APPENDIX 8

Socio-Economic Environment

LIST OF APPENDICES

APPENDIX 8A

Key Person Interviews

APPENDIX 8A
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1.0 KEY PERSON INTERVIEW PROGRAM OVERVIEW

Key Person Interviews were conducted with the persons listed in Table 8A-1 between April and June 2004. Interviews were scheduled in advance by telephone and interviewees were provided with a copy of a letter similar to the letter included in this appendix. The letter was reviewed with interviewees prior to the start of the interview. All of those listed in Table 8A-1 consented to have their names included in the list of those interviewed.

Two sample interview guides are also provided in this appendix, one for interviews with municipal representatives, health workers, planners and agriculture representatives and one for interviews conducted with respect to Aboriginal land and resource use. It should be noted that the interview guides were used only as an outline for a conversation with those interviewed. Not all questions in the guides were asked of all participants.

Table 8A-1
Key Person Interviews

Name	Affiliation
Elected Officials and Community Administrative Officers:	
Mr. Randy Borsa	City of Selkirk
Ms Midge Anderson	Town of Morris
Mr. Barrie Stevenson	Town of Morris
Ms Mavis Taillieu	Town of Morris
Mr. Dale Hoffman	Town of Morris
Mr. Jim Buys	Town of Niverville
Mayor Real Cure	Village of St. Pierre-Jolys
Mr. Robert Poirier	RM of St. Clements
Mr. Scott Spicer	RM of St Andrews
Mr. Jerome Mauws	RM of East St. Paul
Mr. Phil Reebek	RM of East St. Paul
Mr. Robert Stefaniuk	RM of Ritchot
Mr. Dan Poersch	RM of Taché
Mr. William Danylchuk	RM of Taché
Ms Janet Nylen	RM of Springfield
Mr. John Holland	RM of Springfield
Mr. Douglas Cavers	RM of Hanover
Mr. Tom Raine	RM of Macdonald
Mr. Doug Dobrowolski	RM of Macdonald
Mr. Ralph Groening	RM of Morris
Mr. Herm Martens	RM of Morris

Name	Affiliation
Community Planners:	
Mr. Bill Sawka	Steinbach
Mr. David Boles	Morden
Mr. Chris Leach	Portage la Prairie
Mr. David Marsh	City of Winnipeg
Mr. Lloyd Talbot	Selkirk/Interlake
Mr. Doug Houghton	Beausejour
Regional Health Authority Personnel (Health, Well-being and Emergency Response):	
Ms Myrna Suski	North Eastern Health Authority
Dr. Jan Roberts	South East Regional Health Authority
Ms Betty MacKenzie	South East Regional Health Authority
Ms Bev Prystenski	South East Regional Health Authority
Ms Anne Williams	South East Regional Health Authority
Mr. Scott Noble	South East Regional Health Authority
Ms Donna Champagne	Central Regional Health Authority
Mr. Larry Skoglund	Central Regional Health Authority
Ms Kim Toews	Central Regional Health Authority
Ms Clara Wiebe	Central Regional Health Authority
Ms Nancy Heinrichs	Winnipeg Regional Health Authority
Ms Ruth Loeppky	Winnipeg Regional Health Authority
Ms Jeanette Edwards	Winnipeg Regional Health Authority
Dr. Cathy Cook	Winnipeg Regional Health Authority
Dr. Margaret Fast	Winnipeg Regional Health Authority
Ms. Jan Trumble-Waddell	Winnipeg Regional Health Authority
Mr. Guy Corriveau	Winnipeg Regional Health Authority
Mr. Loren Charbonneau	Interlake Regional Health Authority
Mr. Andrew Christenson	Interlake Regional Health Authority
Ms Tannis Erikson	Interlake Regional Health Authority
Agriculture Representatives:	
Mr. Michael Sykes	Selkirk
Ms Ingrid Kristjanson	Morris
Mr. John McGregor	Steinbach
Mr. Brent Reid	Dugald
Mr. Roger Robert	St Pierre-Jolys
Mr. Terry Buss	Beausejour

Name	Affiliation
Meetings at Lil' Peguis and St. Peter's Oldstone Church[1]:	
Mr. Percy Stevenson	Lil' Peguis Meeting
Elder Bernice Hilts	Lil' Peguis Meeting
Elder Ervin Hilts	Lil' Peguis Meeting
Elder Sandra Hemeniuk	Lil' Peguis Meeting
Elder Dan Thomas	Lil' Peguis Meeting
Mr. Douglas Roy	Lil' Peguis Meeting
Mr. Bruce Lavallée	Lil' Peguis Meeting
Mr. Tom Serger	St. Peter's Oldstone Church

Sample Letter:

Dear <Insert Name>:

Re: Interview Related to Potential Socio-Economic Effects of the Proposed Floodway Expansion Project

I am writing to confirm the date and time of an interview with you related to potential socio-economic effects of the proposed Floodway Expansion project. The interview is scheduled for **<insert time>** on **<insert date>** at <**insert location**>.

The Manitoba Floodway Expansion Authority (MFEA) is proposing to develop a Floodway Expansion. InterGroup Consultants Ltd. and Tetr*ES* Consultants Inc. have been contracted to undertake the environmental assessment of the proposed Floodway Expansion. As part of the effects assessment process we are scheduling interviews with people from communities that may have an interest in the project. The purpose of these interviews is to help the study team gather information about the current economic and social environments in the study area and gain perspectives on how the proposed project may affect people in the region. These interviews are separate from other public involvement activities you may have been involved in related to the project. The results from the interviews will be used to inform the study team's assessment of potential socio-economic effects of the project and will be documented in the Environmental Impact Statement (EIS).

The interviews are generally expected to last about one hour, though more time will be available if necessary. Results will be combined with those of other key persons and reported in summary form. The individual interviews will be considered confidential and no statements made during the interviews will be directly attributed to you in the EIS without your consent. The interviews are voluntary, and you do not have to answer any questions you are not comfortable answering. We can also provide a list of questions in advance of the interview if you desire.

[1] Not all of those interviewed in these sessions were First Nations members.

Thank you in advance for your time and we look forward to meeting with you. If you have any questions please do not hesitate to contact Andrew McLaren at (204) 942-0654.

Yours truly,
INTERGROUP CONSULTANTS LTD.

PROPOSED FLOODWAY EXPANSION PROJECT
SOCIO-ECONOMIC IMPACT ASSESSMENT

Key Person Interview Program Guide
April, 2004

2.0 KEY PERSON INTERVIEW GUIDE

2.1 ECONOMY

2.1.1 General

1. What are the main engines of the economy in this municipality today? Overall, would you say that the local economy is growing or declining? Why is that?

2. What would you say were the most important economic events that occurred in recent years (generally last 5 to 10 years) in this area? How did these events affect the local economy?

3. Other than the proposed Floodway Expansion Project, are you aware of any major development projects proposed or planned in the municipality within the next ten years? If yes, could you describe those projects? *[If there is an economic plan/strategy for your municipality, could we obtain a copy?]*

2.1.2 Employment and Business

Would you say there are more or fewer employment opportunities available in your community now than in the past? Have the types of employment opportunities changed? If yes, how are they different? How do you expect this will change in the future?

4. What proportion of the labour force in this municipality commutes to Winnipeg for work? What proportion works locally? Has this proportion changed over time? Do you expect this trend to continue?

5. During the **construction** of the Floodway Expansion Project, do you think your community would experience any employment or business benefits? Please explain.

6. Conversely, would you see any loss of employment or business during the **construction** phase? Please explain. *[e.g., restricted access along transportation routes that cross the Floodway]*

7. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on employment or business here, or would it be neutral? *[probe – recreation opportunities; groundwater supply?*

8. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect your municipality?

9. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

2.1.3 Agriculture

10. What are the primary agricultural activities in your municipality *[in the "area you serve" in the case of ag. reps. – find out the region covered for each ag. rep.]*?

11. How have these activities changed in the past 10 years?

12. Do you forsee these activities (either type or scale of activities) changing in the next ten years?

13. What role does the Floodway right-of-way play in agricultural operations in the municipality?

14. What types of agricultural activities occur immediately adjacent to the right-of-way and West Dyke areas?

15. Typically, during which months is there activity in these areas?

16. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on agricultural activity in the area? What scale of effect would you expect (if positive or negative)? Please explain.

17. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on agricultural activity here, or would it be neutral?

18. Once the West Dyke extension is **completed and inactive** – would you see it having any effect (positive or negative) on agricultural activity here, or would it be neutral?

19. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect agricultural activity in your municipality? (probe for changes in seeding, crop mix, value of crop etc).

20. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

21. Do you imagine that that types of agriculture practiced along the Floodway would change if the Floodway were expanded?

22. How do you think the Floodway expansion project might affect agricultural drainage in the area (probe for during construction, operation inactive, operation during spring flooding).

23. What sorts of lease agreements are there to perform agricultural activities along the Floodway Right-of-Way?

24. Do you have a list of the farmers that have leases along the Floodway or West Dyke Right-of-Way?

25. Are you aware if they have been notified about the Floodway Expansion Project and the possibility of their lease not being renewed for several years?

26. Have you had any feedback from farmers about their lease not being renewed?

27. Under the terms of the lease agreements (either cropping or forage) are producers able to use fertilizer, pesticides or other chemical applications on Crown land? Are you aware of any producers who do use chemical fertilizers or pesticides on the Floodway (or West Dyke) Right-of-way – whether or not it is permitted by the lease agreement?

28. Do you know if any producers irrigate land they hold a forage or cropping permit for on the Floodway or West Dyke Right-of-way?

29. Have you heard any producers raise concerns about potential plans for land expropriation as a result of the proposed Floodway Expansion project? If so, what kinds of concerns have you heard raised. How would you characterize the effects of this potential land expropriation?

30. Are farmers encouraged to control for noxious weeds along the Floodway lands they currently lease? Is this the responsibility of the farmer? The Province? If herbicides are applied, what chemicals are used?

2.1.4 Other Commercial Resource Use

31. What other commercial resource use (e.g., aggregates) occur in your municipality?

32. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on that activity in the municipality? What scale of effect would you expect (if positive or negative)? Please explain.

33. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on that activity here, or would it be neutral?

34. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect other resource use activity in your municipality?

35. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

2.2 LAND USE AND DEVELOPMENT

[tailored for each municipality, based on available planning documents/mapping -- confirm any details/gaps re: land use, development plan, zoning, trends in development, development issues, etc.]

36.

a. Has the Existing Floodway had any effect on development and development policy in your municipality? Please elaborate.

b. What is the nature of development adjacent to the Floodway right-of-way in your municipality? Is new development planned in this area? What type? When?
c. ***[Note approximate scale of land acquisition required]*** What effect, if any, would the acquisition of additional land have on development in your municipality?

37. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on development in the municipality? Any differences among type of development (residential, commercial, industrial, etc.)? What scale of effect would you expect (if positive or negative)? Please explain.

38. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on development here, or would it be neutral?

39. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect development in your municipality? Was there any response in development policy as a result?

40. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

41. In your view, would the Project affect property values in your municipality? What do you base your perspective on?

2.3 INFRASTRUCTURE & SERVICES

2.3.1 Community Facilities

[tailored to each municipality, based on available planning and other documents – specific questions required to fill any key gaps to profile community facilities and infrastructure; request documents/mapping where not already obtained]

42. Are any community facilities (e.g., arenas, golf courses) or infrastructure (e.g., lagoons, waste disposal grounds) located near the proposed Floodway Expansion Project? Please locate on a map.

43. Are there any plans to upgrade/expand community infrastructure and facilities in the next 10 years? Is any expansion slated for the area in the vicinity of the Floodway Expansion Project?

44. Please describe the water supply system in your municipality (municipal wells, treatment, piped service; individual wells)? (Use maps to assist in descriptions).

45. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on facilities and infrastructure in the municipality? What scale of effect would you expect (if positive or negative)? Please explain.

46. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on facilities and infrastructure here, or would it be neutral?

47. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect facilities and infrastructure in your municipality?

48. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

2.3.2 Roads

[tailored to each municipality, based on available planning and other documents – specific questions required to fill any key gaps re: roads and traffic – assume we have up to date mapping of road system, including West Dyke area – check any details, as required, re: currency/accuracy of mapping; also, is it clear which are provincial and which are municipal?]

49. Are there plans to upgrade/expand the municipality's road system in the next 5 to 10 years? In particular, are there any proposed changes to transportation routes providing access to/from the Floodway, or routes that lead to provincial crossings of the Floodway?

50. Do you have any data regarding traffic levels on municipal roads in the municipality?

51. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on roads and traffic in the municipality? What scale of effect would you expect (if positive or negative)? Please explain.

52. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on roads and traffic here, or would it be neutral?

53. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect roads and traffic in your municipality?

54. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

55. Why was the Dunning Crossing developed and when? What existing uses are made of the Dunning Crossing, in what season and by whom? Is an agreement in place pertaining to the crossing? Would you anticipate that the Floodway Expansion project would have an effect upon the Dunning Crossing? (during construction, existence and operation)

2.3.3 Police, Fire and Ambulance Services

56. Could you describe the level of police protection for your municipality (e.g., size of police service) ?

57. Could you describe the fire protection services for your municipality (e.g., # firefighters)? Is it primarily volunteer?

58. Who provides ambulance service for your community? What is the level of service?

59. Do you feel your municipality is adequately staffed and equipped to handle current demands? Are there any gaps in service now? How about meeting future demands?

60. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on emergency services in the municipality? What scale of effect would you expect (if positive or negative)? Please explain. *[specifically consider use of crossings of Floodway, the possible detour and response times]*

61. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on emergency response here, or would it be neutral?

62. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect emergency response in your municipality?

63. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

2.4 PERSONAL, FAMILY AND COMMUNITY LIFE

2.4.1 Recreation and Travel

64. Do people use the Floodway areas for recreation? What kinds of recreation occur? When (seasons)? By whom? *[e.g., snowmobiling, skiing, hiking, berry-picking, rock-collecting, etc.]*

65. Can you estimate the number of users?

66. Are there trends in this use for the future (e.g., growing, declining) without the Project?

67. Do people use the West Dyke areas for recreation?

68. Does anyone use the floodway as a regular means of travel (apart from recreation)? For what purpose? Which seasons? Numbers of users?

69. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on recreation in the municipality? What scale of effect would you expect (if positive or negative)? Please explain.

70. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on recreation compared to today or would it be neutral?

2.4.2 Population and Demographics

71. Is the population of your municipality generally increasing, decreasing, staying the same? Do you know if there are data on population projections for the municipality? If yes, where can these data be located?

72. What factors contribute to growth *[or decline]* of population in your municipality?

73. What implications does growth *[decline]* have on your municipality – economy, housing, services, other issues?

74. Do you see any effect of the Floodway Expansion Project on population in your municipality (either temporary or permanent)? If yes, please elaborate.

75. Visually, how would you describe the Existing Floodway/West Dyke?

76. How do you think the area will look different with the Expanded Floodway Project?

77. Are there areas near the Floodway Channel, outlet, inlet or west dike that are considered to be scenic locations *[e.g., picnic, fishing, hiking, skiing spots – identify on maps]* Within floodway right-of-way? Used by whom? What season?

2.4.3 Way of Life

78. Could you describe the main ways of life of individuals and families in your municipality? What are people's typical weekday and weekend activities? What proportion of the population commutes on a daily basis to Winnipeg for work?

79. Could you describe how flood planning has affected the way of life of people in your community? (probe for flood forecasting, spring flood preparations etc.)

80. To what extent are social and recreational activities centred in the municipality? What role does Winnipeg play in social and recreational activity of residents of the municipality?

81. How have ways of life here changed in the last 5 to 10 years?

82. How do you see the community changing in the future (5 to 10 years)?

83. How is the Floodway Channel and right-of-way used, if at all, by residents in your area? Has this changed over time? *[note earlier questions re: recreation/aesthetics]*

84. Would **construction** of the Floodway Expansion Project have a positive, neutral or negative effect on way of life in the municipality? What scale of effect would you expect (if positive or negative)? Please explain.

85. Once the Floodway is **completed and inactive** – would you see it having any effect (positive or negative) on way of life here, or would it be neutral?

86. To what extent and how did the **1997 flood** (about 1 in 90 year event) affect way of life in your municipality?

87. Would you see any difference in such effects with the Expanded Floodway Project in a **flood event**? If so, how?

2.4.4 Health and Well-being

88. How would you describe the health of residents of this municipality today? *[Probe: Do you think the health of your community is better, the same or worse than other surrounding communities, the rest of Manitoba and/or Winnipeg?]* Overall would you say that the health of members in your community is improving or getting worse?

89. Are there any apparent trends in health that have occurred in the past 5 to 10 years?

90. How do you see the health of your community hanging over the next 5 to 10 years? What kind of health issues do you see as getting worse and/or getting better? *[probe: environmental – water, air, land or stress/anxiety, or chronic health problems and aging]*

91. What would you say are the most significant health and social issues faced by your community? Could you describe the reasons/factors contributing to these issues?

92. Has your community ever been faced with a catastrophe/crisis? How did the community deal with this situation? Were there services/programs or informal supports in place? How do you think your community is prepared now to deal with an emergency/crisis?

93. What are the key social issues in your community? [for families, neighbourhoods and the community?] In your opinion is this different from social issues faced by other communities in Southern Manitoba? Please elaborate.

94. Have these social issues always been like this? If not, what has influenced this change? How do you expect these issues to change in the next 5 to 10 years?

95. In your view, would the proposed Floodway Expansion Project result in change to the health or social issues you raised? If so, how and to what extent?

2.4.5 Community Cohesion and Organization

96. Would you say that people in this community are close to one another? Do they help each other out? *[do people from the community meet to talk about daily life and issues in the community?]*

97. What types of community groups are present in the community? What is participation like in these groups? Do members vary or are they generally the same people?

98. Is it difficult to get community volunteers? Are these typically the same people?

99. Do you remember an instance where the community pulled together to volunteer to accomplish a task at hand *[i.e. for a big event or for a crisis in the community]*

100. How did the community respond on the whole to the Flood of '97?

101. How are community decisions made? Are decisions generally left to the community or do other outside factors have a large influence on the outcome of decisions?

102. Who do people in the community generally go to with their concerns?

103. How active are people in local government? For example, do they attend council meetings, talk with local government representatives, start any community organizations/groups/committees for particular causes?

2.5 GENERAL QUESTIONS

104. Is there anything that I have not asked about that you would like to add regarding your municipality today and in the future, or the potential effects of the Floodway Expansion Project?

105. Can I cite your name directly when referring to information obtained through this interview? If no, can we cite the name of your organization? If not, results will be summarized along with those of other interviewees. Your name would be included in the list of interviewees.

106. Can we contact you at a later date if we have further questions?

PROPOSED FLOODWAY EXPANSION PROJECT
SOCIO-ECONOMIC IMPACT ASSESSMENT

Key person Interview Program Guide
April, 2004

Aboriginal Land and Resource Use

3.0 INTRODUCTORY TEXT

My name is _____ and I work with InterGroup Consultants in Winnipeg. Before we start I would like to thank you for meeting with us today. We appreciate you taking time to talk to us and share information with us.

InterGroup is part of a study team working on the Environmental Impact Assessment for the proposed Floodway Expansion Project. Our firm is working on the socio-economic component of this assessment.

The Environmental Impact Assessment is being undertaken according to guidelines set out by the federal and provincial authorities who will consider whether or not to grant environmental approvals for the project.

The reason I would like to talk to you today is to learn about the economic and social environment in your area today and what it would like in the future without the Project. This information will contribute to the "baseline" (or understanding of how things are without the project). This description is a requirement of the Guidelines. I would also be interested in any thoughts you may have about potential effects of the proposed project on this area. In general, we are looking at three types of effects:

Effects of constructing the Floodway Expansion Project
Effects of the presence of the expanded floodway when inactive
Effects of the expanded floodway when in operation under various flood conditions.

INDICATE STUDY AREA ON MAPS...

The proposed Floodway Expansion, if approved, would involve widening and possibly some deepening of the Existing Floodway channel to more than double the capacity of the channel The project would also involve:

Modifications to the inlet structure, including adding additional erosion control works.
Expansion of the outlet structure
Replacement or retrofit of all the rail and highway bridges that cross the floodway
Alterations to other drains and utility infrastructure that crosses the floodway
Expansion and raising of the West Dyke

The engineering work on the project is still underway, but these are the general features as we know them today.

We have some questions we would like to ask you today. If there are questions you do not want to answer, please tell us and we'll move on.

Before we start, we would like to let you know that information you give us today will be used to prepare the Environmental Impact Statement, which is a public document. If there is information that you think is

important for us to know, but would not like to make public (for example specific locations of culturally significant sites) then let us know and we will not include that information in the public report.

Best done at the end of the interview as shown in proposed interview instrument.

Before we start do you have any questions?

4.0 KEY PERSON INTERVIEW QUESTIONS

Resource Use

1. What areas are important for traditional activities or recreation? What types of activities occur there?

    - Swimming?
    - Canoeing or Boating?
    - Berry picking?
    - Gathering medicinal plants?
    - Hunting?
    - Fishing?
    - Trapping?
    - Other

Probe about the reserve areas to ensure they are covered.

[For each of berry picking, hunting, fishing, trapping ask:]

    - During which seasons?
    - What types of plants, animals or fish?

[If talking to someone who personally collects berries, hunts, traps, or fishes ask:]

    - Approximately how frequently do you go berry picking, hunt, fish or trap? How many times a month/year?
    - Do you go with anyone else? (family, friends?)
    - How would you describe the berry collecting/hunting/fishing/trapping in these areas? Has it changed in your experience?

2. Are there any areas in the region that are especially important for animals, fish spawning areas, bird nesting areas?

3. Are there any other areas that you know of that people use for traditional activities or areas that people's parents or grandparents used?

4. How has Red River flooding affected the use of these areas in the past? Have other changes affected these uses? (water quality, erosion, traffic, others?).

5. Are there any areas near the floodway or the floodway outlet that are important for traditional activities? Did the construction of the Existing Floodway affect any of these uses?

Personal, Family and Community Life

Way of Life and Culture

1. Can you tell me about the history of the area? Are there areas where people from your community used to live or places where you or people you know used to visit? Do you know when people used to live there or visit there? Do people still live/visit there or would they like to in the future?

2. Are people in your community becoming more interested in their cultural history now than before? Have you noticed changes in your community?

3. What is (are) the primary language(s) spoken in the community? Have the languages used in the community changed over the past 5 to 10 years? If there have been changes, why do you think they have occurred?

4. Are there areas in the region that are important for cultural activities or that have special cultural or spiritual significance? Have there been any changes in these over time?

5. Have any of these areas been affected by Red River flooding in the past? In which years? Were they affected at all by the construction of the Existing Floodway?

6. With the Floodway expansion, are there any areas with any kind of community, spiritual or traditional significance that you are concerned about getting damaged during construction, presence or in the event of a severe flood?

7. Based on your experience have there been changes in the beliefs or values of the community over the past 25 years? If so, what do you think has been the main cause of change?

8. Do you think there might be any changes occurring in the values and beliefs of the people in your community from the floodway or from the Proposed expansion?

Recreation and Travel

1. What areas or resources are important for recreation activities for people from your community? Have these changed over time?

2. Were there any changes to recreation activities as a result of the construction of the original floodway? If so, what kinds of changes?

3. Do you think there might be changes to recreation activities as a result of the construction of the Floodway Expansion? If so, what sorts of changes would you expect and how might those effects be reduced?

Health and Well-being

1. Do you or does anyone in your community practice any traditional methods of treating physical, mental or spiritual health of individuals and the community?

2. Are there areas that are important for practicing traditional healing methods or for collecting plants/medicines to use for those purposes?

3. Would you say that there is more interest in the community for practicing traditional healing methods? How has this changed recently?

5.0 GENERAL QUESTIONS

1. Is there anything that I have not asked about that you would like to add regarding your community today and in the future, or the potential effects of the Floodway Expansion Project?

2. Can I cite your name directly when referring to information obtained through this interview? If no, can we cite the name of your organization? If not, results will be summarized along with those of other interviewees. Your name would be included in the list of interviewees. Is there any information we discussed today that you specifically would not want us to include in the report?

3. Can we contact you at a later date if we have further questions?

☙ THANK YOU VERY MUCH FOR YOUR ASSISTANCE. ❧

APPENDIX 8B

Resource Use

APPENDIX 8B
LIST OF TABLES

Table 8B-1
Field Crop Hectares by Crop in the Flood Study Region and Manitoba: 1996

Municipalities	Total Wheat	Rye	Other Grains	Oil Seeds	Other Field Crops[1]	Other Field Crops[2]	Other Field Crops[3]	Nursery Products	Sod Grown for Sale	Other Crops	Total Crop Area
RM of St. Andrews	19,631	-	9,626	10,447	-	259	6,421	8	-	-	46,391
RM of St. Clements	12,048	-	7,793	5,568	1,184	144	5,933	6	-	19	32,694
RM of West St. Paul	2,335	-	713	-	-	-	635	-	-	-	3,682
RM of East St. Paul	624	-	252	-	10	-	176	-	-	22	1,083
RM of Springfield	18,079	-	17,146	12,178	160	-	8,930	24	-	11	56,527
RM of Taché	11,467	-	9,998	6,103	12	-	3,466	-	-	19	31,064
RM of Ritchot	12,009	-	8,508	8,048	-	-	1,439	74	-	79	30,157
RM of Morris	35,350	-	28,644	28,374	3,626	3,038	1,143	-	-	16	100,191
RM of Macdonald	38,796	-	30,721	31,569	2,131	756	2,548	6	-	16	106,542
City of Winnipeg	2,498	-	1,940	1,194	-	-	686	53	-	87	6,458
RM of Hanover	9,599	-	16,841	4,837	1,506	-	14,005	10	-	24	46,822
RM of De Salaberry	13,810	-	14,461	10,110	1,612	232	4,823	-	-	18	45,066
Total Study Area	**176,243**	**-**	**146,642**	**118,428**	**10,240**	**4,428**	**50,204**	**182**	**-**	**310**	**506,677**
Manitoba	**1,698,323**	**32,326**	**1,096,080**	**892,278**	**83,770**	**129,629**	**789,504**	**900**	**1,232**	**2,490**	**4,726,533**

Source: Statistics Canada: 1996 Census of Canada.

Notes:

Census of Canada data was obtained from Manitoba Agriculture and Foods in acres and has been converted into hectares using a conversion factor of .404686.

1. Other Crops 1 includes buckwheat, soybeans, mustard seed, safflower, potatoes, canary seed, sugar beets, triticale.
2. Other Crops 2 includes dry field peas, lentils, dry field beans, dry white beans, fababeans, dry coloured beans.
3. Other Crops 3 includes corn for silage, alfalfa, tame hay, forage seed, all other field crops.

Dashes indicate either zero values or that the data were not available.

Table 8B-2
Field Crop Hectares by Crop in the Flood Study Region and Manitoba: 2001

Municipalities	Total Wheat	Oats	Barley	Mixed Grains	Alfalfa	Canola	Flaxseed	Tame Hay and Fodder	Corn for Grain	Other Field Crops	All Field Crops
RM of St. Andrews	17,193	4,897	4,041	-	4,078	7,762	1,893	1,252	113	219	41,447
RM of St. Clements	10,810	6,478	2,721	-	4,269	3,904	770	1,599	-	2,969	33,521
RM of West St. Paul	2,254	-	-	-	-	-	198	-	-	-	2,452
RM of East St. Paul	275	-	-	-	-	-	-	-	-	-	275
RM of Springfield	14,631	11,130	7,577	281	5,642	6,984	1,998	2,357	-	3,179	53,778
RM of Taché	10,009	6,653	3,211	-	3,455	5,754	782	1,367	-	329	31,559
RM of Ritchot	10,156	4,946	1,841	-	1,133	3,271	1,225	123	-	1,413	24,106
RM of Morris	37,076	12,005	4,617	-	827	16,107	6,694	857	1,219	13,451	92,854
RM of Macdonald	41,664	20,582	5,041	-	2,387	16,600	10,957	560	909	8,618	107,316
City of Winnipeg	3,562	1,304	1,000	-	1,246	830	849	-	-	276	9,068
RM of Hanover	10,696	3,330	5,211	300	12,251	4,585	772	2,070	2,828	2,707	44,749
RM of De Salaberry	15,116	7,460	3,821	233	4,160	5,284	2,118	411	1,198	3,963	43,765
Total Study Area	**173,441**	**78,785**	**39,079**	**814**	**39,449**	**71,081**	**28,256**	**10,595**	**6,266**	**37,124**	**484,891**
Manitoba	**1,587,199**	**366,082**	**471,740**	**12,634**	**657,736**	**757,745**	**176,656**	**219,567**	**44,706**	**416,238**	**4,710,302**

Source: Statistics Canada: 2001 Census of Canada.

Notes:

Census of Canada data was obtained, from Manitoba Agriculture and Foods, in acres and has been converted into hectares using a conversion factor of .404686.

Dashes indicate either zero values or that the data were not available.

Table 8B-3
Livestock by Municipality in the Flood Study Region: 1996

Municipalities	Total Cattle and Calves	Total Pigs	Total Sheep and Lambs	Total Hens and Chickens	Turkeys	Other Poultry	Horses And Ponies	Other Livestock	Total Livestock
RM of St. Andrews	5,219	22,226	-	-	-	-	300	801	28,546
RM of St. Clements	4,931	-	252	9,188	118	745	-	594	15,828
RM of West St. Paul	697	-	-	-	-	-	252	-	949
RM of East St. Paul	-	-	-	-	-	-	-	-	-
RM of Springfield	13,135	20,899	1,701	73,070	44	1,851	789	467	111,956
RM of Taché	6,260	36,641	-	423,610	-	166	235	1,161	468,073
RM of Ritchot	1,905	34,087	-	214,277	-	299	119	-	250,687
RM of Morris	2,661	40,282	-	396,770	46	-	98	64	439,921
RM of Macdonald	7,584	-	-	195,054	-	-	120	20,500	223,258
City of Winnipeg	791	-	-	-	-	-	170	-	961
RM of Hanover	28,408	233,931	248	1,627,464	143,023	502	540	6,375	2,040,491
RM of De Salaberry	9,218	85,932	-	248,503	-	23,529	153	189	367,524
Total Study Area	**80,809**	**473,998**	**2,201**	**3,187,936**	**143,231**	**27,092**	**2,776**	**30,151**	**3,948,194**
Manitoba	**1,355,162**	**1,777,352**	**38,152**	**6,403,908**	**836,939**	**194,443**	**68,783**	**142,590**	**10,817,329**

Source: Statistics Canada: 1996 Census of Canada.
Dashes indicate either zero value or that data were not available.

Table 8B-4
Livestock by Municipality in the Flood Study Region: 2001

Municipalities	Total Cattle and Calves	Total Pigs	Total Sheep and Lambs	Total Hens and Chickens	Turkeys	Other Poultry	Horses and Ponies	Other Livestock	Total Livestock
RM of St. Andrews	5,983	17,538	-	-	49	-	140	0	23,710
RM of St. Clements	5,100	19,320	402	10,684	23	175	161	471	36,336
RM of West St. Paul	968	-	425	-	-	-	-	-	1,393
RM of East St. Paul	-	-	-	-	-	-	-	-	-
RM of Springfield	9,779	21,515	363	76,016	-	229	499	1,944	110,345
RM of Taché	8,850	58,782	1,036	330,632	-	31	-	713	400,044
RM of Ritchot	2,159	25,860	-	260,096	-	4	-	-	288,119
RM of Morris	1,414	50,769	32	253,869	-	-	-	51	306,135
RM of Macdonald	6,973	-	29	-	-	-	92	21,694	28,788
City of Winnipeg	1,400	-	215	1,069	-	16	228	24	2,952
RM of Hanover	29,531	401,572	648	2,202,814	100,385	-	612	5,630	2,741,192
RM of De Salaberry	8,624	119,624	-	557,494	39,012	-	177	305	725,236
Total Study Area	80,781	714,980	3,150	3,692,674	139,469	455	1,909	30,832	4,664,250
Manitoba	1,424,427	2,540,220	84,798	7,985,741	694,248	112, 067	62,791	157,676	12,949,901

Source: Statistics Canada: 2001 Census of Canada.

Note: Dashes indicate either zero value or that data were not available.

Table 8B-5
Vegetable Production in the Flood Study Region and Manitoba: 1996

Rural Municipalities	Total Vegetables	
	Farms	Hectares
RM of St. Andrews	11	-
RM of St. Clements	9	19
RM of West St. Paul	1	-
RM of East St. Paul	11	22
RM of Springfield	18	-
RM of Taché	4	8
RM of Ritchot	15	64
RM of Morris	4	-
RM of Macdonald	8	-
City of Winnipeg	20	63
RM of Hanover	13	16
RM of De Salaberry	4	18
Total Flood Study Region	118	209
Manitoba	318	1,949

Source: Statistics Canada 1996.

Notes:

Census of Canada data was obtained, from Manitoba Agriculture and Foods, in acres and has been converted into hectares using a conversion factor of .404686.

In some instances, dashes indicate that the data were not available.

Table 8B-6
Vegetable Production in the Flood Study Region and Manitoba: 2001

Rural Municipalities	Total Vegetables	
	Farms	Hectares
RM of St. Andrews	12	32
RM of St. Clements	8	17
RM of West St. Paul	-	-
RM of East St. Paul	-	-
RM of Springfield	13	-
RM of Taché	4	-
RM of Ritchot	4	42
RM of Morris	6	15
RM of Macdonald	10	-
City of Winnipeg	13	-
RM of Hanover	6	7
RM of De Salaberry	2	-
Total Flood Study Region	78	113
Manitoba	260	2,053

Source: Statistics Canada 2001.

Notes:

Census of Canada data was obtained, from Manitoba Agriculture and Foods, in acres and has been converted into hectares using a conversion factor of .404686.

In some instances, dashes indicate that the information was not available.

Table 8B-7
Housing Characteristics for Communities in the Flood Study Region and the Province of Manitoba: 1996

Community	Housing Characteristics				
	Total Number of Occupied Private Dwellings	Average Number of Bedrooms per Dwelling	Estimated Average Number of Persons per Household	Number of Dwellings Requiring Major Repairs	Percentage of households Requiring Major Repairs
City of Winnipeg	246,175	2.4	2.5	21,815	8.9%
City of Selkirk	3,715	2.5	2.7	530	14.3%
Town of Niverville	515	2.9	3.1	50	9.7%
Town of Morris	635	2.7	2.6	55	8.7%
Village of St. Pierre-Jolys	345	2.6	2.7	40	11.6%
RM of De Salaberry	835	3.2	3.9	145	17.4%
RM of Taché	2,460	3.2	3.4	230	9.3%
RM of Ritchot	1,690	3.1	3.2	185	10.9%
RM of Morris	895	3.2	3.2	100	11.2%
RM of Macdonald	1,535	3.1	3.2	155	10.1%
RM of Springfield	3,975	3.0	3.1	385	9.7%
RM of East St. Paul	2,045	3.3	3.2	155	7.6%
RM of West St. Paul	1,175	3.1	3.2	100	8.5%
RM of St. Andrews	3,450	3.0	2.9	355	10.3%
RM of St. Clements	3,030	2.9	2.8	360	11.9%
RM of Hanover	2,785	3.2	3.5	215	7.7%
Brokenhead Ojibway Nation	105	2.7	3.2	35	33.3%
Flood Study Region	**275,365**	**2.5**	**2.6**	**24,910**	**9.0%**
Manitoba	**419,385**	**2.6**	**2.7**	**44,880**	**10.7%**

Source: Statistics Canada: 1996 Census of Canada.

Notes:

Based on 20 per cent sample data and data subject to rounding.

Estimated Average Number of Persons per Household based on 1996 Census populations for each community.

Peguis First Nation has not been included in the table as there are no inhabited dwellings on the Peguis parcels in the Flood Study Region. Housing characteristics of homes owned by Peguis Members living in the Flood Study Region is capture in the information for the other municipalities.

Table 8B-8
Housing Characteristics for Communities in the Flood Study Region and the Province of Manitoba: 2001

Community	Housing Characteristics				
	Total Number of Occupied Private Dwellings	Average Number of Bedrooms per Dwelling	Estimated Average Number of Persons per Household	Number of Dwellings Requiring Major Repairs	Percentage of Households Requiring Major Repairs
City of Winnipeg	252,810	2.5	2.5	23,740	9.4%
City of Selkirk	3,800	2.6	2.6	375	9.9%
Town of Niverville	635	3.2	3.0	55	8.7%
Town of Morris	665	2.8	2.5	125	18.8%
Village of St. Pierre-Jolys	340	2.6	2.6	20	5.9%
RM of De Salaberry	920	3.0	3.5	115	12.5%
RM of Taché	2,685	3.2	3.2	275	10.2%
RM of Ritchot	1,615	3.2	3.1	135	8.4%
RM of Morris	875	3.2	3.1	85	9.7%
RM of Macdonald	1,665	3.1	3.2	135	8.1%
RM of Springfield	4,230	3.1	3.0	450	10.6%
RM of East St. Paul	2,470	3.1	3.1	115	4.7%
RM of West St. Paul	1,330	3.2	3.1	100	7.5%
RM of St. Andrews	3,720	3.1	2.9	475	12.8%
RM of St. Clements	3,310	2.9	2.8	475	14.4%
RM of Hanover	3,110	3.3	3.5	335	10.8%
Brokenhead Ojibway Nation	135	2.7	2.8	45	33.3%
Flood Study Region	**284,315**	**2.6**	**2.5**	**27,055**	**9.5%**
Manitoba	**432,550**	**2.6**	**2.5**	**47,890**	**11.1%**

Source: Statistics Canada: 1996 Census of Canada.

Notes:

Based on 20 per cent sample data and data subject to rounding.

Estimated Average Number of Persons per Household based on 1996 Census populations for each community.

Peguis First Nation has not been included in the table as there are no inhabited dwellings on the Peguis parcels in the Flood Study Region. Housing characteristics of homes owned by Peguis Members living in the Flood Study Region is capture in the information for the other municipalities.

Table 8B-9
Number and Average Value of Private Dwellings by Flood Study Region Community: 1996, 2001

Community	1996				2001				
	Total Dwellings	Owned Dwellings	Rented Dwellings	Average value of Dwelling ($)	Total Dwellings	Owned Dwellings	Rented Dwellings	Average Value of Dwelling ($)	Percentage Change of Average Value of Dwelling (1996 to 2001)
City of Winnipeg	246,175	152,695	93,480	$95,345	252,810	160,755	92,055	$100,525	5.4%
City of Selkirk	3,710	2,400	1,310	$80,393	3,800	2,580	1,220	$88,361	9.9%
Town of Niverville	515	375	140	$89,915	635	535	105	$102,413	13.9%
Town of Morris	635	485	145	$71,250	660	490	170	$90,277	26.7%
Village of St. Pierre-Jolys	345	235	110	$65,392	340	245	95	$83,684	28.0%
RM of De Salaberry	835	735	100	$125,258	920	790	130	$76,495	-38.9%
RM of Taché	2,465	2,280	185	$99,505	2,685	2,450	235	$118,892	19.5%
RM of Ritchot	1,690	1,505	190	$114,016	1,615	1,420	195	$124,032	8.8%
RM of Morris	895	775	120	$77,202	870	715	155	$90,065	16.7%
RM of Macdonald	1,535	1,365	160	$130,499	1,665	1,550	115	$143,397	9.9%
RM of Springfield	3,970	3,730	250	$118,276	4,230	3,965	265	$136,841	15.7%
RM of East St. Paul	2,050	1,955	90	$175,360	2,475	2,390	85	$206,094	17.5%
RM of West St. Paul	1,170	1,140	30	$168,429	1,330	1,270	60	$162,566	-3.5%
RM of St. Andrews	3,450	3,295	150	$124,999	3,720	3,570	145	$136,421	9.1%
RM of St. Clements	3,035	2,870	165	$106,299	3,310	3,175	380	$119,970	12.9%
RM of Hanover	2,785	2,410	375	$88,881	3,110	2,730	380	$103,793	16.8%
Brokenhead Ojibway Nation	105	0	20	0	135	0	15	0	0.0%
Flood Study Region Total	275,365	178,250	97,020	$97,047	284,310	188,630	95,555	$103,205	6.3%
Manitoba Total	419,385	278,385	131,680	$89,540	432,550	293,295	128,930	$97,670	9.1%

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

A private dwelling refers to a separate set of living quarters which has a private entrance either directly from outside or from a common hall, lobby, vestibule or stairway leading to the outside and in which a person or a group of persons live permanently

An owned private dwelling is one which is owned or being purchased by some member of the household. A dwelling is classified as “owned” even if it is not fully paid for, such as one which has a mortgage or some other claim on it.

A rented dwelling includes occupied private swellings that are rented for cash, without cash rent or at a reduced rent and dwellings that are part of a cooperative.

Value of dwelling refers to the dollar amount expected by the owner if the dwelling were to be sold. Value of dwelling refers to the value of the entire dwelling, including the value of the land it is on and any other structure such as a garage which is on the property. Data are shown for non-farm, non-reserve dwellings only.

Zeros represent amounts too small to be expressed.

Based on 20 per cent sample data. Data for all communities may not agree with Tables 8B-7 and 8B-8 due to rounding.

Peguis First Nation has not been included in the table as there are no inhabited dwellings on the Peguis parcels in the Flood Study Region. Housing characteristics of homes owned by Peguis Members living in the Flood Study Region is capture in the information for the other municipalities.

APPENDIX 8C

Economy
(including MBS Study)

APPENDIX 8C
LIST OF TABLES

Table 8C-1
Potential Labour Force as a Percentage of Total Population for Communities in the Flood Study Region for 1996 and 2001

Community	Flood Study Region					
	1996			2001		
	Potential Labour Force	Population	Potential Labour Force as per cent of Population	Potential Labour Force	Population	Potential Labour Force as per cent of Population
City of Winnipeg	488,465	618,477	79.0%	493,735	619,544	79.7%
City of Selkirk	7,420	9,881	75.1%	7,240	9,752	74.2%
Town of Niverville	1,135	1,615	70.3%	1,405	1,921	73.1%
Town of Morris	1,245	1,645	75.7%	1,290	1,673	77.1%
Village of St. Pierre-Jolys	660	925	71.4%	645	893	72.2%
RM of De Salaberry	2,145	3,067	69.9%	2,400	3,227	74.4%
RM of Taché	5,870	8,273	71.0%	6,285	8,578	73.3%
RM of Ritchot	3,915	5,364	73.0%	3,695	4,958	74.5%
RM of Morris	2,070	2,816	73.5%	2,010	2,723	73.8%
RM of Macdonald	3,550	4,900	72.4%	3,930	5,320	73.9%
RM of Springfield	9,235	12,162	75.9%	9,740	12,602	77.3%
RM of East St. Paul	4,930	6,437	76.6%	6,005	7,677	78.2%
RM of West St. Paul	2,810	3,720	75.5%	3,170	4,085	77.6%
RM of St. Andrews	8,035	10,144	79.2%	8,530	10,695	79.8%
RM of St. Clements	6,760	8,516	79.4%	7,220	9,115	79.2%
R.M of Hanover	6,760	9,833	68.7%	7,370	10,789	68.3%
Brokenhead Ojibway Nation	220	332	66.3%	245	372	65.9%
Peguis First Nation	1,345	2,076	64.8%	1,610	2,515	64.0%
Flood Study Region Total	**556,570**	**710,183**	**78.4%**	**566,525**	**716,439**	**79.1%**
Manitoba Total	**855,880**	**1,113,898**	**76.8%**	**869,315**	**1,119,583**	**77.6%**

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

The Potential Labour Force is defined as all persons over the age of 15.

The 2001 data exclude institutional residents.

Table 8C-2
Estimated Active Labour Force and Participation Rates in the Flood Study Region and Manitoba for 1996 and 2001

Communities	Flood Study Region							
	1996				2001			
	Estimated Active Labour Force	Participation Rate (%)			Estimated Active Labour Force	Participation Rate (%)		
		Male	Female	Total		Male	Female	Total
City of Winnipeg	325,045	73.4	60.3	66.5	336,000	73.9	62.7	68.1
City of Selkirk	4,675	70.0	56.8	63.0	4,690	72.1	58.3	64.8
Town of Niverville	760	83.8	51.7	67.0	970	77.0	61.0	69.0
Town of Morris	775	78.0	46.8	62.2	885	78.6	58.3	68.6
Village of St. Pierre-Jolys	480	82.8	62.7	72.7	435	84.2	59.4	67.4
RM of De Salaberry	1,540	78.6	64.4	71.8	1,745	81.9	62.9	72.7
RM of Taché	4,650	85.9	72.0	79.2	4,835	83.2	70.1	76.9
RM of Ritchot	3,020	85.0	69.4	77.1	3,030	86.9	76.8	82.0
RM of Morris	1,410	83.2	52.9	68.1	1,450	83.1	62.6	72.1
RM of Macdonald	2,745	84.6	69.5	77.3	3,140	86.7	72.2	79.9
RM of Springfield	6,900	80.1	69.0	74.7	7,500	81.7	72.2	77.0
RM of East St. Paul	3,745	80.6	71.3	76.0	4,535	78.7	72.3	75.5
RM of West St. Paul	1,985	75.5	66.1	70.6	2,265	76.0	66.9	71.5
RM of St. Andrews	5,845	79.1	65.9	72.7	6,220	78.1	67.4	72.9
RM of St. Clements	4,920	77.5	67.5	72.8	5,275	79.8	66.0	73.1
R.M of Hanover	5,115	87.4	63.2	75.7	5,375	84.2	60.9	72.9
Brokenhead Ojibway Nation	130	63.6	54.5	59.1	165	76.0	58.3	67.3
Peguis First Nation	825	64.5	57.3	61.3	895	58.8	51.5	55.6
Flood Study Region Total	**374,565**	**74.2**	**60.9**	**67.3**	**389,410**	**74.7**	**63.2**	**68.7**
Manitoba Total	**567,825**	**73.6**	**59.5**	**66.3**	**585,420**	**73.6**	**61.4**	**67.3**

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

20 per cent sample data. Values have been rounded to the nearest five.

The active labour force is defined by Statistics Canada as the number of people in the potential labour force who were either employed or unemployed and looking for work in the week prior to the Census day.

Table 8C-3
1996 and 2001 Employment Rates by Gender: Flood Study Region and Province of Manitoba

Population	Employment Rate 1996 (%)			Employment Rate 2001 (%)		
	Total	Male	Female	Total	Male	Female
City of Winnipeg	61.1	66.9	55.8	64.2	69.6	59.2
City of Selkirk	56.6	62.2	51.6	59.2	65.3	53.9
Town of Niverville	63.0	79.3	47.4	66.5	74.8	58.9
Town of Morris	57.4	72.4	42.1	64.3	75.4	53.8
Village of St. Pierre-Jolys	71.2	79.7	62.7	65.1	76.7	55.1
RM of De Salaberry	68.1	75.4	60.0	70.4	79.8	60.8
RM of Taché	75.0	80.7	69.1	74.1	79.5	68.3
RM of Ritchot	73.3	79.9	67.0	79.3	82.9	75.7
RM of Morris	66.4	81.2	51.5	70.6	81.5	60.7
RM of Macdonald	73.5	82.1	64.2	77.1	83.7	69.8
RM of Springfield	71.1	76.8	64.9	79.2	69.3	64.7
RM of East St. Paul	73.1	76.8	69.3	74.6	77.8	71.3
RM of West St. Paul	68.0	72.7	62.9	69.9	75.1	64.7
RM of St. Andrews	68.2	73.7	62.4	69.9	74.9	64.4
RM of St. Clements	68.4	72.5	64.1	68.8	75.2	62.1
RM of Hanover	71.7	83.5	59.1	70.7	81.4	59.2
Brokenhead Ojibway Nation	45.5	45.5	45.5	53.1	56.0	50.0
Peguis First Nation	50.2	50.7	49.6	42.2	44.4	39.9
Flood Study Region Total	**62.0**	**68.0**	**56.4**	**64.9**	**70.5**	**59.7**
Manitoba Total	**61.1**	**67.3**	**55.2**	**63.3**	**69.0**	**57.9**

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

20 per cent sample data; values have been rounded to the nearest five.

Employment rates are calculated based on the active labour force (i.e., those employed or unemployed and looking for work in the week prior to the Census).

Table 8C-4
1996 and 2001 Unemployment Rates by Gender for
Flood Study Region and Province of Manitoba

Population	Unemployment Rate 1996 (%)			Unemployment Rate 2001 (%)		
	Overall	Male	Female	Overall	Male	Female
City of Winnipeg	8.2	8.8	7.5	5.7	5.9	5.6
City of Selkirk	10.2	11.1	5.3	8.6	9.7	7.7
Town of Niverville	5.9	5.4	8.3	3.6	3.7	3.5
Town of Morris	8.4	6.2	10.2	6.2	4.0	7.8
Village of St. Pierre-Jolys	2.1	3.8	0.0	3.4	0.0	7.3
RM of De Salaberry	5.5	4.0	6.8	2.9	2.5	3.4
RM of Taché	5.2	6.2	4.1	3.7	4.4	2.8
RM of Ritchot	5.0	5.9	3.4	3.3	4.6	1.4
RM of Morris	2.5	2.3	2.8	2.1	1.9	2.3
RM of Macdonald	5.1	2.9	7.6	3.7	3.7	3.6
RM of Springfield	4.9	4.0	5.9	3.5	3.1	4.0
RM of East St. Paul	3.9	4.5	2.9	1.2	1.0	1.4
RM of West St. Paul	4.0	3.3	4.9	2.2	0.8	3.8
RM of St. Andrews	6.2	6.8	5.5	4.1	4.0	4.3
RM of St. Clements	6.0	6.6	5.3	5.9	5.7	6.3
RM of Hanover	5.3	4.6	6.3	3.2	3.3	3.0
Brokenhead Ojibway Nation	23.1	28.6	18.2	21.2	21.1	14.3
Peguis First Nation	18.2	22.5	13.3	24.0	24.5	23.8
Flood Study Region	**7.9**	**8.4**	**7.3**	**5.5**	**5.7**	**5.4**
Manitoba	**7.9**	**8.5**	**7.1**	**6.1**	**6.3**	**5.7**

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

Based on 20 per cent sample data.

Unemployment is calculated based on active labour force (i.e., those employed or unemployed and looking for work).

Nil or zero values indicate the amount is too small to be expressed.

Table 8C-5
Highest Level of Schooling for Flood Study Region and Manitoba: 1996 and 2001

Highest Level of Schooling	Flood Study Region		Manitoba	
	1996 Total= 556,575 (15 years or over)	**2001** Total= 518,355 (20 years or over)	**1996** Total= 855,880 (15 years or over)	**2001** Total= 789,615 (20 years or over)
Less than grade 9	**9.4%**	**8.1%**	**12.6%**	**11.0%**
Grades 9 to 13	**38.2%**	**32.6%**	**40.0%**	**34.8%**
Without high school graduation certificate	26.5%	20.8%	28.8%	23.4%
With high school graduation certificate	11.7%	11.7%	11.2%	11.4%
Trades certificate or diploma	**3.2%**	**11.5%**	**3.3%**	**11.7%**
College or Other Non-University Education Only	**21.8%**	**21.2%**	**21.0%**	**20.0%**
Without certificate or diploma	5.5%	6.0%	5.2%	5.7%
With certificate or diploma	16.3%	15.1%	15.8%	14.3%
University	**27.3%**	**26.7%**	**23.1%**	**22.5%**
Without degree	13.0%	9.2%	11.5%	8.2%
Without certificate or diploma	7.2%	6.7%	6.1%	5.8%
With certificate or diploma	5.9%	2.5%	5.4%	2.4%
With bachelor's degree or higher	14.3%	17.5%	11.6%	14.3%
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

Totals may not add due to rounding.

20 per cent sample data.

Statistics Canada changed the collection method for this information from 1996 to 2001. For 1996 data are reported for the population 15 years of age and over. For 2001 data are reported for population 20 years and over.

The 2001 Census of Canada data use the category of College; in 1996 this category was termed Other Non-University Education Only.

Table 8C-6
Average Personal, Family and Household Income Levels
for Communities in the Flood Study Region and Manitoba: 1996 and 2001

Communities	Average Personal Income		Average Family Income		Average Household Income	
	1996	2001	1996	2001	1996	2001
City of Winnipeg	$24,012	$28,315	$53,174	$63,568	$44,937	$53,176
City of Selkirk	$22,242	$25,153	$48,429	$54,234	$42,328	$46,487
Town of Niverville	$19,429	$22,996	$42,216	$54,303	$38,323	$47,640
Town of Morris	$20,450	$23,158	$44,202	$53,528	$37,044	$44,432
Village of St. Pierre-Jolys	$19,590	$22,670	$44,876	$54,534	$36,359	$41,555
RM of De Salaberry	$20,036	$21,813	$44,577	$51,467	$42,819	$49,618
RM of Taché	$23,904	$28,042	$54,184	$63,563	$52,654	$61,714
RM of Ritchot	$23,339	$28,440	$53,498	$66,066	$51,034	$62,835
RM of Morris	$19,777	$22,486	$46,040	$53,705	$42,340	$49,864
RM of Macdonald	$25,055	$31,251	$56,578	$71,821	$54,407	$69,475
RM of Springfield	$26,734	$28,848	$60,373	$66,526	$57,321	$62,589
RM of East St. Paul	$34,165	$39,068	$81,453	$96,686	$78,048	$92,299
RM of West St. Paul	$27,955	$40,236	$64,783	$97,781	$62,941	$91,414
RM of St. Andrews	$26,768	$29,328	$63,434	$68,706	$58,908	$65,480
RM of St. Clements	$24,774	$29,426	$56,552	$66,182	$52,070	$61,459
RM of Hanover	$19,058	$21,919	$43,487	$51,473	$41,986	$49,368
Brokenhead Ojibway Nation	$11,763	$14,452	$25,693	$29,279	$23,373	$25,398
Peguis First Nation	$11,323	$14,873	$24,840	$30,908	$23,241	$32,363
Flood Study Region	**$24,044**	**$28,305**	**$53,490**	**$63,850**	**$45,672**	**$54,058**
Manitoba	**$22,667**	**$26,416**	**$50,236**	**$59,005**	**$43,404**	**$50,756**

Source: Statistics Canada: 1996 Census of Canada and 2001 Census of Canada.

Notes:

Based on 20 per cent sample data.

Family income refers to total income for a married couple (with or without children of either or both spouses), a couple living common-law (with or without children of either or both partners) or a lone parent of any marital status with at least one child living in the same dwelling. A couple living common law may be of opposite or same sex. “Children” in a census family include grandchildren living with their grandparents but no parent present.

Household income refers to total income of all persons living in household regardless of family status (i.e., extended family, borders/renters).

Table 8C-7
Employment by Industry Type for Flood Study Region and Manitoba: 1996

Industry Division	City of Winnipeg	Flood Study Region - Excluding Winnipeg	Flood Study Region	Manitoba
Total People - All Industries	*315,950*	*48,830*	*364,780*	*553,875*
Agricultural and related service industries	0.5%	9.7%	1.8%	7.2%
Fishing and trapping industries	0.0%	0.1%	0.0%	0.2%
Logging and forestry industries	0.1%	0.2%	0.1%	0.4%
Mining (including milling), quarrying and oil well industries	0.1%	0.4%	0.2%	0.8%
Manufacturing Industries	13.3%	11.9%	13.1%	11.3%
Construction Industries	4.2%	8.0%	4.7%	4.9%
Transportation and storage industries	5.7%	7.2%	5.9%	5.5%
Communication and other utility industries	4.1%	3.3%	4.0%	3.6%
Wholesale trade industries	5.5%	5.2%	5.5%	4.9%
Retail trade industries	12.1%	10.7%	11.9%	11.6%
Finance and insurance industries	4.0%	2.7%	3.8%	3.2%
Real Estate operator and insurance agent industries	2.1%	1.2%	1.9%	1.6%
Business service industries	5.9%	3.1%	5.5%	4.4%
Government service industries	7.3%	7.4%	7.3%	7.2%
Educational service industries	7.7%	6.9%	7.6%	7.7%
Health and social services industries	12.0%	10.3%	11.8%	11.7%
Accommodation, food and beverage service industries	7.3%	5.4%	7.0%	6.9%
Other service industries	8.1%	6.3%	7.8%	7.0%

Source: Statistics Canada: 1996 Census of Canada.

Notes:

Based on 20 per cent sample size.

Totals may not add to 100 per cent due to rounding.

Table 8C-8
Employment by Industry Type for the Flood Study Region and Manitoba: 2001

Industry Division	City of Winnipeg	Flood Study Region – Excluding Winnipeg	Flood Study Region	Manitoba
Total People - All industries	*331,880*	*53,000*	*384,880*	*577,340*
Agriculture, forestry, fishing and hunting	0.4%	8.5%	1.4%	6.5%
Mining and oil and gas extraction	0.1%	0.4%	0.1%	0.7%
Utilities	1.1%	1.6%	1.2%	1.2%
Construction	4.1%	7.8%	4.6%	5.0%
Manufacturing	13.5%	11.8%	13.3%	11.8%
Wholesale Trade	4.4%	4.7%	4.5%	4.1%
Retail Trade	10.9%	9.7%	10.8%	10.5%
Transportation and Warehousing	6.2%	7.1%	6.3%	5.9%
Information and cultural industries	2.7%	1.4%	2.5%	2.1%
Finance and Insurance	4.4%	3.1%	4.2%	3.6%
Real estate and rental and leasing	1.7%	1.2%	1.7%	1.4%
Professional, scientific and technical services	5.1%	3.0%	4.8%	3.8%
Management of companies and enterprises	0.1%	0.1%	0.1%	0.1%
Administrative and support, waste management and remediation services	4.1%	2.8%	3.9%	3.4%
Educational services	7.2%	6.8%	7.1%	7.4%
Health care and social assistance	12.4%	11.4%	12.3%	12.4%
Arts, entertainment and recreation	2.0%	1.8%	2.0%	1.8%
Accommodation and food services	7.4%	4.8%	7.1%	6.8%
Other services (except public administration)	4.9%	5.2%	4.9%	4.7%
Public administration	7.4%	6.5%	7.3%	7.0%

Source: Statistics Canada: 2001 Census of Canada.
Note: 20 per cent sample size; Totals may not add to 100 per cent due to rounding.

FLOODWAY EXPANSION

INITIAL
ECONOMIC IMPACT ASSESSMENT

October 29, 2002

FLOODWAY EXPANSION - PROJECTED EXPENDITURES ($Millions)

Summary Data Provided to MBS		Reallocated Expenditures	
Land Acquisition	6.0	Land Acquisition	6.0
Earthworks	162.0	Earthworks	246.2
Highway Bridges	36.3	Highway Bridges	55.1
Railway Bridges	45.6	Railway Bridges	69.3
Roadworks	1.7	Roadworks	2.5
Hydraulic Structures	19.9	Hydraulic Structures	30.2
Manitoba (Wpg) Hydro	6.2	Manitoba Hydro	9.5
Centra Gas	1.2	Centra Gas	1.8
Manitoba Telecom	0.3	Manitoba Telecom	0.5
Winnipeg Pipeline	1.2	Winnipeg Pipeline	1.8
Inlet Control Structure	30.1	Inlet Control Structure	45.8
Owner's Cost, Engineering & Site Supervision	46.6	These Items Reallocated to Above Construction Activities To Comply with Methodology	
Contingency	62.1		
Interest During Construction	49.7		
SUBTOTAL	**468.8**		**468.8**
Winnipeg Infrastructure	110.0	Winnipeg Infrastructure	110.0
Raising West Dike	63.4	Raising West Dike	63.4
PROJECT TOTAL (excluding escalation)	**642.2**	**PROJECT TOTAL**	**642.2**

FLOODWAY EXPANSION
INITIAL ECONOMIC IMPACT ASSESSMENT

The Manitoba Bureau of Statistics (MBS) has been requested to do a quick assessment of the economic and tax impacts to Manitoba and Canada of a proposed expansion to the Winnipeg Floodway. The assessment is based on currently available expenditures information.

Economic impact estimates for the provincial and national economies have been produced using the MBS Economic Impact Assessment Models, which are built around Statistics Canada's Input-Output Tables for Manitoba and Canada. Tax Revenue impact estimates have been produced using the MBS Tax Revenue Impact Assessment Model, which utilizes relationships between economic measures and taxation levels, as well as information about the project under study.

Total projected expenditures for Floodway Expansion are $657.8 million over four years. However, this figure has been inflated by $15.5 million to project the real cost of the project in today's money. For the MBS analysis, this $15.5 million has been removed from the Total Project Cost. As a result, expenditures and impacts are in constant 2002 dollars, and the Total Project Cost is estimated at $642.2 million

This $642.2 million construction expenditure has been summarized by different activities, such as earthworks, highway bridges, railway bridges, etc., as presented in the table on the opposing page. Also included in the $642.2 million total is an estimated $46.6 million for engineering and management fees, $62.1 million for contingency and $49.7 million in interest costs. The Appendix provides the information provided to MBS that was used for this study.

The methodology used by MBS for this initial assessment of the floodway expansion project was to code the different types of activities to particular construction commodities contained in the MBS Model, including Road, Highway & Airstrip Construction, Railway & Telecommunications . . . Construction, Non-Residential Building Construction, Repair Construction and Other Engineering Construction.

In doing this, the model then distributes the money allocated to each construction type to the various goods and services, including labour, that is typical for that type of construction. This will include interest costs, management and engineering fees and contingency costs. Therefore, expenditures proposed for these three items have been folded back into the construction activities in the upper part of the table, as shown.

According to instructions provided to MBS, 5% of project expenditures, including 5% of the direct labour content has been allocated to occur outside Manitoba, in the "Rest-of-Canada". Therefore, of the total $642.2 million project, $610.4 million is estimated as direct Manitoba expenditures and $31.8 million as direct expenditures elsewhere in Canada.

It is to be noted that for this initial assessment MBS made no adjustments to the commodity supply ratios inherent to the Manitoba and Canada economic impact models.

FLOODWAY EXPANSION: INITIAL IMPACT ESTIMATES

TOTAL CANADA ECONOMIC IMPACT ESTIMATES

($MILLIONS)

	MANITOBA IMPACTS	REST OF CANADA	CANADA IMPACTS
Total Direct Expenditures	610.4	31.8	642.2
Gross Expenditure	1,048.6	502.0	1,550.5
GDP at Market Price	501.5	312.8	814.3
GDP at Factor Cost	459.0	270.4	729.4
Labour Income	353.2	191.9	545.1
Employment (Person-Years)			
Direct Employment	5,000	200	5,200
Indirect & Induced	4,600	4,100	8,700
Total Employment	9,500	4,400	13,900

Notes: (1) GDP at Market Prices is the total value of goods and services produced in Canada's economy.
(2) GDP at Factor Cost is the total value of goods and services produced by industries (i.e., GDP at Market Prices less indirect taxes plus subsidies).
(3) All Economic impact estimates presented are in 2002 dollars.
(4) Employment impacts are presented in terms of "Person-Years". A Person-Year is defined as one person being fully employed for a period of one year.
(5) Figures may not add to total, due to rounding.

TOTAL CANADA TAX REVENUE IMPACT ESTIMATES

($MILLIONS)

	MANITOBA IMPACTS	REST OF CANADA	CANADA IMPACTS
Total Provincial Taxes	50.0	30.3	80.3
Local Taxes	8.5	7.6	16.1
Federal Taxes	65.4	39.9	105.3
Total Taxes Collected	123.9	77.8	201.7

Note: Figures may not add to total, due to rounding.

Data Source: Manitoba Bureau of Statistics
Economic Impact Assessment Model
Tax Revenue Impact Assessment Model

Note, owing to certain methodological limitations of input-output analysis, all impacts presented should be treated as general estimates only, never as absolutes. The models used cannot provide a complete or absolute measure of the impact of economic change. Also, the quality of the impacts derived with the models cannot exceed the quality of data and assumptions used in the process. Modification of key assumptions may significantly alter the results.

IMPACT ASSESSMENT HIGHLIGHTS:

Direct Manitoba expenditures for the $642.2 million project are estimated at $610.4 million (95% of the total) with the remaining $31.8 million representing direct expenditures in the Rest-of-Canada. Note that the $15.5 million escalation to account for inflation during the construction period has been excluded from the analysis.

The above expenditures are for the total cost of construction. These expenditures are for construction materials, services related to construction, direct construction labour and contractor profits. Each of these results in further expenditures, be they for manufacturing, business operations or household expenditures. The sum of the direct and spin-off expenditures is termed Gross Expenditures.

Gross Expenditures in Manitoba are estimated at $1,048.6 million over the four-year construction period. In addition, Gross Expenditures elsewhere in Canada are estimated at $502.0 million. Total Gross Expenditures in Canada are estimated at $1,550.5 million. This is the gross monetary impact to the economy.

Gross Domestic Product (GDP) at Market Prices removes the double-counting of expenditures present in the Gross Expenditures statistic, to present an estimate of the net monetary impact to the economy.

In total, the project is estimated to result in a $501.5 million impact to Manitoba GDP at Market Prices. The GDP impact to the Rest-of-Canada is estimated at $312.8 million, and the total GDP impact for Canada is estimated at $814.3 million. Therefore, for each $1.00 in direct project expenditures ($642.2 million), the impact to Canada's GDP is estimated at $1.27, with $0.78 (62%) estimated to occur in Manitoba.

Total Manitoba Labour Income over the four year project is estimated at $353.2 million, with an additional $191.9 million estimated for the Rest-of-Canada. Therefore, the total Labour Income impact to Canada is estimated at $545.1 million. For each $1.00 in direct project expenditures, the impact to Labour Income throughout Canada is estimated at $0.85, with $0.55 (65%) estimated to occur in Manitoba.

The above Labour Income impacts are estimated to support a total of 13,900 person-years of employment in Canada during the 4 year period, hence on average about 3,500 full-time-equivalent jobs for four years. Total Manitoba Employment impacts are estimated at 9,500 person-years, with about 5,000 being direct impacts and 4,600 spin-off employment. Rest-of-Canada Employment impacts are estimated at 4,400 person-years, with about 200 being direct impacts and 4,100 spin-off employment.

Total Tax Collections resulting from the project and its effect on the Canadian economy are estimated at $201.7 million, spread out over the four year construction period. Total Manitoba Tax Collections are estimated at $123.9 million, including $50.0 million in Provincial Taxes, $8.5 million in Local Taxes and $65.4 million in Federal Taxes. Tax Collections in the Rest-of-Canada are estimated at $77.8 million, including $30.3 million in Provincial Taxes, $7.6 million in Local Taxes and $39.9 million in Federal Taxes.

MBS ECONOMIC & TAX REVENUE IMPACT ASSESSMENT MODELS:

Manitoba economic impact estimates have been derived from the MBS Economic Impact Assessment Model. The Worksheet Level of this model encompasses flow patterns for 299 industries, 725 commodities and 170 final demand categories (i.e., who buys a commodity for what purpose). The current model used for Manitoba is based on the 1998 Statistics Canada Input-Output Tables for Manitoba, which record in detail the inter-industry flow of goods and services within the Manitoba economy. Impacts to the "Rest-of-Canada" are derived by subtraction (i.e., Total Canada Impacts minus Total Manitoba Impacts).

Total Canada economic impact estimates are derived from an earlier version of the MBS Economic Impact Assessment Model, based on Statistics Canada's 1992 Input-Output Tables for the Canadian economy. The Worksheet Level of the Canada Model encompasses flow patterns for 217 industries, 627 commodities and 166 final demand categories. Both the Manitoba and Canada Models provide estimates of the Direct, Indirect and Induced Impacts of a project or activity on the economy.

Direct Impacts are impacts on firms which expand production to satisfy an increase in demand for a particular commodity. The **Indirect Impacts** are the "ripple effect", as the directly impacted firms require more inputs from other firms in order to satisfy the increased demand.

As directly and indirectly impacted firms expand production they require more staff thus increasing the income paid to wage earners. After withholding 28% of labour income for taxes and savings, the remainder of this income is spent, which increases the demand for other commodities. This "consumer effect" results in the **Induced Impacts**.

While economic impact models can be a useful component in the decision making process, they do have limitations (i.e., model is static, based on average patterns for technology and costs for commodities and industries, at a fixed point in time). Moreover, while data inputs, supply ratios and employment deflators can all be user specified for a particular project, there is never perfect knowledge. As a result, the model cannot provide a complete or absolute measure of the impact of economic change. **The resultant impacts should be treated as general estimates only and never as absolutes.**

It should be noted that the level of direct expenditures within the Province of Manitoba is the primary factor in determining the magnitude of economic impacts to Manitoba. Expenditures made directly to suppliers outside of Manitoba do not have an impact on the Manitoba economy, except to the extent that Provincial Sales Tax may be collected on these purchases.

Provincial, local and federal taxation estimates have been prepared using the MBS Tax Revenue Impact Assessment Model. The MBS tax model's structure is based on 2002 Manitoba Budget data, detailed unpublished 1996 Income Tax Data adjusted for the latest income tax rate changes, and MBS Manitoba Provincial Economic Accounts 2001 data.

The MBS Tax Revenue Impact Assessment Model utilizes output from the MBS Economic Impact Assessment Model (such as estimated GDP, Labour Income and Employment impacts), as well as information on average wage rates for direct and non-direct jobs. Federal and local taxes accruing in Manitoba are estimated, in part, by utilizing their average relationships to Manitoba provincial taxes.

The tax revenue estimates for the Rest-of-Canada utilize the relationship between Gross Domestic Product and tax revenue in other provinces. Total Canada tax impacts are the sum of Manitoba and Rest-of-Canada impact estimates. Tax revenue impact estimates have been adjusted for the project in accordance with information provided.

As with the economic impacts, tax revenue impacts should also be treated as general estimates only. It is noted that the local tax revenue is the "softest" of the three tax estimates.

GLOSSARY OF TERMS:

DIRECT IMPACTS
Direct Impacts (or Project Direct) are determined outside of the model. They are values that have been directly input to the MBS Economic Impact Assessment Model, such as Direct Labour Income and Direct Employment for the project.

OTHER DIRECT IMPACTS
Other Direct Impacts are determined within the model. They represent the estimated impacts to Direct Suppliers for the Project (for the various materials and services required). This is the first level of economic activity resulting from Project Expenditures (i.e., the simulated first round of purchases in the MBS Economic Impact Assessment Model).

INDIRECT IMPACTS
Indirect Impacts are the second level of economic impacts resulting from Project Expenditures. Indirect Impacts result when Directly Impacted firms require additional inputs from other firms in order to meet the demands of the Project, or to "restock shelves" in preparation for future demands.

INDUCED IMPACTS
Induced Impacts are the "Consumer" or "Household" effect, which occurs as a result of wage re-spending. It is assumed that most of the Labour Income required at the Direct, Other Direct and Indirect impact levels is spent on consumable or household items. This is the third level of economic activity resulting from Direct Project Expenditures.

TOTAL DIRECT IMPACTS
Total Direct Impacts are the sum of Direct Impacts and Other Direct Endogenous (i.e., Project Direct plus Other Direct).

TOTAL IMPACTS
Total Impacts are the sum of Total Direct Impacts, Indirect Impacts and Induced Impacts.

TOTAL EXPENDITURES
Refers to the Total Expenditures specified for the project or activity being assessed (such as Operations or Construction). Total Expenditures are the initial expenditures from which all other economic impacts ultimately result (be they in Manitoba, the Rest-of-Canada or the Rest-of-the-World).

DIRECT MANITOBA EXPENDITURES
Direct Manitoba Expenditures identifies the volume of Total Expenditures by expected or estimated to be spent directly in Manitoba. Only Expenditures in Manitoba can impact Manitoba GDP, Labour Income and Employment etc. Direct Expenditures outside of Manitoba are a direct leakage from the economy, and do not impact Manitoba GDP, Labour Income and Employment levels.

DIRECT MANITOBA SUPPLY
The value of Direct Manitoba Expenditures estimated to be produced, as well as purchased, in Manitoba. To yield high impacts relative to direct expenditures, the direct supply should approach the value of direct expenditures. A relatively small direct supply value results in lesser impacts to the economy.

GROSS EXPENDITURES
Additional expenditures by businesses and persons are levered by the Direct Expenditures. The Gross Expenditures statistic provides a measure of these expenditures, which includes re-spending of the initial direct expenditures by suppliers and wage earners. It represents the gross monetary benefit to the economy.

GDP AT MARKET PRICES
A measure of the total value of goods and services produced in the economy, GDP at Market Prices is the net monetary benefit to the economy. This statistic removes the double counting of expenditures and expenditure leakages from the economy, which are included in the Gross Expenditures statistic.

GDP AT FACTOR COST
A measure of the total value of goods and services produced by industry. GDP at Factor Cost is equal to GDP at Market Prices minus the effects of Indirect Taxes and Subsidies.

LABOUR INCOME
The sum of all Wages, Salaries, Supplementary Labour Income and Net Income of Unincorporated Businesses. Any or all of these may be present in the Direct Expenditures and resultant Direct, Indirect and Induced Impacts.

EMPLOYMENT
The Employment estimated to result from the above Labour Income. Jobs are presented as "full-time equivalent person-years" (i.e. one job represents the equivalent of one person being employed on a full-time basis for a period of one-year).

FEDERAL TAXES
The sum of Federal Income Taxes (Corporate and Personal), Other Direct Federal Taxes and Indirect Federal Taxes, estimated to be collected in Manitoba.

PROVINCIAL TAXES
The sum of Provincial Income Taxes (Corporate and Personal), Other Direct Provincial Taxes and Indirect Provincial Taxes, estimated to be collected in Manitoba.

LOCAL TAXES
An estimate of the total taxes, of any description, accruing to all Local Municipalities in Manitoba as a result of the project or activity being assessed and its spin-off activities.

APPENDIX:

FLOODWAY EXPANSION DATA

MANITOBA CONSERVATION
Parks and Natural Areas
200 Saulteaux Crescent
Winnipeg, Manitoba
R3J 3W3
Fax Number – 945-0012

MANITOBA PARKS
Everything Under the Sun

facsimile transmittal

To: Wilf Falk Fax: 945-0695

From: Barry Bentham Date: Oct. 7, 2002.

Re: Economic Impact of Proposed Floodway Expansion Pages: 26

CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Notes: As discussed, attached is the detailed cost estimates that are available. In terms of labour and supply ratios, we're going to assume that 95% are to be sourced from MB.

As discussed, we want to look at both MB and National impacts.

If we need to meet, is it possible for you or one of your staff members come out here (200 Saulteaux) tomorrow (Tues). or Wed?

Thx.
Barry...

TABLE B-13
Summary of Estimated Costs for 1 in 700 Year Floodway Expansion

ITEM	ESTIMATED COST ($MILLIONS)
Floodway Expansion	
Earthworks	168.0
Highway Bridges	36.3
Railway Bridges	45.6
Roadworks	1.7
Hydraulic Structures	19.9
Manitoba Hydro	5.0
Winnipeg Hydro	1.3
Centra Gas Manitoba	1.2
Manitoba Telecom Services	0.3
Winnipeg Pipeline Co.	1.2
Inlet Control Structure	30.1
Sub-Total	**310.6**
Owner's Cost, Engineering & Site Supervision (15%)	46.6
Contingency (20%)	62.1
Interest During Construction (16%)	49.7
Escalation During Construction (5%)	15.5
Sub-Total	**484.4**
Upgrades to Flood Protection Infrastructure in Winnipeg [1,2]	**110.0**
Raise Crest of West Dike [1,3]	**63.4**
TOTAL	**$657.8**

Note:
1. Costs include, engineering, site supervision, owner's cost, contingency, interest and escalation during 4 year construction period.
2. Refer to Table B-10 for detailed breakdown of costs. Interest and escalation have been added.
3. Refer to Appendix D for detailed breakdown of costs. Price escalation of 2.5% per year has been added.

Consideration of these factors has led KGS Group to include a contingency of 20% of the total costs including indirect costs such as interest, escalation, and engineering/site supervision.

The total cost of the Floodway Expansion scheme that can provide protection against a 1 in 700 year flood is estimated to be $658,000,000. This does not include any cost allowance for increasing the capacity of the internal drainage system in Winnipeg (see Section B.6.17). However, it does include for some work that is already underway in improvement of the flood protection infrastructure within Winnipeg.

ANNEX E

1 IN 700 YEAR EXPANDED FLOODWAY DETAILED COST TABLES

ANNEX E

1 IN 700 YEAR EXPANDED FLOODWAY DETAILED COST TABLES

CONTENTS:

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-1
1 in 700 Year Floodway Expansion
Total Cost Summary

DESCRIPTION	COST
Earthworks	
Land Acquisition	$ 6,000,000
General Earthmoving	$ 132,000,000
Earthmoving and Overhaul at Floodway Outlet	$ 4,000,000
Earthmoving Overhaul at Birds Hill	$ 2,000,000
Earthmoving Overhaul at Deacon Reservoir	$ 3,000,000
Drainage During Construction	$ 5,000,000
Permanent Land Drainage Ditches	$ 4,000,000
Revegetation	$ 2,000,000
Ground Water Mitigation	$ 9,000,000
Environmental Mitigation	$ 1,000,000
Sub-Total	**$ 168,000,000**
Highway Bridges	
PTH 44 - Bridge	$ 1,240,000
PTH 59 North - Bridge	$ 1,600,000
PTH 15 - Bridge	$ 1,500,000
Trans Canada - Bridge & Interchange	$ 14,390,000
PTH 59 South - Bridge	$ 15,950,000
St. Mary's Rd. - Bridge	$ 1,570,000
Sub-Total	**$ 36,250,000**
Railway Bridges	
CNR Pine Falls near PTH 44	$ 5,070,000
CPR Bridge (abandoned)	$ 300,000
CPR Keewatin - Transcona	$ 2,770,000
CNR Redditt - Transcona	$ 6,280,000
Greater Winnipeg Water District Bridge	$ 4,510,000
CNR Sprague near Trans Canada	$ 14,640,000
CPR Emerson near PTH 59 South	$ 12,040,000
Sub-Total	**$ 45,610,000**
Roadworks	
Dunning Temporary Crossing	$ 160,000
PTH 300 at Seine River Siphon (east bank)	$ 1,500,000
Sub-Total	**$ 1,660,000**

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Sheet 1 of 3
Annex E - Table B-E-1 - Total Cost.xls

10/26/2001

DESCRIPTION	COST
Hydraulic Structures	
Outlet Structure	$ 11,800,000
Ashfield Drain Drop Structure (east bank)	$ 100,000
Shkolny Drain Drop Structure (east bank)	$ 170,000
Country Villa Estates Drain (west bank)	$ -
Springfield Road Drain (east bank)	$ 170,000
Kildare Drain (west bank)	$ 170,000
Cooks Creek Diversion (east bank)	$ 440,000
North Bibeau Drain Drop Structure (east bank)	$ 170,000
Aqueduct Branch No. 1, No.2 & Surge Outfall	$ 4,300,000
Centerline Drain Drop Structure (east bank)	$ 170,000
Seine River Siphon	$ 2,400,000
Inlet Structure	$ -
Sub-Total	**$ 19,890,000**
Manitoba Hydro	
Wood Pole Crossing at Garven Road	$ 360,000
Ridgeway Substation - Birds Hill	$ -
Buried Crossing at Birds Hill	$ 325,000
Buried Crossing at Birds Hill	$ 325,000
500 KV Crossing at Birds Hill	$ -
230 KV Crossing at Birds Hill	$ -
230 KV Crossing at Birds Hill	$ -
500 KV Line - Birds Hill to Deacon (east bank)	$ -
230 KV Line - Birds Hill to Deacon (east bank)	$ -
230 KV Line - Birds Hill to Deacon (east bank)	$ -
115 KV Crossing at CPR Keewatin	$ -
115 KV Crossing at East Transcona	$ 690,000
115 KV Crossing at East Transcona	$ 520,000
115 KV Crossing at East Transcona	$ 520,000
66 KV Wood Pole Crossing at Deacon	$ 170,000
Buried Crossing at Deacon	$ 325,000
230 KV Crossing at Deacon	$ -
Riel Corner Substation (potential) - Deacon	$ -
115 KV Crossing at PTH 59 South	$ 1,235,000
66 KV Crossing at PTH 59 South	$ 520,000
Cost of Outages	$ -
Sub-Total	**$ 4,990,000**
Winnipeg Hydro	
63.5 KV Crossing at Birds Hill	$ -
132 KV Crossing at Deacon Reservoir	$ 1,000,000
Cost of Outages	$ 250,000
Sub-Total	**$ 1,250,000**

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Sheet 2 of 3
Annex E - Table 8-E-1 - Total CostLxls

10/26/2001

DESCRIPTION	COST
Centra Gas Manitoba	
Crossing at PTH 44	$ 330,000
Parallel Pipeline at Birds Hill (west bank)	$ 300,000
Crossing at Transcona	$ 70,000
Crossing at Dawson Road	$ -
Crossing at PTH 59 South	$ 470,000
Branchlines at Grande Pointe Rd. (east bank)	$ 20,000
Sub-Total	$ 1,190,000
Manitoba Telecom Services	
McGregor Farm Road Crossing (x2)	$ 85,000
Springfield Road Crossing	$ 55,000
Highway 59 North Bridge Crossing	$ 30,000
Dawson Road Crossing	$ 30,000
Highway 59 South Bridge Crossing	$ 30,000
CPR Emerson Bridge Crossing	$ 30,000
St. Anne's Road Crossing	$ 30,000
St.Mary's Road Bridge Crossing	$ 30,000
Sub-Total	$ 320,000
Winnipeg Pipe Line Company	
10" Dia. Pipeline Crossing at PTH 59 North	$ 600,000
8" Dia. Pipeline Crossing at PTH 59 North	$ 600,000
Sub-Total	$ 1,200,000
Inlet Control Structure	
Gates & Hoists	$ 30,000,000
Erosion Protection	$ 100,000
Sub-Total	$ 30,100,000
Total	$ 310,500,000
Owner's Cost, Engin. & Site Supervision (15%)	$ 46,600,000
Contingency (20%)	$ 62,100,000
Interest During Construction (16%)	$ 49,700,000
Escalation During Construction (5%)	$ 15,500,000
Grand Total	$ 484,400,000

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-2
1 In 700 Year Floodway Expansion
Excavation Cost Estimate

Reference Station	Start	End	Length
0	-14+20	1510+00	152420

Material	Excavation Volume (yd^3)	Unit Cost ($/$yd^3$)	Cost of Excavation
Clay Above Channel Bottom	33,754,000	$ 2.50	$ 84,385,000
Clay Below Channel Bottom Between 0 ft & 5 ft Deep	4,150,000	$ 5.00	$ 20,750,000
Clay Below Channel Bottom Between 5 ft & 10 ft Deep	354,000	$ 6.00	$ 2,124,000
Clay Below Channel Bottom Below 10 ft Deep	-	$ 7.00	$ -
Till Above Channel Bottom	1,364,000	$ 10.00	$ 13,640,000
Till Below Channel Bottom Between 0 ft & 5 ft Deep	460,000	$ 15.00	$ 6,900,000
Till Below Channel Bottom Between 5 ft & 10 ft Deep	252,000	$ 15.00	$ 3,780,000
Till Below Channel Bottom Below 10 ft Deep	-	$ 15.00	$ -
TOTALS	40,334,000	$ 3.26	$ 131,600,000

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Annex E - Table B-E-2 - Optimum Excavation Costs.xls

10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-3
1 in 700 Year Floodway Expansion
Land Acquistion Cost Estimate

Station	Item	Cost
-14+20 to 260+00	farm land	$ 220,000
	homesteads	$ 400,000
		$ 620,000
260+00 to 500+00	developable land	$ 680,000
	homesteads	$ 600,000
		$ 1,280,000
500+00 to 530+00	farm land	$ 265,000
	homesteads	$ -
		$ 265,000
530+00 to 680+00	farm land	$ 250,000
	homesteads	$ -
		$ 250,000
680+00 to 980+00	farm land	$ 1,695,000
	homesteads	$ -
		$ 1,695,000
980+00 to 1510+00	farm land	$ 1,980,000
	homesteads	$ -
		$ 1,980,000
Total	total land:	$ 6,090,000
	homesteads:	

Revegetation Cost Estimate

Parcel	Item	Cost
-14+20 to 260+00	seeding	$307,000
260+00 to 500+00	seeding	$331,000
500+00 to 530+00	seeding	$5,000
530+00 to 680+00	seeding	$232,000
680+00 to 980+00	seeding	$568,000
980+00 to 1510+00	seeding	$558,000
Total		$ 2,000,000

KGS Group Annex E Table B E-3 - Land and Reveg.xls 10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-4
1 in 700 Year Floodway Expansion
Cooks Creek Diversion Drop Structure Cost Estimate

Outlet Structure

Description	X (m)	Y (m)	Z (m)	Volume (m^3)
D/S cut off wall	0.3	0.98	29.5	8.67
D/S upstand	0.3	1.2	28.9	10.40
stilling basin slab	9.3	0.38	29.5	104.25
U/S cut off	0.3	0.98	29.5	8.67
baffle wall	0.3	2.73	28.9	23.67
baffle wall roof	0.23	0.9	28.9	5.98
U/S wall	0.3	5.03	29.5	44.52
U/S roof	0.56	0.23	28.9	3.72
U/S roof	0.23	3.04	1.7	1.19
Side wall x 2	0.3	7.8	4.8	11.23
Side wall x 2	0.3	12	3.03	10.91
Side wall x 2	0.3	6	2	3.60
wing wall x 2	0.3	6	3.26	5.87
wing wall x 2	0.3	3	0.75	0.68
baffle separator wall x 3	0.3	3.9	10.8	12.64
take out for CSP culverts	0.3	4.52	-4	5.42
				251

	$ per m^3		Total
Demolition cost	600	251	$ 150,000
New Construction	800	251	$ 200,000
Local Excavation	7	6000	$ 42,000
Local Backfill	15	3000	$ 45,000
Total Cost			$ 437,000

CONCRETE

Transition Structure

Description	X (m)	Y (m)	Z (m)	Volume (m^3)
D/S cutoff wall	0.5	0.82	14.78	6.06
Base slab	0.3	7	14.78	31.04
U/S cutoff wall	0.3	0.9	16.32	4.41
D/S wall	0.5	4.13	14.78	30.52
Outside walls	0.38	3.13	14	16.65
Outside walls	0.38	1	5.5	2.09
Interior walls	0.3	2.95	21	18.59
U/S wing walls	0.3	3.13	1.54	1.45
Take out for CSP culverts	0.5	4.52	-4	-9.04
				102

	$ per m^3		Total
Demolition cost	600	102	$ 61,000
New Construction	800	102	$ 81,000
Local Excavation	7	7000	$ 49,000
Local Backfill	15	3500	$ 53,000
Total Cost			$ 244,000

? CAN'T FIND REFERENCE

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Annex E - Table B-E-4 - Cooks Creek.xls

10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-5
1 in 700 Year Floodway Expansion
Floodway Outlet Structure Cost Estimate

Demolition

Item	x (ft)	y (ft)	z (ft)	Quantity (m^3)	unit cost	total cost
Demolish Rollway at crest	13.8	2.5	162	158	$ 600	$94,970
Demolish Rollway at D/S end	10	3	162	138	$ 600	$82,583
Demolish existing east wall	77.3	50	6	657	$ 600	$394,053
Demolish existing east wall	40	28.8	6	196	$ 600	$117,451
Demolish existing east wall	40	13.5	6	92	$ 600	$55,055
Demolish existing east wall	52	45	6	398	$ 600	$238,573
				Total Demolition		$980,000

New Construction

Item	x (ft)	y (ft)	z (ft)	Quantity (m^3)	unit cost	total cost
New crest and rollway	50	3	162	688	$ 800	$550,592
Extend West wing wall	78	6	6	80	$ 800	$63,619
New rollway	12	9.4	216	696	$ 800	$557,132
New rollway	5	4.7	218	145	$ 800	$116,069
New rollway	69	8.3	218	2,684	$ 800	$2,147,031
New rollway	13.2	26.3	218	2,143	$ 800	$1,714,662
New rollway	21	26.3	218	3,410	$ 800	$2,727,871
New east wall	77.3	50	6	657	$ 800	$525,404
New east wall	40	28.8	6	196	$ 800	$156,602
New east wall	40	13.5	6	92	$ 800	$73,407
New east wall	52	45	6	398	$ 800	$318,097
New east wall foundation	158	4	10	179	$ 800	$143,189
stilling basin	40	4	294	1,332	$ 800	$1,065,760
stilling basin	40	2.5	294	833	$ 800	$666,100
				Total Concrete	13,532 m^3	$10,830,000

Summary	Cost
Demolition	$980,000
Concrete	$10,830,000
Total	$11,800,000

KGS Group Annex E - Table B-E-5 - Floodway Outlet Structure.xls 10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-6
1 in 700 Year Floodway Expansion
Saine River Syphon Cost Estimate

Inlet Structure Demolition

Item	x (ft)	y (ft)	z (ft)	quantity (m^3)	unit cost	total cost
Base slab	65	55	3	304	$ 800	$182,217
D/S block	51	6.58	10.58	101	$ 800	$80,322
take outs for 8' dia pipes	4	10	50.27	57	$ 800	$34,163
left wall	3	40	21	71	$ 800	$42,815
Downstream wall	54	3	21	96	$ 800	$57,800
right wall	3	40	21	71	$ 800	$42,815
upstream wall	48.5	3.25	16	68	$ 800	$41,082
centre wall	4	36	18.5	75	$ 800	$45,261
outlet roof	7	39	1.25	10	$ 800	$5,790
outlet wall	1.25	39	5	7	$ 800	$4,141
left wall of manhole	1.25	10	21	7	$ 800	$4,460
8 foot dia CSP	4	286	1	33	$ 1,755.00	$57,570
5' dia CSP	1	1400	1	40	$ 1,080.00	$42,022
					Total Demolition	$620,000

New Construction

Item	x (ft)	y (ft)	z (ft)	quantity (m^3)	unit cost	total cost
Base slab	65	55	3	304	$ 800	$242,956
D/S block	51	6.58	10.58	101	$ 800	$80,429
take outs for 8' dia pipes	4	10	50.27	57	$ 800	$45,551
left wall	3	40	21	71	$ 800	$57,086
Downstream wall	54	3	21	96	$ 800	$77,066
right wall	3	40	21	71	$ 800	$57,086
upstream wall	48.5	3.25	16	68	$ 800	$54,776
centre wall	4	36	18.5	75	$ 800	$60,348
outlet roof	7	39	1.25	10	$ 800	$7,730
outlet wall	1.25	39	5	7	$ 800	$5,522
left wall of manhole	1.25	10	21	7	$ 800	$5,946
8 foot dia CSP	4	286	1	33	$ 16,245	$529,923
5' dia CSP	1	1400	1	40	$ 10,950	$434,093
		Total Concrete		940 m^3		$1,659,008

Earthworks

Item	x (ft)	y (ft)	z (ft)	Quantity (ft^3)	unit cost	total cost
Excavation	12	20	1200	288,000	$ 0.20	$57,600
Backfill	8	15	1200	108,000	$ 0.40	$43,200
						$101,000

Summary	Cost
Demolition	$620,000
Concrete	$694,466
8' dia CSP	$529,923
5' dia CSP	$434,093
Earthmoving	$101,000
Total	$2,380,000

KGS Group — Annex E - Table B-E-6 - Saine River Siphon.xls — 10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-7
1 in 700 Year Floodway Expansion
Aqueduct & Roadworks Cost Estimate

Aqueduct	Unit	Unit Cost	Quantity	Amount	Remarks
Removals					
1660ϕ Aqueduct	L.M.	$ 500	1,330	$ 665,000	
200ϕ CSP Underdrain	L.M.	$ 200	350	$ 70,000	Inc. Manholes
1500ϕ PCP Surge	L.M.	$ 500	170	$ 85,000	Inc. Manholes & end section
Installations					
1660ϕ Aqueduct	L.M.	$ 2,500	1,330	$ 3,325,000	Inc. Manholes
200ϕ CSP Underdrain	L.M.	$ 350	150	$ 52,500	Inc. Manholes
1500ϕ PCP Surge End Section	L.M.	$ 1,000	10	$ 10,000	
Riprap	m^3	$ 200	350	$ 70,000	West Underdrain & 1500ϕ Surge
Sub-Total				$ 4,277,500	

HWY 300	Unit	Unit Cost	Quantity	Amount	Remarks
Removals					
Pavement	L.M.	$ 70	2200	$ 154,000	
Installations					
Stabilized Road / Bridge	m^2	$ 1,700	200	$ 340,000	Inc. Deck & Foundations
Paved Road	L.M.	$ 560	1700	$ 952,000	Inc. Pav'mt & Sub-base
Street Lights	each	$ 5,000	3	$ 15,000	
Guide Rails	L.M.	$ 250	100	$ 25,000	
Sub-Total				$ 1,486,000	

Dunning Crossing	Unit	Unit Cost	Quantity	Amount	Remarks
Removals					
Culverts	each	$ 1,000	2	$ 2,000	
Installations					
Non-Paved Road	L.M.	$ 500	300	$ 150,000	Inc. Base, Sub-base & Riprap
Culverts	each	$ 3,000	2	$ 6,000	
Sub-Total				$ 158,000	

Total Municipal Estimated Construction Costs: $ 5,920,000

KGS Group — Annex E - Table B-E-7 - Aqueduct and Roadworks.xls — 10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-8
1 in 700 Year Floodway Expansion
Summary of Bridge Modification Costs

	Floodway Configuration: Bridge Modification:	CASE 1 700 Year Retrofit	CASE 2 700 Year Replacement	Ratio of Retrofit to Replacement	CASE 3 700 Year Optimum	Comments
Highway Bridges	St. Mary's Rd	$1,570,000	$7,520,000	21%	$1,570,000	Retrofit existing bridge
	PTH 59 South	$11,970,000	$15,950,000	75%	$15,950,000	New raised bridge, maintain existing alignment
	Trans Canada	$7,860,000	$14,390,000	55%	$14,390,000	New raised bridge, maintain existing alignment
	PTH 15	$1,500,000	$9,190,000	16%	$1,500,000	Retrofit existing bridge
	PTH 59 North	$1,600,000	$13,890,000	12%	$1,600,000	Retrofit existing bridge
	PTH 44	$1,240,000	$8,440,000	15%	$1,240,000	Retrofit existing bridge
	Sub-Total	$25,740,000	$69,380,000	37%	$36,250,000	
Railway Bridges	CPR Emerson	$9,730,000	$12,040,000	81%	$12,040,000	New raised bridge on new alignment
	CNR Sprague	$14,640,000	$13,030,000	112%	$13,030,000	New raised bridge on new alignment
	GWWD	$4,510,000	$12,400,000	36%	$4,510,000	Retrofit & raise existing bridge
	CNR Reddit	$6,280,000	$13,220,000	48%	$6,280,000	Retrofit & lengthen existing bridge
	CPR Keewatin	$2,770,000	$20,280,000	14%	$2,770,000	Retrofit existing bridge
	CPR Lac du Bonnet (abandoned)	$300,000	$300,000		$300,000	Remove existing bridge
	CNR Pine Falls	$5,070,000	$11,460,000	44%	$5,070,000	Retrofit & lengthen existing bridge
	Sub-Total	$43,300,000	$82,730,000	52%	$44,000,000	
	Total	$69,000,000	$152,100,000	45%	$80,300,000	

Contingency, design and site inspection costs have not been included in these figures
Channel excavation and land purchase costs have not been included in these figures (included in the general earthmoving estimate)
Existing bridges at PTH 15 & 59 North are above the maximum water surface elevation for all cases

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Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

10/26/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-9
1 In 700 Year Floodway Expansion
St. Mary's Road Bridge - Modification Costs
Single bridge, two lanes, 38' wide, 864' span c/c abutments

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	0	0
Bridge Elevation Increase:	0	8.77
Channel Depth Increase:	0	0
Description:	Retrofit existing bridge	New raised bridge, maintain existing alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement						
New Bridge (per sq. metre)	0	$2,000	$0	2880	$2,000	$5,720,000
Demolish existing bridge	lump sum		$0	lump sum		$300,000
Pier Retrofits						
Type A - Reinforcement	0	$47,000	$0	0	$0	$0
Type B - Reinforcement	8	$129,000	$1,032,000	0	$0	$0
Type C - Reinforcement	0	$218,000	$0	0	$0	$0
Type D - Replacement	0	$311,000	$0	0	$0	$0
Bridge Deck Retrofits						
Girder Tie-Downs	18	$10,000	$180,000	0	$0	$0
Girder Cross Bracing	9	$25,000	$225,000	0	$0	$0
Pressure Release Vents	144	$200	$28,800	0	$0	$0
Miscellaneous						
Roadworks & Approaches (per km)	0	$1,000,000	$0	1	$1,000,000	$1,000,000
Bank Stabilization - Rock Columns	0	$5,000	$0	0	$5,000	$0
Temp. Traffic Control / Crossing	lump sum		$100,000	lump sum		$500,000
TOTAL			$1,570,000			$7,520,000

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height will influence tie-in at Highway 7(700 ft to west)

Annex E - Table B-E-9 to 20 - Bridge Modifications.xls

10/26/2004

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-10
1 in 700 Year Floodway Expansion
Highway 59 South Bridge - Modification Costs
Double Bridge, two lanes each way, 39' wide northbound, 36' wide southbound, 85.4' span c/c abutments

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	278.6	0
Bridge Elevation Increase:	0	9.48
Channel Depth Increase:	5.54	2.0
Description:	Retrofit & lengthen existing bridge	New raised bridge, maintain existing alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	1950	$2,000	$3,900,000	5950	$2,000	$11,900,000
Bridge (per sq. metre)			$0			$600,000
	lump sum			lump sum		
Demolish existing bridge						
Pier Retrofits	0	$47,000	$0	0	$0	$0
Type A - Reinforcement	8	$129,000	$1,032,000	0	$0	$0
Type B - Reinforcement	4	$216,000	$864,000	0	$0	$0
Type C - Reinforcement	8	$311,000	$2,488,000	0	$0	$0
Type D - Replacement						
Bridge Deck Retrofits	52	$10,000	$520,000	0	$0	$0
Girder Tie-Downs	26	$25,000	$650,000	0	$0	$0
Glidal Cross Bracing	324	$200	$64,800	0	$0	$0
Pressure Release Vents						
Miscellaneous	1.5	$1,000,000	$1,500,000	2.5	$1,000,000	$2,500,000
Roadworks & Approaches (per km)	90	$5,000	$450,000	90	$5,000	$450,000
Bank Stabilization - Rock Columns	lump sum		$500,000	lump sum		$500,000
Temp. Traffic Control / Crossing			$11,970,000			$15,950,000
TOTAL						

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height will influence interchange on west bank and intersection at Highway 300 (700 to east)

Annex E - Table B-E-9 to 20 - Bridge Modifications.xls

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-11

1 in 700 Year Floodway Expansion

Trans Canada Highway Bridge - Modification Costs

Single bridge, four lanes, 82' wide, 854' span c/c abutments

Floodway Configuration:	CASE 1 700 Year Expansion	CASE 2 700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	135.6	0
Bridge Elevation Increase:	0	6.33
Channel Depth Increase:	3.04	1
Description:	Retrofit & lengthen existing bridge	New raised bridge, maintain existing alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement						
Bridge (per sq. metre)	800	$2,000	$1,600,000	4920	$2,000	$9,840,000
Modify existing interchange	lump sum		$0	lump sum		$0
Demolish existing bridge	lump sum		$0	lump sum		$500,000
Pier Retrofits						
Type A - Reinforcement	0	$66,000	$0	0	$0	$0
Type B - Reinforcement	4	$188,000	$752,000	0	$0	$0
Type C - Reinforcement	2	$337,000	$674,000	0	$0	$0
Type D - Replacement	4	$584,000	$2,336,000	0	$0	$0
Bridge Deck Retrofits						
Girder Tie-Downs	22	$10,000	$220,000	0	$0	$0
Girder Cross Bracing	11	$25,000	$275,000	0	$0	$0
Pressure Relief Vents	252	$200	$50,400	0	$0	$0
Miscellaneous						
Roadworks & Approaches (per km)	0.5	$2,000,000	$1,000,000	1.25	$2,000,000	$2,500,000
Bank Stabilization - Rock Columns	90	$5,000	$450,000	90	$5,000	$450,000
Temp. Traffic Control / Crossing	lump sum		$500,000	lump sum		$1,000,000
TOTAL			$7,850,000			$14,390,000

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height will influence interchange yields on west bank

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Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-12
1 in 700 Year Floodway Expansion
Highway 15 Bridge - Modification Costs
Single bridge, two lanes, 35' wide, 1037' span c/o abutments

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	0	0
Bridge Elevation Increase:	0	0
Channel Depth Increase:	0	0.00
Description:	Retrofit existing bridge	New bridge on new alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	0	$2,000	$0	3470	$2,000	$6,940,000
Bridge (per sq. metre)			$0	lump sum		$300,000
Demolish existing bridge	lump sum					
Pier Retrofits			$0	0	$47,000	$0
Type A - Reinforcement	0	$47,000				
Type B - Reinforcement	4	$129,000	$516,000	0	$129,000	$0
Type C - Reinforcement	2	$216,000	$432,000	0	$216,000	$0
Type D - Replacement	0	$311,000	$0	0	$311,000	$0
Bridge Deck Retrofits						
Girder Tie-Downs	0	$10,000	$0	0	$0	$0
Girder Cross Bracing	0	$25,000	$0	0	$0	$0
Pressure Release Vents	0	$200	$0	0	$0	$0
Miscellaneous			$0			
Roadworks & Approaches (per km)	0	$1,000,000		1	$1,000,000	$1,000,000
Bank Stabilization - Rock Columns	90	$5,000	$450,000	90	$5,000	$450,000
Temp. Traffic Control / Crossing	lump sum		$100,000	lump sum		$500,000
TOTAL			$1,500,000			$9,190,000

No contingency, excavation or land purchase has been included in these figures
Minimum freeboard allowance is 2ft

Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

10/25/2001

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Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-13
1 In 700 Year Floodway Expansion
Highway 59 North Bridge - Modification Costs
Single bridge, four lanes, 82' wide, 85' span c/c abutment

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	0	0
Bridge Elevation Increase:	0	0
Channel Depth Increase:	0	0.00
Description:	Retrofit existing bridge	New bridge, maintain existing alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement						
Bridge (per sq. metre)	0	$2,000	$0	4920	$2,000	$9,840,000
Demolish existing bridge	lump sum		$0	lump sum		$660,000
Pier Retrofits						
Type A - Reinforcement	0	$88,000	$0	0	$95,000	$0
Type B - Reinforcement	2	$189,000	$378,000	0	$189,000	$0
Type C - Reinforcement	2	$337,000	$674,000	0	$337,000	$0
Type D - Replacement	0	$584,000	$0	0	$584,000	$0
Bridge Deck Retrofits						
Girder Tie-Downs	0	$10,000	$0	0	$0	$0
Girder Cross Bracing	0	$25,000	$0	0	$0	$0
Pressure Release Vents	0	$200	$0	0	$0	$0
Miscellaneous						
Roadworks & Approaches (per km)	0	$2,000,000	$0	1	$2,000,000	$2,000,000
Bank Stabilization - Rock Columns	90	$5,000	$450,000	90	$5,000	$450,000
Temp. Traffic Control / Crossing	lump sum		$100,000	lump sum		$1,000,000
TOTAL			**$1,600,000**			**$13,890,000**

No contingency, excavation or land purchase has been included in these figures
Minimum freeboard allowance is 2ft

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Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

10/28/20..

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-14
1 in 700 Year Floodway Expansion
Highway 44 Bridge - Modification Costs
Single bridge, two lanes, 38' wide, 842' span c/c abutments

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	0	0
Bridge Elevation Increase:	0	4.52
Channel Depth Increase:	0	0
Description:	Retrofit existing bridge	New raised bridge, maintain existing alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	0	$2,000	$0	2820	$2,000	$5,640,000
Bridge (per sq. metre)			$0	lump sum		$000,000
Demolish existing bridge	lump sum					
Pier Retrofits						
Type A - Reinforcement	4	$47,000	$188,000	0	$0	$0
Type B - Reinforcement	4	$129,000	$516,000	0	$0	$0
Type C - Reinforcement	0	$216,000	$0	0	$0	$0
Type D - Replacement	0	$311,000	$0	0	$0	$0
Bridge Deck Retrofits						
Girder Tie-Downs	18	$10,000	$180,000	0	$0	$0
Girder Cross Bracing	9	$25,000	$225,000	0	$0	$0
Pressure Release Vents	144	$200	$28,800	0	$0	$0
Miscellaneous						
Roadworks & Approaches (per km)	0	$1,000,000	$0	2	$1,000,000	$2,000,000
Bank Stabilization - Rock Columns	0	$5,000	$0	0	$5,000	$0
Temp. Traffic Control / Crossing	lump sum		$100,000	lump sum		$300,000
TOTAL			$1,240,000			$8,440,000

No contingency, excavation or land purchase has been included in these figures
Minimum freeboard allowance is 2ft
Increase in bridge height will influence interchange on east bank

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Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-15
1 in 700 Year Floodway Expansion
CPR Rail Bridge Emerson Sub Division - Modification Costs

Single track bridge, 11'-0" deck width, two 7 ft deep steel girders, with needle ballast, 824' span

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	288.8	0
Bridge Elevation Increase:	0	8.64
Channel Depth Increase:	8.34	9.0

Description: Retrofit & lengthen existing bridge | New raised bridge on new alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement						
Bridge (per ft length)	294	$15,000	$4,410,000	824	$10,000	$8,240,000
Signals & communications	lump sum		$100,000	lump sum		$1,000,000
Demolish existing bridge	lump sum		$0	lump sum		$300,000
Pier Retrofits						
Type A - Reinforcement	0	$47,000	$0	0	$0	$0
Type B - Reinforcement	8	$141,000	$846,000	0	$0	$0
Type C - Reinforcement	2	$240,000	$480,000	0	$0	$0
Type D - Replacement	4	$435,000	$1,740,000	0	$0	$0
Bridge Deck Retrofits						
Girder Tie-Downs	30	$10,000	$300,000	0	$0	$0
Girder Cross Bracing	15	$25,000	$375,000	0	$0	$0
Miscellaneous						
Track re-alignment (per mile)	2	$500,000	$1,000,000	3	$500,000	$1,500,000
Modify Highway Crossings	0	$500,000	$0	1	$500,000	$500,000
Bank Stabilization - Rock Columns	90	$5,000	$450,000	90	$5,000	$450,000
Temporary Traffic Control	lump sum		$25,000	lump sum		$50,000
TOTAL			$9,730,000			$12,040,000

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height and re-alignment may influence crossing at highway (3000 ft to west) and at Highway 200 (1000 ft to east)

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Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

TABLE B-E-16
1 in 700 Year Floodway Expansion
CNR Rail Bridge Sprague Sub Division - Modification Costs
Single track bridge, 8'-0" deck width, two 9 ft deep steel girders below rail base, no ballast, 903' span

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	160	0
Bridge Elevation Increase:	6	10.5
Channel Depth Increase:	0	0
Description:	Retrofit, raised new cradle deck + longer span	New raised bridge on new alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement						
Bridge (per ft length)	160	$15,000	$2,400,000	903	$10,000	$9,030,000
Signals & communications	lump sum		$100,000	lump sum		$1,000,000
Demolish existing bridge	lump sum		$0	lump sum		$300,000
Pier Retrofits						
Type A - Reinforcement	0	$47,000	$0	0	$0	$0
Type B - Reinforcement	8	$141,000	$1,128,000	0	$0	$0
Type C - Reinforcement	0	$240,000	$0	0	$0	$0
Type D - Replacement	0	$435,000	$0	0	$0	$0
Bridge Deck Retrofits						
Replace Bridge Deck (per ft length)	903	$10,000	$9,030,000	0	$0	$0
Girder Tie-Downs	16	$10,000	$160,000	0	$0	$0
Girder Cross Bracing	13	$25,000	$325,000	0	$0	$0
Miscellaneous						
Track re-alignment (per mile)	2	$500,000	$1,000,000	4	$500,000	$2,000,000
Modify Highway Crossing	0	$250,000	$0	0	$250,000	$0
Modify Highway Overpass	lump sum		$0	lump sum		$0
Bank Stabilization - Rock Columns	90	$5,000	$450,000	90	$5,000	$450,000
Temporary Traffic Control	lump sum		$50,000	lump sum		$250,000
TOTAL			$14,640,000			$13,030,000

No contingency, excavation or land purchase has been included in these figures
Minimum freeboard allowance is 2ft
Increase in bridge height or re-alignment of bridge will influence overpass at perimeter highway (1500 ft to west)
Retrofit option includes an increase in clearance of 6 ft by switching to a shallower cradle ballast bridge construction

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-17

700 Year Floodway Expansion

GWWD Rail Bridge – Modification Costs

Single track bridge, 11-0" deck width, two 7 ft deep concrete girders below rail base, with ballast, 875' span

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	0	0
Bridge Elevation Increase:	8.01	8.01
Channel Depth Increase:	0	0
Description:	Retrofit & raise existing bridge	New raised bridge on new alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	0	$10,000	$0	875	$10,000	$8,750,000
Bridge (per ft length)	lump sum		$100,000	lump sum		$1,000,000
Signals & communications	lump sum		$0	lump sum		$300,000
Demolish existing bridge						
Pier Retrofits						
Type A - Reinforcement	6	$47,000	$0	0	$0	$0
Type B - Reinforcement	4	$141,000	$564,000	0	$0	$0
Type C - Reinforcement	0	$240,000	$0	0	$0	$0
Type D - Replacement	0	$435,000	$0	0	$0	$0
Pier Extensions	10	$50,000	$500,000	0	$0	$0
Bridge Deck Retrofits						
Raise Existing Deck (per ft length)	lump sum		$1,000,000	0	$0	$0
Derail Tie-Downs	0	$10,000	$0	0	$0	$0
Girder Cross Bracing	0	$25,000	$0	0	$0	$0
Miscellaneous						
Track re-alignment (per mile)	3	$500,000	$1,500,000	3	$500,000	$1,500,000
Modify Highway Crossing	1	$250,000	$250,000	1	$250,000	$250,000
Bank Stabilization - Rock Columns	20	$5,000	$460,000	80	$5,000	$400,000
Temporary Traffic Control	lump sum		$150,000	lump sum		$150,000
TOTAL			$4,510,000			$12,400,000

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height may influence crossing at highway 207 (4500 ft to east)

Can increase clearance by 3 to 4 ft by switching to a shallower cradle ballast bridge construction

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Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-18
1 in 700 Year Floodway Expansion
CNR Redditt Rail Bridge - Modification Costs
Single track bridge, 8'-0" deck width, two 9 ft deep steel girders below rail base, no ballast, 862' span

	CASE 1			CASE 2		
	700 Year Expansion			700 Year Expansion		
Floodway Configuration:	Retrofit			Replacement		
Bridge Modification:	140			0		
Bridge Length Increase:	0			532		
Bridge Elevation Increase:	0			0		
Channel Depth Increase:	0					
Description:	Retrofit & lengthen existing bridge			New raised bridge on new alignment		
Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	140	$15,000	$2,100,000	862	$10,000	$8,620,000
Bridge (per ft length)	lump sum		$100,000	lump sum		$1,000,000
Signals & communications	lump sum		$0	lump sum		$300,000
Demolish existing bridge						
Pier Retrofits	0	$47,000	$0	0	$0	$0
Type A - Reinforcement	8	$141,000	$846,000	0	$0	$0
Type B - Reinforcement	0	$240,000	$0	0	$0	$0
Type C - Reinforcement	4	$435,000	$1,740,000	0	$0	$0
Type D - Replacement						
Bridge Deck Retrofits	22	$10,000	$220,000	0	$0	$0
Girder Tie-Downs	11	$25,000	$275,000	0	$0	$0
Girder Cross Bracing						
Miscellaneous	1	$500,000	$500,000	4	$500,000	$2,000,000
Track re-Alignment (per mile)	0	$250,000	$0	2	$250,000	$500,000
Moody Highway Crossing	90	$5,000	$450,000	90	$5,000	$450,000
Bank Stabilization - Rock Columns	lump sum		$50,000	lump sum		$150,000
Temporary Traffic Control			$6,280,000			$13,220,000
TOTAL						

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height and re-alignment may influence crossing at perimeter (750 ft to west) and at Highway 207 (4000 ft to east)

Increase in bridge height and re-alignment may influence rail transitions to spur lines (4000 ft to east) and to transcona yards (3000 ft to west)

Increase in bridge height and re-alignment may influence rail transitions to spur lines (4000 ft to east) and to transcona yards (3000 ft to west)

Can increase clearance by 3 to 4 ft by switching to a shallower cradle ballast bridge construction

Annex E - Table B-E-8 to 20 - Bridge Modifications.xls

10/29/2001

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-19
1 in 700 Year Floodway Expansion
CPR Keewatin Rail Bridge - Modification Costs
Dual track bridge, 29'-0" deck width, three 87'-0" deep steel girders below rail base, with ballast, 877' span

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modification:	Retrofit	Replacement
Bridge Length Increase:	0	0
Bridge Elevation Increase:	0	4.95
Channel Depth Increase:	0	0

Description:	Retrofit existing bridge			New raised bridge on new alignment		
Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	0	$22,000	$0	877	$15,000	$13,155,000
Bridge (per ft length)	lump sum		$100,000	lump sum		$1,000,000
Signals & communications	lump sum		$0	lump sum		$300,000
Demolish existing bridge						
Pier Retrofits	0	$68,000	$0	0	$0	$0
Type A - Reinforcement	8	$209,000	$1,672,000	0	$0	$0
Type B - Reinforcement	0	$378,000	$0	0	$0	$0
Type C - Reinforcement	0	$846,000	$0	0	$0	$0
Type D - Replacement						
Bridge Deck Retrofits	22	$10,000	$220,000	0	$0	$0
Girder Tie-Downs	11	$25,000	$275,000	0	$0	$0
Girder Cross Bracing						
Miscellaneous	0	$500,000	$0	4	$500,000	$2,000,000
Track re-alignment (per mile)	0	$250,000	$0	0.5	$250,000	$125,000
Modify Highway Crossing	lump sum		$0	lump sum		$3,000,000
Modify Highway Overpass	90	$5,000	$450,000	90	$5,000	$450,000
Bank Stabilization - Rock Columns	lump sum		$50,000	lump sum		$250,000
Temporary Traffic Control			$2,770,000			$20,280,000
TOTAL						

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height and re-alignment may influence overpass at perimeter hwy (100 ft to west) crossing at gravel road (2500 ft to west)

Can increase clearance by 2 to 3 ft by switching to a shallower cradle ballast bridge construction

Annex E - Table B-E-9 to 20 - Bridge Modifications.xls

10/9/2003

Flood Protection Studies for Winnipeg - Annex E

TABLE B-E-20
1 in 700 Year Floodway Expansion
CNR Pine Falls Rail Bridge - Modification Costs
Single track bridge, 8'-0" deck width, two 8'-6" steel girders below rail base, no ballast, 80' span

	CASE 1	CASE 2
Floodway Configuration:	700 Year Expansion	700 Year Expansion
Bridge Modifications:	Retrofit	Replacement
Bridge Length Increase:	160	0
Bridge Elevation Increase:	0	8.49
Channel Depth Increase:	0	0
Description:	Retrofit & lengthen existing bridge	New raised bridge on new alignment

Item	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Bridge Replacement	160	$15,000	$2,400,000	601	$10,000	$6,010,000
Bridge (per ft length)	lump sum		$100,000	lump sum		$1,000,000
Signals & communications	lump sum		$0	lump sum		$900,000
Demolish existing bridge						$0
Pier Retrofits	6	$47,000	$282,000	0	$0	$0
Type A - Reinforcement	2	$141,000	$282,000	0	$0	$0
Type B - Reinforcement	0	$240,000	$0	0	$0	$0
Type C - Reinforcement	2	$435,000	$870,000	0	$0	$0
Type D - Replacement						$0
Bridge Deck Retrofits	26	$10,000	$260,000	0	$0	$0
Girder Tie-Downs	13	$25,000	$325,000	0	$0	$0
Girder Cross Bracing						
Miscellaneous	1	$500,000	$500,000	3	$500,000	$1,500,000
Track re-Alignment (per mile)	0	$250,000	$0	2	$250,000	$500,000
Modify Highway Crossing	0	$5,000	$0	0	$5,000	$0
Bank Stabilization - Rock Columns	lump sum		$50,000	lump sum		$150,000
Temporary Traffic Control			$5,070,000			$11,460,000
TOTAL						

No contingency, excavation or land purchase has been included in these figures

Minimum freeboard allowance is 2ft

Increase in bridge height and re-alignment will influence crossing at Highway 202 (500 ft to west) and some residential approaches

Increase in bridge height and re-alignment may influence crossing at Highway 44 (4000 ft to east)

Can increase clearance by 2 to 3 ft by switching to a shallower cradle ballast bridge construction

Annex E - Table B-E-4 to 20 - Bridge Modifications.xls

10/18/2001

APPENDIX 8D

Infrastructure and Services

APPENDIX 8D
LIST OF TABLES

Table 8D-1
Water Systems in the Flood Study Region

Community	Area Covered	Major Source of Water
City of Winnipeg	Majority of areas within City[1]	Shoal Lake
City of Selkirk	All areas within municipality	Groundwater[2]
Town of Niverville	All areas within municipality	Individual Wells
Town of Morris	All areas within municipality	Red River
Village of St. Pierre-Jolys	All areas within municipality	Artesian Well
RM of St. Andrews	All areas within municipality	Individual Wells
RM of St. Clements	Mostly all areas within municipality	Groundwater
RM of West St. Paul	Rivercrest Subdivision	Groundwater
RM of East St. Paul	Developed parts of RM	Aquifer
RM of Springfield	Dugald Oakbank Heatherdale and Hazelridge Roads Area Anola	Groundwater Individual wells Municipal well Private Wells
RM of Taché	All significant areas within municipality	Groundwater
RM of Ritchot	Ste. Agathe	Artesian Well
RM of Morris	All developed areas within RM	Red River
RM of Macdonald	All urban areas in RM	La Salle River
RM of De Salaberry	St. Malo	Groundwater
RM of Hanover	Grunthal and Kleefeld CO-OP	Groundwater
Brokenhead Ojibway Nation	Majority of community	Two wells located north of Brokenhead River

Sources:

Manitoba Community Profiles (http://www.communityprofiles.mb.ca/csd/) (unless otherwise indicated)

Village of St. Pierre-Jolys: Cure pers. comm. 2004

Town of Niverville: Buys pers. comm. 2004

RM of St. Andrews: Spicer pers. comm. 2004

RM of Springfield: Nylen and Holland pers. comm. 2004

RM of Morris: Martens and Groening pers. comm. 2004

RM of De Salaberry: Lahaie pers. comm. 2004

Brokenhead Ojibway Nation: INAC First Nation Community Profiles 2001-02 Manitoba Region

The City of Winnipeg By-Law No. 1735/77

Notes:

1. Some residences in the St. Vital Perimeter South District not covered.
2. During water supply peaking issues in the past the City drew water from the Red River, with a blend of approximately 30% river and 70% groundwater. Since 1994/1995 the City has not withdrawn water from the Red River. Peguis First Nation is not included in the table as the primary community is located in the Interlake, and not geographically in the Flood Study Region.

Table 8D-2
Flood Study Region Sewage Systems

Community	Areas Covered	Type of Service
City of Winnipeg	All developed areas	Gravity with Pumping Stations
City of Selkirk	All developed areas	Gravity
Town of Niverville	Town	Gravity
Town of Morris	Town	Lagoon
Village of St. Pierre-Jolys	Village	Lagoon
RM of St. Andrews	No sewage system in place	2 lagoons for septic hauler usage located in Petersfield and Earl Grey Landfill west of Lockport
RM of St. Clements	Urban Areas Rural Areas	Lagoons Private systems
RM of West St. Paul	Rivercrest Riverdale Lister Rapids Rivergate	Gravity
RM of East St. Paul	Developed parts of municipality	Gravity
RM of Springfield	Dugald Oakbank Anola	Lagoon Lagoon Private Septic Fields or Pump Out
RM of Taché	All significant areas within municipality	Gravity (Lorette) Low pressure (Landmark)
RM of Ritchot	Ste. Agathe St. Adolphe Ile-des-Chenes	Gravity
RM of Morris	Rosenort Lowe Farm	Low pressure
RM of Macdonald	All urban areas in RM	Low pressure, gravity in River Ridge (La Salle)
RM of De Salaberry	St. Malo Otterburne	Lagoons
RM of Hanover	New Bothwell Mitchell Blumenort Grunthal Kleefeld	Lagoons
Brokenhead Ojibway Nation	Majority of Community	Piped sewage collection system

Sources:

Manitoba Community Profiles (http://www.communityprofiles.mb.ca/csd/) (unless otherwise indicated).

Village of St. Pierre-Jolys: Cure pers. comm. 2004

Town of Niverville: Buys pers. comm. 2004

RM of St. Andrews: Spicer pers. comm. 2004

RM of Springfield: Nylen and Holland pers. comm. 2004

RM of Morris: Martens and Groening pers. comm. 2004

RM of De Salaberry : Lahaie pers. comm. 2004

Brokenhead Ojibway Nation: INAC First Nations Community Profiles 2001-02 Manitoba Region.

Government of Canada (http://cgii.gc.ca/m-MN-e.html).

Rural Municipality of St. Clements (http://www.granite.mb.ca/erdc/st.clements/index.html).

RM of Ritchot personal communication 2004.

RM of Macdonald (http://www.rmofMacdonald.com/Wp200.htm).

Table 8D-3
Ambulance, Fire and Police Services in the Flood Study Region

Communities	Ambulance Service Provider	Fire Hall Service Provider	Police/RCMP Service Provider
City of Winnipeg	10 locations throughout Winnipeg	26 locations throughout Winnipeg	15 locations throughout Winnipeg
City of Selkirk	Selkirk and District	Selkirk	Selkirk RCMP
Town of Niverville	St. Pierre-Jolys	Niverville (volunteer)	St. Pierre-Jolys RCMP Niverville RCMP
Town of Morris	Morris	Morris (volunteer)	Morris RCMP
Village of St. Pierre-Jolys	St. Pierre-Jolys	St. Pierre-Jolys	St. Pierre-Jolys RCMP
RM of St. Andrews	Gimli Selkirk and District	Clandeboye (volunteer) Matlock (volunteer)	Gimli RCMP Selkirk RCMP
RM of St. Clements	Selkirk and District	South St. Clements East Selkirk	Selkirk RCMP St. Clements (one municipal constable)
RM of West St. Paul	Selkirk and District	West St. Paul (volunteer)	West St. Paul RCMP
RM of East St. Paul	East St. Paul	East St. Paul	East St. Paul RCMP
RM of Springfield	Oakbank	Anola Oakbank	Oakbank RCMP
RM of Taché	Steinbach Ste. Anne	Ste. Genevieve (volunteer) Lorette (volunteer) Landmark (volunteer)	St. Pierre-Jolys RCMP
RM of Ritchot	St. Pierre-Jolys	Ile-Des-Chenes (volunteer) St. Adolphe (volunteer)	St. Pierre-Jolys RCMP
RM of Morris	Morris	3 locations throughout RM (volunteer) 1/3 of Fire Service from Town of Morris	Morris RCMP
RM of Macdonald	Oak Bluff	Sanford (volunteer)	Carmen RCMP Winnipeg RCMP
RM of De Salaberry	St. Pierre-Jolys	St. Malo (volunteer)	St. Pierre-Jolys RCMP
RM of Hanover	Steinbach	Niverville (volunteer)	Steinbach RCMP Service Detachment St. Pierre-Jolys RCMP Niverville RCMP
Brokenhead Ojibway Nation	Selkirk	Brokenhead Ojibway Fire (volunteer)	Selkirk RCMP Brokenhead Ojibway Nation Local Police

Sources:

Manitoba Community Profiles (http://www.communityprofiles.mb.ca/csd/).

Key Person Interviews.

INAC First Nations Community Profiles 2001-02 Manitoba Region.

Note:

Peguis has not been included in the table as the Peguis First Nation community is located in the Interlake, geographically removed from the Flood Study Region.

Table 8D-4
Indoor Community Facilities in the Flood Study Region

Community	Number of Indoor Facilities				
	Community Halls	Community Centres	Arena (artificial and natural)	Curling Rink[1]	Other Fitness/ Recreation Facilities[2]
City of Winnipeg	112	111	34	125	91
City of Selkirk	25	1	2	1	4
Town of Niverville	1	0	1	3	0
Town of Morris	3	0	1	7	0
Village of St. Pierre-Jolys	3	1	0	0	6
RM of St. Andrews	9	8	1	5	0
RM of St. Clements[3]	-	-	-	-	-
RM of West St. Paul	1	2	0	5	0
RM of East St. Paul	4	0	1	7	0
RM of Springfield	6	6	2	8	3
RM of Taché[3]	-	-	-	-	-
RM of Ritchot	4	4	3	4	0
RM of Morris	3	0	3	0	0
RM of Macdonald	5	1	4	13	0
RM of De Salaberry	0	3	1	7	0
RM of Hanover	6	5	2	0	2
Brokenhead Ojibway Nation	1	1	0	0	1
Flood Study Region Total	**183**	**143**	**55**	**185**	**107**

Sources:

Manitoba Community Profiles (http://www.communityprofiles.mb.ca/csd/).

INAC First Nations Community Profiles 2001-02 Manitoba Region.

Notes:

1. Curling rinks include natural ice, artificial ice, and combination of natural and artificial ice.
2. Other fitness/recreation facilities include: fitness centres, gymnasiums, pool halls, and sports complexes.
3. Information on the RM of St. Clements and RM of Taché were not available.

Table 8D-5
Outdoor Community Facilities in the Flood Study Region

Community	Number of Outdoor Facilities:														
	Baseball Diamonds	Go - Cart Tracks	Golf Courses	Golf Driving Range	Horse Riding Stables	Horse Tracks	Public Boat Launch	Playgrounds	Tennis Courts	Marina	Hockey Rink	Soccer Field	Beaches (public)	Vehicle Racing	Football Fields
City of Winnipeg	500	2	22	14	4	1	7	500	0	2	0	375	0	0	375
City of Selkirk	30	3	1	1	2	1	1	8	1	1	1	10	1	1	10
Town of Niverville	7	0	0	0	0	0	0	2	2	0	0	3	0	0	0
Town of Morris	8	1	1	0	1	1	1	3	3	0	0	2	0	0	0
Village of St. Pierre-Jolys	7	0	1	0	0	1	0	1	0	0	1	1	0	0	0
RM of St. Andrews	16	5	1	2	2	2	8	6	0	0	3	7	2	0	0
RM of St. Clements[1]	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-
RM of West St. Paul	6	0	0	1	0	0	2	7	1	1	0	0	0	0	0
RM of East St. Paul	8	0	0	1	0	0	1	10	2	0	2	14	0	0	0
RM of Springfield	25	0	3	1	2	0	0	8	4	0	3	6	1	0	0
RM of Taché[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM of Ritchot	12	1	3	1	0	0	0	3	1	0	0	0	0	1	0
RM of Morris	4		1	0	0	0	0	3	0	0	0	0	0	0	0
RM of Macdonald	21	0	0	0	0	0	0	12	1	0	0	9	0	100	9
RM of De Salaberry	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0
RM of Hanover	7	0	0	0	0	0	1	6	2	0	0	0	0	1	0
Brokenhead Ojibway Nation	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Flood Study Region Totals	**652**	**13**	**35**	**21**	**14**	**7**	**22**	**569**	**17**	**5**	**11**	**427**	**4**	**103**	**394**

Sources:

Manitoba Community Profiles (http://www.communityprofiles.mb.ca/csd/).

Rural Municipality of St. Clements (http://www.granite.mb.ca/erdc/st.clements/index.html).

INAC First Nations Community Profiles 2001-02 Manitoba Region.

Note:

1. Information on the RM of St. Clements and RM of Taché were unavailable.

Table 8D-6
Health Centres in Flood Study Region

Community	Number and Use Location of Health Facilities for Each Communities		
	Hospitals	Medical Clinics	Personal Care Homes
City of Winnipeg	11 locations throughout City	121 locations throughout City	37 locations throughout City
City of Selkirk	1 location in City	3 locations throughout City	3 locations throughout City
Town of Niverville	Primarily use hospital in St. Pierre-Jolys	Primarily use clinic St. Pierre-Jolys	Primarily use locations in St. Pierre-Jolys and St. Adolphe
Town of Morris	1 location in Town	1 location in Town	2 locations in Town
Village of St. Pierre-Jolys	1 location in Village	1 location in Village	1 location in Village
RM of St Andrews	Primarily use hospitals in Gimli and Selkirk	Primarily use clinics in Gimli and 3 locations in Selkirk	Primarily use locations in Gimli and 3 locations in Selkirk
RM of St. Clements	Primarily use hospital in Selkirk	Primarily use clinics in 3 locations in Selkirk and various locations throughout Winnipeg	Primarily use various locations throughout Winnipeg and 3 locations in Selkirk
RM of West St. Paul	Primarily use Seven Oaks hospital in Winnipeg	Primarily use various locations throughout Winnipeg	Primarily use various locations throughout Winnipeg
RM of East St. Paul	Primarily use Concordia hospital and Health Sciences Centre in Winnipeg	Primarily use various locations throughout Winnipeg	Primarily use various locations throughout Winnipeg
RM of Springfield	Primarily use hospitals in Selkirk, Beausejour, and 5 locations in Winnipeg	1 location in Oakbank	1 location in Oakbank
RM of Taché	Primarily use hospitals in Steinbach and Ste. Anne	2 locations in Lorette	Primarily use locations in Steinbach and Ste. Anne
RM of Ritchot	Primarily use hospital in St. Pierre-Jolys and 5 locations in Winnipeg	Primarily use clinics in Winnipeg and Niverville	1 location in Ste Adolphe and various locations in Winnipeg
RM of Morris	Primarily use hospital in Town of Morris	Primarily use clinic in Town of Morris	Primarily use location in Town of Morris
RM of Macdonald	Primarily use hospitals in Carmen, Morris, and 5 locations in Winnipeg	Primarily use clinics in Carmen, Morris, and 5 locations in Winnipeg	Primarily use locations in Carmen, Morris, and numerous locations in Winnipeg
RM of De Salaberry	Primarily use hospital in St. Pierre-Jolys	Primarily use clinic in St. Pierre-Jolys	Primarily use location in St. Pierre-Jolys
RM of Hanover	Primarily use hospital in Steinbach	Primarily use 2 clinics in Steinbach	Primarily use 2 locations in Steinbach
Brokenhead Ojibway Nation	Primarily use hospital in Selkirk	Primarily use Health facility on reserve and 3 clinics in Selkirk	N/A

Sources:

Manitoba Health Population Report 2002.

INAC First Nations Community Profiles 2001-02 Manitoba Region.

APPENDIX 8E

Personal Family and Community Life

APPENDIX 8E
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1.0 POPULATION CHARACTERISTICS OF THE FLOOD STUDY REGION

Table 8E.1-1
Total Population for Flood Study Region Communities and Manitoba on Whole: 1991, 1996 and 2001

Population	1991	1996	2001	Percentage Change 1991-2001
City of Winnipeg	615,215	618,477	619,544	0.7%
City of Selkirk	9,815	9,881	9,752	-0.6%
Town of Niverville	1,532	1,615	1,921	25.4%
Town of Morris	1,616	1,645	1,673	3.5%
Village of St. Pierre-Jolys	907	925	893	-1.5%
RM of De Salaberry	2,985	3,067	3,227	8.1%
RM of Taché	7,576	8,273	8,578	13.2%
RM of Ritchot	5,146	5,364	4,958	-3.7%
RM of Morris	2,865	2,816	2,723	-5.0%
RM of Macdonald	3,999	4,900	5,320	33.0%
RM of Springfield	11,102	12,162	12,602	13.5%
RM of East St. Paul	5,820	6,437	7,677	31.9%
RM of West St. Paul	3,658	3,720	4,085	11.7%
RM of St. Andrews	9,471	10,144	10,695	12.9%
RM of St. Clements	7,823	8,516	9,115	16.5%
RM of Hanover	8,887	9,833	10,789	21.4%
Peguis First Nation	997	2,076	2,515	
Brokenhead Ojibway Nation	273	332	372	36.3%
Flood Study Region Total	**699,687**	**710,183**	**716,439**	**2.4%**
Manitoba Total	**1,091,942**	**1,113,898**	**1,119,583**	**2.5%**
Flood Study Region as Percentage (%) of Manitoba Total	**64.1**	**63.8**	**64.0**	

Source: Statistics Canada, 1991, 1996 and 2001 Census Data.
Note:
Statistics Canada has changed their methodology in collecting data for populations on reserve, including their definition of Aboriginal and inclusion of Bill C-31 reinstatements of Aboriginal Status between 1991 and 1996. As a result there has been determined to be an average of 30% more people found on-reserve in 1996 than in 1991 (Province of Manitoba, Aboriginal People in Manitoba (2000) online at http://www.gov.mb.ca/ana/apm2000/1/g.html.

Table 8E.1-2
Annual Population Growth Rates for
Flood Study Region and Manitoba: 1991 to 2001

Population	Annual Population Growth Rate (%)		
	1991-1996	1996-2001	1991-2001
City of Winnipeg	0.1%	0.0%	0.1%
City of Selkirk	0.1%	-0.3%	-0.1%
Town of Niverville	1.1%	3.5%	2.3%
Town of Morris	0.4%	0.3%	0.3%
Village of St. Pierre-Jolys	0.4%	-0.7%	-0.2%
RM of De Salaberry	0.5%	1.0%	0.8%
RM of Taché	1.8%	0.7%	1.2%
RM of Ritchot	0.8%	-1.6%	-0.4%
RM of Morris	-0.3%	-0.7%	-0.5%
RM of Macdonald	4.1%	1.7%	2.9%
RM of Springfield	1.8%	0.7%	1.3%
RM of East St. Paul	2.0%	3.6%	2.8%
RM of West St. Paul	0.3%	1.9%	1.1%
RM of St. Andrews	1.4%	1.1%	1.2%
RM of St. Clements	1.7%	1.4%	1.5%
RM of Hanover	2.0%	1.9%	2.0%
Brokenhead Ojibway Nation	4.0%	2.3%	3.1%
Peguis First Nation	15.8%	3.9%	9.7%
Flood Study Region	**0.3%**	**0.2%**	**0.2%**
Manitoba	**0.3%**	**0.2%**	**0.2%**

Source: Derived from Statistics Canada,1991, 1996 and 2001 Census Data.
Notes to Table 8E.1-1.

1.1 AGE AND SEX CHARACTERISTICS OF THE FLOOD STUDY REGION

The 2001 Flood Study Region population by age and sex is depicted through a series of charts in Figure 8E.1-1 below based on Census of Canada data. The Flood Study Region populations are broken down into three population charts including:

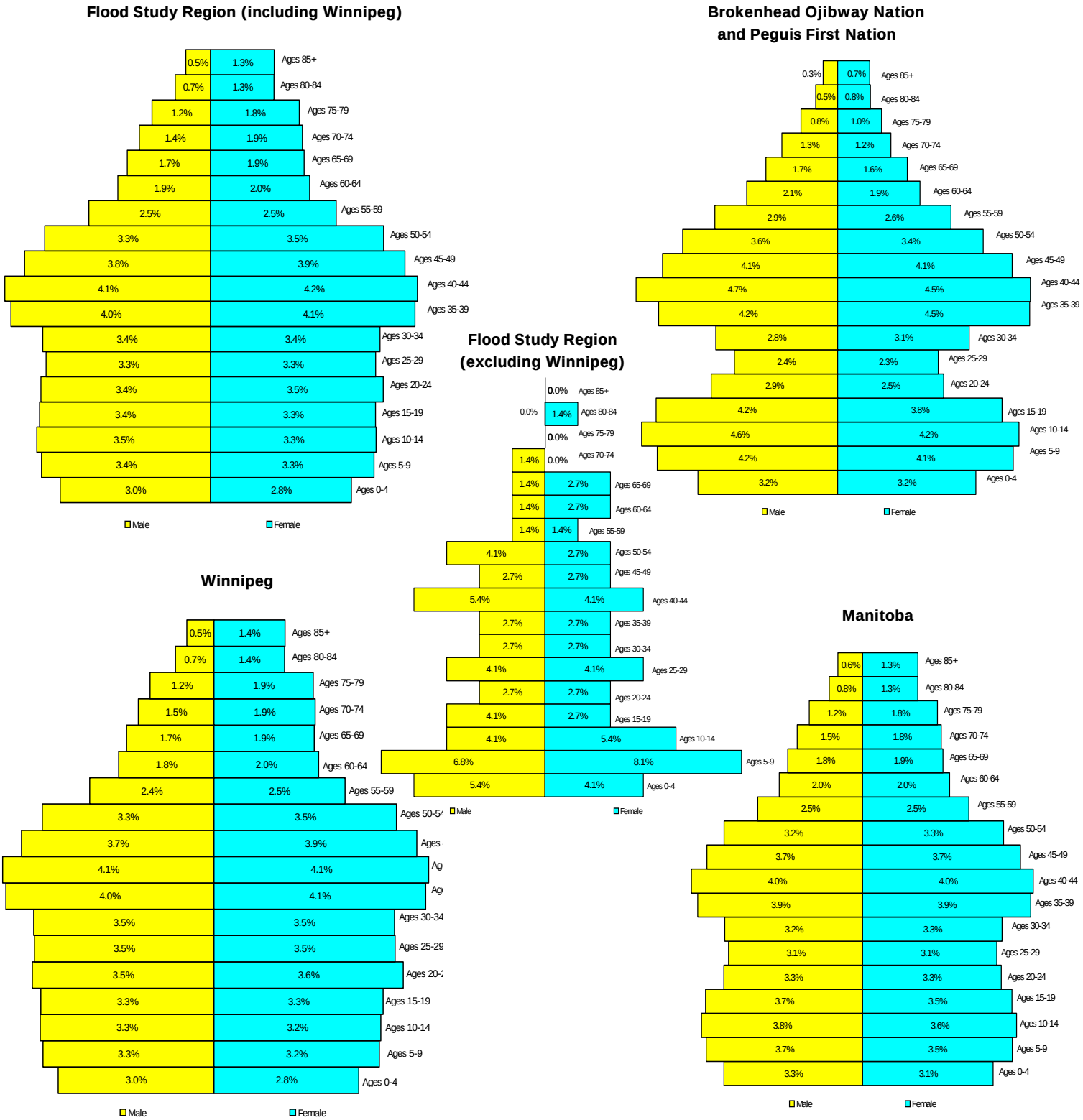
- The Flood Study Region including Winnipeg.
- The Flood Study Region excluding Winnipeg.
- Brokenhead Ojibway Nation 2001.
- Peguis First Nation 2001.

The three different population charts illustrate any differences in the overall age and sex distribution in the ex-urban and rural Flood Study Region populations when controlling for the large population of Winnipeg. For the sake of comparison, charts of the population distribution for all Winnipeg and for Manitoba as a whole are also shown (using 2001 Census of Canada data).

Figure 8E.1-1 illustrates that The Flood Study Region on whole is very similar in age and sex distribution when compared to Manitoba and Winnipeg. Overall, Figure 8E.1-1 shows that females comprise 51.4 per cent of the total population and males comprise 48.6 per cent. The largest proportion of people is between 40 to 44 years of age. When Winnipeg is excluded from the Flood Study Region, there are some minor changes in the overall sex distribution with females being 49 per cent of the total population males making up 51 per cent. The figures also show there is a younger population in the Flood Study Region excluding Winnipeg.

Figure 8E.1-1 also illustrates the age and sex structure of the Brokenhead Ojibway Nation population in 1996. Overall, the chart for the Brokenhead Ojibway Nation shows that females comprise 50 percent of the total population and males comprise 50 percent. The population of the Brokenhead Ojibway Nation is the youngest of all the regions illustrated in the figure (although similar to other First Nations in Manitoba) with 54.3 percent of the population under 29 years of age in 2001.

Figure 8E.1-1
Population by Age and Sex for Flood Study Region Population Including and Excluding Winnipeg, and for First Nations in 2001
Compared to the Population Distribution of Manitoba in 2001



Source: Statistics Canada, 2001 Census Canada.

Table 8E.1-3 shows (for 1996 and 2001) the proportions of school age children (5-19), labour force age (15-64) and senior residents (65+) in the Flood Study Region, as compared to the Province of Manitoba as a whole. The proportions of school age, labour force, and senior residents are similar for both the Flood Study Region and for the Province of Manitoba for both 1996 and 2001. The Flood Study Region has seen a slight increase in all of the age group categories. In the Province of Manitoba, the proportion of school age children remained constant from 1996 to 2001 but the proportion of labour force and proportion of seniors increased.

Table 8E.1-3
Age Characteristics[1] of Flood Study Region and Manitoba: 1996 and 2001

Age Group	Flood Study Region		Manitoba	
	1996	2001	1996	2001
Proportion of schoolage children (Ages 5-19)	20.2%	20.4%	21.7%	21.7%
Proportion of labour force age (Ages 15-64)	66.3%	66.9%	64.4%	65.2%
Proportion of Seniors (Ages 65 and over)	13.2%	13.6%	13.7%	14.0%

Source: Statistics Canada, 1996 and 2001 Census Data.
Note:
1. Totals do not add to 100 percent because of overlaps in age between the population categories of school age children (ages 5 to 19) and total labour force (ages 15 to 64); also, the population less than five years of age is not shown.

Table 8E.1-4 presents the proportions of school age, labour force and senior residents for the Brokenhead Ojibway Nation And for the Peguis First Nation for both 1996 and 2001. The age characteristics for theses First Nations are not similar to that of the Flood Study Region or the Province of Manitoba.

Table 8E.1-4A
Age Characteristics[1] of Brokenhead Ojibway Nation: 1996 and 2001

AGE GROUP	BROKENHEAD OJIBWAY NATION	
	1996	2001
Proportion of schoolage children (Ages 5-19)	30.3%	31.1%
Proportion of labour force age (Ages 15-64)	60.6%	59.5%
Proportion of Seniors (Ages 65 and over)	4.5%	6.8%

Source: Statistics Canada, 1996 and 2001 Census Data.
Note:
1. Totals do not add to 100 percent because of overlaps in age between the population categories of school age children (ages 5 to 19) and total labour force (ages 15 to 64); also, the population less than five years of age is not shown.

Table 8E.1-4B
Age Characteristics[1] of Peguis First Nation: 1996 and 2001

Age Group	Peguis First Nation	
	1996	2001
Proportion of schoolage children (Ages 5-19)	32.3%	35.0%
Proportion of labour force age (Ages 15-64)	60.2%	59.6%
Proportion of Seniors (Ages 65 and over)	5.5%	5.2%

Source: Statistics Canada: 1996 and 2001 Census Data

Notes:

1. Totals do not add to 100 percent because of overlaps in age between the population categories of school age children (ages 5 to 19) and total labour force (ages 15 to 64); also, the population less than five years of age is not shown.

1.2 ABORIGINAL POPULATIONS IN THE FLOOD STUDY REGION

Table 8E.1-5 presents the on-reserve population of the Peguis First Nation and Brokenhead Ojibway Nation included in the Flood Study Region for 1996 and 2001, using three data sources (sources vary substantially for First Nation populations). The table shows the range in populations reported for the two First Nations by Statistics Canada, Manitoba Health and Indian and Northern Affairs Canada (INAC) for 1996 and 2001. Off-reserve and total First Nation population (INAC only) are also shown.

Table 8E.1-5
Population of Brokenhead Ojibway Nation and Peguis First Nation: 1996 and 2001

Source	Year	Brokenhead Ojibway Nation	Peguis First Nation
Statistics Canada	1996	332	2,076
Manitoba Health Population Report[1]	1996	184	1,657
Indian and Northern Affairs Canada (INAC)[2]	1996		
On-Reserve		423	2,768
Off-Reserve		808	3,476
INAC total		**1,231**	**6,244**
Statistics Canada	2001	372	2,515
Manitoba Health Population Report[1]	2001	211	2,051
Indian and Northern Affairs Canada (INAC)[3]	2001		
On-Reserve		333	3,123
Off-Reserve		1,038	4,001
INAC total		**1,371**	**7,124**

Sources:

Statistics Canada, 2001 Census Data.

Manitoba Health Population Report 2001.

INAC 2004 – INAC website :

(http://sdiprod2.inac.gc.ca/FNProfiles/FNProfiles_PrintForm.asp?BAND_NUMBER=261&BAND_NAME=Brokenhead+Ojibway+Nation&ES=ACT&Q=3)

INAC 2001- INAC 2001 (Indian and Northern Affairs Canada (INAC). 2001. First nations Community Profiles 2001-02 Manitoba Region).

INAC 1996 – INAC 1996 Personal Communication: Eric McGregor, Senior Analyst, First Nations and Northern Statistics Section, Corporate Information Management Directorate, February 12, 2004 (1996 Registered Indian statistics using INAC's Indian Registry System) and INAC Personal Communication: Christina Pleizier, May 20, 2004

Notes:

1. The population data shown in this report are based on records of residents registered with Manitoba Health as of June 1 of 1996 and 2001.
2. 1996 Registered Indian statistics using INAC's Indian Registry System (IRS). The numbers were extracted from the IRS as at December 31, 1996, and have not been adjusted for late reporting of births or deaths. Furthermore, they reflect residency codes for First Nation's registrants only. As such, they are not true populations as they contain no information on any Non-Registered individuals who may be living on reserve lands.
3. 2001 Registered Indian Statistics using 2001-2002 First Nations Community Profiles, The population numbers are from May 31, 2001.

In 2001, Statistics Canada gathered data regarding Aboriginal identity. Self-identifying Aboriginal population in the Flood Study Region is shown in Table 8E.1-6. Approximately 62,000 people in total identified themselves as Aboriginal, with the vast majority of this population (approximately 85 per cent) residing in the City of Winnipeg. Of this group, about 34,000 people identified themselves as "Métis"[1] and 26,000 people identified themselves as "Indian"[2].

[1] Self-identification with the "Métis" population is one element of a three-part definition of "Métis" for the purpose of assessing certain constitutional rights, according to the 2003 Powley decision by the Supreme Court of Canada. Other aspects of the definition (identification with a post-contact/pre-control population and acceptance of the individual by that population) cannot be determined from these data.

[2] Self-identification with the "Indian" population (term used by Statistics Canada) does not necessarily mean that they are members of a First Nation; some people in this group may be "non-status" Aboriginal people, with no membership in a First Nation.

Table 8E.1-6
Flood Study Region: Métis and "Indian" Self-Identity in the 2001 Census of Canada

Community	2001 Census Population	2001 "Indian" Single Response[1]	2001 "Métis" Single Response[2]	2001 Total Aboriginal Identity Response[3]
City of Winnipeg	619,544	22,070	29,005	52,415
City of Selkirk	9,752	720	1,195	1,970
Town of Niverville	1,921	15	40	50
Town of Morris	1,673	0	50	50
Village of St. Pierre-Jolys	893	10	145	145
RM of De Salaberry	3,227	20	570	620
RM of Taché	8,578	105	565	680
RM of Ritchot	4,958	0	425	440
RM of Morris	2,723	10	15	30
RM of Macdonald	5,320	20	110	140
RM of Springfield	12,602	125	425	595
RM of East St. Paul	7,677	45	170	210
RM of West St. Paul	4,085	10	120	125
RM of St. Andrews	10,695	185	505	700
RM of St. Clements	9,115	240	520	760
RM of Hanover	10,789	45	140	185
Brokenhead Ojibway Nation	372	350	10	360
Peguis First Nation	2,515	2,385	35	2,455
Flood Study Region Total	**716,439**	**26,355**	**34,045**	**61,930**

Sources:

Statistics Canada, 2001 Census Data.

Indian and Northern Affairs Canada (2004) Information Sheets. Retrieved June 9, 2004, from http://www.ainc-inac.gc.ca/pr/info/index_e.html.

Notes:

1. "Indian" describes all the Aboriginal people in Canada who are not Inuit or Métis. Indian peoples are one of three groups of people explicitly recognized as Aboriginal in the *Constitution Act,* 1982. The Act specifies that Aboriginal people in Canada include Indians, Inuit and Métis people. In addition, there are three legal definitions that apply to Indians in Canada: Status Indians, Non-Status Indians and Treaty Indians. (http://www.ainc-inac.gc.ca/pr/info/info101_e.html)
2. "Métis" describes people of mixed and European ancestry who identify themselves as Métis people, as distinct from First Nations people, Inuit, other Aboriginal people, or non-Aboriginal people. The Métis have a unique culture that draws on their diverse ancestral origins, such as Scottish, French, Ojibway and Cree. (http://www.ainc-inac.gc.ca/pr/infor/info101_e.html).
3. The Aboriginal identity population is composed of persons who self-identified with at least one Aboriginal group, i.e. "North American Indian, "Métis" or "Inuit", and/or who reported being "Treaty Indians" or "Registered Indians" as defined in the *Indian Act* (Canada) and/or who were members of an "Indian Band" or "First Nation". In 1991 and previous censuses, Aboriginal persons were determined using the ethnic origin question (ancestry). The 1996 Census included a question on the individual's own perception of his/her Aboriginal identity. The 2001 Census question is the same as the one used in 1996. (http://www.ainc-inac.gc.ca/pr/info/info101_e.html).

1.3 POPULATION PROJECTIONS WITHIN THE FLOOD STUDY REGION

In 1999, the Manitoba Bureau of Statistics produced population projections for the period 2001 to 2021. These projections were broken down by Census districts into eight Economic Regions. Six of the Economic Regions include communities that are located in the Flood Study Region:

- Winnipeg (this Economic Region includes Census Division 11 and is part of the Flood Study Region),
- South East (The Economic Region is comprised of Census Divisions 1, 2 and 12 (with a total 2001 population of 89,700); however only about 30 per cent of this population is included in the Flood Study Region (i.e., the Town of Niverville, Village of St. Pierre-Jolys and the RMs of De Salaberry, Taché and Springfield)
- South Central (the entire region is comprised of Census Division 3 and 4 (with a total 2001 population base of 53,100); however only about 8 per cent of this population is included in the Flood Study Region (i.e., the Town of Morris and the RM of Morris)
- North Central (the entire region is comprised of Census Divisions 8,9 and 10 (with a total 2001 population of 48,500), however, only about 11 per cent of this population is included in the Flood Study Region (i.e., the RM of Macdonald)
- Interlake (the entire region is comprised of Census Divisions 13,14 and 18 (with a total 2001 population of 84,200); however, only about 50 per cent of this population is included in the Flood Study Region (i.e., the City of Selkirk, Brokenhead Ojibway Nation and the four RMs of West St. Paul, East St. Paul, St. Andrews and St. Clements)
- North (the entire region is comprised of Census Divisions 19, 21, 22 and 23 (with a total 2001 population of 90,300); however, only about 3 per cent of this population is included in the Flood Study Region (i.e., the Peguis First Nation).
-

Table 8E.1-7 illustrates the Manitoba Bureau of Statistics population projections from 2001 to 2021 for the six Economic Regions described above and Manitoba as a whole. As noted, aside from the Winnipeg Region, only from 3 to 50 per cent of population in each region in 2001 was part of the Flood Study Region. These Manitoba Bureau of Statistics projections show population growth in rural regions included in (or part of) the Flood Study Region and a decrease in population for the City of Winnipeg over the same period.[3]

[3] The Manitoba Bureau of Statistics report indicated that this projected population decrease is due to a projected annual interprovincial and intraprovincial migration outflow offset somewhat by a projected annual international migration inflow.

Table 8E.1-7
Population Projections for the Manitoba Economic Regions within or part of the Flood Study Region and Manitoba: 2001 to 2021

Region	2001	2006	2011	2016	2021
City of Winnipeg	628,000	626,200	620,000	611,000	599,800
South East	89,700	95,200	101,400	107,600	113,400
South Central	53,100	54,900	57,200	59,700	61,900
North Central	48,500	49,000	49,700	50,500	51,000
Interlake	84,200	87,700	91,500	95,200	98,500
North	90,300	95,000	100,100	105,500	110,700
Regional Total	**903,500**	**913,000**	**919,800**	**924,000**	**924,600**
Manitoba Total	**1,146,500**	**1,160,800**	**1,173,300**	**1,183,400**	**1,189,500**

Source: Manitoba Bureau of Statistics (1999) Manitoba Regional Population Projections 1996-2021.

2.0 RECREATION AND TRAVEL IN THE FLOOD STUDY REGION

Table 8E.2-1
Number of Fish (by Species) Caught and Kept by Sport Anglers, Red River and Manitoba: 2000

	Red River			Total Manitoba		
Fish Caught	**By Residents**	**By Non-Residents**	**Total**	**By Residents**	**By Non-Residents**	**Total**
Walleye	315,324	35,757	351,081	3,705,609	1,996,911	5,702,520
Pike	34,376	3,073	37,449	2,257,610	1,922,515	4,180,125
Catfish	183,588	56,292	239,879	249,083	56,898	305,981
Perch	35,323	351	35,674	1,957,738	235,272	2,193,010
Other Species	471,167	24,528	495,695	1,282,804	243,818	1,526,622
All Species	**1,039,778**	**120,000**	**1,159,778**	**9,452,844**	**4,455,414**	**13,908,258**
Fish Kept	**By Residents**	**By Non-Residents**	**Total**	**By Residents**	**By Non-Residents**	**Total**
Walleye	124,773	10,686	135,460	1,346,226	323,632	1,669,858
Pike	5,892	451	6,343	443,811	76,577	520,388
Catfish	1,363	2,684	4,046	7,619	2,717	10,336
Perch	3,197	50	3,248	718,948	144,019	862,967
Other Species	54,126	2,305	56,430	274,827	24,128	298,955
All Species	**189,351**	**16,176**	**205,527**	**2,791,431**	**571,073**	**3,362,504**

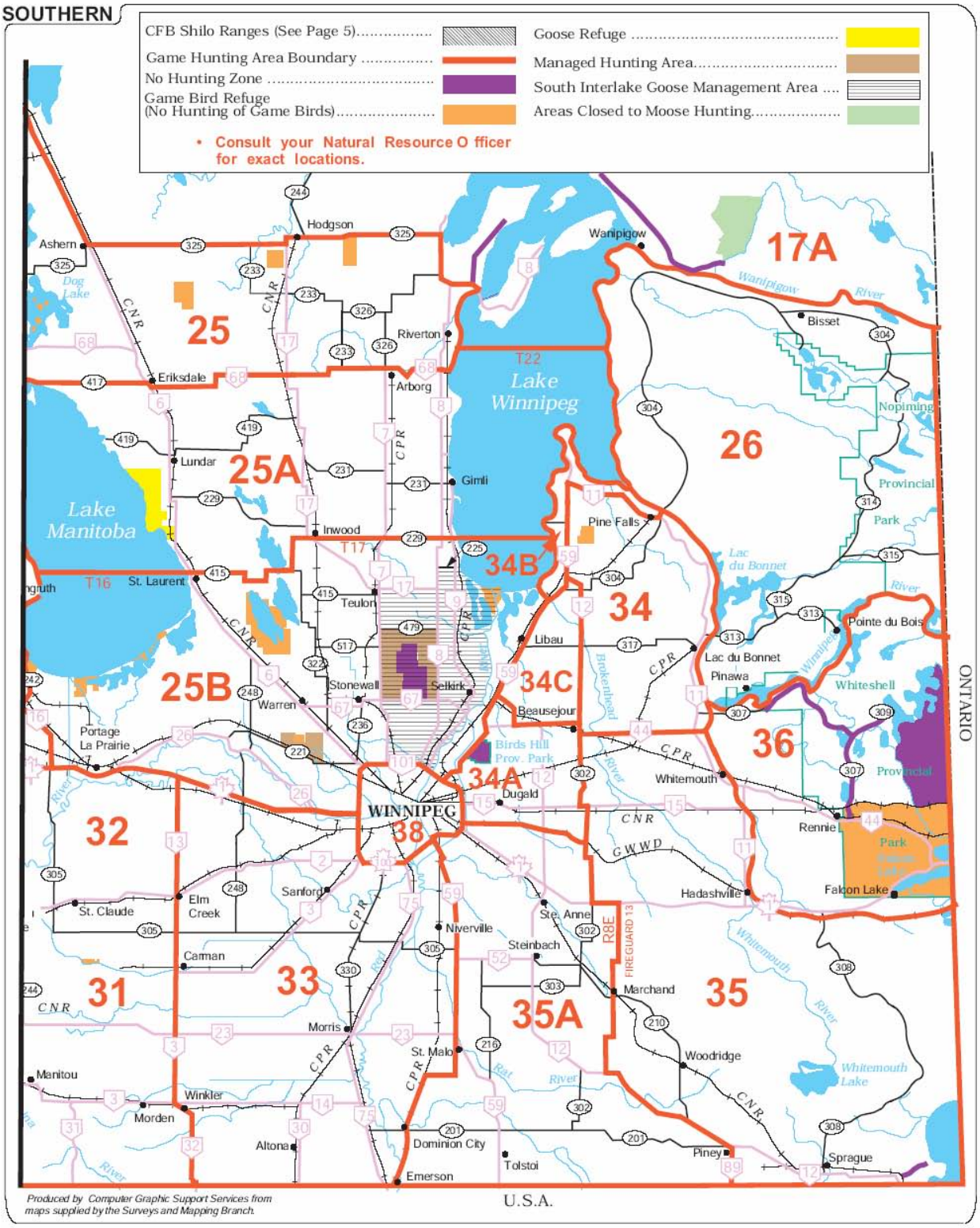
Source: Manitoba Conservation 2004
Note: Based on licensed sport fishing records.

Manitoba's Southern Fishing Division (which includes the Red River) has an annual fishing season that opens May 11th. Anglers may keep only one walleye longer than 70 cm (28 in) per year, and the total walleye/sauger limit per angler is four. From the Lockport Dam to one kilometre downstream, there is dip netting and seining for bait fish only (not suckers), and there is no bow fishing allowed (Manitoba Conservation 2003).

Manitoba Conservation, the City of Winnipeg, Mid-Canada Marine Dealers, Manitoba Wildlife Federation and Fish Futures operate an urban angling partnership that promotes the quality and accessibility of the sport fishery within the City of Winnipeg. Programs and events run by the partnership include:

- Learn to fish seminars
- Fishing camps
- Fishing programs for youth at risk
- Media/Corporate Fishing Challenge
- Winnipeg Fish Festival
- Fish Derbies (KGS 2003).

Figure 8E.2-1
Game Hunting Areas



Cross-Country Skiing

Cross-country skiing is a popular winter recreation activity in Manitoba. There are over 40 cross-country ski destinations in Manitoba that are registered with the Cross Country Ski Association of Manitoba.These cross-country ski destinations offer groomed ski trails primarily maintained by provincial and municipal parks departments (although some are maintained by not-for-profit organizations). In total, 21 of these cross-country ski destinations are located within the Cross Country Ski Association of Manitoba's Central region, which includes all of Winnipeg, surrounding municipalities and South-Central Manitoba from Morris/Carmen to Winnipeg (Cross Country Ski Association of Manitoba 2004). In addition to these registered ski trails, there are numerous other non-registered cross country ski locations and trails (McSherry *pers.comm.* 2004).

The Cross Country Ski Association of Manitoba has no organized cross-country ski trails or activities along the Existing Floodway, although some Association members perform uphill training at Springhill Winter Park located at the north end of the Existing Floodway in the RM of Springfield (McSherry *pers. comm.* 2004).

Downhill Skiing

Springhill Winter Park is located 11 kilometers north of Winnipeg on Highway 59 North (at the Existing Floodway) in the RM of Springfield. During the winter, it operates Tuesday to Friday (6:30 p.m. to 9:30 p.m.) as well as Saturday and Sunday (9 a.m. to 4 p.m.).

On average, Springhill Winter Park has 30,000 visitors annually over the course of their three-month winter downhill skiing season. This includes 700 to 800 seasonal members that use the facilities routinely (McKinnon *pers. comm.* 2004).

Figure 8E.2-2 shows Springhill Winter Park during the summer. Facilities at Springhill Winter Park include:

- Three slope runs
- Day and night skiing
- Ski and snowboard rental equipment
- Professional ski school instruction
- Restaurant and games room
- Fireplace heated sports bar, and
- Rope tow and quad chair lift (Manitoba Alpine Ski Division 2004).

Figure 8E.2-2
Springhill Winter Park

Note: Photograph taken of Springhill Winter Park from near the Highway 59 North Bridge.
Source: InterGroup Consultants Ltd. (June 9, 2004).

Tobogganing

Tobogganing is another popular winter family pastime. There are a number of locations along the Floodway and Red River Valley that are frequently used for tobogganing. In particular, parts of the Floodway adjacent to Springhill Winter Park are commonly used throughout the winter months. Slopes along the Floodway Inlet are also popular for tobogganing activities.

Snowmobiling

Snowmobilers of Manitoba Inc. (Snoman) is a non-profit organization representing 50 provincial snowmobiling clubs who maintain and groom over 10,000 km of trails in Manitoba. The Floodway is not part of the Snowman groomed trail system. There is, however, still a substantial amount of use made of the Existing Floodway by snowmobiles. There are approximately 25,000 registered snowmobiles in Manitoba, and it is estimated that approximately 500 to 1,000 snowmobilers use the Floodway each year (Stokes *pers. comm.* 2004).

Canoeing and Paddling

The Manitoba Paddling Association has docks on the Red River at Churchill Drive in the City of Winnipeg and paddling activity is concentrated in this area. It is estimated that there are 50 to 100 paddlers per day on the rivers in Winnipeg during the summer. No known use is made of the Existing Floodway for canoeing and paddling.

Rowing

The Winnipeg Rowing Club is located in the City of Winnipeg on Lyndale Drive near Queen Elizabeth Way, and has approximately 350 to 400 members. There are approximately 150 rowers that use the Red River each day. Rowing activity is concentrated near Lyndale Drive (launch site) and upstream along the Red River. The rowing season begins when the ice breaks and continues until mid-October.

Motorized Boating

During the summer, motorized boating is another recreational activity occurring along the Red River. Access points include a number of public and private Boat Launches throughout the Flood Study Region. The Province of Manitoba maintains a record of the number of Public Boat Launches available in each municipality. Boat Launches in the Flood Study Region include (but may not be limited to):

- The City of Winnipeg has seven official public boat launches (Manitoba Community Profiles, 2004). The public boat launches currently in operation along the Red River include those at Maple Grove Park, St. Vital Park, the Louise Bridge, the North Perimeter Bridge the National Historic Site, Whittier Park and Kildonan Park. There are also numerous private docks at other locations along the Red River including the Redboine Boating Club. Public docks are also located on the Assiniboine River at The Forks Historic Port , Navy Way, the Osborne Street Bridge and on the Seine River near Lagimodiere Boulevard.
- The City of Selkirk has a public boat launch available at Selkirk Park (Randy Borsa, pers. comm. 2004).
- The Town of Morris, RM of De Salaberry and RM of East St. Paul each have one public boat launch 'in use' (Manitoba Community Profiles, 2004).
- The RM of West St. Paul has two public boat launches (Manitoba Community Profiles, 2004).
- The RM of St. Andrews has eight operational public boat launches (Manitoba community profiles, 2004).
- The Royal Manitoba Yacht Club north of the City of Winnipeg is a private boat club.

Trail-Walking

The Duff Roblin Park Reserve is situated just off Winnipeg's north perimeter highway, on the west embankment of the Existing Floodway, about two kilometers east of PTH 59. The park was established in May 1999 and covers an area of 19 hectares. The Duff Roblin Park Reserve, pictured in Figure 8E.2-3, has approximately 1000 visitors annually. The Park has two self-guided interpretative trails and two interpretative displays. The trails follow along graveled pathways, including one that offers a view of the Existing Floodway channel. Currently, there are no effects on the Park Reserve during Floodway operation (Wilson *pers. comm*. 2004).

Figure 8E.2-3
Duff Roblin Park

Source: InterGroup Consultants Ltd. (June 9, 2004).

There are a number of trails located along the Red River and its tributaries, including:

- St. Norbert Heritage Park
- Normand Park Trail
- Red River Riverwalk (Forks National Historic Site)
- Assiniboine Riverwalk
- Tache Promenade
- Bunn's Creek Pathway
- Seine River Pathway
- King's Park and Maple Grove have more informal walking areas and not designated walking paths.

The Trans-Canada Trail (TCT) also runs north of Winnipeg along the west side of the Existing Floodway, crossing the Red River at the Lockport Bridge, and continuing north via River Road. North of Winnipeg, the TCT route does not cross the Floodway. South of the City, however, the planned TCT route uses the Courchaine Road bridge to cross the Red River, and from there it is planned to cross the Existing

Floodway, and continue along the east side for approximately two kilometres before turning south (Rosemary Dzus, personal communication, 2004).

In 1993, the City of Winnipeg developed a City-wide Riverbank Parkway System comprising 16 sections of riverbank along the Red and Assiniboine rivers within City limits. Some of the sections along the Red River that have been identified for development include:

- The North Winnipeg Parkway: Begins at The Forks and travels north along the west bank of the Red River.
- The Churchill Drive Parkway: Begins at The Forks and proceeds south along the west bank of the Red River.
- The St. Boniface Parkway: Begins at the confluence of the Seine River and the Red River.
- The Kildonan Parkway: Begins at the Louise Bridge and is routed north up the east bank of Red River.

In addition, Rivers West–Red River Corridor Association is a non-profit organization with a mandate to develop and implement a long-term tourism and conservation strategy for the Red River corridor, stretching from Emerson to Lake Winnipeg. It focuses on the development, promotion and management of natural, tourism, cultural/heritage and recreational resources of the Red River.

Additional Recreation and Travel Activities

There are a number of other recreational activities that are known to occur typically informally, along the Existing Floodway:

- Dogsledding is known to occur along certain stretches of the Existing Floodway
- Sail-boarders (snowboarders with a parachute-like sail attached) have been sighted
- All-terrain vehicles (ATV's), motor bikes and off-road vehicles (4x4 trucks and sport utility vehicles) routinely use parts of the Existing Floodway for "off-roading" recreational purposes
- Hiking and mountain-biking
- Horseback riding occurs along the Existing Floodway, especially in areas adjacent to Birds Hill Park, where there is frequent horseback riding activity.

3.0 AESTHETICS

Existing Floodway Channel

Figure 8E.3-1 is a view of the Existing Floodway Channel from Duff Roblin Park hiking trail. This figure illustrates the general slope of the channel and vegetation that is most commonly found.

Figure 8E.3-1
Typical Section of Floodway Channel

Note: Typical section of the Floodway Channel, taken from Duff Roblin Park hiking trail facing east.
Source: InterGroup Consultants Ltd. (June 9, 2004).

Floodway Inlet Control Structure

The Floodway Inlet Control Structure is located on the Red River just downstream from the floodway inlet, as seen in Figure 8E.3-2.There are a number of homes from which the structure is visible.

Figure 8E.3-2
Floodway Inlet Control Structure

Note: Photograph taken from downstream facing upstream of the Floodway Inlet Control Structure
Source: InterGroup Consultants Ltd. (June 9, 2004).

West Dyke

The West Dyke, sometimes referred to as the Brunkild Dyke or 'Z' Dyke, runs along high ground on the west side of the Red River Valley between the Inlet Control Structure and the community of Brunkild in the RM of Macdonald to prevent floodwaters from entering Winnipeg from the west around the Floodway Inlet Control structure. It is approximately 70 kilometres (44 miles) in length with grassed slopes typically located adjacent to agricultural lands and small local roads. Figure 8E.3-3 shows the West Dyke from the air, and illustrates the typical agricultural land use along the embankment. The West Dyke is made of clay, typically stands 3 metres (10 feet) above the landscape, with substantial coverage of grass.

Figure 8E.3-3
West Dyke

Note: Aerial photo taken of portion of West Dyke and surrounding land use.
Source: Tetr*ES* Consultants Inc. (June 9, 2004).

Floodway Outlet Structure

The Floodway Outlet Structure is a large structure of concrete placed at the point where waters from the Floodway re-enter the Red River near Lockport. Figure 8E.3-4 shows the Floodway Outlet Structure, with water leaving the Floodway Channel and entering the Red River. The Structure is designed to reduce the velocity of water as it exits the Floodway Channel. However, during interviews there were concerns raised about the amount of erosion on the West Bank of the river during Floodway Operations. In the winter, many individuals have fishing shacks in and around this structure. There is partial access via a gravel road and footpath down to the Floodway Outlet Structure.

Figure 8E.3-4
Floodway Outlet Structure

Note: Photograph taken upstream of outlet from near Highway 44 Bridge facing downstream.
Source: InterGroup Consultants Ltd. (June 12, 2004)

4.0 PROFILE OF HEALTH IN THE FLOOD STUDY REGION

The following provides an overview of:

- Regional Health Authorities in the Flood Study Region
- Health Status Indicators for the Flood Study Region communities serviced by the Regional Health Authorities[4]
- Key Perspectives about Health in the Flood Study Region

Brokenhead Ojibway Nationa nd Peguis First Nation are located within the Interlake Regional Health Authority and are included in the demographic data for the Interlake region, however health services and data collection for the two reserve communities are supported and provided through the Federal First Nations and Inuit Health Branch (Health Canada, 2004). However, when needed reserve residents

[4] The health status indicators do not include data from Brokenhead Ojibway Nation and Peguis First Nation.

from Brokenhead Ojibway nation and Peguis First Nation use health facilities and services located in the Interlake Regional Health Authority communities.

4.1 OVERVIEW OF REGIONAL HEALTH AUTHORITIES IN THE FLOOD STUDY REGION

The following provides an overview of the population and Flood Study Region communities in each of the regional health authorities. The Regional Health Authorities maintain population demographics for all communities in their region (including residents of First Nations who are registered with Manitoba Health),

Winnipeg Regional Health Authority (WRHA)

The Winnipeg Regional Health Authority is the largest health authority and is the major service provider to the Flood Study Region. The WHRA is officially responsible for 12 districts in the City of Winnipeg, East St. Paul and West St. Paul with a total population of about 656,000 (Manitoba Population Health Report, June 1, 2002).

The WRHA provides health services not only to these 12 districts but also more specialized services for all of Manitoba that are not always provided through rural and northern Manitoba health authorities.

Regional Health Authority – Central Manitoba Inc. (RHA – Central)

RHA - Central covers a large agricultural and industrial area serving 18 municipalities with a total population close to one hundred thousand (Manitoba Health Population Report, June 1, 2002). Only about 10 per cent of this population is included in the Flood Study Region including the Rural Municipalities of Macdonald and Morris and the Town of Morris.

South Eastman Regional Health Authority (SE-HA)

The SE-HA has been divided into four health districts (Central, Southern, Western and Northern) with a total population of about 56,000 (Manitoba Population Health Report, June 1, 2002). Just over half (about 51 per cent) of this population falls into the Flood Study Region including the entire Western District (RM of Richot, RM of DeSalaberry, Village of St. Pierre-Jolys, Town of Niverville), as well as the RMs of Hanover and Taché.

North Eastman Regional Health Authority (NE-HA)

The total population of the NE-HA region is about 38,000, however only the RM of Springfield is included in the Flood Study Region. The RM of Springfield comprises approximately 31 per cent of the total NE-HA population.

Interlake Regional Health Authority (IRHA)

The IRHA includes a total population of about 75,000, including the First Nation communities of Brokenhead and Peguis (Manitoba Health Population Report, June 1, 2002) and is further divided into four districts (the North East, North West, South East, South West). The Flood Study Region includes about 41 per cent of the entire IRHA population. The South East District of the IRHA provides health service to the RMs of St. Andrews and St. Clement, the City of Selkirk and to a limited extent the Brokenhead Ojibway Nation. The IRHA also provides limited services to the Peguis First Nation, located in the South West District. Important to note is the First Nation communities of Peguis and Brokenhead

primarily receive support and health services and care from FNIHB; although they may use the facilities and services within the IRHA communities (i.e. Selkirk hospital). FNIHB provides the financial support for the use of any IRHA services by First Nation members (Health Canada First Nations and Inuit Health Branch 2004).

4.2 HEALTH STATUS INDICATORS FOR THE FLOOD STUDY REGION

The following indicators of health were compiled, based on the data presented in the above mentioned report, for the health authorities and wherever possible, broken down to the relevant districts in the Flood Study Region:

- Infant and Maternal Health
- Mortality
- Illness Burden
- Hospital Utilization

Health indicators such as these can be used to monitor and report on progress towards health goals and objectives, and allow for comparisons of health status between different populations and over time. Nevertheless, caution should be used in examining data for small populations such as in the non-Winnipeg Regional Health Authorities. Wherever possible, health indicators are compiled for the most recent time period available (generally 1996 to 2000) and compared to each of the Regional Health Authorities relevant to the Flood Study Region as well as compared to the Manitoba rates on the whole.

4.2.1 Infant and Maternal Health

Infant and maternal health includes discussion of teen pregnancy rates, pre-term births, high and low-birth weight rates and infant mortality rates. The health of mothers and infants is an important aspect of the health of the community because it often predicts the health of the future (Health Canada, 2004).

- Birth Rate of Teen Mothers: The teen pregnancy rate is the ratio of the number of pregnancies per thousand females ages 15 through 19 years. All of the rural communities in the Flood Study Region experienced lower teen pregnancy rates than the average rates for Manitoba (61.39 pregnancies per 1,000 women aged 15 to 19 between 1996 to 2000) or Winnipeg (64.31 between 1996 to 2000). The Manitoba rural south teen pregnancy rate was 29.26 pregnancies per 1,000 women aged 15 to 19 between 1996 to 2001. South Eastman RHA experienced a teen pregnancy rate of about 28.06 between 1996 to 2000. Manitoba - Central RHA experienced a higher rate of 40.68 pregnancies per thousand teenagers (aged 15 to 19) between 1996 to 2000. Although North Eastman RHA experienced the highest rate between 1996 to 2001 at 65.07, the RM of Springfield, which is the only North Eastman community in the study region, experienced the lowest teen pregnancy rate with an average of 29.26 pregnancies per 1,000 women aged 15 to 19 between 1996 to 2000.
- Preterm births: Pre-term births is the percentage of live born infants who were delivered before 37 weeks gestation. Infants born pre-term are more susceptible to being of low-birth weight and resulting in problems with their respiratory or circulatory systems. In addition,

length of hospital stays and maternal health are affected by preterm births. The rural RHA's in Southern Manitoba had, on average, lower pre-term birth rates (6.5 per cent from 1996 to 2000) than that of Winnipeg preterm birth rate of 7.5 per cent from 1996 to 2000 or the whole of Manitoba's average preterm birthrates (7.1 per cent of 1996 to 2000). In the Flood Study Region, the South Eastman Regional Health Authority (including Hanover, Ritchot, De Salaberry, St. Pierre-Jolys, Niverville and Taché) experienced lower than average preterm birth rates of 6.6 per cent (1996 to 2000). The North Eastman Regional Health Authority (which only includes the Flood Study Region community of Springfield) percentage of infants born pre-term (7.0 per cent from 1996 to 2000) was about the same as the provincial average, however, further breakdown into the sub-regions of the RHA indicate the preterm birth rate for Springfield alone was nearly the lowest in all of Manitoba at 4.7per cent from 1996 to 2000. The Interlake Regional Health Authority (which includes the Flood Study Region populations of St. Andrews, St. Clement, Selkirk and Brokenhead Ojibway Nation) had the highest preterm birthrates of the rural communities in the Flood Study Region at 7.5 per cent from 1996 to 2000. While Central Manitoba Regional Health Authority had a relatively stable and low preterm birth rate of 5.5 per cent between 1996 and 2000.

- Low and High Birth Weight Rates: Low birth weight rate (LBW) is the ratio of infants who are born weighing less than 2,500 grams to the total number of infants born in a particular time period. Overall, the proportion of births considered to be LBW in the southern rural districts of Manitoba was less (4.6% from 1996 and 2001) than in the province as a whole (5.1% from 1996 to 2001). The Flood Study Region RHAs experienced similar rates of infants who where born with a low birth weight. The Interlake Regional Health Authority experienced a LBW rate similar to that of the province at 5.0% between 1996 to 2000. The North Eastman RHA experienced an overall low birth weight rate of 4.8% from 1996 to 2001, but again, the district of Springfield within the North Eastman RHA experienced a much lower rate at 3.5% for the time period of 1996 to 2000. High birth weight rate (HBW) is calculated as the ratio of the number of infants born weighing more than 4,000 grams to the total number of infants born in a certain time period. The rural southern districts in Manitoba experienced a HBW higher (16.9% 1996 to 2000) than that experienced by Manitoba on whole (15.6% between 1996 to 2000) and by Winnipeg (13.9% between 1996 to 2000). The data shows there is a higher prevalence of high birth weight infants being born between rural RHAs than the urban region of Winnipeg and Manitoba on whole. South Eastman RHA experienced A HBW rate of 15.1% (1996 to 2000). Central RHA experienced a HBW of 17.2% (1996 to 2000) and the Interlake RHA experienced a HBW of 17.8 (1996 to 2000). The North Eastman RHA was slightly lower with a rate of 16.9% (1996 to 2000) – again, within the North Eastman Health Authority, the RM of Springfield experienced a lower rate at 15.8% (1996 to 2000).
- Infant Mortality (does not include stillbirths or miscarriages): The infant mortality rate is the ratio of deaths occurring in the first year of life to the total number of infants born in a certain time period. Infant mortality is an indicator of the level of mortality, health status and level of health care of a region. It also indicates the effectiveness of preventive care and the attention paid to the health of the mother and her child (both while the mother is pregnant and in the post partum period). In southern rural Manitoba, there has been a somewhat higher infant mortality rate (6.9 deaths per thousand infants in the latter half of

the 90's – 1995 to 1999) than seen in Winnipeg (6.5 between 1995 to 1999). Whereas Manitoba showed a relatively similar infant mortality rate to southern rural Manitoba with 7.25 between 1995 to 1999. The mortality rate for South Eastman RHA was 7.23 between 1995 and 1999. For Central Manitoba RHA the Infant Mortality Rate was 7.99 (1995 to 1999). Slightly higher were the rates for the Interlake Regional Health Authority (7.38 for 1995 to 1999) and North Eastman RHA (9.12 between 1995 to 1999). Data were not further divided into the division of Springfield, therefore additional data not available.

4.2.2 Mortality

Included in this section is an overview of the overall mortality rate, the premature mortality rate and potential years of life lost for each of the regions assessed. Overall mortality rates allow one to track long-term success in reducing deaths in specific locations. In addition, the Potential Years of Life Lost (PYLL) emphasizes causes of death that tend to be more predominant among younger persons, such as accidents and congenital anomalies. When relaying information for each region, it is important to note that data was compiled based on a population approach, and thus deaths, even though they may occur in an urban hospital are attributed back to the individuals place of residence and therefore included in their local Regional Health Authorities statistics and not in the place where the death occurred.

- Mortality Rate: Mortality rate is the ratio of the number of deaths to the total population in a given time period. Between 1995 and 1999 the mortality rate in Southern Rural Manitoba, Winnipeg and in the Province overall, was very similar. During this time period, the mortality rate for Southern Rural Manitoba was 7.97, and Winnipeg mortality rate was 7.88 while the Province overall experienced a rate of 7.99. South Eastman RHA experienced a mortality rate of 7.08 between 1995 and 1999. Central Manitoba RHA mortality rate was 7 7.77 between 1995 and 1999. Slightly higher in the Interlake region, the mortality rate was 8.08 between 1995 and 1999. North Eastman experienced mortality rates similar to that of Winnipeg, at 7.86 between 1995 and 1999 – however, Springfield, a district within North Eastman Region experienced quite a bit lower than average mortality rate at 6.43 between 1995 to 1999.
- Premature Mortality (PMR): The Premature mortality rate (PMR) is the rate of death before the age of 75 years that is age and sex adjusted. The Manitoba Centre for Health Policy relies on PMR as an important measure of health status of a region's population indicating, "PMR is highly associated with morbidity, and with self-rate health" (MCHP, 2003, p.43). The regions with a low PMR are more likely to have an overall good health status, whereas communities with a high PMR are more likely to use more health care services and be at more risk for health problems (MCHP, 2003, p.43). For Southern rural Manitoba the PMR was 3.23 between 1995 and 1999. This is quite a bit lower than the PMR for Winnipeg which was at 4.62 1995 to 1999. The South Eastman RHA had a PMR lower than the southern rural Manitoba PMR with a rate of 2.71 between 1995 to 1999. Central – Manitoba RHA experienced PMR of 3.01 between 1995 and 1999. Whereas the Interlake RHA PMR (3.40 from 1995 to 1999) and North Eastman RHA PMR (3.67 from 1995 to 1999) were higher than the Manitoba average of 3.32 from 1995 to 1999.

- Potential Years of Life Lost (PYLL): The Potential Years of Life Lost (PYLL) is the number of years of life lost per thousand population ages one through 74. This measure emphasizes causes of death that tend to be more predominant among young persons and in the data set used by Manitoba Centre for Health Policy is broken down by sex. Between 1996 to 2000 for all Manitoba Regions and districts the PYLL was higher for males than for females and this was especially the case for southern rural RHA's. The PYLL for the South Eastman RHA was 60.19 for males and 33.19 for females. For Manitoba – Central RHA the PYLL for males was 61.07 and only 36.87 for females. For Interlake RHA the PYLL for males was 68.71 and for females was 50.65. Although the PYLL for North Eastman RHA was quite high, with 76.01 for males and a PYLL of 50.65 for females, the Springfield district experienced PYLL quite a bit lower than in its RHA, with 45.05 PYLL for males and 31.18 PYLL for females.

4.2.3 Illness Burden

The health care world has brought increasing attention to the prevalence and burden chronic diseases such as diabetes, hypertension, heart conditions and cancer have on the health care system in today's western society. Although the rate of illness burden for each of these conditions has not been consistent among all regions, there is a trend of increasing rates of chronic diseases. A brief overview for each of these is presented below.

- Diabetes: Diabetes data was collected for two-year time periods, from 1993/94 to 1995/96 and 1998/99 to 2000/01. The data are presented as age-sex adjusted diabetes treatment prevalence rates, which is the occurrence of at least two physician visits or one hospitalization with a diabetes diagnosis in a three-year period expressed as a percentage of pf persons aged 20 to 79 in the region. Southern Manitoba and the Flood Study Region have a much lower diabetes rate than Northern Manitoba, however when compared between time one (1993/94 to 1995/96) and time two (1998/99 to 2000/01) all districts in the study experienced an increased prevalence of diabetes diagnosis/treatment. Southern rural Manitoba had a diabetes prevalence rate of 4.5 per cent between 1993/94 and 1995/96 and 5.4 per cent between 1998/99 to 2000/01. The Winnipeg RHA experienced similar diabetes rate of 4.4 per cent from 1993/94 to 1995/96 and 5.3 per cent from 1998/99 to 2000/01. Experiencing somewhat lower diabetes prevalence rates was the South Eastman RHA (3.6% from 1993/94 to 1995/96 and 4.4% from 1998/99 to 2000/01) and Central RHA (3.9% from 1993/94 to 1995/96 and 4.8% from 1998/99 to 2000/01). The Interlake RHA experiences a diabetes prevalence rate of 4.9 per cent between 1993/94 to 1995/96 and 5.9% between 1998/99 to 2000/01. The North Eastman Regional Health Authority experienced the highest diabetes rate in southern Manitoba, however, Springfield, within the North Eastman RHA, experienced one of the lowest diabetes prevalence rates at 3.5% between 1993/94 to 1995/96 and 4.0% between 1998/99 to 2000/01.
- Hypertension: The prevalence of hypertension is expressed as an age and sex-adjusted percentage of persons aged 25 or older who had at least one physician visit for hypertension in a three-year period. The most southern regions have very similar prevalence of hypertension with the Manitoba average, all experiencing a hypertension rate of 22% between 1998/99 to 2000/01. South Eastman experienced a lower than average

hypertension rate of 21%. Higher than the average rate, was the Interlake RHA at 24% and North Eastman Region at 23%, although, the district of Springfield, experienced quite a low hypertension rate of only 20%. Again, in all cases these rates were higher than rates recorded for the 1993/94 to 1995/96-time period.

- Acute Myocardial Infarction (Heart Attacks): The rate of heart attacks across Southern Manitoba has remained relatively stable over time. The prevalence of heart attacks is characterized as the combined number of hospitalizations for acute myocardial infarction (heart attacks) experienced per thousand residents of the area aged 20 or older, averaged over the five-year time span to give an average annual rate. In southern rural Manitoba, the AMI prevalence rate was 2.30 between 1996/97 to 2000/01. During this same time period, the AMI rate for South Eastman RHA was 2.03 and for Central – Manitoba RHA was 2.25. The Interlake RHA AMI rate was the highest in the region at 2.56. The North Eastman RHA was similar to that of Winnipeg at 2.06, however, the district of Springfield was a fair bit lower than the rest of the region at 1.76.
- Cancer: Cancer rate is age and sex adjusted to be representative of the Manitoba population on whole, and is expressed as the number of new cases of cancer per thousand residents of the area, averaged over the five-year period to give an annual rate. Data were not available on the types of cancer that were most prevalent. Cancer rates have remained relatively stable throughout southern Manitoba. Between 1996 to 2000, Rural southern Manitoba experienced a cancer rate of 5.46 per thousand residents in the area. Somewhat lower rates were seen in the South Eastman RHA (5.30) and Central – Manitoba RHA (5.11). The Interlake RHA was higher than the southern rural Manitoba rate at 5.58, but this was still lower than the Winnipeg average cancer rate (5.66) and Manitoba average rate (5.61). North Eastman experienced a cancer rate of 5.26, however, Springfield district experienced the lowest rate in the region at 4.26 per 1,000 residents age 20 and over.

4.2.4 Hospital Utilization

Hospital utilization refers to impatient visits to hospitals. There are a number of factors that contribute to differences in rates of hospitalization including, hospital bed availability, physician practice patterns, availability of suitable ambulatory care and home and community support. For 1996 to 2000, in southern rural Manitoba, 68.6 per cent of residents are hospitalized within their own regional health authority, and 20.1 per cent are hospitalized in Winnipeg, while the remaining 11.3 are hospitalized in other areas of Manitoba or out of Province. The Province on whole utilizes hospitals within their own RHA 84.8% of the time, and other Manitoba RHA's use Winnipeg hospitals only 9.2% of the time, however, these rates vary greatly depending on the size and remoteness of the district and region.

4.3 PERSPECTIVES ABOUT HEALTH IN THE FLOOD STUDY REGION

A number of factors contribute to the overall health of a community, including the physical and natural environment, including water and air quality, as well as characteristics of individuals and families living in the Flood Study Region. Personal perceptions based on previous experiences and cultural values and norms play a role in the overall ability of a community, and its individuals and family, to manage day-to-day life and to effectively respond to crisis or disaster. This section reviews information gleaned from

interviews with community members and health and social service providers within the Flood Study Region health authorities regarding health status and health issues of population in the Flood Study Region.

Overall, local health care providers indicated that municipalities and communities in their Regional Health Authorities, specifically those in the Flood Study Region, are in good health and are generally healthier than the rest of Manitoba on the whole. They cited many social, physical and economic characteristics of their municipalities and a community that have played an important role in the overall good health of their regions and in many cases these characteristics are reflected in previous sections of this EIS (Infrastructure and Services and Economy). Because the health of the Flood Study Region is relatively stable, with few remarkable social or health issues to be dealt with, health care providers indicated in interviews that their focus of health care provision was on prevention and improved Public Health services.

Health care services, within the rural Flood Study Region, are provided at varying levels depending on the resources available, location and nature of the community. "Bedroom communities" whose residents are primarily within the Winnipeg commuter shed have limited local health services and tend to use Winnipeg hospitals, general practitioners and other public health services (i.e., RMs of Ritchot, Taché, Macdonald, West St. Paul and East. St. Paul). Public Health Coordinators indicated that two municipalities, RM of Hanover in SEHA and RM of Springfield in NEHA, have had strong local level advocacy for better local health care services. Local resident groups, each from Niverville and Oakbank, pulled together within the past three years have successfully advocated for Primary Health Service Centers to be built within their communities. As a result of these Centres becoming operational in the region, local use of health services is increasing in these municipalities -- at Niverville (RM of Hanover) and Oakbank (RM of Springfield). In addition, key persons noted the extensive health services available at St. Pierre-Jolys, which services much of the surrounding French-speaking population. The remainders of the municipalities in the Flood Study Region beyond the main commuter shed of Winnipeg are long-standing communities with health services provided locally (i.e. Town of Morris, Town of St. Adolphe). Emergency Response Services are provided at varying levels locally through volunteer and paid services; however, there is a considerable amount of resource sharing in emergency response services among all of the five regional health authorities when demands exceed capacity (WRHA *pers. comm.* 2004; NEHA *pers. comm.* 2004; RHA-Central *pers. comm.* 2004; SE-HA *pers. comm*. 2004; IRHA *pers. comm.* 2004).

Despite these positive factors, health care providers indicated that the following issues create barriers to achieving better health within certain parts of the Flood Study Region:

- Mental Health**:** Mental health was a particular concern for some portions of the Flood Study Region, including increases in genetically linked mental health disease, sometimes associated with high social needs (e.g., schizophrenia).
- Hypertension**:** In all regions (including communities within the Flood Study Region and beyond), hypertension rates have increased over the past ten years.
- Declining and Aging Populations**:** in the more rural/agricultural based communities.
- Rapid Growth in Ex-urban Bedroom Communities: with no increase in health care resources.

- Groundwater Quality: especially as it relates to personal, private wells and safe consumption of water. During key person interviews it was evident that, historically, groundwater quality was more of a concern than it is today as most bedroom communities are moving toward municipal water supplies. The key factor contributing to concern about safe water consumption was related to contamination of private and personal wells by either backwater flooding effects with contaminated water spilling into wells used for drinking water and the management of agriculture near communities, especially as it related to livestock manure seeping into the groundwater and contaminating wells.
- Other Environmental Conditions: Minor environmental concerns were mentioned occasionally during some key person interviews related to agricultural activities in conflict with ex-urban community developments (i.e. field burning, livestock industry and related smell and contamination of water supply).

5.0 CULTURE AND SPIRITUALITY INDICATORS

Table 8E.5-1
Religious Denominations for the City of Winnipeg, Flood Study Region excluding Winnipeg, Flood Study Region and Manitoba: 2001

Religious Denomination	City of Winnipeg	Flood Study Region excluding Winnipeg	Flood Study Region	Manitoba
Roman Catholic	30.2%	23.5%	29.3%	26.9%
No religion	21.3%	15.6%	20.5%	18.5%
United Church	12.9%	11.4%	12.7%	16.2%
Anglican	7.1%	9.0%	7.3%	7.9%
Christian not included elsewhere	3.6%	6.6%	4.0%	4.1%
Lutheran	4.5%	6.7%	4.8%	4.6%
Mennonite	2.6%	10.3%	3.7%	4.7%
Ukrainian Catholic	2.7%	3.9%	2.9%	2.7%
Baptist	2.1%	2.2%	2.1%	2.1%
Protestant not included elsewhere	1.9%	2.0%	1.9%	1.9%
Jewish	2.1%	0.2%	1.8%	1.2%

Source: Statistics Canada: 2001 Census of Canada
Note:
1996 Census of Canada did not include Religious denomination questions. These questions are asked only once every ten years.

People in the Flood Study Region identify with a wide array of religious denominations. The largest percentage of people self-identified in the 2001 Census of Canada with some form of Christian denomination. In Winnipeg the largest proportion of individuals (30 per cent) identified themselves as Roman Catholic or of no religious background (21 per cent). Beyond Winnipeg in the Flood Study Region, Roman Catholic remains the largest religious affiliation (24 per cent), followed by no religious affiliation (15 per cent); Mennonite is identified by about 11 per cent of people outside of Winnipeg in the Flood Study Region.

Communities in the Flood Study Region are ethnically diverse. Several cultural or ethnic backgrounds were self-identified in the 2001 Census of Canada; the majority were from Europe (Table 8E.5-2 presents Statistics Canada data regarding self-identification of ethnic background). Although many individuals identified themselves as 'Canadian' or of 'English' background there is also a substantial German population, especially in the Rural Municipalities of Hanover, De Salaberry and Morris and the Towns of Niverville and Morris. A substantial French ethnic background was found in the RMs of Taché, De Salaberry, and Ritchot and in the Village of St. Pierre-Jolys.

As expected, the prevalence of an Aboriginal background is strongest within Brokenhead Ojibway Nation (about 80 per cent) and Peguis First Nation (about 88 per cent). Throughout the Flood Study Region about three per cent of people identified themselves as "North American Indian" or "Métis", as defined by Statistics Canada.

Table 8E.5-2
Ethnic Origin for Flood Study Region Communities, Flood Study Region and Manitoba: 2001

Flood Study Region Communities	Canadian	English	French	Scottish	Irish	German	Ukrainian	Dutch	Polish	North American Indian	Russian	Filipino	Métis
City of Winnipeg	12.1%	12.5%	7.6%	10.1%	7.6%	9.0%	8.4%	2.1%	4.2%	3.0%	1.3%	2.9%	2.7%
City of Selkirk	13.8%	12.7%	5.6%	12.1%	6.3%	7.5%	10.4%	1.7%	5.6%	6.3%	0.3%	0.2%	6.1%
Town of Niverville	15.3%	7.9%	5.9%	7.9%	2.1%	31.9%	3.6%	11.4%	2.2%	0.4%	7.4%	0.0%	0.6%
Town of Morris	11.8%	13.3%	5.7%	8.8%	7.5%	27.1%	4.0%	5.5%	0.7%	0.8%	5.8%	0.0%	1.5%
Village of St. Pierre-Jolys	25.4%	6.3%	29.6%	3.3%	4.2%	11.8%	1.2%	0.9%	0.0%	1.8%	0.6%	0.0%	8.8%
RM of De Salaberry	20.7%	6.5%	23.4%	4.1%	3.0%	17.1%	5.2%	4.9%	0.9%	0.7%	1.6%	0.0%	9.6%
RM of Taché	18.6%	9.2%	15.1%	7.1%	5.2%	14.2%	6.8%	3.3%	3.8%	0.7%	1.5%	0.1%	4.4%
RM of Ritchot	20.5%	9.2%	22.2%	5.7%	4.8%	10.5%	6.1%	2.8%	2.8%	0.3%	1.5%	0.0%	5.7%
RM of Morris	18.2%	6.4%	6.0%	3.8%	3.3%	29.2%	0.9%	17.2%	2.6%	0.8%	5.6%	0.0%	0.6%
RM of Macdonald	15.7%	12.6%	9.3%	8.3%	7.5%	16.2%	4.8%	3.8%	3.6%	0.5%	1.5%	0.6%	1.7%
RM of Springfield	12.3%	13.4%	6.4%	9.2%	7.0%	13.2%	11.3%	4.5%	6.4%	1.4%	1.3%	0.1%	1.9%
RM of East St. Paul	12.0%	10.7%	4.8%	9.5%	6.7%	14.0%	17.8%	3.2%	7.4%	0.4%	1.6%	0.1%	1.1%
RM of West St. Paul	12.1%	12.5%	4.8%	6.3%	7.4%	9.7%	17.3%	2.6%	10.1%	0.2%	1.0%	0.7%	2.0%
RM of St. Andrews	12.0%	12.6%	4.7%	10.6%	7.6%	11.7%	14.3%	2.3%	6.1%	1.8%	0.7%	0.1%	3.0%
RM of St. Clements	12.4%	10.8%	5.4%	9.0%	5.9%	11.6%	15.8%	3.0%	8.2%	2.5%	0.9%	0.1%	3.4%
RM of Hanover	17.8%	4.6%	3.6%	3.0%	2.5%	35.3%	4.4%	13.5%	1.3%	0.4%	8.8%	0.0%	0.8%
Brokenhead Ojibway Nation	0.0%	4.5%	3.4%	2.3%	2.3%	3.4%	0.0%	0.0%	0.0%	79.5%	0.0%	0.0%	4.5%
Peguis First Nation	1.3%	2.9%	1.6%	1.8%	1.3%	0.9%	0.5%	0.4%	0.0%	87.9%	0.0%	0.0%	1.1%
Flood Study Region Total	**12.4%**	**12.2%**	**7.6%**	**9.8%**	**7.3%**	**9.9%**	**8.6%**	**2.4%**	**4.3%**	**3.0%**	**1.4%**	**2.5%**	**2.7%**
Manitoba Total	**13.0%**	**12.6%**	**7.2%**	**10.1%**	**7.4%**	**10.3%**	**8.1%**	**2.6%**	**3.8%**	**5.6%**	**1.4%**	**1.6%**	**2.9%**

Source: Statistics Canada: 2001 Census of Canada.

Notes:

Total population by ethnic origin (single and multiple responses) - 20% Sample Data.

Refers to the ethnic or cultural group(s) to which the respondent's ancestors belong. Ethnic or cultural origin refers to the ethnic 'roots' or ancestral background of the population, and should not be confused with citizenship or nationality.

Table 8E.5-3
Mother Tongue[1] of Flood Study Region Residents[2]: 1996 and 2001

Community	1996			2001		
	English	French	Non-official languages	English	French	Non-official languages
City of Winnipeg	75.5%	4.4%	20.1%	75.4%	4.2%	20.4%
City of Selkirk	90.9%	1.3%	7.9%	91.1%	1.2%	7.7%
Town of Niverville	64.0%	1.6%	34.4%	66.8%	5.5%	27.2%
Town of Morris	69.3%	5.6%	25.4%	75.9%	4.7%	19.4%
Village of St. Pierre-Jolys	25.1%	70.2%	4.7%	34.9%	59.0%	6.0%
RM of De Salaberry	31.5%	47.0%	21.5%	36.3%	40.7%	22.9%
RM of Taché	69.2%	18.6%	12.2%	72.3%	15.5%	12.2%
RM of Ritchot	58.6%	32.7%	8.6%	63.0%	29.5%	7.4%
RM of Morris	53.1%	6.1%	40.7%	62.6%	5.2%	32.2%
RM of Macdonald	79.8%	6.4%	13.8%	81.5%	6.4%	12.2%
RM of Springfield	83.4%	2.5%	14.0%	85.9%	2.4%	11.6%
RM of East St. Paul	83.9%	1.0%	15.0%	81.6%	1.0%	17.4%
RM of West St. Paul	75.8%	3.0%	21.0%	79.2%	1.9%	18.9%
RM of St. Andrews	85.5%	1.6%	12.9%	88.2%	1.5%	10.4%
RM of St. Clements	84.0%	1.4%	14.5%	84.9%	2.1%	13.0%
RM of Hanover	56.8%	1.7%	41.5%	59.0%	1.4%	39.7%
Brokenhead Ojibway Nation	90.9%	0.0%	9.1%	94.6%	0.0%	5.4%
Peguis First Nation	98.3%	0.0%	2.0%	96.2%	0.4%	3.6%
Flood Study Region	**75.4%**	**4.8%**	**19.8%**	**75.7%**	**4.5%**	**19.8%**
Manitoba	**75.2%**	**4.4%**	**20.4%**	**75.8%**	**4.1%**	**20.2%**

Source: Statistics Canada: 1996 and 2001 Census of Canada.

Notes:

1. Refers to the first language learned at home in childhood and still understood by the individual at the time of the census.
2. Total population by mother tongue - 20% Sample Data.

Language is an indicator of culture. Although English is the language spoken most often in the Flood Study Region, there are many other languages first learned in the home and continued to be used. French is also a predominant language in the Flood Study Region, especially among rural communities that maintained a Francophone heritage and culture such as the Village of St. Pierre-Jolys (70 per cent spoke French as their first language learned at home) and the RMs of De Salaberry (47 per cent), Taché (19 per cent), and Richot (33 per cent) (Statistics Canada 2001). In addition to the two official Canadian languages spoken, nearly 20 per cent of the Flood Study Region identified other languages as their first language learned in the home. Of the "non-official" languages, German, Ukrainian and Pilipino were identified most often.

Overall, less than one per cent of residents of the Flood Study Region identified Cree or Ojibway as their first language. Statistics Canada data (Table 8E.5-4) also suggest that Aboriginal languages were identified infrequently as their first language by the Peguis First Nation (less than two per cent speak Cree or Ojibway as their first language) and by the Brokenhead Ojibway Nation (about 4 per cent speak Ojibway as their first language).

Table 8E.5-4
Percentage of Mother Tongue[1] Non-Official Languages[2] in Flood Study Region: 2001

Community	German	Ukrainian	Portuguese	Philipino	Cree	Ojibway	Other Languages
City of Winnipeg	3.3%	2.3%	1.1%	3.0%	0.3%	0.4%	10.0%
City of Selkirk	1.9%	2.6%	0.0%	0.2%	0.1%	0.1%	2.8%
Town of Niverville	25.9%	0.5%	0.0%	0.0%	0.0%	0.0%	0.8%
Town of Morris	16.9%	1.6%	0.0%	0.0%	0.0%	0.0%	1.0%
Village of St. Pierre-Jolys	4.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
RM of De Salaberry	19.4%	1.1%	0.0%	0.0%	0.0%	0.0%	2.4%
RM of Taché	9.1%	0.7%	0.1%	0.1%	0.0%	0.0%	2.2%
RM of Ritchot	4.4%	0.8%	0.0%	0.0%	0.0%	0.0%	2.2%
RM of Morris	30.7%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%
RM of Macdonald	9.2%	0.6%	0.3%	0.3%	0.0%	0.0%	1.8%
RM of Springfield	5.5%	2.5%	0.0%	0.1%	0.0%	0.0%	3.4%
RM of East St. Paul	7.4%	3.7%	0.3%	0.0%	0.0%	0.0%	5.9%
RM of West St. Paul	2.7%	4.9%	1.2%	0.6%	0.0%	0.0%	9.5%
RM of St. Andrews	3.5%	3.3%	0.5%	0.0%	0.1%	0.1%	2.9%
RM of St. Clements	5.2%	3.6%	0.4%	0.2%	0.0%	0.0%	3.6%
RM of Hanover	35.6%	1.1%	0.0%	0.0%	0.0%	0.0%	3.0%
Brokenhead Ojibway Nation	0.0%	0.0%	0.0%	0.0%	0.0%	4.1%	1.3%
Peguis First Nation	0.0%	0.0%	0.0%	0.0%	1.8%	1.4%	0.4%
Flood Study Region	4.2%	2.3%	1.0%	2.6%	0.3%	0.3%	9.1%
Manitoba	5.8%	2.4%	0.6%	0.6%	1.7%	0.8%	7.9%

Source: Statistics Canada: 2001 Census of Canada.

Notes:

1. Refers to the first language learned at home in childhood and still understood by the individual at the time of the census.
2. Non-Official Languages determined by dividing the type of language reported by the total number of single responses.

Table 8E.5-5
Percentage of Home Languages[1] Spoken in the Flood Study Region: 1996 and 2001

Community	Percentage of Home Languages Spoken[2]:					
	1996			2001		
	English	French	Non-official languages	English	French	Non-official languages
City of Winnipeg	89.7%	1.9%	8.4%	94.3%	0.9%	4.8%
City of Selkirk	99.4%	0.0%	0.6%	99.7%	0.0%	0.3%
Town of Niverville	92.5%	0.0%	7.9%	94.9%	0.0%	4.8%
Town of Morris	91.9%	2.2%	5.9%	98.2%	0.0%	1.8%
Village of St. Pierre-Jolys	35.8%	63.6%	1.2%	56.4%	42.6%	0.0%
RM of De Salaberry	43.7%	42.3%	14.1%	67.0%	27.6%	5.4%
RM of Taché	87.3%	10.5%	2.1%	96.2%	2.9%	1.0%
RM of Ritchot	76.9%	21.8%	1.2%	89.1%	10.5%	0.5%
RM of Morris	83.7%	5.0%	11.6%	94.5%	0.7%	5.1%
RM of Macdonald	93.4%	2.5%	4.1%	98.6%	1.1%	0.4%
RM of Springfield	95.5%	0.8%	3.7%	98.4%	0.2%	1.4%
RM of East St. Paul	97.9%	0.0%	2.2%	98.8%	0.0%	1.1%
RM of West St. Paul	94.9%	0.4%	4.7%	96.7%	0.0%	3.3%
RM of St. Andrews	98.7%	0.1%	1.2%	99.0%	0.1%	0.9%
RM of St. Clements	97.0%	0.2%	2.8%	99.3%	0.2%	0.5%
RM of Hanover	87.5%	0.4%	12.1%	90.4%	0.0%	9.6%
Brokenhead Ojibway Nation	98.5%	0.0%	3.0%	100.0%	0.0%	0.0%
Peguis First Nation	99.3%	0.0%	0.5%	99.4%	0.0%	0.4%
Flood Study Region	**89.9%**	**2.2%**	**7.9%**	**94.5%**	**1.0%**	**4.4%**
Manitoba	**89.1%**	**2.0%**	**8.8%**	**94.5%**	**0.9%**	**4.6%**

Source: Statistics Canada: 1996 and 2001 Census of Canada data.

Notes:

1. Refers to the language spoken most often or on a regular basis at home by the individual at the time of the census.
2. Total population by home language.

Table 8E.5-6
Non-Official Home Languages[1] Spoken: 2001

Community	Chinese	German	Philipino	Cree	Ojibway	Other Languages
City of Winnipeg	0.4%	0.2%	0.8%	0.0%	0.0%	3.2%
City of Selkirk	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%
Town of Niverville	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%
Town of Morris	0.0%	1.1%	0.0%	0.0%	0.0%	0.7%
Village of St. Pierre-Jolys	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RM of De Salaberry	0.0%	3.4%	0.0%	0.0%	0.0%	2.0%
RM of Taché	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%
RM of Ritchot	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
RM of Morris	0.0%	4.6%	0.0%	0.0%	0.0%	0.5%
RM of Macdonald	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%
RM of Springfield	0.0%	1.1%	0.0%	0.0%	0.0%	0.3%
RM of East St. Paul	0.0%	0.6%	0.0%	0.0%	0.0%	0.5%
RM of West St. Paul	0.0%	0.3%	0.0%	0.0%	0.0%	3.0%
RM of St. Andrews	0.0%	0.1%	0.0%	0.0%	0.0%	0.8%
RM of St. Clements	0.0%	0.2%	0.0%	0.0%	0.0%	0.3%
RM of Hanover	0.0%	7.8%	0.0%	0.0%	0.0%	1.8%
Brokenhead Ojibway Nation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peguis First Nation	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
Flood Study Region	0.4%	0.4%	0.7%	0.0%	0.0%	2.9%
Manitoba	0.3%	0.9%	0.5%	0.5%	0.2%	2.3%

Source: Statistics Canada: 2001 Census of Canada.

Note:

1. Refers to the language spoken most often or on a regular basis at home by the individual at the time of the census.