Report - Standing Policy Committee on Property and Development – May 22, 2007

Minute No. 488
Item No. 1 Riverbank Stabilization of Private Property within the City of Winnipeg - Cost Benefit Analysis
File PR-4.5

COUNCIL DECISION:

Council concurred in the recommendation of the Standing Policy Committee on Property and Development and adopted the following:

1. That the Administration be directed to develop a policy for the establishment of a City of Winnipeg funding program for riverbank stabilization of privately owned properties, together with priority criteria, taking into consideration, but not limited to, any or all of the following, namely:

   A. Define lost revenues due to decreased assessment;

   B. Tax Increment financing as a City funding method;

   C. The Local Improvement process to assist homeowners in paying their share

   and report back to the Standing Policy Committee on Property and Development for the meeting of the Committee scheduled for September 4, 2007.

2. That the City of Winnipeg enter into discussion with the other levels of government and at a minimum the Province of Manitoba, to cost share a funding program for riverbank stabilization.

3. That the City of Winnipeg (Public Works) explore with the Province of Manitoba (Manitoba Floodway Authority) the option of utilizing the newly expanded Floodway for the purpose of mitigating and preventing erosion within the City of Winnipeg, combined with better management and use of the St. Andrews Lock and Dam in Lockport.

4. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

Report - Standing Policy Committee on Property and Development – May 22, 2007

DECISION MAKING HISTORY:

Moved by Councillor Swandel,

That the recommendation of the Standing Policy Committee on Property and Development be adopted.

Carried

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On June 13, 2007, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Property and Development and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On May 22, 2007, the Standing Policy Committee on Property and Development submitted the following to the Executive Policy Committee and Council, namely:

1. That the Administration be directed to develop a policy for the establishment of a City of Winnipeg funding program for riverbank stabilization of privately owned properties, together with priority criteria, taking into consideration, but not limited to, any or all of the following, namely:

   A. Define lost revenues due to decreased assessment;

   B. Tax Increment financing as a City funding method;

   C. The Local Improvement process to assist homeowners in paying their share

   and report back to the Standing Policy Committee on Property and Development for the meeting of the Committee scheduled for September 4, 2007.

2. That the City of Winnipeg enter into discussion with the other levels of government and at a minimum the Province of Manitoba, to cost share a funding program for riverbank stabilization.

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Report - Standing Policy Committee on Property and Development – May 22, 2007

DECISION MAKING HISTORY (continued)

RIVERBANK MANAGEMENT COMMITTEE RECOMMENDATION:

On May 10, 2007, the Riverbank Management Committee recommended to the Standing Policy Committee on Property and Development that the Administration be requested to investigate the feasibility of developing an emergency funding program for riverbank stabilization of privately owned properties in a critical situation, to be cost shared by the Government of Canada, Province of Manitoba, City of Winnipeg, and homeowners, with the City's portion being funded through the local improvement process.

Barry Kibsey, The Riviera Crescent Homeowners Association, submitted a communication and presentation dated April 23, 2007, with respect to Riverbank Stabilization of Private Property within the City of Winnipeg - Cost Benefit Analysis.

Riviera Crescent Homeowners Association

RESIDENTS OF 940 TO 990 RIVIERA CRESCENT

April 23, 2007

Dear Premier Doer and Mayor Katz:

As you are aware from previous correspondence from the Riviera Crescent Homeowners Association, we are experiencing ongoing major riverbank failure that immediately threatens some of our homes. This is a result of factors outside of our control, such as unusual and extreme weather events in the course of global climate change, high water levels during spring flooding, or rapid fall water drawdowns due to the operation of the federal locks in Lockport.

Many government representatives have come out to view our situation, including Kerri Irvin-Ross and Jenny Gerbasi, over the last two years. Rivera Crescent homeowners paid $15,000 for an engineering report on the current and potential future condition of the riverbank, complete with a rough cost estimate for stabilizing the bank – a figure in excess of $830,000 in 2005 for 12 properties. We have met with numerous governmental departments, including the EMO, to explain our situation and discuss what, if any, options would be available to us.

Generally, everyone that has viewed the riverbank collapse on our properties has recognized that some of our homes are at immediate risk; and all have agreed that we have a serious problem that falls neatly between the cracks of any current programs for assistance that are offered by any level of government. Also, any tri-level government cost-sharing ventures that have been utilized on previous riverbank projects are no longer in existence. The problem is real, immediate, and must be resolved.

The City of Winnipeg has acknowledged that homes on Riviera Crescent are in serious trouble, and have offered us a Local Improvement levy that would be paid back through our property taxes over the next 20-30 years. However the cost of the riverbank stabilization on Riviera Crescent, on average more than $70,000 per property, would increase our current taxes by $6000 - $8000 per homeowner, over and above what we are already paying. Taxes on any of our properties would be nearly $10,000/year, which is unmanageable for most homeowners, and additionally would render our properties nearly impossible for resale, should that become necessary. We are grateful for the City's offer of a Local Improvement, as it is the only assistance that we have been offered to date, but it will still be a tremendous burden for the majority of Riviera Crescent residents. We are willing pay something to resolve the issue, but the costs are just too high to bear entirely on our own.

Without an affordable plan to stabilize privately owned riverbanks within the city, bank regression will continue. As the fault line continues to move out, property values and, consequently, tax revenues for both the City and Province will decrease. At current levels of bank regression, homes will start to be lost within the next few years (Eng-Tech 2006) and taxes will no longer be collected on those properties – since there will be no homes or property remaining. Additionally, city streets and infrastructure such as sewer lines, gas lines, hydro poles, and bridges will be threatened; potentially resulting in millions of dollars in repair costs. The costs for riverbank stabilization to protect or relocate the street and other infrastructure would be borne entirely by the government – and be paid by everyone (not just river property owners) through their taxes.

The Riviera Crescent Homeowners Association would like to submit that riverbank stabilization is not just a problem for river property owners; it will soon become everyone's problem. We propose that it would benefit all levels of government to consider working together to develop a comprehensive plan to deal with the stabilization of both private and publicly owned properties in the City of Winnipeg, similar to earlier initiatives used for other waterways. Previous tri-level funding for Flood Protection works

showed positive cost benefit numbers, and has demonstrated that all levels of government will realize a long-term benefit by spending money on protection now rather than incurring expediential costs later. We believe that the best approach would be a combination of resources, between all levels of government and river property owners – while they still have properties to live on and protect. The costs incurred by the homeowners could be repaid through the Local Improvement process, and the costs incurred by the City and Province could be repaid over time through increased property taxes as the values of these properties increase, as opposed to decrease, if left unrepaired. If all parties share the costs, the burden will not be too heavy for any one party to bear.

We also believe that if a comprehensive plan is devised, riverbank stabilization should occur in various segments of the river over a period of years, extending well into the future. The plan could include a list of criteria that homeowners must meet to qualify, in order to determine most urgent need and priority for repair, and gradually over years the entire riverbank could be addressed. A government sponsored plan would also address any larger environmental issues, such as alterations in river hydrology in response to traditional methods of bank stabilization, fish habitat issues, and the use of bioengineering techniques instead of traditional "hard" engineering, which might not occur if homeowners were to take on the repairs on their own. Finally, a comprehensive plan might allow the City some leverage with river property owners for a time where the City might wish to extend public river walkways or bike paths through privately owned properties – an issue which the City has struggled with in the past.

To this extent, the Riviera Crescent Homeowners Association has prepared a Cost Benefit Analysis (attached) to demonstrate a number of the items identified above. The Analysis illustrates the losses both the City and Province will incur to property taxes if nothing is done, as well as the potential tax increases that could be gained if assistance is given. It also discusses the threat to public infrastructure in more detail, along with some discussion regarding our suggestions for a comprehensive plan and the benefits to all levels of government outside of the direct costs associated with tax losses/gains.

We urge you to read the document, and give the ideas serious consideration. We understand that much work would have to be done to instigate a program such as this, but we believe that it is necessary and an issue that requires your urgent attention. Premier Doer and Mayor Katz, this is not a problem that is going to disappear; if left unaddressed, it will perpetuate and become so large it will be nearly impossible rectify easily. We need forethought and initiative from our governments to deal with this problem now, while there is still time for all levels of government as well as private homeowners to gain benefit. Eroding and collapsing riverbanks are everyone's problem. We urge you to do something, and do it now, before homes and city infrastructure are lost. We would appreciate a response from you on this matter at your earliest convenience.

Sincerely,

The Riviera Crescent Homeowners Association

Contact: *Barry Kibsey,*
Sheila Reenders,
Wolfgang Jansen,

Riverbank Stabilization of Private Property within the City of Winnipeg

Cost Benefit Analysis

Submitted by the Riviera Crescent Homeowners Association

Prepared by:

Sheila Reenders (956 Riviera Crescent, Winnipeg, MB R3T 2J3, ph. 453-4792, moxie@mts.net)
and
Wolfgang Jansen (944 Riviera Crescent, Winnipeg, MB R3T 2J3, ph. 453-8681, wjansen@nscons.ca)

APRIL 23, 2007

Executive Summary

Premise: Meandering of rivers over time is natural, but cannot be allowed to continue through a major urban center such as Winnipeg. Many established cities containing major waterways have already addressed this problem and control their rivers with permanent, fixed solutions. Riverbanks must be maintained and contained, or the consequence will be massive property losses and threatened infrastructure that will require relocation and/or replacement at great cost to taxpayers. Riverbank stabilization is not just the problem of river property owners; if fault lines and riverbank failure are left to regress further it becomes everyone's problem – for both government and taxpayers alike.

Proposal: It is to the benefit of the City of Winnipeg and Province of Manitoba to assist in the cost of repairing riverbank failure on private properties. Stable river properties will have increased value, and increased revenue generation. Properties will not be left derelict or condemned. Stabilized private properties adjacent to public properties will further protect government investment in stabilization. It would be more cost-effective to participate in a joint venture with private citizens now, rather than the government shouldering the entire cost at a later date when infrastructure is threatened. A comprehensive joint-venture plan for preventing riverbank failure and stabilizing the banks will realize a cost savings and benefit for everyone.

Synopsis of Facts:

- The City and the Province will lose taxes due to the decrease in property values if privately owned riverbank properties are not repaired. Eventually there will be a complete loss of all taxes due to loss of the entire property.

- Based on only 12 properties on Riviera Crescent, **potential tax losses calculated over the next 20 years could be approximately $335,000 for the City and $305,000 for the Province** if the riverbank failure continues without repair. If these numbers are extrapolated to include even half of the privately owned riverbank properties that will experience riverbank failure in the future, the potential tax loss for both governments could be staggering.

- If left unrepaired, riverbank failure and fault lines will continue eroding through private properties until city streets and infrastructure are threatened. The City could then be responsible for the entire cost of relocating sewers, hydro lines, telephone poles, gas lines, etc. in addition to stabilizing the riverbank to protect and maintain the street.

- The cost to stabilize riverbanks with major failures is often too great for many homeowners to bear on their own; therefore the problem will remain unaddressed unless help can be found through other sources. If no help is offered, some properties could be abandoned and become derelict.

- If riverbank properties are repaired and stabilized in the early stages of bank failure, the cost of the repair is likely less.

- If the costs of riverbank stabilization can be shared initially – before properties and houses are severely impacted – it would benefit homeowners, the City, and the Province, as costs would be less for all concerned. The government could recover expenditures through higher tax revenues due to increases in stable river property values. Costs would be more manageable for homeowners, and riverbank repair projects would most likely proceed.

- Where public park lands and riverbanks are being stabilized, it would be advantageous to allow adjacent private property owners a plan by which they can address their own properties, which would then better protect the government's investment.

- Stabilization of all Winnipeg waterways – public or private – could assist with the City's long-term plans for Riverbank Parkways and Walkways, in garnering deals with private property owners.

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Background

The most characteristic feature of all stream channels, regardless of size, is the presence of frequent bends or meanders. Because of the uneven distribution of water velocities, bottom slope, and bed load particle size within each meander length, meanders represent river sections with high erosion potential, particularly during flood events.

If a river's natural erosive tendencies are allowed to proceed unchecked within an urban center or are even promoted by the operation of control structures, such a waterway can become a hazard – threatening homes, businesses, roads, and infrastructure located within proximity of the riverbanks.

Riverbanks within the city limits of Winnipeg, particularly along the Red River have been increasingly eroded since the major spring floods of 1996 and 1997. The increased river flows and elevated water levels during these two years, combined with the often rapid drawdown of river water levels in the fall due to the operation of the Lockport dam, are major factors contributing to bank erosion along the Red River within the city of Winnipeg. In addition, the heavy summer rainfalls of 2005 and, to a lesser extent, 2004 led to saturation of the upper riverbank and to a rise and relatively rapid drop in river water levels, reduced effective soil strengths, and massive bank failures over many sections of riverbank.

Where bank failure occurs not only does less useable land exist on the upper bank, but the value of that property also decreases. This is currently occurring on Riviera Crescent, as well as several other areas in the city such as Mager Drive, Lord Avenue, Riverside Drive, Crescent Drive, Henderson Hwy, and others. This problem is also occurring on public city owned land, such as St. Vital Park.

Approximately 60% of river properties within the City of Winnipeg are privately owned. At a minimum, half of those properties – specifically those on river curves initially – will require some form of major riverbank stabilization in the future as erosion attempts to redefine the river's path. Eventually all riverbank properties, even those on straight runs, will need some type of erosion control.

It might be argued that private river property owners should be responsible for stabilizing their own banks, with no help from the City or governmental agency. It should be noted that while many of these citizens appear to be affluent and could afford to help themselves, many others are not and cannot afford the substantial costs of repairing their failed riverbanks – failures that are not the fault of the property owners, but a result of accelerated river bank erosion due to unusual and extreme weather events in the course of global climate change, and/or high spring water levels with rapid fall draw downs due to the operation of the federal locks in Lockport. In these cases, the residents are either forced to sell their properties at a loss due to the failed riverbank – not an attractive option for any homeowner – or else can choose to remain living in that location until either their houses are condemned as unsafe due to undermining of the structure, or have fallen into the river entirely. Leaving the properties derelict, or hoping that affluent Winnipeg citizens will buy and repair all private river properties themselves is unrealistic; neither option is an acceptable solution to this problem.

Property owners who experience significant riverbank failure will likely apply for a reduction in their property taxes for two reasons: first, the properties have lost substantial areas of useable land. Second, they will argue that the cost of the necessary riverbank stabilization should be deducted – in whole or in part – from their currently assessed property values, since assessments need to take into account the existing condition of the property. It can be assumed that property owners in this situation will continue to appeal their assessment and likely win their cases until their homes become unsuitable for occupancy and the property valueless. (*Note: properties can be deemed valueless if the house or primary structure has experienced structural damage such that it is uninhabitable, or has fallen down into the river, and there is not sufficient stable land remaining to rebuild on.) In any of these cases, at a minimum the City would see regular reduction of taxes on these properties, and quite probably would also have condemned houses left abandoned by residents who could not afford the riverbank repair on their own.

The above scenario is not describing a hypothetical situation. In fact there is at least one example for which the tangible economic impacts of riverbank failure can be traced through the recent history of property assessment values and, consequently, Municipal and Provincial tax revenue.

Property Value and Tax Losses: Example -- Riviera Crescent

Twelve homes on Riviera Crescent are presently affected by a large failure in the upper riverbank; this is a consequence of massive riverbank slip that has become progressively worse since 2001. Many homeowners appealed their 2003 assessments after incurring severe property losses; some properties have lost nearly 30' of useable land in the last several years.

According to an engineering report (Eng-Tech 2006; see Appendix A), two of the 12 Riviera Crescent homes are at immediate risk of foundation undermining and falling down the riverbank, and four others will likely follow within a few years of the first two. Nobody – including geotechnical engineers, and the City's own riverbank engineer – is able predict an exact time line of how long it will take until houses are lost. However, it has been projected by the engineers that the retrogressive bank failure will continue until an angle of repose is reached 15-20 m north of the current fault line. This means that not only the remaining houses on Riviera Crescent will be lost, but also the street itself will eventually be lost together with millions of dollars worth of city infrastructure.

The speed with which this will occur depends on many factors, such as the intensity of spring flooding with the potential of further loss of mature river bank vegetation, the timing and intensity of summer rainfalls, erosion of adjacent properties, and the type and extent of bank stabilization measures by the city at St. Vital Park (the convex bank of the river) that may increase the erosion potential on the concave bank, where Riviera Crescent is located. A further factor that will have a bearing on the progress of bank erosion is the increasing frequency of unpredictable chance weather events, which, however, seem to increase in frequency under the increasing effects of climate change.

Table A expresses a cross section of 3 properties on Riviera Crescent, located at the beginning, middle, and end of the fault line, who fought and won their 2003 tax assessment appeals. The percentage of decrease in property value for these homes is calculated in this chart.

Table A: Average Decrease in Property Values, Riviera Crescent

Property	2003 assessed value, prior to appeal	2003 assessed value, after appeal	% Decrease in property value
944 .	$159,900	$116,900	27%
956	$89,200	$58,200	35%
990	$163,200	$150,000	8%
Average decrease in property values, Riviera Crescent			**23%**

**Note: It could be argued that Riviera Crescent properties are losing more than 23%, as they are not gaining in value as are other average Winnipeg properties – which have increased as much as 10-15% annually for the last 5 years. However, for purposes of this analysis, the figure of 23% will be used.*

As the riverbank failure continues, more land is consistently lost, and appeals will continue to be filed yearly by affected Riviera Crescent homeowners. Property values will continue to drop as appeals are won, and the cost of the repair – already beyond the means of many homeowners – will increase exponentially every year as construction costs escalate.

Table B on the following pages calculates the probable taxes earned on the 12 Riviera Crescent properties, if the riverbank problem is not addressed and continues to regress at its current rate. Both municipal and provincial taxes have been calculated for a period of 20 years. Because of the many uncertainties in the long-term prediction for the timing and the extent of river bank failure, it was necessary to make a number of assumptions and estimates that would be considered reasonable, including the approximate number of years until a house is lost. Where a $0 dollar value has been inserted and highlighted, is an approximation as to when the primary residence on that property will be deemed uninhabitable and valueless. The property values have been calculated based on a 23% decrease per 4-year assessment period, for all properties, based on the example determined in Table A.

Table B: Probable Tax Revenue for Riviera Crescent

	940 Riviera Cres			944 Riviera Cres			948 Riviera Cres			952 Riviera Cres		
Year	Assessed value	Municipal Taxes Generated	Provincial Taxes Generated	Assessed value	Municipal Taxes Generated	Provincial Taxes Generated	Assessed value	Municipal Taxes Generated	Provincial Taxes Generated	Assessed value	Municipal Taxes Generated	Provincial Taxes Generated
2006	$90,000	$1,031	$940	$116,900	$1,339	$1,221	$90,000	$1,031	$940	$113,300	$1,297	$1,184
2007	$90,000	$1,031	$940	$116,900	$1,339	$1,221	$90,000	$1,031	$940	$113,300	$1,297	$1,184
2008	$90,000	$1,031	$940	$0	$0	$0	$90,000	$1,031	$940	$113,300	$1,297	$1,184
2009	$69,300	$794	$724	$0	$0	$0	$69,300	$794	$724	$87,241	$999	$911
2010	$69,300	$794	$724	$0	$0	$0	$69,300	$794	$724	$87,241	$999	$911
2011	$69,300	$794	$724	$0	$0	$0	$69,300	$794	$724	$87,241	$999	$911
2012	$69,300	$794	$724	$0	$0	$0	$69,300	$794	$724	$87,241	$999	$911
2013	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2014	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2015	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2016	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2017	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2018	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2019	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2020	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2021	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2022	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2024	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2025	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2026	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total *	$6,266	$5,716	Total *	$2,677	$2,442	Total *	$6,266	$5,716	Total *	$7,889	$7,196

	956 Riviera Cres			960 Riviera Cres			964 Riviera Cres			970 Riviera Cres		
Year	Assessed value	Municipal Taxes Generated	Provincial Taxes Generated	Assessed value	Municipal Taxes Generated	Provincial Taxes Generated	Assessed value	Municipal Taxes Generated	Provincial Tax Generated	Assessed value	Municipal Taxes Generated	Provincial Tax Generated
2006	$58,200	$666	$608	$111,100	$1,272	$1,161	$135,900	$1,556	$1,420	$121,800	$1,395	$1,272
2007	$58,200	$666	$608	$111,100	$1,272	$1,161	$135,900	$1,556	$1,420	$121,800	$1,395	$1,272
2008	$0	$0	$0	$111,100	$1,272	$1,161	$135,900	$1,556	$1,420	$121,800	$1,395	$1,272
2009	$0	$0	$0	$85,547	$980	$894	$104,643	$1,198	$1,093	$93,786	$1,074	$980
2010	$0	$0	$0	$85,547	$980	$894	$104,643	$1,198	$1,093	$93,786	$1,074	$980
2011	$0	$0	$0	$85,547	$980	$894	$104,643	$1,198	$1,093	$93,786	$1,074	$980
2012	$0	$0	$0	$85,547	$980	$894	$104,643	$1,198	$1,093	$93,786	$1,074	$980
2013	$0	$0	$0	$0	$0	$0	$80,575	$923	$842	$72,215	$827	$754
2014	$0	$0	$0	$0	$0	$0	$80,575	$923	$842	$72,215	$827	$754
2015	$0	$0	$0	$0	$0	$0	$80,575	$923	$842	$72,215	$827	$754
2016	$0	$0	$0	$0	$0	$0	$80,575	$923	$842	$72,215	$827	$754
2017	$0	$0	$0	$0	$0	$0	$62,043	$710	$648	$55,606	$637	$581
2018	$0	$0	$0	$0	$0	$0	$62,043	$710	$648	$55,606	$637	$581
2019	$0	$0	$0	$0	$0	$0	$62,043	$710	$648	$55,606	$637	$581
2020	$0	$0	$0	$0	$0	$0	$62,043	$710	$648	$55,606	$637	$581
2021	$0	$0	$0	$0	$0	$0	$47,773	$547	$499	$42,817	$490	$447
2022	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2024	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2025	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2026	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total *	$1,333	$1,216	Total *	$7,735	$7,057	Total *	16,542	15,091	Total *	$14,826	$13,525

Year	974 Riviera Cres			978 Riviera Cres			986 Riviera Cres			990 Riviera Cres		
	Assessed value	Municipal Taxes Generated	Provincial Tax Generated	Assessed value	Municipal Taxes Generated	Provincial Tax Generated	Assessed value	Municipal Taxes Generated	Provincial Tax Generated	Assessed value	Municipal Taxes Generated	Provincial Tax Generated
2006	$99,600	$1,141	$1,040	$172,900	$1,980	$1,806	$173,800	$1,990	$1,816	$150,000	$1,718	$1,567
2007	$99,600	$1,141	$1,040	$172,900	$1,980	$1,806	$173,800	$1,990	$1,816	$150,000	$1,718	$1,567
2008	$99,600	$1,141	$1,040	$172,900	$1,980	$1,806	$173,800	$1,990	$1,816	$150,000	$1,718	$1,567
2009	$76,692	$878	$801	$133,133	$1,525	$1,391	$133,826	$1,533	$1,398	$115,500	$1,323	$1,207
2010	$76,692	$878	$801	$133,133	$1,525	$1,391	$133,826	$1,533	$1,398	$115,500	$1,323	$1,207
2011	$76,692	$878	$801	$133,133	$1,525	$1,391	$133,826	$1,533	$1,398	$115,500	$1,323	$1,207
2012	$76,692	$878	$801	$133,133	$1,525	$1,391	$133,826	$1,533	$1,398	$115,500	$1,323	$1,207
2013	$59,053	$676	$617	$102,512	$1,174	$1,071	$103,046	$1,180	$1,076	$88,935	$1,018	$929
2014	$59,053	$676	$617	$102,512	$1,174	$1,071	$103,046	$1,180	$1,076	$88,935	$1,018	$929
2015	$59,053	$676	$617	$102,512	$1,174	$1,071	$103,046	$1,180	$1,076	$88,935	$1,018	$929
2016	$59,053	$676	$617	$102,512	$1,174	$1,071	$103,046	$1,180	$1,076	$88,935	$1,018	$929
2017	$45,471	$521	$475	$78,934	$904	$825	$79,345	$909	$829	$68,480	$784	$715
2018	$45,471	$521	$475	$78,934	$904	$825	$79,345	$909	$829	$68,460	$784	$715
2019	$45,471	$521	$475	$78,934	$904	$825	$79,345	$909	$829	$68,460	$784	$715
2020	$45,471	$521	$475	$78,934	$904	$825	$79,345	$909	$829	$68,460	$784	$715
2021	$35,013	$401	$366	$60,779	$696	$635	$61,096	$700	$638	$52,714	$604	$551
2022	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2024	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2025	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2026	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total *	**$12,124**	**$11,060**	**Total ***	**$21,046**	**$19,199**	**Total ***	**$21,155**	**$19,299**	**Total ***	**$18,257**	**$16,655**

Assumptions:

1. The tax revenue is based on total lot + house value, x 45% (portion value), x mill rate of 0.025448 (municipal) and 0.023215 (provincial)
2. When the primary residence is lost, a value of $0 is given to the remaining property, assuming that the remaining land (if any) is not stable enough to rebuild on.
3. The residences at #944 and #956 are lost within 2 years, indicated in a highlighted box, based on current proximity to fault line (fault line is at foundation walls) and current rate of land loss.
4. The residences at #940, #948, #952, and #960 are lost in 7 years, indicated in a highlighted box, based on current proximity to fault line and current rate of land loss.
5. As land is lost from each property yearly, it is assumed that homeowners will be applying for tax reductions every year. Without knowing if these appeals will be granted, it is a reasonable assumption that the property values could decrease at an assumed rate of 23% per 4-year assessment period, until the house is lost and the land cannot be rebuilt upon.

Total Probable Municipal Taxes collected from all properties, in 20 years: $136,117

Total Probable Provincial Taxes collected from all properties, in 20 years: $124,173

If Riviera Crescent properties were not undergoing riverbank failure, it could be assumed that their property values would appreciate yearly, as are most other properties in the city of Winnipeg. According to the analytical paper "Evolving Housing Conditions in Canada's Census Metropolitan Areas, 1191-2001" written by the Canada Mortgage and Housing Corporation (CMHC) and Statistics Canada, Winnipeg properties increase an average of 3% per year. When the calculated, the potential taxes that could be collected on the 12 properties over the next 20 years, if there were no riverbank failure, would total as follows in Table C.

Table C: Potential Tax Revenue for Riviera Crescent

Property	Assessed Value	Municipal taxes generated over 20 years	Provincial taxes generated over 20 years
940	$90,000	$29,555	$26,962
944	$116,900	$38,389	$35,020
948	$58,200	$29,555	$26,962
952	$111,100	$37,207	$33,942
956	$89,200	$19,112	$17,435
960	$111,100	$36,484	$33,283
964	$135,900	$44,628	$40,712
970	$121,800	$39,998	$36,488
974	$99,600	$32,708	$29,838
978	$172,900	$56,779	$51,797
986	$173,800	$57,074	$52,066
990	$150,000	$49,259	$44,936
Total:		**$470,749**	**$429,442**

*Taxes based on cumulative 3% increase of property value per year

Table D calculates the difference between the taxes the City and Province will likely collect from Riviera Crescent, versus the potential tax revenue they could collect on the same properties if they were repaired. Combined, the **net potential loss** of tax revenue is nearly **$640,000** based on just 12 properties.

Table D: Total Potential Net Loss Tax Revenue for Riviera Crescent

Probable tax revenue generated by Riviera Crescent, over 20 years	**Potential** tax revenue generated by Riviera Crescent, over 20 years	**Net potential loss of tax revenue**
$136,117 (Municipal)	**$470,749(Municipal)**	**-$334,632 (Municipal)**
$124,173 (Provincial)	**$429,442 (Provincial)**	**-$305,269 (Provincial)**

Therefore, if the riverbank failure is not addressed and repaired, the City of Winnipeg could lose approximately $335,000 of tax revenue, and the Province could lose more than $305,000 of tax revenue over the next 20 years from 12 Riviera Crescent properties alone. If the riverbank is stabilized, property values will begin to increase instead of decrease, and the City and Province can begin to recover lost tax revenues.

It is feasible to extrapolate that not only Riviera Crescent will be applying for property tax reductions yearly, but so will other riverbank property owners experiencing the same issue. The potential loss of tax revenues in the future as more homeowners apply for reductions could be staggering.

However, if riverbanks are repaired and stabilized early, properties cannot only meet, but can exceed, expected potential values. With a stable riverbank, river properties become more desirable and the value of the land could increase more than 3% initially – to reflect a value that could potentially be much higher, especially given the current housing boom in Winnipeg. Furthermore, stable river property will encourage those property owners to invest more money in their properties, either through new homes or renovations to existing homes – all generating higher taxes for the City of Winnipeg and the Province of Manitoba. It is not unreasonable to assume that tax revenues could increase at a substantially higher rate than the conservative 3%. This means that the City and Province could not only recover the potential $335,000 and $305,000 respectively, but could in fact recover much more than that in a much shorter time frame.

Infrastructure Costs

Another consideration in this discussion pertains to city infrastructure. Bank failure will not stop because erosion has progressed or passed the footprint of a house; it will continue until it reaches a stable angle of repose, which could be near or beyond city streets. Consequently, this could threaten or severely damage city infrastructure; items such as sewers, gas lines, hydro lines, etc. may need to be moved, replaced, or protected, and the street itself could become unstable and begin to disintegrate. Since no private property will remain at those locations (having all eroded away), the City of Winnipeg will be solely responsible for any costs incurred for riverbank stabilization to protect the streets and infrastructure at a rate of millions of taxpayer's dollars – unless the City is prepared to lose streets to riverbank failure as well. When riverbank failure approaches and affects city infrastructure, it becomes every taxpayer's problem.

The cost of moving even some of the infrastructure – sewers lines, for example, is likely equivalent or more than the cost of stabilizing the riverbank itself. It would seem logical to stabilize the banks at an earlier stage when costs are less, prior to losing either infrastructure or private properties; especially since the properties will generate the taxes needed to offset repair costs and homeowners themselves can financially contribute to protection measures.

Cost Sharing

As mentioned in previous sections, it does make economic sense to develop a plan to stabilize all of Winnipeg's riverbanks and restrict the free meandering of the rivers as quickly as possible. This plan could work in conjunction with the City's current stabilization plans to repair public riverbank properties. In fact, with existing plans for the 40% public river properties, and a new plan to encompass the remaining 60% of privately owned properties, riverbank issues would be satisfied for many years to come until the eventual stabilization of all riverbanks within city limits.

With a comprehensive plan in place that shares the cost between the government and property owners, the price to the City would be much reduced from what it potentially could be if the repair were delayed until infrastructure were threatened. Costs could be reduced further if a plan is developed that encompasses cost sharing with multiple levels of government. As demonstrated earlier in this document, the Provincial government will gain or lose as much tax revenue as does the City. It would be logical to assume that since both stand to benefit from increased taxes if the riverbanks are stabilized, both should share in the cost. If both levels of government are involved, and costs are shared between the City, Province, and property owners, all will benefit from the reduced price of the work and the increased property value.

A joint venture plan would also benefit the Federal government. Preventative measures to stabilize the riverbanks ensure better flood protection for the city with stronger and more secure banks should sandbagging become necessary during flood events. It also could reduce the amount of compensation paid out by the EMO (Emergency Measures Organization) in disaster assistance if homes are lost either due to riverbank failure or flooding.

Additionally, a government sponsored plan would also address any larger Federal environmental issues, such as alterations in river hydrology in response to traditional methods of bank stabilization, fish habitat issues, and the use of bioengineering techniques instead of traditional "hard" engineering, which might not occur if homeowners were to take on the repairs on their own.

As an example, the geotechnical engineer's report on Riviera Crescent estimates the 2006 cost to repair the riverbank at $830,000. If this cost were split four ways between the City, Province, Federal government, and the group of homeowners, each party would be responsible to pay approximately $207,500. As demonstrated earlier, the City and Province would be able to recover this amount over the next number of years in increased taxes due to increased property assessments. With regards to the homeowners, $207,500 divided between the 12 properties would equal approximately $17,300 each – a much more manageable cost for an individual homeowner to pay. This could even be repaid yearly by each homeowner via the City's existing Local Improvement plan. If the cost is reasonable for homeowners, it is much more likely that residents will proceed with riverbank repairs as opposed to leaving their homes and properties to slowly disintegrate.

It would be a winning proposition for all levels of government and property owners; private citizens would be protecting their land and homes from further loss and decrease in value, and the City would be protecting its streets and infrastructure at an early stage before costs escalate, while municipal and provincial property taxes can be collected to recuperate any initial outset of funds. And the federal government can invest minimally now in a preventative venture that could save millions in disaster assistance.

Criteria for Applications for the Comprehensive Plan

If a comprehensive plan as described above were formulated, it would be logical to assume that criteria would need to be developed to determine both the necessity and priority of properties to be repaired. It is unreasonable to expect that all river properties could be stabilized in a few years – the costs would be too great for any level of government. However, if considered to be a long-term plan, all properties could be completed in due time according to priority and need.

Therefore it could be assumed that property owners would have to meet certain criteria in order to qualify for priority in their application for assistance, as determined by the plan's administrator. This document only suggests what some of these criteria might be:

a) threat to primary residence

b) threat to secondary structures

c) extent of property damage: regular erosion vs. riverbank failure

d) rate of loss of property

e) proximity to stabilization work on adjacent City riverbank properties

It is also unrealistic to repair one property at a time – this would not be cost effective; stabilizing groups of properties as one project would be more economical. Homeowners could be encouraged to submit applications in groups of adjacent properties in order to achieve the best value for the work – which has the added benefit of reducing the costs of shared work (such as site access and design fees) for all concerned.

City Owned Riverbank Properties

The City of Winnipeg has already recognized that there are immediate and similar concerns regarding riverbank failures on public properties and park lands. It is worth noting that these public parks and properties are usually surrounded by private properties. Geotechnical engineers will attest that stabilization measures will have a higher success rate if adjacent properties are also addressed. Therefore, the City's investment in stabilizing its own properties is better protected by allowing the private citizens on each side an attractive opportunity to stabilize their own land through a potential cost-sharing venture as described above. Furthermore, if the two projects run concurrently (both City and private property together) costs for site access and design fees could be shared, in fact reducing costs on both projects.

Long Term Planning within the City of Winnipeg

The long-term planning of Winnipeg includes a tentative strategy to line the Red and Assinaboine rivers with pedestrian walking paths from the north, south, and west perimeters to the Forks downtown – initially crossing over and utilizing sections of each side of the river, but eventually running continuously down both shorelines where ever possible. In fact, a report written in 1993 studies and evaluates the priority for development of sections of the riverbanks of the Council-approved concept for a city-wide riverbank parkway system (copy of report is available on request). The report outlines both the problems and benefits of development of all the concerned shorelines, including property obstacles, public opinion, and possible costs. It also identifies areas where "riverbank parkway" sections could be linked by residential streets, instead of along the shoreline, in order to minimize the need for riverbank acquisition for parkway purposes.

In order to construct this parkway, the riverbanks need to halt waterline erosion and be stable enough to support a path, at a minimum. A joint effort between private river property owners and the City to stabilize the riverbanks would only assist in the future costs of creating these pedestrian walkways. In fact, the comprehensive plan may

include a stipulation that allows the City access across private properties for these walkways, as part of the conditions the homeowner's application. It is commonly known that some homeowners are not in favour of allowing the City to construct pathways on their properties in some sections of Winnipeg between Kildonan Park and downtown – where the City is already attempting to construct walkways. By including this as a condition of the application for stabilization assistance, the City could speed up the completion of interconnected paths because it could be built-in as part of the stabilization project – and possibly receive less homeowner resistance, and additionally reducing the total cost of the entire riverbank parkways project. This may not be the most popular stipulation for homeowners, but it would serve the City's long term planning well.

Conclusion:

It is in the best interests of all parties concerned to develop and participate in a comprehensive plan to deal with erosion and riverbank failures along the waterways within Winnipeg. Private citizens, the City, the Province, and the Federal governments would all benefit from stabilized riverbanks and increased property values. It is also to the benefit of all parties to begin to repair affected properties as quickly as possible, before significant losses are experienced by anyone.

There is no way to calculate the intangible costs and benefits to both the City and Province as outlined in this report, such as protection to park land stabilization projects or preparation for a riverbank parkway system. The City and Province would achieve significant cost savings if private properties in preferred locations were stabilized either in advance, or in conjunction, with either of these projects.

A comprehensive riverbank stabilization plan would also prevent the possibility of future lawsuits, claims for compensation, or any other dispute with private riverbank property owners who either have, or will, lose property, primary residences, or other structures. Several homeowners have already applied for the Federal Disaster Financial Assistance program offered by the Emergency Measures Organization in 2005 and 2006 with regards to losses experienced to their homes and properties in 2005. It is yet to be determined if these claims will be successful. However, it is logical to assume that preventative and proactive planning will be better and likely less expensive than attempting to deal with a disaster and its related complaints and costs, after it has occurred.

It is clear that a meandering river cannot continue to move through a major urban center such as Winnipeg without being contained to an acceptable path. A study of many older cities with waterways will demonstrate that they have all addressed this problem through canals, stabilized riverbanks, or concrete river walls – in order to protect the city's infrastructure, properties, and buildings. The longer Winnipeg waits to develop a comprehensive plan to deal with this issue, the more losses will occur and more property owners (and taxes) will be threatened. It makes sense to address these problems as soon as possible, so that stabilization of the city's riverbanks can be a gradual process over the next number of years – as both public and private properties become threatened – rather than wait until the number of affected properties are insurmountable and costs are too great.

Without the assistance of the government, it is quite likely that many riverbank properties will erode and disintegrate, creating derelict housing, abandoned by homeowners who cannot afford the cost of the repair. The properties will be relatively useless, and cannot be redeveloped as likely there will not be enough land left to rebuild on; property values will be low or virtually nothing at all. Tax revenue on these properties will be lost forever, if there is no property left to tax. Pockets of the riverbanks will become eyesores to the City, instead of the grand and beautiful properties that they once were.

It makes sense to invest in river properties, and protect the city from a river that meanders without discretion. It makes sense to be proactive for events that are guaranteed to occur in the city's future. It makes sense that all those who will benefit from stabilized riverbank properties should also participate in the costs, and share those costs whenever possible. And finally, it makes sense to assist homeowners in protecting their properties, just as it makes sense to protect public parklands. All three levels of government can only gain in developing a comprehensive plan that encompasses all of these issues, and benefits us all.