In addition to the lack of dredging the town built the high school on the swamp that handled the overflow. They placed an inadequate amount of pipes under the athletic field to handle the rivers flow

With lack of proper planning by the town & its pitifully experienced engineers a nightmare was created for the residents of Brookside Ave. No real sensible effort was ever put into action to correct the change in the environment that was responsible for this health and

(over)

economic criminal disregard for the residents who live next to the poison park.

The destruction of our homes and their valuables has been part of our lives trying to contend with the constant flooding. When the weatherman predicts heavy rain, the worrying begins: move everything up from the cellar; move your cars and equipment to higher ground; make plans where you are going to live until the river recedes; etc. The cost of new furnaces, washers and driers are constant. The clean up is expensive, especially the work needed to clean up the mold.

The elected officials of the town are totally impervious to our plight not only the present officials but all of the predecessors who never adequate abatement assuage inevitable costs incurred. Their great advice has always been: sell the house & move.

I hope in the year 2007 the state of Massachusetts has a solution to solve this catastrophe.

We can put a man on the moon but can't correct the blunders the caused us to suffer for their inability to this problem they created

Yours truly,
George E. Murphy

Response to Comments from George Murphy – March 22, 2007

Comment Number	Response
	No response necessary

DB

53 Brookside Avenue
Winchester, MA 01890
March 19, 2007

RECEIVED
MAR 21 2007
MEPA

Executive Office of Environmental Affairs
Attention: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Ms. Buckley:

On February 15, 2007 the Town of Winchester filed the Supplemental Draft Environmental Impact Report for the Aberjona River Flood Mitigation Program with your agency. I am writing to express my opinion that it is necessary to implement a flood mitigation program along the Aberjona River as quickly as possible.

I have lived on Brookside Avenue in Winchester since 1960, when my house was built. The rear of my property abuts Davidson Park, through which the Aberjona River flows. Flooding was a rare occurrence prior to 1996. In the past 10 years, however, I have had water in my basement six times. On two of those occasions, in March 2001 and May 2006, I was forced to evacuate my home. During most of these floods, water has overflowed the riverbanks submerging entire yards and basements. Storm drains have been overwhelmed and sewer lines and have backed up. In the worst of the floods, the area has literally turned into a lake. Brookside Avenue has been covered in water deep enough for the fire department to float boats down the middle of the street. Television reporters have made a habit of broadcasting from the vicinity.

Brookside Avenue is only one of several neighborhoods along with the center of town that have been inundated with water over the past decade. Flooding is a town-wide problem along the banks of the Aberjona, and a comprehensive solution is called for.

Although I support the flood mitigation plan, I feel the need to draw particular attention to the Davidson Park area. This section of Winchester is situated between Washington and Cross Streets. A large amount of silt has been allowed to accumulate in the river over the past 35 years, while the banks have been eroding, and level of Davidson Park has dropped behind my house. In fact, the river in this area has so deteriorated that it poses a safety risk and major bottleneck to the flow of water. Commonsense would lead one to believe there will be no relief upstream from the bottleneck unless the silt is removed and the banks shored.

The mitigation efforts thus far have done little to alleviate the flooding. A culvert was installed under Cross Street several years ago, yet the Aberjona continues to spill over its banks. A rain storm as recently as March 2, 2007 had the river flowing into backyards along Brookside Avenue in a matter of hours.

The flooding problem must be addressed quickly and compressively. At the same time, the situation in Davidson Park must be addressed as well if the residents in the north end of Winchester are to benefit from the flood mitigation program.

I ask you to keep this in mind as you review the Supplemental Draft Environmental Impact Report.

Very truly yours,

Robert C. Pasciuto

Robert C. Pasciuto

cc: Melvin Kleckner, Town Manager
Representative Paul C. Casey

Response to Comments from Robert C Pasciuto – March 19, 2007

Comment Number	Response
	No response necessary

#13046

DE

March 14, 2007

RECEIVED

MAR 15 2007

MEPA

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attention: Deidre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: **Aberjona River Flood Mitigation Program**

Dear Secretary Bowles:

I would like to express my concern regarding the Massachusetts Environmental Protection Agency's review of the Aberjona River Flood Mitigation Program.

Of most concern is that the Supplemental Draft Environmental Impact Report does **not** address **the dredging of the Aberjona River at Davidson Park.** Although the SDEIR addresses the widening of the river channel from Waterfield Road to Manchester Road, it does not address the dredging of the Aberjona River at Davidson Park.

As a Brookside Avenue resident and abutter to Davidson Park for thirty-three years, I have experienced ten major floods. The flooding of the Brookside Avenue neighborhood has become increasingly worse, and a flood occurs on an average of every two to three years. The most recent flood, May 2006, was the worst, as well as the floods of March 2004, March 2001, June 1998, and October 1996. Earlier floods occurred in February 1978, and January 1979.

At Davidson Park, the middle of the Aberjona River is riddled with sandbars. The sandbars are overgrown with weeds, grass, and purple strife, which is a major cause of constriction that affects the river's flow. The sandbars have become increasingly larger to the point where someone can walk across the river.

I strongly urge that dredging of the Aberjona River at Davidson Park be reviewed for the report. Since widening of the river channel from Waterfield Road to Manchester Road was addressed, the dredging of the Aberjona River at Davidson Park should also be considered for review.

Thank you for your consideration.

Sincerely,

Anthony Perrotta

Anthony Perrotta
75 Brookside Avenue
Winchester, MA 01890-1232

cc: Thomas R. Howley, Chairman, Board of Selectmen, Town of Winchester

Response to Comments from Anthony Perrotta – March 14, 2007

Comment Number	Response
	No response necessary

Bob – sorry I missed you off the original cc list.
JFS

John F. Shawcross, 63 Mystic Valley Parkway, Winchester, MA 01890
Telephone 781 729 8925

Sunday, March 25, 2007

Secretary Ian Bowles
Executive Office of Environmental Affairs
Attention, Deirdre Buckley, MEPA Unit
EOEA No. 13046
100 Cambridge Street, Suite 900
Boston MA. 02114

APR – 2 2007

Re: Aberjona River, Flood Mitigation Program EOEA File No. 13046

Dear Secretary Bowles:

Thank you for your April 28th 2006 determination that a SDEIR was required to respond to the various issues you identified in the Certificate.

The SDEIR dated February 15, 2007 is a significant improvement on the DEIR and, with minor modification, should result in an excellent project that will reduce flooding in Winchester while mitigating environmental impacts.

Winchester has made an important contribution to our understanding of the flooding in the Aberjona/Mystic River Basin. Knowledge of how the various components affect the flooding situation has been improved. The Winchester Board of Selectmen has been tenacious in identifying and promoting projects to reduce flooding in Winchester.

The SDEIR is an improvement over the DEIR the following ways.

1. It has eliminated projects that did not need to be constructed.

2. Eliminating the channel widening in Project 2 between Manchester Road and Bacon Street was a good decision. The wider channel was not needed in this beautiful and valuable section of the river. The riverbank and trees would have been damaged by the originally proposed project. Dredging but not widening, the river will preserve most existing trees and provide an opportunity to improve the west bank. Local residents will be screened from ball field floodlights.

3. The approach being considered for Project 2, by the Corps of Engineers for the section between Waterfield Road and the Ginn Field footbridge, is good. Constructing a pilot channel for low flows and re-inserting the footpath in the sloping bank on the east side of the river substantially mitigates concerns over loss of public access to the river. The USACE Alternative 1C cross-section Option 2 is the best alternative presented to date. But it must be carefully designed. If it is too low in elevation, the path will be inundated too often. If too high, pedestrians and joggers would be exposed to traffic on the Parkway. 1

Overall the SDEIR is a significant improvement over the DEIR

John F. Shawcross, 63 Mystic Valley Parkway, Winchester, MA 01890
Telephone 781 729 8925

There are some issues that must be considered before work is allowed to start.

1. The new culvert under the High School field will substantially increase the quantity of water able to flow into the wide section of the river adjacent to Skillings Road. This pond has accumulations of silt resulting from previous floods. The increase in velocity may re-suspend this silt and carry it to areas that are to be dredged. The engineers should check whether the flood velocities in this area will re-suspend sediment. If they conclude it will, the river and pond upstream of Project 4 and downstream of Project 6 should be dredged. 2

2. The undersized culverts beneath the High School Field may contribute to upstream flooding but prevent downtown Winchester from experiencing the peak flows that would occur if the culverts were larger. The Town must construct downstream improvements before constructing the new culvert or take the risk that a storm event after the new high school field culvert has been constructed and before the downstream improvements are complete would create worse flooding and greater damage in the center of town than prior to the "flood mitigation". Failure to properly schedule improvements could result in expensive flooding in the town. 3

3. Use of Manchester Field and Ginn Field to store 16,000 cubic yards of dredged material is a concern. It will have a significant impact on use of those fields and may require partial reconstruction of both fields. It would be better to establish a small staging area near the dredging site and truck material to a less sensitive location or truck it directly to its final destination. If a smaller area of the fields are damaged costs will be reduced. 4

4. The reason stated in the SDEIR for constructing a 7 foot deep by 15 foot wide culvert in Project 6, rather than providing an open channel, is that an MWRA sewer was found in the preferred location for the open channel on the west side of the fields. The alternative of running the channel across the athletic fields would interfere with the sports function. So the new culvert is proposed. That will prevent, for the foreseeable future, reconnecting the Aberjona River to its headwaters. There are other culverts and bridges along the River, but the length of this culvert makes travel along this section of the river infeasible for wildlife. The Town should take another look at the open channel alternative to see whether some way can be found to construct the open channel so that it neither cuts across the center of the field nor disrupts the MWRA sewer. Could the channel parallel the sewer? Can a less intrusive route be found across the playing field? A restored river channel in this section, in combination with the three existing 7 foot diameter culverts, available to take the storm flow excess, would substantially mitigate for environmental degradation along the river caused by other parts of the project. If an open channel can be built it may be less expensive than a buried culvert. 5

John F. Shawcross, 63 Mystic Valley Parkway, Winchester, MA 01890
Telephone 781 729 8925

A suggested improvement to Project 2

- The existing wire fence on the west side of the river, between Ginn Field and the Aberjona should be removed. When the dredging is complete, the area should be cleaned of debris and a path constructed along the line of the existing wire fence from Bacon Street to the Ginn Field footbridge. A fence that is less of a barrier to wildlife (e.g. post and rail) would be acceptable between the existing playground and the river 6

  The existing wire fence prevents:

  a. Access to remove trash that blows (or is thrown) from the field and play ground. (Parents at the playground have been observed disposing of diapers over the fence.)
  b. Volunteers, during the spring Aberjona Clean Up, from entering this area.
  c. Movement of wildlife between the flood plain (Ginn Field) and the river.
  d. Ball players from recovering balls that go over the fence: this has resulted in a collection of rotting softballs in addition to the paper, bottles, cans and other items that have collected in the area over the years.

  Removing the wire fence would provide many benefits and, since the fence will have to be removed during the dredging phase of the work, not replacing it will reduce the cost of the finished project.

Secretary Bowles, I hope that you will be able to approve Winchester proceeding with the flood mitigation program.

Many people have suffered from the flooding. This SDEIR represents this Town's determined effort to deal with these problems without transferring the impacts to others. Winchester would appreciate your help in getting this project underway.

Very Truly Yours

John F. Shawcross P. E.

Chair Winchester Water System Review Committee,
Member of Selectmen's Aberjona Horn Pond Flood Study Committee
Winchester Resident living near the Aberjona River.

Copies:
Winchester Town Manager :
Winchester Conservation Commission:
Winchester Board of Selectmen :
Winchester DPW.
Corps of Engineers
Paul Casey State Representative :
Pat Jehlen State Senator
DCR;
MWRA ,
Mystic Valley Parkway residents between Manchester Road and Bacon Street (by hand delivery)

Response to Comments from John F. Shawcross – March 21, 2007

Comment Number	Response
1	Since the submittal of the SDEIR, Project 2 has been significantly modified and brought to 25% design. Four alternatives were proposed and working with DCR, an option was chosen that includes a 35-foot bottom width, and placing a five-foot sidewalk at the top of slope next to the Parkway where the current sidewalk exists. In a portion of the widened stretch of river (Waterfield Road to Manchester Road) the section is so tight that a portion of the Mystic Valley Parkway breakdown lane is going to need to be converted to sidewalk and a planting strip.
2	Velocities just downstream of the High School field culvert are expected to rise. However, velocities will still be low and are not expected to be erosive or transport sediment downstream.
3	The proposed plan is to sequence the projects from downstream to upstream to avoid the increasing flooding downstream. Section 4.8.5 provides more detail on project sequencing.
4	During design these details will be worked out in more detail. One option that we are considering is diverting the Aberjona, using pumps and piping, around the widening stretch the entire are can be dewatered. This will allow direct loading of trucks which will minimize the need for larger dewatering and staging areas. Manchester Field will not be used for staging and during design the need to use Ginn Field will be re-evaluated.
5	We agree that an open channel is both ecologically and financially preferred to a culvert system for conveying river flows. Unfortunately given the tight constraints of the site and conflicts with utilities an open channel does not appear to work in this location.
6	During the design of Project 2, the Town will be working with DCR and a landscape architect to make sure the project is in line with DCR's parkway guidelines. Although not part of the project due to its location on the west side of the river, the Town will evaluate changing the current chain link fence to a more aesthetically and environmentally-friendly type of fence.

#13046

DB

RECEIVED
MAR 15 2007
MEPA

Paul J. Welliver
Discount Services
10 Forest Street
Winchester, MA 01890-1252
781-838-0057

March 13, 2007

To Whom It May Concern:

I'm writing this letter on behalf of the Flood Mitigation Program. It has occurred to me that over time your efforts pertaining to solving the flood problem in Winchester have been a little out of order as well as out of line. For some strange reason the people involved in fixing this problem from the engineers all the way down the line to what they call A Board of Selectmen have had your heads in the clouds. Attention anywhere along the river will somehow affect upstream or downstream regardless of what it is. That's simple mathematics. However the area that is most affected is the area you guys aren't doing anything for. The portion of the river that flows from Washington Street to Cross Street or should I say remains stagnant due to all the sludge that has accumulated over the years is what needs to be addressed. In the last 10 years my neighborhood has been flooded 5 times, not just minor flooding either. This I believe is what you call a 100 year flood. Not according to my calculations. You people are claiming that you can't dredge the land there due to the chemicals that have settled over time. Well what makes you think you can dredge or widen the same river a half a mile downstream and not have the same affects? Are you insinuating that the water downstream is any cleaner than the water flowing through the basements and backyards in my neighborhood? Not to mention it barely floods there and if it does it spills onto a baseball field. On top of that there's talk of building a parking garage on Washington Street right before the backup. As if we need anymore run off water? Why don't we fix the problem before we make it worse? I think that this team of problem solvers should reevaluate their strategy and begin to take other people into consideration. This problem would have been solved a long time ago if it were anywhere else in Winchester. Thank you for you time.

Paul J. Welliver
Discount Services

Response to Comments from Paul J. Welliver – March 13, 2007

Comment Number	Response
	No response necessary