

Appendix D

CONCEPTUAL WETLAND MITIGATION PLAN

Introduction

During the formulation of the OXC Airport Master Plan Update (AMPU), wetland mitigation options were explored in order to help streamline future project reviews and attain regulatory compliance. The study purpose was to devise a wetland mitigation strategy that would adequately compensate for unavoidable wetland impacts from the AMPU recommendations and, secondarily, conduct a preliminary search for potential mitigation areas. Initial options for the conceptual wetland mitigation plan included on-airport and off-airport locations for wetland creation or enhancement, as well as lands that could be counted toward wetland mitigation through preservation/acquisition. These options were explored and are described herein.

Summary of Wetland Impacts

Anticipated impacts to wetlands over the course of the 20-year improvement plan are shown in Table D-1. The largest single impact will result from the proposed Taxiway “B” Extension, considered to be one of the most needed improvements at the Airport. The impact from this individual project will be approximately 3.8 acres to Wetland #1. Impacts to wetlands from all recommended improvement plan projects will total approximately 4.0 acres. Refer to Figure 4-7 of the AMPU for the location of recommended development in relation to on-site wetlands.

TABLE D-1 – ANTICIPATED WETLAND IMPACTS FROM OXC AMPU						
Wetland No.	Wetland Acreage	Impact (Acres)	Wetland Type	Major Functions	AMPU Project	Timeframe
1	3.77	3.77	Forested	Sed/tox retention and wildlife habitat	Taxiway “B” Extension	5-Year
2	0.89	0.15	Forested/Scrub-shrub	Sed/tox retention	Service Road	20-year
5	0.11	0.05	Forested/Scrub-shrub	Sed/tox retention	Service Road	20-year
Total		3.97				

Over 90 percent of wetland impacts (Wetland #1) occur in deciduous forested (red maple) wetlands (Photo 1). Wetland #1 lies parallel to the runway and captures runoff from the runway surfaces, thereby performing a major function of sediment/toxicant retention. Wetland #1 also has well developed vegetative structure and diversity, and a variety of water regimes, thereby also providing good wildlife habitat. The other impacted wetlands are forested/scrub-shrub wetlands located adjacent to paved surfaces, and so also have a primary function of

sediment/toxicant retention. Due to their small overall sizes, proximity to disturbed land, and lack of diverse vegetation, they have only a minor value for wildlife habitat.



*Photo 1 – Red maple swamp representative of forested wetlands on Airport
(view of wetlands adjacent to southeastern end of Runway 36)*

Conceptual Wetland Mitigation Strategy

In evaluating the types of impacts to wetlands from the AMPU, this mitigation scheme was formulated to address two objectives: 1) maintain the sediment/toxicant retention functions of the existing wetlands (to be impacted) and 2) replace the wildlife habitat functions (to be impacted). At the same time, the concept needs to be compatible with FAA guidelines for preventing hazardous wildlife attractants (including wetlands) on or near airports (FAA Advisory Circular 150/5200-33A July 2004).

Taking a proactive approach, ConnDOT proposes to mitigate for the sum of the 20-year wetland impacts associated with the recommended development in a comprehensive fashion, rather than impact by impact. Assuming a 2:1 wetland replacement ratio, commonly required by regulatory agencies for forested wetland impacts, approximately 8.0 acres of wetland mitigation have been assumed necessary to compensate for the approximately 4.0 acres of wetland impacts that would result from the recommended development.

While replacement of wetlands and their functions on-site (i.e., within Airport property), close to the areas of impact, is generally the first choice for wetland mitigation, it was found that 8.0 acres of mitigation could not be accommodated on site and that a lesser acreage would only be possible if distributed around the Airport property in very small (functionally ineffective)

patches. These site conditions, in combination with FAA guidelines relative to wildlife attractants, make on-site mitigation impracticable and potentially impossible. Therefore, off-site options were explored, with the caveat that the existing water quality functions (receiving and pre-treating runoff from Airport surfaces) be mitigated on-site through structural means during engineering design of the new taxiway and in accordance with the Connecticut Department of Environmental Protection (DEP) *2004 Stormwater Quality Manual*.

Research Efforts

Given the need for off-site mitigation, preliminary research was conducted to identify potential sites in proximity to the impacted wetlands, which would have the greatest potential to restore and maintain the values and functions of the wetland systems to be impacted. The research efforts and results are described below. The search for off-site mitigation sites was guided by the following assumptions:

- 8.0 contiguous acres
- Within the local drainage basins of the impacted wetlands or within a one-and-one half mile radius of the Airport
- Publicly owned land or existing conservation lands would be best due to ease of acquisition or use
- Disturbed or degraded sites, upland or wetland, with currently reduced function/value as habitat
- Sites with relatively easy access for the purpose of mitigation site preparation/construction

Research thus entailed review of aerial photos to identify degraded lands, review of property ownership maps to identify publicly owned lands, contacts with state and local agencies/organizations to inquire about potential mitigation sites, and windshield inspections to evaluate conditions near the Airport.

Aerial Photographic Review: Review of aerial photos did not reveal any obviously degraded or excavated lands in proximity to OXC Airport. Lands around the Airport appeared to be relatively intact forested and agricultural lands.

Review of Property Ownership Maps: Initial findings identified several publicly owned properties or properties in conservation use near the Airport. These included the Southford Falls State Park, Larkin State Park Trail, and a variety of properties owned or used by the Seymour Fish & Game Club. The DEP Parks Division and the Seymour Fish & Game Club were therefore contacted, as was the Town of Oxford, regarding potential mitigation sites, as described below.

Contacts with State and Local Agencies/Organizations: The DEP Parks Division, the Seymour Fish & Game Club and the Town of Oxford were contacted by telephone to inquire about potential wetland mitigation sites on the lands in their purview. The conversations are documented by memoranda included at the end of this appendix and summarized below:

- The DEP noted that approximately ¼ acre on the edge of a pond at Southford Falls State Park is in a degraded condition and would have potential for wetland enhancement (M. Rickert, personal communication). Additionally, there are some trails near the pond that are becoming degraded and will eventually be sources of erosion and sedimentation into the pond, so trail reconstruction/maintenance would benefit the pond and associated wetlands. The other state-owned park lands are along the Larkin State Park Trail and DEP noted that wetlands are being modified/degraded by ongoing and aggressive activities by a local beaver population.
- The Seymour Fish & Game Club leases the lands they use and when the leases expire, they do not plan to renew them.
- The Town of Oxford did not identify any lands suited for wetland mitigation.

The results of these contacts indicate that it may be difficult to find an ideal publicly-owned mitigation site, close to the Airport, large enough (8.0 acres) to fulfill the wetland mitigation needs for the AMPU recommended development. They suggest that mitigation may need to be a combination of small efforts in several locations – possibly farther from the airport – and possibly a combination of creation, enhancement, and conservation/acquisition.

Windshield Survey: Since a review of aerial photos/maps and personal contacts failed to identify any potential mitigation sites in close proximity to the Airport, a windshield survey was conducted. Using a cursory GIS screening, potential mitigation areas were located within the local drainage basins of the major wetlands to be impacted, which include the Little River and Eightmile Brook basins, located east, south, and southwest of the Airport. High points and elevated terraces were eliminated from consideration, as were lands in the Runway Protection Zones (RPZs) located directly north and south of the runway. Lowland areas adjacent to streams or existing wetlands were selected for inspection, with the goal of identifying degraded wetlands or wetland-upland interfaces that would be enhanced by wetland expansion and/or creation. Four areas (sites) were identified for windshield survey and inspected on August 9, 2005. These sites and the locations of photographs taken at these sites are shown on Figure D-1.

The windshield survey confirmed the conclusions from the aerial photographic review, that the lands around the Airport are a mix of relatively undisturbed wetlands and uplands. No deteriorated or degraded lands in association with wetlands were located. The overall vicinity is assessed to have existing high capacities for sediment/toxicant retention, wildlife habitat, and many other wetland functions/values.

The characteristics of each surveyed site are described below.

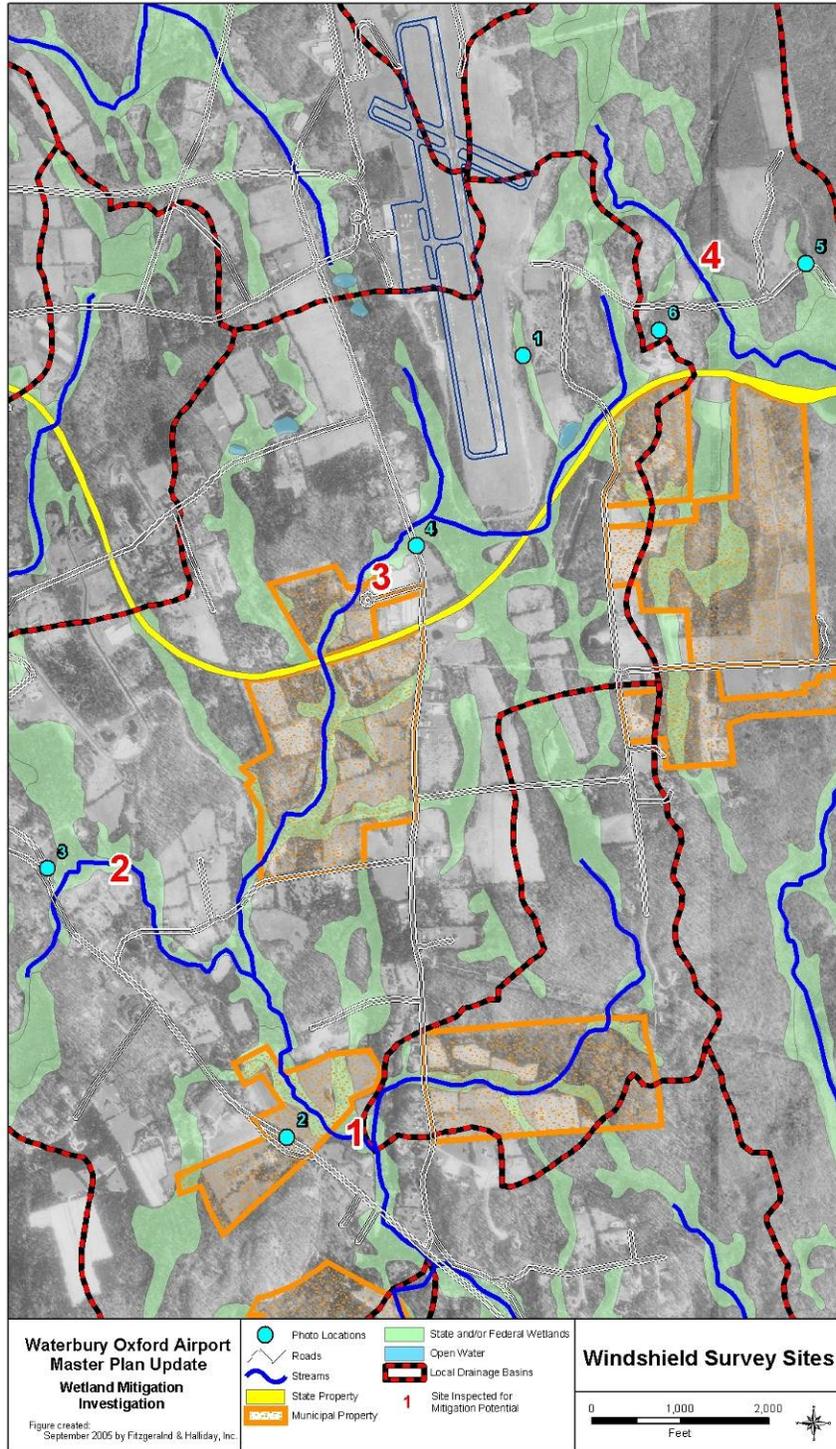


FIGURE D-1 – WINDSHIELD SURVEY SITES

Site 1

Site 1 is located on the east side of Oxford Road between Christian Street and Perry Lane. This site consists of a large open field which is bisected by a narrow, sinuous stream and also contains a small pond a short distance from the stream. The stream and pond are intermittently flanked by red maples and shrubs (see Photo 2). The wetlands are generally in a linear configuration associated with the stream. The surrounding uplands are a mix of mowed field and upland forest which are relatively undisturbed (other than by mowing) and free of invasive species.

This site is currently functioning to provide good quality sediment/toxicant retention and wildlife habitat. Although this site is mapped as municipal property by DEP GIS data, information at the Oxford assessor's office indicates it is privately owned.



Photo 2 – Site 1, looking east across property

Site 2

Site 2 is located at the northeast corner of Oxford Road and Towner Lane. At the core of this site is a forested wetland with some emergent wetland pockets associated with a narrow stream (see Photo 3). The wetlands are bordered by upland forests that are similar in structure to the forested wetland, with well developed tree, shrub and herbaceous layers. Along the roads are a few scattered residences with large open lawns.

The undeveloped areas of this site showed no signs of disturbance or intervention by people. Similar to Site 1, the vicinity of this site was free of invasive species and supports water quality and wildlife habitat functions.



Photo 3 – Site 2, looking southeast across red maple swamp

Site 3

Site 3 is located on the east side of Christian Street between the Larkin State Park Trail and Hawley Road, at the southwest corner of the OXC Airport. This site is in an area with a mix of heavily wooded lands, patches of old field, and some mowed (agricultural) fields. The forested wetland at the core of this site is a red maple swamp (see Photo 4), flanked on the north and west by dense upland woods.

The only area of noticeable disturbance in the vicinity of this site is the fringe of wetlands located directly along the State Park trail. Ponding along the trail has resulted from beaver activity and there are beaver lodges and evidence of predation of small saplings. Although the hydrology and vegetation of the wetlands are being altered by beaver, they are still in a “natural” condition and predominantly free of invasive species. These wetlands continue to maintain and support sediment/toxicant retention and wildlife habitat.



Photo 4 – Site 3, looking east from commuter parking lot into red maple swamp

Site 4

Site 4 is located on both sides of Prokop Road just east of the Airport. The wetlands at the core of this site are forested wetlands containing a narrow stream and several small ponds (see Photo 5). The wetlands are comprised of high-diversity and well developed native plant communities. The lands surrounding the wetlands are primarily dense upland forests, although there are several large open lawns/fields with houses and a cleared area of several acres located directly adjacent to its western side (see Photo 6), which appears to be a gravel and/or fill materials storage area. Other than this clearing, there are no disturbed areas within or adjacent to Site 4.



Photo 5 – Site 4, looking north across small pond



Photo 6 – Site 4, looking southeast across storage yard to forested wetland

Conclusions

The preliminary research undertaken as part of the AMPU to develop a wetland mitigation concept has resulted in the following findings:

- On-airport mitigation appears to be neither appropriate nor feasible; however, water quality functions (receiving and pre-treating runoff from Airport surfaces) should be mitigated on-site through structural means during engineering design of the Taxiway “B” Extension. Dry basins may be an option for detaining stormwater and carrying out sediment/toxicant retention functions. Whatever measures are chosen will be designed in accordance with the Connecticut Department of Environmental Protection 2004 *Stormwater Quality Manual*.
- No potential mitigation sites (of a disturbed or degraded nature) large enough (8.0 acres) to fulfill the wetland mitigation needs for the AMPU recommended development were identified within approximately one to one and a half miles of the Airport. The vicinity of the airport is remarkably rural, undeveloped and in a naturalistic condition. The lower elevations with the best potential for wetland mitigation are comprised of a network of wetlands, upland forests, and old field, which already perform the functions of sediment/toxicant removal and wildlife habitat that need to be provided by the Airport wetland mitigation plan.
- There appears to be very little development pressure in the vicinity. Some industrial park development south of the Airport is occurring; however, its location for wetland mitigation could conflict with FAA guidelines for separation of hazardous wildlife attractants from the nearest air operations area, which have a minimum separation distance of 5,000 feet (for piston-powered aircraft).

Based on these findings, further study of a recommended wetland mitigation concept would include the following:

- Investigation of purchase of development rights, conservation easements, or outright acquisition of future proposed development sites in the Little River and Eightmile Brook watersheds.
- Investigation of potential mitigation sites farther downstream in the affected watersheds, or across watershed boundaries, where lands may have been disturbed by development. This effort would be compatible with a mitigation banking approach, whereby Airport mitigation requirements may be consolidated with mitigation efforts of other agencies or organizations, at a distance from the Airport that would conform to FAA separation criteria.
- Exploring a wetland mitigation package that might include some of the improvements needed at the DEP state park properties, wetland enhancement on these properties, and wetland creation at one or more sites (to be determined).

- More detailed discussions with the Town of Oxford to identify potential wetland mitigation activities that may complement mitigation efforts on private development sites, as the Town receives future development proposals.