

## Memorandum

**To:** Becky Abel, Executive Director, Wisconsin Wetlands Association

**From:** Dr. Hallett (Bud) Harris, Dr. Robert Howe, Gary Fewless

**Re:** Historic and current functional significance of the Lombardi Wetland at the proposed Argonne Street Retail site.

**Date:** December 15, 2010

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At the request of the Wisconsin Wetlands Association, we submit the following observations about the above mentioned Lombardi Wetland. These comments are informed by: our combined professional experience; a review of wetland assessments recorded by Jon Brand and Richard Nikolai (Wisconsin Department of Natural Resources File IP-NE-2010-5-01621); a vegetation survey completed by Gary Fewless following his September 30, 2010 site visit, and an additional site visit on October 11, 2010 where all three of us were present.

We recognize the fact that the functional values of the Lombardi Wetland and other wetlands in the area have been degraded. However, this wetland clearly still provides significant functional values in its present state. The plant diversity of this site is high for an urban/suburban wetland and the wildlife habitat values are locally significant. Given the seasonal hydroperiod and undocumented inundation levels, we rank the flood and stormwater storage/attenuation values as moderately important. We also agree that the site contributes to water quality protection in the Beaver Dam Creek/Duck Creek watershed, has local aesthetic/recreational value, and contributes (although minimally) to groundwater protection. Wetland complexes with this degree of values and services are rare in urban settings. While wetland encroachment is common in this area, to our knowledge few, if any, urban wetlands in the greater Green Bay area continue to provide this level of ecosystem services.<sup>1</sup>

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<sup>1</sup> The wetland complex adjacent to the Green Bay Airport is the only comparable site that comes to mind.

The functions and values of the Lombardi Wetland will be entirely eliminated in the proposed area (1.65 acres) of wetland fill; however, the proposed action will also impact the remaining adjacent wetland area. For example, the construction will further isolate the wetlands on the north end of the parcel from the forested wetlands to the south. This will be detrimental to wildlife by increasing habitat fragmentation. The loss of area from the existing wetland will also reduce its stormwater retention value. Any increase in disturbance by human activities will reduce the nesting value for Woodcock and Sandhill Crane, and will degrade breeding, stopover, foraging, and protective cover habitat for amphibians, deer, small mammals, and other resident and migratory wetland vertebrate species. Loss of wetland habitat and degradation of adjacent habitats also will reduce populations of plant pollinators (bees, wasps, butterflies, and other insects), natural predators (dragonflies, damselflies, hymenopteran parasitoids, predatory beetles, and others), and food resources for desirable species like hawks, owls, and wading birds. Additional alteration of the hydrology that results in drier conditions will also further degrade the remaining wetlands by increasing erosion and creating conditions that are favorable for the spread of *Phragmites australis* and other invasive species.

An evaluation of the impacts of the proposed project must consider the current and historical role of these wetlands in the watershed and the cumulative effects of this and prior actions. From aerial images as early as 1938 and ending in 2004 and from the Green Bay West topographic map, we can be reasonably confident that the Lombardi Avenue wetland was part of the Beaver Damn Creek Watershed that drains to Duck Creek and eventually into lower Green Bay. The hydrology of the area and the extensive forested wetlands (some of which persist yet today) have been markedly modified including channel modification as recently as the late 1990's or early 2000's. Before modification this wetland was part of an extensive complex of headwater wetlands draining to ecologically significant coastal wetlands of Green Bay.

The disruption and loss of these headwater wetlands has contributed significantly to the deterioration of coastal water quality and coastal wetlands of Green Bay and Lake Michigan. The undisputed decline

of these wetland complexes and their waters cannot be attributed to a single cause, as multiple disturbances, interacting processes, and past and present human activities all contribute.<sup>2</sup> However, to argue that the alteration or destruction of small or apparently isolated remaining wetlands is of no or little consequences disregards the fact that cumulative effects of many other small and purportedly isolated wetlands have led us to the situation that we have today.

Habitat fragmentation, which can compact resident wetland species of small mammals and amphibians, is another example where the cumulative impacts are substantial. We estimate no fewer than four species of small mammals and several species of frogs use the Lombardi Wetland. While none are endangered, all contribute to the food web dynamics of this urban/suburban ecosystem. Small organisms have limited dispersal ability, and those that are wetland dependant become vulnerable to extinction as isolated populations become separated by fragmentation.<sup>3,4</sup> Consequently, increasing human alteration of these wetlands will only exacerbate the already precarious ecological integrity and biodiversity at this site. Because metapopulations of wetland organisms will persist only through preservation of functional wetland mosaics,<sup>5</sup> impacts to this site may well have consequences on the biodiversity of other wetland complexes in the area. For example, this wetland may be especially significant to water birds and wetland invertebrates during wet years when other, less ephemeral wetlands, are flooded.

The conservation value of this site also has been underestimated because the wetland likely becomes especially valuable as migratory landbird stopover habitat during certain times of year. Emerging science reveals that wetlands like the Lombardi wetland (including wetlands that are significantly smaller than

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<sup>2</sup> Bedford, B.L. and Preston, E.M. 1988. Developing the scientific basis for assing cumulative effects of wetland loss and degradation on lanmdscape function: status,perspectives, and prospects. *Environmental Management*, 12: 751-771.

<sup>3</sup> Soule, Michael E. 1986. *Conservation Biology: the science of scarcity and diversity*. Pp. 13-18; The fitness and viability of populations. Sinauer Associates, Inc. Sunderland, Mass.

<sup>4</sup> Gibbs, J.P. 1993. Importance of small wetlands for the persistence of local populations of wetlands-associated animals. *Wetlands*.13(1):25-31.

<sup>5</sup> Gibbs, J. P. 2000. Wetland loss and biodiversity conservation. *Conservation Biology*,14: 314-317.

this) can have critical seasonal importance to migratory landbirds or during extreme weather events.<sup>6</sup>

The ecological context of this wetland (urban wetland in close proximity to important coastal wetlands of the Great Lakes) and resource characteristics (floristic diversity, structural heterogeneity, presence of trees) indicate that this site has significant conservation value that extends well beyond Green Bay and even Wisconsin. Doppler radar studies have shown that wetlands along the Great Lakes, particularly those in urban areas, are critically important as emergency stopover habitat for scores of resource-depleted migratory bird species, including rare and threatened species that nest in this region. The Lombardi wetland, with its large size, urban context and proximity to Lake Michigan is such a wetland.

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<sup>6</sup> Mehlman, D.W., Mabey, S.E., Ewert, D.N., Duncan, C., Abel, B., Cimprich, D., Sutter, R.D., and Woodrey, M. 2005. Conserving stopover sites for forest dwelling migratory landbirds. *The Auk*, 122(4):1281-1290.