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Comments – Red River Floodway Expansion Project EIS

File # 4967.00

submitted by

Manitoba Wildlands

October 14, 2004

*Manitoba Wildlands continues the work of WWF Canada and CNF for establishment of
Manitoba Protected Areas.*

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Comments – Red River Floodway Expansion Project Environmental Impact Statement (EIS)

File # 4967.00

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Comments – Red River Floodway Expansion Project EIS

Introduction

Manitoba Wildlands' Director has over 12 years of experience in EIS public review processes, and these comments on the Red River Floodway Expansion project EIS ('Floodway Expansion EIS') reflect this experience as well as the expertise of associates and contractors. Manitoba Wildlands' principle mandate is to monitor and participate in decision processes about Manitoba's lands and waters, including and in particular as they relate to the establishment of protected areas, with the objective of promoting decisions based on sound science and analysis and meaningful public involvement.

We are concerned that the existing Red River Floodway is not licensed under the Environment Act or its equivalent. This means that the existing Floodway has never undergone any kind of environmental effects assessment. The EIS for the proposed Floodway Expansion does not contain sufficient data and information about the existing Floodway to conduct an adequate cumulative effects assessment (CEA). In effect, the current undertaking involves both the existing floodway and the expanded or future project. This is particularly true during the period of time while we continue to operate the existing floodway, while potentially a license is in place for the expansion project. The EIS materials are not clear at all on these matters.

We are also concerned about the overall lack of clarity on the project region, which must be defined in terms of the region of potential impacts from all phases and operating conditions for the proposed Floodway Expansion project. While language in the EIS product agrees with this scope for the project region, the contents of the EIS do not.

We urge the proponent and the Government of Manitoba to seize the opportunity regarding climate change and make the commitment for the Floodway Expansion project to be a 'carbon neutral' project (*see Manitoba Wildlands comments re: Climate Change*).

We have provided comments on elements of the EIS that reflect contents of our previous work product regarding the draft EIS Guidelines, and our application for participant funding in respect to the CEC process for the proposed Floodway Expansion. Manitoba Wildlands recommends that the EIS Guidelines be substantiated with respect to the contents of this EIS document, and that identification of deficiencies be thorough in relation to both provincial and federal requirements for this expanded project.

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Regretfully, as part of our comments, we must note the fact that the content in an expensive product (the Floodway Expansion EIS) is inaccurate regarding public policy, technical standards, and government methods for protected areas establishment. We note that this is the second time in a year where EIS products produced by the same firms in Winnipeg have *avoided* public policy, misstated the regulatory framework; left out accurate information, definitions, mapping, and the public interest regarding protected areas in Manitoba. We would advise the proponent and the PAT that we expect the supplemental filings to correct this EIS content.

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Public Policy and Regulatory Framework

Extensive legislation and public policy regarding water, land and resource use currently exists in Manitoba. Under the EIS Guidelines for the proposed Floodway Expansion, the proponents must indicate legislation, regulations, guidelines, policies, and agreements that are applicable to the project. (see *Section 2.3.1 Intent* and *Section 3 Regulatory Framework*) In addition, the proponents are also required to “incorporate and reflect the **Principles of Sustainable Development** as contained in “**Towards a Sustainable Development Strategy for Manitobans**” and the policies under **The Land and Water Strategy** as contained in “**Applying Manitoba’s Water Policies.**”” (EIS Guidelines pg. 4). In effect, this means that the proponents must indicate how the project is in compliance with the strategy and policies above. We maintain that this would also then include subsequent public policy based on these required policy elements. In particular, Manitoba’s Water Policies are 15 years old. More recently there is a Manitoba Water Strategy based on those policies. It is an example of a public policy relevant to this EIS. See comments below.

Missing from the EIS Guidelines is an explicit requirement for the proponent to provide an assessment of how the proposed Floodway Expansion project will comply with each element of the *overall* federal and provincial public policy and regulatory framework (not just the Strategies mentioned and the policies that fall under them). There is also no comprehensive listing of federal and provincial public policies with which the Floodway Expansion project must comply. A variety of easily identifiable federal and provincial policies are relevant with respect to this project.

Analysis and Comments – Public Policy and Regulatory Framework and the Proposed Red River Floodway Expansion EIS (August 2004 version)

Aside from *Chapter 10 Sustainability*, the discussion of public policy and regulatory framework is restricted to a brief paragraph in *Volume 1 Chapter 1 Section 1.5.4 Manitoba and Federal Legislation*, a few lines in *Volume 1 Chapter 1 Section 1.6 Effect of the Guidelines on EIS Organization and Content*, and a brief mention in the Executive Summary (pg.28).

Volume 1, Chapter 1 Introduction, Section 1.5.4 Manitoba and Federal Legislation addresses the requirement in the EIS Guidelines to describe the policy and regulatory framework by referring to the list in *Appendix 1E*.

Appendix 1E lists the federal and provincial legislation and clauses that could potentially impact the project. There is no reference to public policy in the Appendix, other than to reference some guidelines. There is no mention of policy documents. No discussion, or

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analysis is included in the Appendix and it does not address the issue of how the proposed project will be in compliance with the legislative clauses listed.

As a side note, it is most interesting to note that *Volume 2, Appendix 1E, Section 1.2.6 Other* (pg. 1E-31) states, "Other Acts and Regulations that are potentially relevant to the **Wuskwatim Generation Project** are the . . ." (emphasis added). Clearly, the authors of the EIS engaged in wholesale 'recycling' of work product and in this instance failed to proofread and edit their work. At best this indicates a cavalier attitude towards environmental assessment and poor professional standards. At worst, the 'slip-up' is indicative of an attitude that is dismissive of the EA process, and indicates an approach of minimal compliance and the minimum in terms of actual assessment work. It also begs the question of what else? How much of this EIS is simply recycled to give the impression of careful analysis and consideration of the issues?

Volume 1, Chapter 1 Introduction, Section 1.6 Effect of the Guidelines on EIS Organization and Content states that "[t]he proposed Project is consistent with Manitoba's Water Policies regarding water quality, conservation, use and allocation, water supply, and education." There is no discussion, justification to support this statement. A similar claim is also made on page 28 of the Executive Summary.

The Executive Summary indicates that the proposed project is consistent with Manitoba's Water Policies, and also the natural lands and special places policies. This is an impossible statement, considering that the most recent policy document regarding Manitoba's water is the 2003 Manitoba Water Strategy, which has not even merited inclusion in the references section of the EIS, and is not referenced in the EIS itself. The same is true for the "natural lands and special places policies" – the most recent *Action Plan for a Network of Protected Areas* is neither discussed in the EIS, nor included in the references. It is not clear then why such statements are made in the Executive Summary. As noted elsewhere in our review comments, the Floodway Authority staff or their consultants and advisors would have benefited from an hour or two of easy access on line to acquaint themselves with protected areas policy, definitions, and mapping.

Not only are the recent and current policies regarding water and protected areas not referenced or discussed in the EIS, but the statements made in terms of the project being consistent with such policies (in Section 1.6 and in the Executive Summary) are made without any supporting argument.

Volume 1, Chapter 10 Sustainability, Section 10.3 Policies Under the Land and Water Strategy includes a discussion on pg. 7 about the ways in which the proposed project reflects the policies under the Land and Water Strategy. However, as mentioned above,

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many key public policy documents are simply ignored, not mentioned or referenced, and treated as if they did not exist. For instance, the *Action Plan for a Network of Special Places for Manitoba*. (January 2000 – January 2003) and its objectives are not referenced in the Floodway Expansion EIS. Yet, the Manitoba Conservation website (<http://www.gov.mb.ca/conservation/susresmb/pub/>)

lists publications under the Lands and Water Strategy. Included in this list as part of the Natural Lands and Special Places strategy is *An Action Plan for a Network of Special Places for Manitoba*. (January 2000 – January 2003).

Action Plans, over the last decade, have included the technical methodology, ecological principles, goals, and standards relevant to protected areas establishment and design. See our summary comments in the Protected Areas section. Each of these *Action Plans* is part of the policy framework for protected areas in Manitoba. As required by the EIS Guidelines, the proponents must incorporate and reflect this policy, and its application, as it is a policy under the Lands and Water strategy. To make a statement such as the one made in Section 10.3 of Chapter 10 Sustainability “No significant adverse effects are anticipated in the context of the Natural Lands and Special Places Policies” (pg. 10-7) is irresponsible, not only because the statement is not supported with additional information or discussion, but also because it fails to adequately address the requirements of the EIS Guidelines in Section 2.3.1 Intent.

In terms of protected areas policy, there is no indication of the level of representation of enduring features that currently exists in the natural regions affected by the proposed project. (this information is easily accessible) No maps are included. There is no indication of the implications of the proposed project in terms of the ability to establish protected areas.

Similarly, with regard to water policy, the EIS ignores the existence of Manitoba’s Water Strategy (2003). It is not mentioned in the EIS or listed in the reference. This policy states that “Manitoba’s Water Strategy identifies six interrelated policy areas. These policy areas were first introduced in *Manitoba’s Water Policies* (1990)”. (<http://www.gov.mb.ca/waterstewardship/waterstrategy/pdf/index.html>). Thus, Manitoba’s Water Strategy has been derived from the water policies that originated as part of the Lands and Water Strategy. The Water Strategy 2003 policy should be considered in a process to “incorporate and reflect” the policies under that Lands and Water Strategy. The EIS is deficient in this regard.

In fact, all statements made in Chapter 10 Sustainability should be supported with data and analysis. The EIS does not consistently provide such analysis.

Recommendations - Public Policy and Regulatory Framework and the Proposed Red River Floodway Expansion EIS (August 2004 version)

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1. The EIS is fundamentally inadequate in terms of adequately addressing the (bare minimum) requirements as outlined in the EIS Guidelines regarding the public policy and regulatory framework. Clearly, this must be addressed in the proponent's supplemental filing. An analysis of federal and provincial public policy and regulatory framework with respect to the proposed Floodway Expansion project that fulfills the EIS Guidelines must be provided. At a minimum, more information and additional analysis is required to substantiate statements in EIS, and provide support for conclusions.
2. In addition, the sections of the EIS that address the public policy and regulatory framework should be rewritten to clearly indicate how the project is in compliance with each element of the overall federal and provincial public policy and regulatory framework (not just the Strategies mentioned in the EIS Guidelines and the policies that fall under them).
3. In particular, Chapter 10 Sustainability should be given priority in terms of supplemental filing by the proponent to address deficiencies.
4. Analysis and support for all statements and conclusions must be provided in the EIS. Updated policies must be included and discussed in terms of the project's compliance with these policies.
5. An updated, more detailed list of references must be included.

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Biodiversity/Species

Aquatic

The EIS is deficient per the Final EIS Guidelines. For example, the Final EIS Guidelines require "... sufficient detail regarding existing primary producers ..." and "... sufficient detail regarding existing species composition and abundance of aquatic invertebrates ..." (Section 6.2.2 and 6.2.3, pg.12). Other than gross speculation, the EIS offers almost nothing on primary producers and invertebrates. For example, relative to *Potamogeton* (Volume 1, page 6-25), the EIS suggests that it is likely (not *is*, but 'likely') to be a prevalent species in the Red River, and the EIS does not confirm if the species even occurs in the Low Flow Channel.

The EIS states "It is likely that some recolonization of macrophytes in the Low Flow Channel will occur three to five years after construction." and then "... effects of construction on the aquatic habitat in the Floodway Channel are expected to be small, short-term ..." (Volume 1, page 6-25). It is difficult to envision the derivation of this conclusion given that the EIS does not confirm the status of *Potamogeton* for the Red River, and does not confirm its existence for the Low Flow Channel. This clear lack of understanding by the proponents per their EIS, and their indication "... likely that some recolonization ... will occur ..." (Volume 1, page 6-25) within three to five years (i.e., not that **some** colonization **will** occur, or that lost macrophyte populations will recover) is inconsistent with the EIS conclusion that the impact is 'short-term' (also note our comment, in Terrestrial Wildlife, respecting the proponents misapplication of the concept of 'short-term'). Finally, given the substantive alteration of the Low Flow Channel bottom to a rock substrate, even in the presence of some infiltration of fine materials, a permanent loss of aquatic macrophyte productivity must be anticipated.

We agree that the impact of the project on Low Flow Channel aquatic invertebrate communities is "primarily related to alteration of bottom substrate" (Executive Summary, page 20). However, we strongly disagree with the EIS statement that "The magnitude and nature of these effects are not predictable, but are likely to be neutral in nature." As the EIS notes, the substantive alteration to the bottom substrates of the Low Flow Channel will result in an altered invertebrate community, as species adapted to large rock substrates replace those adapted to fines (silts, clays). A crude estimate of the magnitude of the permanent shift in composition among these two 'groups' would be a decrease to approximately 27% of the pre-development population of the species adapted to fines (35 km of altered bottom substrate of 48 km of total Low Flow Channel). This hardly constitutes a 'neutral' impact for the invertebrate species in question, or for those species of fish that may specialize on such invertebrates. Similarly, the substantive change in the bottom substrates would be expected to exert a substantive impact on clams for this area. These impacts represent large, long-term (permanent), local impacts, and are therefore 'potentially significant effects' per Figure 2.3-1 of the EIS.

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We therefore strongly disagree with the proponent's EIS statement that "It is not likely that any long-term changes that occur as a result of the altered Low Channel substrate will be adverse." (Volume 1, page 6-34) for those species whose populations incur substantive decreases. And conclusions that impacts on fish are 'neutral' are similarly incorrect (a species by species analysis is appropriate).

EIS information and conclusions are inconsistent relative to fish and clams. For example, the EIS states "Fish and clam species **diversity** and population sizes are generally linked to the available habitat. Suitable habitat differs for each species or community and is dependent on physical features such as ... substrate type, vegetation cover,... and the existing invertebrate community." (Volume 1, page 6-38) Despite EIS acknowledgement that substrates influence clams, and that substrates, vegetation and invertebrate community influence fish, the EIS suggests essentially no impact of the major alteration of substrate and altered invertebrate community for clams and fish in the Low Flow Channel. We further note that substrates have a bearing on spawning for fish.

The observation of a fish kill (of some unknown magnitude in relation to the 'population') in only one winter does not represent adequate evidence to support the EIS conclusion that the Low Flow Channel represents poor habitat or a 'sink'. In Manitoba, winter kills are not uncommon for good fisheries (e.g., trout lakes in the Duck Mountain, lakes in southwestern Manitoba, and even for the Red River).

Seasonal flooding is important and beneficial to some species of fish (e.g., northern pike). The EIS ignores the potential benefit of high flood events for such species.

The EIS ignores the potential of the greater opportunity for drainage to impact on fish.

Some of the discussion on fish considers 'fish community dynamics' where the information of prime interest is 'fish communities' (the two are quite different).

The EIS sometimes notes that 'alternate fish habitat exists'. This conclusion is inconsistent with the concept of 'no net loss' (i.e., if alternate fish habitat really did exist, then there would be no need for the replacement of lost habitat).

The EIS states "Four fish species of special concern ... are not anticipated to be affected by the Project." (Volume 1, page 6-50). The EIS provides no basis for this conclusion.

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We note that the physics of water movement, as it pertains to bottom substrates and aquatic biota, is ignored. This may have some relevance to invertebrates, and to fish during high flow events (e.g., if substrates help fish to mitigate current effects during high water events, 'stranding' might increase, contrary to the suggestion in the EIS).

The EIS notes the recent existence of summer operations, and the possibility of future summer operations. If not already in place, ramping rates should be developed to eliminate stranding of young fish and other aquatic life forms.

Terrestrial Plants and Habitats

We note that the examination of the Floodway for rare or endangered plants and ecosystems was not comprehensive (i.e., effort focused almost entirely upon a limited area of the Floodway).

Relative to the Floodway, the Executive Summary (page 9) states "Improvements were made to the design of agricultural drainage drop structures that are being replaced so that they could accommodate enhancement of the local drainage systems.", and further notes that drainage will be improved in the area of the West Dyke. Impacts related to this improved drainage (e.g., adjacent to the Floodway and in the vicinity of the West Dyke) are ignored by the EIS. These are potentially significant. For example, as a consequence of present drainage circumstances, within the area of influence, seasonal and other wetlands, temporarily flooded areas, and/or important natural areas (e.g., mesic to wet tall grass prairies dominated by species like cordgrass and Indian grass, riparian areas) are likely to be found. These areas might be destroyed or impacted as a consequence of improved drainage.

The general potential of the development to impact on drainage is such that the geographic scope of the EIA region may be too small.

The EIS notes that sediments that would normally settle out on the floodplain during large flood events will now be transported downstream into Netley Marsh and Lake Winnipeg. The EIS ignores any potential benefits of large flood events on 'floodplain forests' and other ecosystems. Periodic flooding is part of the ecology of riparian floodplain forests, ecosystem species of plants are adapted to flooding, and it has been found to be important to the 'health' of similar ecosystems elsewhere (e.g., via the provision of nutrients, the disturbance per se). The impact of large flood events should not be ignored (including those that would occur in the absence of the expanded floodway ... within Winnipeg).

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Terrestrial Wildlife

Conclusions on impacts on terrestrial mammals and birds are often not well-founded, and lack supporting evidence. Conclusions respecting the nature (i.e., positive, negative, or neutral), duration, and magnitude of impacts are often questionable or incorrect. For example,

- The EIS suggests that burrowing mammals will recover on the Floodway within three to five years (Volume 1, page 7-22). This conclusion is almost certain to be wrong. The segmented approach to development will not provide substantive opportunity to recolonize disturbed segments. Significant recolonization will only occur if suitable utilized habitat exists peripheral to the Floodway.
- The EIS provides no evidence to suggest that this is true, and digital imagery within the EIS demonstrates that this will often not be the case (i.e., the presence of cultivated fields adjacent to the Floodway). The correct conclusion is that this is not a ‘short-term’ impact, but rather that there will be a long-term substantive decrease in burrowing mammals, which also has implications to those species that prey upon them (e.g., red-tailed hawk, horned owl, coyote). We note that structured monitoring of the many species of small mammal did not occur (e.g., to determine density). Of course, in the absence of such monitoring, it is essentially impossible to demonstrate if and when populations of these species recover (i.e., document impact), and the veracity of the conclusions of the EIS.
- The preference of alfalfa by white-tailed deer is well-known. Indeed, Manitoba Conservation has often planted alfalfa as a habitat enhancement technique for the species (including converting native plant ecosystems to alfalfa). Despite this, the EIS suggests that replacement of alfalfa by native grasses on the Floodway will somehow be ‘positive’ for deer.
- The EIS frequently suggests that animals could make use of adjacent habitats (to the Floodway and West Dyke) during construction. Yet the EIS offers no evidence to demonstrate the suitability of adjacent habitats, and digital images demonstrate that adjacent habitats are often not suitable. This suggestion further ignores the fact that many species are territorial (i.e., an individual will exclude individuals of the same species from their ‘territory’).

We note that the EIS misapplies the definition of ‘short-term’ per Figure 2.3.1 of the EIS and the associated definition. For example, the EIS suggests that small burrowing mammals would recover within three to five years, and interprets this to be ‘short-term’ where the definition (Volume 1, page 2-13) is “... effects that last no more than a one-generation span of the species affected or five years for other environmental components such as water quality.” The definition for long-term is “... more than one generation of the species affected”. Given that the generation period for these small mammals is

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considerably less than three to five years, the appropriate duration of impact is ‘long-term’.

We would expect that the substantively altered substrate of the Low Flow Channel would substantively influence amphibian habitat within the Channel (including leopard frog, a species of concern that would over winter in the bottom). However, this large (magnitude) long-term (duration) potential impact receives essentially no analysis or examination against literature. We note that literature to demonstrate conclusions of ‘no significant impact’ is almost non-existent for this EIS. Elimination of the ‘ponds’ will likely exert some influence on amphibians.

The EIS sometimes mixes construction and operation-inactive effects. For example, the EIS discusses the timing of clearing of willows within the Floodway (a construction-related mitigation) while addressing operation-inactive effects (Volume 1, page 7-26).

The EIS notes that loggerhead shrike make use of areas where nesting structures (shrubs and trees, including willow) occur in close proximity to grazed or mowed plant communities, and suggests the presence of only one potential nesting area (dominated by hawthorn). This suggestion appears inconsistent with plant data within the EIS. Specifically, willow, saskatoon, aspen, cottonwood, and black poplar are documented for the Floodway (Table 7B-2 of Appendices). These shrubs and trees could provide for nesting within this mowed forb/grass mix of the Floodway

We note that observations of loggerhead shrike (Figure 7.5.1) for the general area are incomplete. We further note that surveys for endangered animals or plants were not comprehensive within the Floodway.

Riprap of the Low Flow Channel will have an impact on the primary productivity of macrophytes, and therefore those mammals associated with aquatic environments.

Riprap of the Low Flow Channel, and for the Red River to the north of the Outlet, will impact on clams, thereby having an influence on raccoons that forage on clams.

The EIS notes that certain transmission lines will be extended but does not address the impact of this development on birds.

Overall, this is a cursory treatment of terrestrial wildlife effects, lacking valuable baseline data that could have been collected (e.g., the virtual absence of data on mammals).

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Recommendations – Biodiversity and Species and the Proposed Red River Floodway Expansion EIS (August 2004 version)

Monitoring is a precondition to adaptive management, and baseline monitoring is required for the EIA of the development (and follow-up monitoring should licensing occur). This monitoring will allow for documentation of impacts, testing of EIS conclusions (important given the available evidence and testimony demonstrating that EIS conclusions have often been quite wrong), and the opportunity to ‘do things better in the future’. Required baseline monitoring for this development includes determining densities for some of the smaller mammals (e.g., burrowing mammals), and monitoring for plants, invertebrates, and clams within the Low Flow Channel (e.g., to examine the impact of the riprap on invertebrates).

Given the substantive change in substrates within the Low Flow Channel, a species by species analysis of the impact is warranted for fish.

The EIS notes that “Vegetative communities, which may contain plant species at risk ... will be disrupted ...” (Volume 1, page 7-9). Given that the examination of the Floodway for rare or endangered plants and ecosystems was not comprehensive, an Environmental Monitor(s) should be in place to determine the location of any sensitive plants or communities prior to construction. These communities could then be preserved to the extent possible (e.g., via removal of the ‘sod’).

We support the EIS commitment for reconnaissance survey along the length of the Floodway for animals that fall into the group of ‘species of concern’. The survey effort to date has not been adequate. Surveys must occur with a great enough frequency to ensure that species will not be missed (i.e., greater than one survey over the ‘breeding season’). Further, given the plant data, it is necessary that all nesting structures be examined for loggerhead shrike. This species can be found in areas of low shrub or tree density.

Mitigation should be developed to counter the loss of shrubs and trees as a consequence of the development.

Further assessment should occur respecting the following.

- The impact of the development on floodplain forests.
- Documentation of the value of high flood events to biota.
- The impact of the enhanced drainage on important habitats outside of the Floodway RoW and beyond the West Dyke.
- The impact of the altered substrate and ponds in the Low Flow Channel on leopard frog.

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Water Quality

Respecting cumulative effects, the EIS notes the potential of various other developments to impact water quality (e.g., impoundments, lagoons, changes to farm practices), and states “While the nature of any future initiatives on this issue are uncertain, it is likely that these activities will result in reduced nutrient loadings to the environment, precluding any cumulative effects with those of Project construction (No changes to nutrient issues as a result of the Project are anticipated after construction). Both the province of Manitoba and the state of Minnesota are implementing nutrient management plans.” (Volume 1, page 6-2).

We must disagree with the conclusion that nutrient loadings to the environment are anticipated to decrease; we question what the basis for this conclusion was, and wonder ‘where the proponent and their consultants have been over the last year or two’? Are the proponent and their consultants unaware of current nutrient challenges like eutrophication of Lake Winnipeg, predicted failure of perhaps the majority of septic fields within the Red River Valley, the expanding livestock industry, and the lack of staff in the Conservation and Water Stewardship departments? This is an example of what is often observed in an EIS - the proponent and their consultants attempting to have the reader look at the world through ‘rose-colored glasses’.

EIS baseline water quality data were from the Red River (near the inlet at St. Norbert and at the Selkirk bridge). Were there no data for the Floodway?

The EIS notes that upgrades to drainage inlets to the Floodway will enhance opportunities for drainage. Are there water quality and quantity data available for these areas of input, and what is the predicted impact of increases in drainage on water quantity and quality?

The EIS discusses the impact of leaks and spills of petroleum products during construction by noting that fuel-up would be outside the Floodway, and that spills would be cleaned up promptly. Practices to address this issue were primarily deferred to the Environmental Protection Plan. Leaks and spills from machinery will occur irrespective of the EPP, and some studies have found the amount lost from working machinery to be substantive (e.g., for the forestry industry). The proponent should explore the use of non-petroleum lubricants that are safe for the environment, as used in development projects near water in other places (e.g., British Columbia).

The EIS reports on temporal and geographic variation in nitrogen and phosphorus, and other parameters. Are the differences suggested within the text statistically significant differences (e.g., between the Selkirk and St. Norbert sampling locations)? Please provide means, standard errors, and sample sizes.

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We note at least one inconsistency in the text versus the data tables on water quality. Specifically, for phosphorus, the text suggests a peak in April for St. Norbert. Per the Table, this is correct for the 10th percentile. However, the peak for the 90th percentile is in July (see Table 6.3-1).

The reporting of statistics in the text should be consistent with the information presented in the data tables (i.e., the text should indicate if it is the 10th percentile or 90th percentile that is being reported).

Respecting Table 6.3-5 and similar tables, the proponent seems to be confused respecting median (50th percentile) as used in the 3rd column, and average as used in the 5th and 6th columns (e.g., relative to 2,4-D amine). These are two **different** measures of what is known as ‘central tendency’ in statistics.

The EIS examines impacts using a ‘worst-case scenario’ wherein all of a given potential contaminant enters the system. While the extra amount is relatively small against background amounts, it is important to recognize that these are real increases that are not unimportant (e.g., the potential for a 1.2% increase in the phosphorus flowing into Lake Winnipeg). It is important to recognize that threshold relationships are common in biological systems (this is particularly typical respecting toxicological relationships). Could this additional amount of phosphorus be that additional amount that triggers a substantive impact? Additional fertilization of Lake Winnipeg is a significant biological and resource concern, and must be controlled.

Further to this, the Floodway EIS scenario assumes the success of the revegetation plan and no flooding; revegetation plans have been known to fail and floods will happen. These sources of uncertainty should have been incorporated within the scenario exercise.

Recommendations – Water Quality and the Proposed Red River Floodway Expansion EIS (August 2004 version)

The conclusion that nutrient loading is anticipated to decrease must be justified in the EIS; the factors noted above must be considered in subsequent filing, discussion by the proponents.

Water quality data for the Floodway should be filed if available.

Water quality and quantity data for upgrades to drainage inlets to the Floodway must be filed if available.

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The proponent should address the suggestion above regarding the use of non-petroleum lubricants that are safe for the environment.

Please provide information on the issue of the statistical significance of temporal and geographic variation in nitrogen and phosphorus, and other parameters as referenced above.

The proponents must reconcile the inconsistency of the text versus the data tables on water quality, and specifically for phosphorus.

The issue of ‘worst-case scenarios’ regarding contaminants requires additional attention by the proponent. Please see comments above.

The issue of the probability of success of the revegetation plan and the assumption of no flooding must also be addressed by the proponent. Sources of uncertainty must be incorporated into the analysis as suggested above.

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Climate Change

The Environmental Impact Statement (EIS) Guidelines for the proposed Floodway Expansion project makes 2 references to requirements for the proponents to address climate change as part of the EIS. *Section 2.3.2 Scope* (pg. 4) refers to the fact that the EIS shall include an examination of “the implications of the Project with respect to climate change and Manitoba’s commitment to the Kyoto Accord”.

Climate Change is also referenced in Section 6.1.1 General (pg. 11) which states that the EIS shall describe “general climate conditions with sufficient data provided to predict the effect of the project on climate and the potential effects of climate on the Project over time”.

Climate change has become widely-accepted as a phenomenon that must be considered in the context of environmental assessment. The government of Manitoba has recognized and acknowledged the importance of climate change and taken action to reduce greenhouse gas (GHG) emissions in adopting a progressive climate change policy for the province. Nationally, Canada has made international commitments in endorsing and ratifying the Kyoto Protocol. The Russian Cabinet's decision on September 30, 2004 to send the Kyoto Protocol to parliament for ratification means the Government of Canada must immediately introduce legislation to set mandatory greenhouse gas emission targets for Canadian industry, according to a September 30, 2004 press release by the Pembina Institute. (<http://www.pembina.org/newsitem.asp?newsid=113§ion=>) Russia's ratification of the Kyoto Protocol triggers the treaty's entry into force, and Canada will be required by international law to reduce its greenhouse gas emissions.

Manitoba has an opportunity with the proposed Floodway Expansion project to demonstrate its commitment to minimizing GHG emissions and supporting projects that are ‘carbon-neutral’ (no net GHG emissions, or loss of carbon.).

Given the provincial and national commitments to actions that minimize GHG emissions, and the references in the EIS Guidelines for the proposed Floodway Expansion project, the EIS should include a discussion about carbon stocks, greenhouse gases, and other climate change issues and key indicators and then address these issues in the context of the project.

Specifically, the EIS should include:

- a. a detailed description of options for the minimization and/or elimination of GHG emissions or negative changes to carbon stocks through ‘alternatives means of carrying out the project’ and in ‘alternatives to’ the proposed project;
- b. detailed estimates of greenhouse gas (GHG) emissions and changes to carbon stocks as a result of the proposed Floodway Expansion project in relation to

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construction and operation stages - this information should be for the entire project region, not just the local project region.

It must include and identify which actions will decrease carbon, and which will increase GHGs and how these will be mitigated, how these will be adapted so that impact will be reduced, etc.;

- c. details regarding compliance with the government of Manitoba stated policy on climate change as well as Canada and Manitoba's commitment under Kyoto (in particular, disclosure of carbon and GHG emissions for all stages of the project in relation to Manitoba's Kyoto requirements);
- d. a comparative analysis of the carbon effects of the Floodway Expansion project and other large scale, earth moving and water diverting projects in other jurisdictions (with particular emphasis on best practices, and standards –both statutory/regulatory as well as voluntary); and
- e. information that allows a comparison of the climate change impacts of the existing floodway structure, and the expanded floodway structures so that opportunities to make the entire, cumulative project carbon neutral can be identified.

The EIS should also reference the CEAA publication *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners* http://www.ceaa-acee.gc.ca/012/014/2_e.htm and provide an explanation of the steps taken (as outlined in the publication) in following this guide in the analysis of climate change effects as they relate to the proposed Floodway Expansion project.

Analysis and Comments –

Climate Change and the Red River Floodway Expansion EIS, August 2004 Version

The Sections of the EIS that deal with climate change issues (there is one main section in Chapter 5, and some references in other sections) essentially indicate that climate change scenarios support the need for the project, and GHG emissions resulting from the project are dismissed as insignificant.

The climate change issues outlined above (a. – d.) are either entirely absent from the EIS or addressed inadequately (i.e. Manitoba's commitment to meeting and exceeding the requirements of the Kyoto Protocol is referenced in passing). However, notwithstanding this disappointment, the EIS for the proposed Floodway Expansion project does not even adequately address the requirements of the EIS guidelines.

The Executive Summary for the proposed Floodway Expansion project (pg. 17-18) states that “[t]he Project will result in greenhouse gas emissions during construction **but it is not expected to have any significant effect on global greenhouse gases.**” (emphasis added)

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To begin with, this statement is pointless because almost no single project anywhere in the world will have any significant effect on **global** GHG emissions. It also misses the point and does not address the requirement of the EIS Guidelines to address the “implications of the Project with respect to climate change and *Manitoba’s commitment to the Kyoto Accord*” (emphasis added).

The Section in the EIS itself that deals with the issue of climate change and GHG emissions is *Volume 1, Chapter 5 Physical Environment, Section 5.8 Climate, Air Quality and Noise* (pg. 48-51). In this section, the proponents reference the Manitoba government commitment to reducing climate change impacts. The EIS (pg. 49) states,

The Province of Manitoba (2002) has publicly stated its intention to meet and exceed Kyoto reduction targets with a goal of a reduction of greenhouse gas emissions of 18% below 1990 levels by 2010. The construction of the Project will result in emissions of greenhouse gases associated with construction equipment; however, this effect is expected to be local, of small magnitude, and of short duration and therefore, is insignificant. The construction of the Project is not expected to affect the province’s ability to satisfy its commitment under the Kyoto protocol.

Unfortunately, there is no quantification or even estimate of the GHG emissions for the construction phase of the proposed Floodway Expansion project. There is no justification provided for the above statement. This is grossly inadequate.

In addition, there is no reference to the amount of vegetation, trees that will be permanently and/or temporarily removed or degraded as part of the construction phase of the project, or the implications of this activity in terms of carbon stocks. There is no quantification or calculation of the total area cleared for construction, or disturbed during construction, nor is any map of the areas impacted (permanently or temporarily) as a result of construction of the project (through establishment of temporary roads, etc.) is provided. There is no acknowledgement that the approximately 21 million cubic metres of earth that will be excavated and moved during construction will release carbon, and no discussion of how to address this.

The EIS also states (*Chapter 5, pg.50*) that “[t]he project will not cause flooding of vegetated land, which could result in greenhouse gas (GHS) emissions, which are a global concern in regard to climate change.” However, no support for this statement is provided, not even in terms of referencing other sections of the EIS (or a map contained in another section) which might address this issue¹.

¹ It is the responsibility of the proponents to ensure that the EIS is readable and easy to understand (within reason). If justification for a statement made in the EIS is supported elsewhere in the document, explicit reference to this section should be made.

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However, the EIS acknowledges elsewhere (for instance in *Chapter 7 Terrestrial Environment*) that significant vegetation will be disturbed during the alternating, 5 year construction period.

The EIS does not provide any information or discussion of emissions resulting from the increased capacity of the Floodway during its operation. For example, water carrying debris, trees, sewage, etc. contributes GHG emissions.

The Executive Summary (pg. 17-18) states that “Climate change could result in decreased frequency in the amount of major spring floods, increased probability of rain-generated floods increasing the likelihood of summer operation for emergency conditions, and more summer flooding due to localized thunderstorms. Independent studies concluded that future climate variability will not change the reliability for the Red River flood protection system.”

The main text EIS fails to adequately support these statements. There are references to studies, but no detailed explanation, or source for these conclusions is provided.

The Section in the EIS itself that deals with the issue of the impacts of climate change on the project is also *Volume 1, Chapter 5 Physical Environment, Section 5.8 Climate, Air Quality and Noise* (pg. 48-51). The EIS (pg. 50-51) states,

Warkentin (2002) concluded that climate change may result in changes in the magnitude and frequency of flooding. These effects may include decreased frequency in the amount of major prairie spring floods, increased probability of rain-generated floods increasing the likelihood of summer operation for emergency conditions, and more summer flooding due to localized thunderstorms. . . Other research suggests (St. George and Nielson, undated) that small changes in temperature and precipitation have resulted in increased duration and magnitude of flooding on the Mississippi river. . .

Thus, under potential climate change scenarios there could be increases in the frequency and magnitude of flooding events. Siimonovic (sic) and Li (undated) used models to assess the need for enhanced flood protection in the Red River basin under different climate change scenarios. . . . Accordingly, potential changes in climate would not change the need for the Project. (emphasis added)

There are several problems with the information as stated in this section:

- The data presented in the EIS consists of temperature and precipitation averages, which provides no information in terms of climate variability and extreme weather events over time, and is thus meaningless in terms of climate change.
- There is no analysis or data to support the assertion that the proposed Floodway Expansion will afford adequate protection under scenarios of more extreme changes to climate and/or increased frequency and magnitude of extreme weather

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- events. (No data re: average flow rates over time, number of extreme climate events (storms, precipitation) etc. is provided)
- The conclusion that changes in climate would not affect the need for the project does not address requirement of EIS Guidelines to predict the effect of climate change on the project over time.
 - No indication of whether the proponent applied climate change models to their assertions is provided.
 - Only **five** (5) references with respect to the discussion of the climate change effects of the project and the effects of climate change on the project are cited (30-year Climate data from Env Can; Province of Manitoba (2002); Warkentin (2002); (St. George and Nielson, undated), Simonovic and Li (undated)). This is also grossly inadequate. It is also not clear whether or which of these sources are primary information.
 - There is no analysis provided of uncertainty in terms of predicted climate change effects, despite the statements made in *Volume 1, Chapter 5, Physical Environment Section 5.2 Approach and Methodology*

Chapter 10 Sustainability refers to Principle 7 of the Principles of Sustainable Development which is about Global Sustainability. The EIS states that (pg. 4) “Manitobans should think globally when acting locally, recognizing that there is economic, ecological and social interdependence among provinces and nations, and working cooperatively, within Canada and internationally, to integrate economic, environmental, human health and social factors in decision-making while developing comprehensive and equitable solutions to problems.”

In addressing Principle 7, it is asserted in the EIS that “[t]he construction phase will result in short-term increases in air emissions but these are local and short-term.” However, in terms of climate change, this statement is not substantiated either in Chapter 10, or elsewhere in the EIS. In addition, Principle 7 above refers to developing solutions. This supports the idea referred to in the first section of this document to design the Floodway Expansion project in such a way as to make it a carbon-neutral project, where there are no net gains in GHG emissions.

Volume 1, Chapter 5, Physical Environment 5.2.5 Assessment of Scientific Uncertainties (pg. 1-3) discusses methods to assess and address uncertainty. It also refers to the “collection of data, analysis of past effects and trends, cumulative effects, and the use of computer models to determine effects.” Despite this explanation, there is no discussion of any analysis of uncertainty in terms of the conclusions stated in the EIS with respect to climate change (*Volume 1, Chapter 5 Physical Environment Section 5.8 Climate, Air Quality and Noise* (pg. 48-51)) Moreover, the “collection of data, analysis of past effects and trends, cumulative effects, and the use of computer models to determine effects” is not a feature of the Section that addresses climate change.

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Recommendations

The EIS is fundamentally inadequate in terms of the analysis of potential climate change effects as they relate to the proposed Floodway Expansion project. The EIS fails to adequately address the (bare minimum) requirements as outlined in the EIS Guidelines. The sections of the EIS that address climate change (both impacts from the project on climate change and potential impacts of climate change on the project) should be rewritten. Manitoba Wildlands offers the following recommendations to be addressed in a supplemental filing by the proponents:

1. Provide analysis of issues and potential effects related to climate change with respect to the proposed Floodway Expansion project to fulfill the EIS Guidelines. More information and additional analysis is required to substantiate statements in EIS, and provide support for conclusions. For instance, quantification estimates of GHG emissions for each stage of project (construction, operation) is a minimum requirement. Additional support, detailed explanations for the conclusion that the project as designed will accommodate extreme weather events, including extreme flooding events (frequency, magnitude) associated with more extreme climate change scenarios is also critical.
2. The analysis should be based on the CEAA document *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners* http://www.ceaa-acee.gc.ca/012/014/2_e.htm and the analysis should clearly provide rationale, references, and justification and substantiation for all stated conclusions.
3. All public policy documents (Canada and Manitoba) related to the issue of climate change should be listed in the EIS, and a description of how the proposed project reflects, and is in keeping with the stated intent and provisions of these policies should be included.
4. The EIS should include a detailed description of options for the minimization and/or elimination of GHG emissions or negative changes to carbon stocks through 'alternatives means of carrying out the project' and in 'alternatives to' the proposed project.
5. The EIS should include detailed estimates of greenhouse gas (GHG) emissions and changes to carbon stocks as a result of the proposed Floodway Expansion project in relation to construction, and operation stages. An

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understandable baseline regarding emissions and carbon stocks in respect to the existing Floodway should be included.

6. The EIS should include details regarding compliance with the government of Manitoba stated policy on climate change as well as Canada and Manitoba's commitment under Kyoto (in particular, disclosure of carbon and GHG emissions for all stages of the project in relation to Manitoba's Kyoto requirements).
7. The EIS should include a comparative analysis of the carbon effects of the Floodway Expansion project and other large scale, earth moving and water diverting projects in other jurisdictions (with particular emphasis on best practices, and standards –both statutory/regulatory as well as voluntary).
8. A more detailed list of references, literature, models, studies used in the climate change analysis must be included.
9. Analysis and support for all statements and conclusions must be provided in the EIS. Any data relied upon to arrive at conclusions should be excerpted or provided as an appendix.
10. An analysis of the uncertainty associated with all conclusions in the EIS regarding climate change should be undertaken. A plan for monitoring and data collection to address uncertainty should be developed and included in the EIS.

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Floodway Expansion Project Study Region Definition, Boundaries for Biophysical Effects Assessment

The Floodway Expansion EIS is unclear regarding the study region for the purposes of environmental assessment.

In Volume 1 Chapter 2 Assessment Approach (pg. 5), the EIS states that the “Flood Study Region is defined for all environmental components based on the maximum geographic extent to which the Project may be expected to have discernable biophysical effects (Figure 2.1-1).”. However, the EIS also states that “[a]side from major flood events, the geographic scope for Project effects on the biophysical environments (physical, aquatic, and terrestrial) and heritage resources during construction and most years of operation are typically restricted to the site footprint area (the expanded right-of-way and any other required land acquisition areas) and certain other areas located adjacent to specific elements of the Project.” No map or additional description for this scope is offered. Moreover, no justification for this restricted scope for biophysical environmental effects is provided. However, if major flood events are included (as they are and should be), then the scope for assessment of biophysical effects should not be restricted to the “footprint area” (no map of this provided) and certain other areas.

Compounding the confusion is a statement in the Executive Summary (pg. 11-12), “An overall Flood Study Region for the Project was defined for the EIA based on the maximum geographic extent to which the Project may be expected to have discernable biophysical effects related to water regime changes under any of the above spring flood conditions (see Figure 2).” Aside from contradicting the statement made on page 5 of Chapter 2 (quoted above), this statement ignores the fact that the Flood Study Region should be defined based on the extent of potential effects not only resulting from spring flood conditions, but from the construction and operation of the project as well.

In addition, there is the issue of the reference to a Local Study Region (see Manitoba Wildlands General Comments). Although depicted in Figure 1.1-1 and referenced (inaccurately) in Figure 7.1-1, there is confusion as to whether it is simply the components of the existing Floodway (as referenced in the EIS text), or whether it is being used as the scope for certain biophysical effects. This needs to be clarified by the proponents.

Re: Executive Summary Community Scope (pg. 8 – 9)

We suggest that when the executive summary indicates that:

PIP activities have included municipal Councils, local citizen groups, environmental non-government organizations and local residents in the Flood Study Region (Figure 2), including RM's of Morris, Macdonald, Ritchot, Taché,

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Springfield, St. Clements, East St. Paul, St. Andrews and West St. Paul, in the Towns of Niverville and Morris, and in the Cities of Selkirk and Winnipeg. Three First Nations with a potential interest in the Project (Peguis First Nation, Brokenhead Ojibway Nation, and Roseau River First Nation) and the Manitoba Métis Federation were invited to discuss the Floodway Expansion Project, and follow-up meetings and relevant environmental assessment activities have taken place, and will continue, with those who express an interest in being involved. To date, the Peguis First Nation and Manitoba Métis Federation have expressed such an interest

then the project scope for environmental assessment should include these communities, and the natural environment where they are located. We presume that: Rosenort, Ste. Agathe, St. Pierre, Otterbourne, Aubigny are also inside the scope, and were included in PIP activities.

Perhaps the proponent assumes that self assessment includes ability to define the region for the project in such a way that potential environmental impacts can be scoped out. The EIS materials need to have a clear written explanation of the various uses of project region and scope terminology. We would suggest that a review of all such references be conducted, including variances within the two main sets of 'project' scope references.

Finally, there is a question regarding the failure to include the 1 in 1000 year return period referenced on page 2 of the Executive Summary in the spring flood scenarios. The justification for excluding this major spring flood condition must be provided because if this scenario were to be included, it would impact the definition of the Flood Study Region. This also requires explanation and clarification.

Recommendations - Floodway Expansion Project Study Region Definition, Boundaries for Biophysical Effects Assessment

The issues raised above need to be addressed by the proponents. Clarity regarding the Flood Study Region and the scope(s) used to assess biophysical effect (and justification for all of the above) is fundamental to the EIS. The PAT should identify deficiencies in this regard when the supplemental filing contents are identified.

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Definition of the Ecological Baseline

The issue of defining the ecological baseline for the purpose of environmental assessment in Manitoba has been raised as part of the environmental review of other projects. As with other projects reviewed, the current ecological conditions for the Floodway Expansion project represent a ‘disrupted environment’.

Volume 1 Chapter 2 Assessment Approach, Section 2.1 Overview of Approach (pg. 3) states, “[f]or the purpose of assessing the environmental effects of the proposed Project, the current environment with the Existing Floodway and the projected future evolution of this environment without the Project is considered as the baseline. The Existing Floodway, originally constructed in the 1960s and its subsequent operation since 1968, represents a disrupted environment throughout the site and region relevant for assessing the Floodway Expansion Project.”

That the current ecological conditions in the region of the proposed Floodway Expansion represent a disrupted environment is not being disputed. Neither is the practice of using current conditions as the ecological baseline in order to assess incremental effects on the environment as a result of the proposed project. The problem arises in the Cumulative Effects Assessment (CEA).

In *Volume 1 Chapter 2 Assessment Approach, Section 2.2.1 CEA Requirements and Overall Approach for the EIS*, Section 3.1 of the CEAA Practitioners Guide is quoted (pg. 8)

“... an assessment of a single project (which is what almost all assessments do) must determine if that project is incrementally responsible for adversely affecting a VEC [valued ecosystem component] beyond an acceptable point (by whatever definition). Therefore, although the cumulative effect on a VEC due to many actions must be identified, the CEA must also make clear to what degree the project under review is alone contributing to that total effect. Regulatory reviewers may consider both of these contributions in their deliberation on the project application”

The problem is that it is not possible to identify the cumulative effect on a VEC due to many actions, when current conditions (which have been admitted to be ‘disrupted’) are accepted as ‘baseline’ AND the effects of the other projects and/or factors contributing to the current environmental conditions have not been adequately assessed and monitored. This is the situation for the proposed Floodway Expansion project.

Essentially, by pretending that the existing environment is the ecological baseline, all potential for truly assessing cumulative effects is lost. To be true to the concept of CEA

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as described in the CEAA Practitioners Guide above would involve looking at the unaltered environment and making a determination about whether the proposed project would violate ecological thresholds when considered in an additive fashion to the existing disruption.

Although this may be a daunting prospect, failing to acknowledge this reality and identify thresholds will result in a CEA that is meaningless and an EA that is a farce. Given that the Winnipeg Floodway (the current structure and operation) has never been assessed and does not hold an environmental license the responsible provincial and federal authorities in the Project Administration Team (PAT) must also compel the proponents to make available all data and information about the existing Floodway and its cumulative environmental effects. If the intention of the current environmental assessment (EA) is to provide a license for both the existing floodway and the expanded floodway then the PAT should specify the steps in EA, CEA necessary to facilitate that outcome.

Recommendations – Defining the Ecological Baseline and the Proposed Red River Floodway Expansion EIS (August 2004 version)

The EIS **must** acknowledge the incomplete nature of the information available to assess cumulative effects.

The uncertainty that this introduces into the assessment **must** be acknowledged and analyzed.

It is not acceptable to continue to define the ecological baseline as the current ‘disrupted environment’ for the purposes of the cumulative effects assessment.

Given the fact that the existing Red River Floodway does not hold an environmental license, the federal and provincial authorities in the PAT **must** compel the proponents to make available all data and information about the existing Floodway and its cumulative environmental effects.

If it is intended that the existing Red River Floodway will be licensed as part of this EA process, the PAT **must** specify the steps in the EA, and the CEA necessary to facilitate that outcome.

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Protected Areas

There are a variety of deficiencies in this EIS with respect to protected areas policy and regulatory regime. Protected areas, current or to be established within the project region, are relevant to this assessment in a variety of ways, as per the EIS Guidelines. Protected areas are relevant to this assessment in respect to both provincial and federal requirements.

Protected areas provide a variety of services, which may include: species habitat, water 'treatment' services, heritage site protection, listed species security, carbon storage, recreation options, mitigation of environmental effects, etc. They also have the potential to mitigate specific environmental effects from this project by replacing and securing lost habitat.

Impacts and environmental effects from this expanded project will affect the natural regions where the human communities affected by the project are located. The ecosystems in these natural regions are significantly impacted by development projects. However, opportunities to establish protected areas still exist – in the project region, natural regions, and eco districts impacted by this expanded project.

These natural regions currently are NOT represented by protected areas to the level of adequacy which Manitoba government policy and legislation specify.

Government responsibility to complete protected areas networks and representation of these regions continues until completion. Proponents for projects such as the Floodway Expansion benefit from cooperation with Protected Area establishment. Ecodistricts, as per the Environment Canada system, nest within Manitoba's natural region system. The systems are compatible, reflecting the same biophysical elements and need for protected areas and representation of the landscape in order to secure habitat for species – including in the face of environmental effects from a project such as the Floodway Expansion.

The EIS filing contains a variety of errors in this area. We note that the references, footnotes, and sources for accurate protected areas facts, methodology, assessment, designation content are absent from the EIS. We would remind the proponent that protected areas protection standards, designation, etc. are public policy – and clear in Manitoba regulatory regime. Manitobans know protected areas to be in their interest. Governments have also recognized that protected areas establishment is a non-partisan, public interest program that benefits all Manitobans. In particular, all of the commentary regarding recreational use of the expanded floodway has also lacked identification of the opportunities to establish protected areas in the project region. (See above.)

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The errors of fact and content with respect to protected areas, in the EIS include: (not comprehensive)

- incomplete identification of crown land designations. e.g.: Heritage Marshes missing
- no information as to which acts of the legislature, and which definitions under legislation pertain to protected areas
- no table provided in the appendices to list crown land designations, and crown land designations that are protected areas
- no identification of sites that are under review for protected status
- no information provided as to the kinds of protected areas designations used in Manitoba, with sites that pertain to the project region listed
- no correlation or mapping provided to identify habitat options within the project region which could become protected areas, with existing designations or potential designations shown
- explanation as to areas of special interest (ASIs) is incorrect; no map provided to show these (ASIs have NOT been designed for the project region as yet)
- no information as to the status of natural region representation provided, no mapping.
- no literature survey, web site review; mapping requests to government to clarify existing public policy regarding protected areas ignored, or avoided.
- insignificant awareness of the loss of bird habitat due to the project, and need to replace and provide secure habitat (this is just one example)
- insufficient understanding and statement of public policy and legislative/regulatory context for protected areas in EIS text
- terminology and definitions regarding protected areas either missing or misstated
- no identification of sites inside Manitoba that are protected areas
- map legends are incorrect and incomplete

See our comments in respect to protected areas public policy and regulatory regime, mapping, definitions, etc. in other sections of this comments document.

We respectfully request that the PAT members take the steps necessary for correction of these deficiencies in the supplemental filings from the proponent. Our office and staff are available to assist the proponent in this matter.

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General Comments – Floodway Expansion EIS

EIS Structure, Format

Re: Maps in General

Maps included on the CD of the EIS are difficult to read. They have not been scanned at a resolution that allows the reader to ‘zoom in’. As a result, Legends and some text are not readable.

Our office has been suggesting that standards regarding map products in an EIS product should be stipulated by the licensing authorities, in this case both federal and provincial authorities. A comparison of maps provided on the CD of the EIS and maps in the binders may be needed. Generally the maps on the CD scroll slowly, with legends that are not readable. This is usually a consequence of simply reducing the size of a larger map. See our comments about the lack of maps to show the natural environment within the various project regions identified by the proponent.

A variety of elements in the Biophysical, Terrestrial and Aquatic EIS contents would be strengthened through map products. Instead we have an EIS that is full of engineering maps.

Floodway expansion mapping products that use an accessible scale, to show activity within the Floodway right of way are lacking in the EIS.

Re: Volume 1 Chapter 1 Introduction Figure 1.1-1 Local Study Region (pg. 2)

This figure is referred to in the text on page 1 as showing the components of the existing Floodway. However the figure as named suggests that the figure somehow represents a geographic scope used to assess environmental effects. If the text is correct, this is not the case. The title of the figure should be amended.

However, a reference to the Physical Environment Local Study Region appears again in Figure 7.1-1, even though the Local Study Region is not mentioned anywhere else in Chapters 1, 2, and 7, aside from the references in the two figures). Chapter 2, which is the logical place to discuss this, includes a description of Geographic boundaries but does not refer to any ‘Local Study Region’. This is VERY confusing and should be clarified. Boundaries, scope, and which boundaries apply to the various assessments of environmental effects should be **explicitly** defined. EIS materials must be accessible, and understandable for the general public, public participants, and affected parties.

Re: Volume 1 Chapter 7 Terrestrial Environment Figure 7.1-1 Areas of Special Designation Regional Study Area

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- Legend for map is missing designations; should include all provincial crown lands designations, and then indicate which are protected
- Map uses eco districts but not natural regions; natural region boundaries should be indicated because they are the basis for Manitoba's Protected Areas Initiative, including for assessment of representation goals.
- 'Physical Environment Regional Study Area' boundary is miss-labeled as being the 'Physical Environment Local Study Area' (assuming that *Figure 2.1-1 Flood Study Region* is correct)
- 'Physical Environment Local Study Area' is therefore not shown (assuming the above is correct)
- Private lands protected by Nature Conservancy Canada within the project region should be identified.
- WMAs are shown, however the information shown should be verified to ensure that all protected and unprotected WMAs have been included and indicated as to their protected status.
- Before this kind of selective, and inaccurate mapping was included in the EIS the proponent's staff and consultants could have spent an hour on Manitoba web sites which contain updated and accurate mapping of protected areas, and crown land designations in Manitoba.

Missing Information, Information Yet to be Filed

Re: Executive Summary (pg. 10)

The Executive Summary refers to an independent study that will be forthcoming in summer 2004. Has this study been released yet? If so, proponents should make copies available to public participants. If not, what is the expected release date?

Re: Executive Summary (pg. 10)

The Executive Study states that "[a]s a result of public involvement, MFEA will develop a 3-D virtual reality floodway simulation to demonstrate the Project's benefits, assist in the public's understanding of the Project and help to prepare for flood emergencies." What is the status of this simulation? Has it been provided as part of PIP meetings? If so, will there be other opportunities to view the simulation? If not, when will this be available, and how will it be delivered to the public and public participants?

Questions Arising from Information in the EIS

Re: Executive Summary (pg. 10-11)

The Executive Summary indicates that four different major spring flood conditions were examined to reflect a range of operating conditions. Missing from the list is the 1 in 1000 year return period referenced on page 2 of the Executive Summary. What is the justification for not including this major spring flood condition? This question is of particular significance because the various

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scenarios for major spring flood conditions are also used to define the geographic scope of the project, in terms of the area where biophysical effects are expected to be discernable.

Re: Volume 1 Chapter 1 Introduction (pg. 7)

Chapter 1 of the EIS states “[t]he design of the Project within this scope has continued to be refined and will further evolve and improve as the results of ongoing engineering studies become available.” If the project design is not finalized, when will the final project design be made available, and how will the final design be incorporated into the EIS review? If the project design has been finalized since the EIS was filed, when will it be made available to public participants, and be reviewed for public comments?

Re: Roads Required for Construction of Floodway Expansion

How many kilometers of (temporary) roads will be required and built in the construction phase of the Floodway Expansion project? A description and maps of proposed roads should be included in the EIS. These roads and decommissioning plans are essential information. Have the temporary roads been taken into account for the EIS contents regarding terrestrial effects? Climate change effects? Habitat loss effects?

Re: Information Required – Use of Floodgates

No information is provided in the EIS regarding the pattern of use of the Floodgates from start of construction of the Floodway Expansion to its operational stage. It would be useful to have this information provided and presented in chart format, spring, summer uses etc. It would also be helpful to have the data of Floodgate use to date in a chart, showing spring and summer uses. Both charts should include the water elevation, and feet of water per second data at the time the Floodgates were first operated.

Re: Width of Expanded Floodway

The EIS materials indicate that the floodway will have an increased in width of up to 350 ft. We do not see clear information about the CEA from the existing floodway, and then specifics about potential effects that are in relation to the increase in width. We also do not see mapping to reflect the location of potential impacts from this project in relation to the existing floodway, and then in the up to 350 ft increase in width of the expanded floodway. See comments about map products above.,

Re: 21 Million Cubic Metres of Earth

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There are references in the EIS to 21 million cubic metres of earth that will have to be excavated in the process of widening the Floodway Channel (Chapter 4, pg. 13). The EIS also indicates that “[p]riority will be given to placing material within the existing project right-of-way to minimize the requirement for land acquisition. The extent of land outside the right-of-way that may be required for disposal of the main channel excavation material will be defined in Work Parcel 3” (pg.16). There is no further explanation of how much excavation material may require disposal outside of the right-of-way, nor is there any indication where the earth would be deposited. Information as to where earth will be stored, or located between being excavated, and used in expansion construction should be included. We would also suggest that the existing mapping does not adequately show activities and potential environmental effects on habitat in relation to earth moving. This information should be provided.

Re: Premise for Design/EIS

The proponent is using the ‘one in a hundred’up to ‘one in seven hundred year’ return rate for flood events in the Red River Valley as the basis for both engineering and environmental assessment of the Floodway Expansion. We respectfully request detail on these projections based on the increased in frequency of such events from 1950 forward, with variables in relation to the dramatic change in the landscape in the same period. See our Climate Change comments. Manitobans have experienced the ‘one in a hundred’ year flood event 3 times from 1950 on. In the last 25 years Manitobans have experienced the ‘one in a hundred’ flood event 2 times, including 1979. Other flood events have occurred, each measured against that ‘one in a hundred’ return rate standard, which was based on the 1950 flood.

Communities, homes, and businesses in the Red River Valley outside Winnipeg are currently flood proofed again for the ‘one in a hundred’ year return flood event. The EIS does not indicate – in any of its geographic scopes – what steps to mitigate for flood events will be taken for Manitobans outside the floodway. We are concerned that the EIS considers events like the 1997 flood rare and extreme. References of this sort in the documents give pause. Is an 18 year gap, during which other flooding events occurred, a rare and extreme time gap? Flood events in the Valley may be increasing in frequency, water levels, geographic scope, cost, and environmental impacts. Perhaps none of the individuals involved in preparing this assessment have experienced a flood, or repeat flood events in the Red River Valley.

The EIS for the Floodway Expansion needs to include enough scenarios using the frequency of flood events since 1950 to provide information to identify the potential frequency and water levels of the next ‘1 in 100 flood, 1 in 225 flood, 1

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in 700 flood'. This is essential given the 29 year, and then 18 year time gaps between 1 in 100 year flood returns in the last 55 years.

Re: Risks to Water Tables

The EIS states: (Volume 1 Chapter 4, pg. 4-24)

*There is potential for a drop in the **water table elevation at the Bird's Hill/Oakbank Aquifer of 2.6 m (8.5 ft) tapering to 0.6 m (2 ft) at the right-of-way at Oasis Road. This would only occur if a groundwater interconnection is exposed to the Channel due to widening. Further investigation is underway and mitigation will be considered, if required, by using a subsurface cut-off wall to reduce the effect at the right-of-way (ROW) boundary to be negligible. The residual, small, adverse effect would be of long-term duration in a local area and would be considered irreversible. It is not considered to be significant.***

The proponents should be required to indicate what the assessment for continued operation and drinking water quality for all wells in the project region. Also, disclosure of the mitigation and compensation plan for the residents and businesses in the Bird's Hill/Oakbank Aquifer part of the project region, should this occur, and be difficult to mitigate should be required. We suggest that the PAT request information as to any other instances or potential instances of this kind of risk in the Floodway expansion project region.