Agenda - Council - November 24, 2004

Report - Standing Policy Committee on Public Works - November 15, 2004

Item No. 1 Kenaston Underpass Project - Preliminary Design
File SC-4

STANDING COMMITTEE RECOMMENDATION:

On November 17, 2004, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Public Works and submits the following to Council:

1. That the $5 million adopted in the 2004 Capital Budget for "New Strategic Transportation Initiatives" identified on page 3-100 be allocated to the "Kenaston Underpass Project".

2. That the preliminary design identified in the document "Kenaston Underpass Project - Preliminary Design including Public Communication Summary Report" be approved for implementation including the following:

   A. Sterling Lyon Parkway component:
   The construction of Sterling Lyon Parkway from the intersection of Victor Lewis Drive and Wilkes Avenue to the intersection of McCreary Road/Shaftesbury Boulevard and Wilkes Avenue as the major East-West arterial roadway in the area.

   B. Utility Relocation and Detour component:
   The relocation of existing utilities and services and the construction of a two track railway detour and a four lane roadway detour of Kenaston Boulevard around the underpass site to permit construction of the Kenaston Underpass.

   C. Underpass component:
   The construction of a two-track railway structure which Kenaston Boulevard will underpass.

   D. Kenaston Boulevard component:
   The reconstruction of Kenaston Boulevard in the underpass area and improvements to the intersections at Taylor Avenue and at Sterling Lyon Parkway.

3. That the Planning, Property and Development Department be authorized to do all things necessary to acquire the lands required for the Kenaston Underpass Project.

Report - Standing Policy Committee on Public Works - November 15, 2004

4. That the Proper Officers of the City be authorized:

   A. To commence detailed Engineering design in respect to the approved Preliminary Design.

   B. To complete any necessary work resulting from the review of the federal Environmental Screening which has been submitted.

   C. To obtain all other Agency approvals, and do all things necessary for the successful tendering of the Detailed Design.

   D. To report as required to obtain authorization for construction following the receipt of bids expected to commence in March 2005.

Report - Standing Policy Committee on Public Works - November 15, 2004

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On November 17, 2004, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Public Works and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On November 15, 2004, the Standing Policy Committee on Public Works concurred in the administrative recommendation and submitted its recommendation to Executive Policy Committee and Council.

ADMINISTRATIVE REPORT

RE: KENASTON UNDERPASS PROJECT – PRELIMINARY DESIGN

FOR SUBMISSION TO: ***STANDING POLICY COMMITTEE ON PUBLIC WORKS***

ORIGINAL REPORT SIGNED BY: ***L.S.W. Larkin, P. Eng., Director of Public Works***

REPORT DATE: ***November 3rd, 2004***

RECOMMENDATION(S):

1. That Council allocate the $5 million adopted in the 2004 Capital Budget for "New Strategic Transportation Initiatives" identified on page 3-100 to the "Kenaston Underpass Project".

2. That the preliminary design identified in the attached document "Kenaston Underpass Project – Preliminary Design including Public Communication Summary Report" be approved by Council for implementation including the following:

   a) Sterling Lyon Parkway component:
   The construction of Sterling Lyon Parkway from the intersection of Victor Lewis Drive and Wilkes Avenue to the intersection of McCreary Road/Shaftesbury Boulevard and Wilkes Avenue as the major East-West arterial roadway in the area.

   b) Utility Relocation and Detour component:
   The relocation of existing utilities and services and the construction of a two track railway detour and a four lane roadway detour of Kenaston Boulevard around the underpass site to permit construction of the Kenaston Underpass.

   c) Underpass component;
   The construction of a two-track railway structure which Kenaston Boulevard will underpass.

   d) Kenaston Boulevard component:
   The reconstruction of Kenaston Boulevard in the underpass area and improvements to the intersections at Taylor Avenue and at Sterling Lyon Parkway.

3. That the Planning, Property and Development Department be authorized to do all things necessary to acquire the lands required for the Kenaston Underpass Project.

4. That the proper officers of the City be authorized:

   a) To commence detailed Engineering design in respect to the approved Preliminary Design.

   b) To complete any necessary work resulting from the review of the federal Environmental Screening which has been submitted.

   c) To obtain all other Agency approvals, and do all things necessary for the successful tendering of the Detailed Design.

   d) To report as required to obtain authorization for construction following the receipt of bids expected to commence in March 2005.

REPORT SUMMARY:

Key Issues:

- Previously adopted funds require allocation to the project.

- Authorization to commence the Detailed Engineering Design must be received immediately to deliver this project in accordance with the identified schedule.

- The Government of Canada and the Province of Manitoba have agreed in principle to each contribute up to $13 million in funding toward the project.

Implications of the Recommendation(s):

General Implications:

[ ]	None
[ ]	For the organization overall and/or other departments
[ ]	For the community and/or organizations external to the City
[X]	Involves a multi-year phase in process

Comments: Delivery of project spans multiple budget years

Policy Implications:

[X]	No
[ ]	Yes

Comments:

Environmental Implications:

[ ] No
[x] Yes

Comments: ***This project is subject to a Federal Environmental Screening, which has been submitted for approval. Public Works will address any resulting concerns.***

Human Resource Implications:

[X] No
[ ] Yes

Comments:

Financial Implications:

[ ] Within approved current and/or capital budget
[X] Current and/or capital budget adjustment needed

Comments: This project will require that the City's capital budget be adjusted to accommodate funding and cash flow requirements. Previously adopted 2004 funds require allocation to this project.

REASON FOR THE REPORT:

Allocation of funds identified in the adopted 2004 Capital Budget is required.

The Preliminary Design report and the gathering of public opinion for the Kenaston Underpass Project, has been completed. It is integral to the continuity of the project to report at this time on the findings and to recommend a preliminary design for approval by Council, in order for the project to move into the next phase of detailed design and implementation.

HISTORY:

On March 19, 1986, the Council of the City of Winnipeg approved funds for a preliminary design study for a grade separation at Kenaston Boulevard and the CN Rivers Subdivision crossing. I.D. Engineering Canada Inc. (Stantec Consulting Ltd.) was retained to undertake this study and to develop and evaluate options for the grade separation and roadway system within the project area. A report titled *Preliminary Design Study – Kenaston Boulevard Grade Separation (December 1988)* was produced.

In 1994, I.D. Engineering Canada Inc. was authorized to proceed with the detailed design for the project based on the previously completed study. This work was discontinued in 1995.

Funds in the amount of $3.87M were identified in the adopted 2003 Capital Budget for the preliminary engineering, property acquisition and public communication associated with the Kenaston Underpass Project.

On May 28, 2003, the Chief Financial Officer concurred in a recommendation by the Public Works Department to appoint Stantec Consulting Ltd. to provide preliminary design engineering services for the Kenaston Underpass Project. Stantec Consulting Ltd. immediately commenced work on this project and the identification of property requirements to initiate the process of land acquisition.

On March 19, 2004 an announcement, involving the Government of Canada, the Province of Manitoba and the City of Winnipeg was made which included the Kenaston Underpass Project as a funding priority.

A letter dated May 11, 2004 from the Government of Canada confirmed their intent to provide funding up to $13 million towards the Kenaston Underpass Project under the *Canada Strategic Infrastructure Fund.* The Province of Manitoba would match this contribution.

Two public open houses were held in July and August 2004 to solicit comments from the public relating to the proposed project.

The preliminary design report titled *Kenaston Underpass – Preliminary Design including Public Communication Summary Report (October 2004)* was submitted by Stantec Consulting Ltd. completing the preliminary design of the project and summarizing the preliminary design public consultation process.

DISCUSSION:

A) Preliminary Design

The separate report *Kenaston Underpass – Preliminary Design including Public Communication Summary Report (October 2004*), submitted by the engineering consultants provides details of the preliminary design for this project. The proposed plan is consistent with the strategy identified in Plan Winnipeg 2020 Vision in providing a grade separation structure for the Kenaston Boulevard crossing of the CN Rivers Subdivision at Mile 5.18 as well as with the construction of Sterling Lyon Parkway.

Plan Winnipeg 2020 Vision identifies Kenaston Boulevard as an inner ring-road within the City of Winnipeg and a critical transportation route. The at-grade railway crossing along this route causes a major disruption to almost 40,000 vehicles per day which, on average, currently use this route.

i) Underpass Structure

The railway underpass structure will accommodate two existing tracks and be positioned to accommodate a possible future third track. The proposed bridge will span the existing four lanes of traffic and accommodate two future additional lanes.

The structure will provide a safe design based on current standards used on similar projects in the City of Winnipeg.

Currently, a continuous, cast-in-place, post-tensioned concrete superstructure is being recommended; however, CN who must approve the structure type prefer a different option. Consequently, a simple span precast concrete structure has been budgeted. This is being negotiated with CN and the final decision will be the lowest cost option acceptable to the railway.

The underpass will require a pump station and forcemain system adequately sized to minimize disruption to traffic on Kenaston Boulevard during a major rainfall event.

Significant utility relocation is necessary to complete the excavation for the underpass.

ii) Roadworks

Sterling Lyon Parkway will be constructed to serve as a replacement to the existing Wilkes Avenue as the major east-west arterial street in the area. This will connect to the existing intersection of Wilkes Avenue and Victor Lewis Drive and extend west to intersect with Kenaston Boulevard to the north of Lowson Crescent. West of Kenaston Boulevard Sterling Lyon Parkway will curve to the north to connect to the intersection of Wilkes Avenue and Shaftesbury Boulevard/ McCreary Road. A north-south road, Patrick Way, will connect Sterling Lyon Parkway to Wilkes Avenue east of Kenaston Boulevard.

Kenaston Boulevard will be reconstructed in the limits of the railway underpass. In addition, there will be channelization at Kenaston and Taylor and at the new intersection of Sterling Lyon Parkway and Kenaston Boulevard.

There will be a slip ramp from Kenaston Boulevard northbound to Wilkes Avenue east of Kenaston Boulevard.

A sidewalk will be built on the east side of Kenaston Boulevard from Taylor to Sterling Lyon.

A pedestrian bicycle path will be built on the west side of Kenaston from Taylor to Sterling Lyon Parkway and along the south side of Sterling Lyon Parkway from Kenaston Boulevard to Victor Lewis Drive.

The right-of-way required for the project is identified in the *Kenaston Underpass – Preliminary Design including Public Communication Summary Report (October 2004)*.

iii) Detour

During the underpass construction, Kenaston Boulevard will be detoured on the east side of the proposed underpass from Taylor to 300m south of Wilkes Avenue. The road detour will be four lane divided with an asphalt surface. The railway detour will be two tracks on the south side of the existing CN tracks. Because of the necessary staging required to transfer train and vehicular traffic to the detours, two temporary railway crossings with signals and gates will be required. Upon completion of the underpass structure, train traffic will be shifted onto it to allow the removal of the railway detour and the completion of the reconstruction of Kenaston Boulevard.

B) Project Benefits

1. Economic benefit of reduced delays

It was estimated that rail activity causes approximately 67,100 vehicle-hours of delay per year. When this is considered along with the value of travel time, the percentage of trucks and their costs, as well as the fuel costs, the economic value of delays caused by rail activity is estimated to be approximately $1 million per year.

2. Reduction of vehicle emissions

The completion of this project would result in a significant reduction in vehicle emissions. It is estimated that approximately 121,000 litres of fuel per year is wasted by idling at or near the at-grade crossing.

3. Reduction in potential vehicular conflicts with trains

The *vehicle exposure index* is the product of the number of daily vehicles multiplied by the number of trains in a day at a crossing. Transport Canada recommends grade separation structures be considered when the *vehicle exposure index* exceeds 200,000. The index for this location exceeds 1,000,000 or 5 times the level considered to be acceptable where a grade separation is warranted by Transport Canada for safety reasons.

4. Enhanced economic development

Reduced delay on this major arterial route makes the surrounding area more attractive for business development. The construction of Sterling Lyon Parkway will provide additional development opportunity. Significant private sector capital has already been invested in areas nearby and the construction of an underpass and associated road improvements will assist in supporting the development of business that has already taken place in addition to stimulating potential for further development.

5. Other benefits

- Improved emergency response – eliminates risk of delay at railway
- Improved transit service – less delay, safer operation, opportunity to expand level of service to all day from the present peak hour only service.
- Residential traffic – reduced use of residential streets by through traffic
- Improved vehicular, pedestrian and cyclist safety – the underpass includes a sidewalk and a pedestrian cycle path. There is also a pedestrian cycle path on the south side of Sterling Lyon Park from Kenaston to Victor Lewis Drive.

C) Implementation Schedule

The report identifies the sequence by which the project is to be implemented. The activities are broken into two stages which allow the work to be completed in the shortest possible period of time which permits an opening of the facility by the fall of 2006.

The broad components of work included in each stage are associated with:

Stage 1 – Starting May 2005

- Construction of Sterling Lyon Parkway (East and West of Kenaston Boulevard), Patrick Way and associated intersections
- Relocation of utilities
- Construction of roadway and railway detours
- Transfer of traffic to new roads and detours

Stage 2 – Starting September 2005

- Construction of underpass structure
- Return rail traffic to structure with signals and gates at the road detour
- Remove the railway detour, excavate the underpass and complete the reconstruction of Kenaston Boulevard
- Return vehicular traffic to Kenaston Boulevard and remove road detour
- Completion of roadwork, site restoration and landscaping

The preliminary design report proposes the work be tendered in seven separate contracts. This has been recommended for reasons which include: the variety in the type of specialized work, the geographic location of individual components of the work within the project limits, the value of the individual contracts and the anticipated increase in potential for more competitive bids contributing to a lower overall project cost.

Work relating to the construction of Sterling Lyon Parkway will be tendered in March 2005 in order to be open to traffic by September 2005 in time to close Wilkes Avenue at Kenaston Boulevard and immediately start the work associated with the construction of the underpass structure. Upon completion of the underpass structure, rail traffic will be transferred onto the structure, the railway detour removed, and the reconstruction on Kenaston Boulevard started so it can be completed by November 2006. The tendering, award and execution of all contracts in this project must be coordinated and completed as scheduled in order to successfully achieve the overall completion date as indicated above.

A Risk Management strategy will be developed to identify inherent project risks requiring mitigation or monitoring. The number of separate contracts and the risks

associated with their coordination will be included in this analysis and modifications to the implementation strategy will be made as necessary.

Traffic capacity will be maintained at near existing capacity on the vehicular detour during construction although some short-term disruptions may be experienced during transitions. Every attempt will be made to mitigate the impact of these disruptions through the scheduling of work in off- peak hours whenever possible.

This identified implementation schedule is conditional upon:

- Acceptance of the *Preliminary Design and Public Communication Summary Report* and approval to proceed with the detailed design by November 25, 2004.
- Acceptance of the Environmental Screening Report by Infrastructure Canada and issuance of a waiver or conditional use permit in a manner compatible with the project schedule.
- Ability to obtain title or right to enter the required private property necessary for contract award and construction by May 2005.

Failure to satisfy any of the conditions identified above may give cause to revise the implementation schedule and extend the completion of the project beyond 2006.

D) Estimated Cost

The estimated total project budget based on the fore-going preliminary design and implementation schedule is $44,250,000, which is apportioned approximately as follows:

PROJECT COST ESTIMATE (2004 dollars inflated to budgeted year)		
1	Roadways (including land drainage service)	$26,650,000
2	Underpass Structure	9,500,000
3	Utilities	
	- Water and Waste	2,200,000
	- Hydro, Gas, Other	3,100,000
4	Railway (detours, crossing gates and related costs)	2,800,000
	TOTAL	**$44,250,000**

While finalizing the preliminary engineering design, the estimate of project costs increased in several areas. The refinement of design details and project requirements have been a factor contributing to this cost escalation; however, other significant reasons include: geotechnical considerations and their impact on utility relocation and excavation limits at the underpass, environmental mitigation (grit chamber, hydrocarbon monitoring and pump capacity) relating to the pump station design, extension of pavement limits and details associated with the length of traffic lanes, turning lanes and approaches as well as the need to oversize the land

drainage to accommodate undeveloped land areas/future development opportunities. Costs to relocate existing utilities such as Manitoba Hydro have also increased.

At this time, the estimated project budget addresses potential project risks or items with uncertainty by estimating their cost in a conservative fashion. Allowances have been included for contingencies and inflation; however, these may require adjustment during the execution of the project to reflect the changing local construction environment.

Several design issues, which have not been finalized, will remain in the budget until final agreement is reached. Negotiations will continue, on these items, to reduce the total project cost. Prior to the completion of the detailed design, a Value Engineering exercise will be conducted to take advantage of other potential cost savings opportunities. Moving forward with the detailed design phase of the project while the budget is being refined allows the earliest possible project completion date to be achieved; however, bears the risk of a less accurate estimate of the total project cost.

Financial Status reports will be prepared and submitted to the Standing Committee on Fiscal Issues and all members of Council every four months. The reports shall include project schedule updates, budget status, project risks, and other issues relative to the completion of the Kenaston Underpass Project.

The current sources of project funding are as follows:

City of Winnipeg	$18,250,000
Government of Canada	$13,000,000
Province of Manitoba	$13,000,000
Current Project Budget	**$44,250,000**

The federal government has formally indicated support of the project retroactive to May 11, 2004. Before funding can actually be authorized, an environmental screening must be conducted, the formal agreement prepared and a federal Treasury Board submission made and approved. The *Environmental Screening Report* has been submitted and we are awaiting acceptance of the same. Following acceptance, any conditions will be addressed. Then, since the Preliminary Engineering Design is now complete, the formal agreement and the Treasury Board submission can be finalized.

Negotiations are ongoing with CN who are obligated under the Canadian Transportation Act to contribute to the cost of the grade separation. The value of what is considered to be the “basic structure” is being negotiated. This “basic structure” cost is not the total project cost, it includes the structure and a minimum

amount of roadwork, utility relocation and other elements necessary to complete the railway grade separation project. The amount of this contribution has not been determined but historically the railway obligation has been 15% of the "basic structure" cost. In accordance with the federal funding agreement with Infrastructure Canada, any contribution from CN must be used to reduce the overall project cost and an estimate of this contribution is included in the current project budget. A report to Council will be provided when negotiations with CN are final.

E) Estimated Capital Requirement

Year	City of Winnipeg Required Capital Budget	Canada	Manitoba	Projected Cash Flow Requirement
2003	$3,870,000	0	0	$250,000
2004	$5,000,000	0	0	$1,750,000
2005	$5,148,000	$11,500,000	$11,500,000	$35,018,000
2006	$4,232,000	$1,500,000	$1,500,000	$7,232,000
Total	**$18,250,000**	**$13,000,000**	**$13,000,000**	**$44,250,000**

Funds beyond the 2003 Capital Budget have not been approved. It is recommended that funds in the amount of $5,000,000 currently identified on page 3-100 of the adopted 2004 Capital Budget for "New Strategic Transportation Initiatives" be allocated to the "Kenaston Underpass Project". The remaining budgetary shortfall needs to be addressed in the 2005 and 2006 Capital Budgets. Advance approval to expend future years funding will be required in 2005 to meet the cash flow requirements for the purposes of the award of multiyear contracts consistent with the identified implementation schedule. Budgetary requirements beyond 2005 will become more refined during the execution of the project. As previously stated negotiations and design initiatives such as value engineering are expected to reduce the overall project cost and as such, the total project budgetary requirements will be better understood and identified through the reporting process with adjustments made in Capital Budget submissions beyond 2005.

F) Summary of Public Input

During the Kenaston Underpass preliminary design public consultation process, members of the public registered their comments about the preliminary design by completing comment sheets at one of the two Public Open Houses or by completing an on-line poll on the City's website all of which were advertised in the local newspapers. This group is referred to as the "interested public". As such, they cannot be considered to be a representative sample of the general public. However,

they represent the views of 460 citizens who expressed an interest in the project. Highlights of the responses, which related to the project, are as follows:

- Responses to the surveys were overwhelmingly positive. Only 11% of the 373 respondents disagreed with any of the six survey statements.

- Over 87% of the respondents agreed or strongly agreed to the statements:
    - The underpass was needed to improve traffic flow
    - The underpass will have environmental benefits
    - The underpass will have economic benefits
    - The underpass will have social benefits
    - I like the proposed plan to construct an underpass at Kenaston Boulevard
    - The Kenaston Underpass is needed to improve Winnipeg's transportation system

- Concerns about the project generally were related to the construction of Sterling Lyon Parkway rather than the underpass itself. Five (5) respondents had concerns about noise adjacent to a residential community. The Lindenwoods development on the south side of Sterling Lyon has been designed to attenuate noise by increasing the distance set back and using berms and fences.
- Four (4) respondents had concern that the project would contribute to urban sprawl in southwest Winnipeg.

- The cost of the project was also suggested to be of concern by three (3) respondents who considered the roadway costs to escalate the price excessively.

- Other concerns that were expressed relating to issues such as lighting levels, landscaping or construction disruption which can be addressed during the detailed design process.

Financial Impact Statement

Date: November 2 2004

Project Name:

First Year of Program 2004

KENASTON UNDERPASS PROJECT – PRELIMINARY DESIGN

	2004	2005	2006	2007	2008
Capital					
Capital Expenditures Required	$ 2,000,000	$ 35,018,000	$ 7,232,000	$ -	$ -
Less: Existing Budgeted Costs	$ 2,000,000	$ 6,870,000	$ -	$ -	$ -
Additional Capital Budget Required	$ -	$ 28,148,000	$ 7,232,000	$ -	$ -
Funding Sources:					
Debt - Internal		$ 5,148,000	$ 4,232,000		
Debt - External					
Grants Federal Provincial		$ 23,000,000	$ 3,000,000		
Reserves, Equity, Surplus					
Other - To Be Determined					
Total Funding	$ -	$ 28,148,000	$ 7,232,000	$ -	$ -
Total Additional Capital Budget Required	$ 35,380,000				
Total Additional Debt Required	$ 9,380,000				
Current Expenditures/Revenues					
Direct Costs	$ -	$ 190,000	$ 1,331,710	$ 1,733,750	$ 1,733,750
Less: Incremental Revenue/Recovery	120,000	1,320,874	299,061	-	-
Net Cost/(Benefit)	$ (120,000)	$ (1,130,874)	$ 1,032,649	$ 1,733,750	$ 1,733,750
Less: Existing Budget Amounts	(120,000)	246,100	543,589	842,650	842,650
Net Budget Adjustment Required	$ -	$ (1,376,974)	$ 489,060	$ 891,100	$ 891,100

Additional Comments:

The total projected cost for completion of this project is presently estimated at $44,250,000. Currently there is $3,870,000 approved capital from 2003 for this project. Both the Federal and Provincial Governments have committed to a maximum cost sharing on this project of $13,000,000 each. The Canadian National Railway is also required to participate in certain of the costs related to the railway portion of the project. The estimated value of the recoveries from the Canadian National Railway have been included as an offset against the estimated related costs of the project.

The City approved $5,000,000 for New Strategic Transportation Initiatives capital in 2004 and this amount is included in the existing budget amounts above. The project requires additional City funds of $5,148,000 in 2005 and $4,232,000 in 2006 (Total $9,380,000).

"Original signed by Darcy Stewart, CA"

Manager of Finance & Administration

5088

Approved by Divisional Accounting Technician: ☑
IN PREPARING THIS REPORT THERE WAS CONSULTATION WITH, AND CONCURRENCY BY:

Water and Waste Department
Planning, Property and Development Department
Corporate Finance

THIS REPORT SUBMITTED BY:

Department	Public Works Department
Division:	Engineering Division
Prepared by:	R. J. Fingas, P. Eng. 986-7617
Processed by:	K. Ross 986-4141
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