Item	01
Manager's Report No.	29
Council Meeting	01/11/26

2001 NOVEMBER 15

TO: CITY MANAGER

FROM: DIRECTOR PARKS, RECREATION AND CULTURAL SERVICES

SUBJECT: **BURNABY LAKE REJUVENATION PLAN**

PURPOSE: To provide a summary on the findings of the technical studies and the results of a public consultation process for the Burnaby Lake rejuvenation project and to recommend a lake management strategy for Council's consideration.

RECOMMENDATION:

1. THAT Council be requested to approve:

   a) a dredging program for Burnaby Lake include as its primary purpose the protection and enhancement of the lake ecosystem;

   b) a dredging program for Burnaby Lake include as its secondary purpose the provision of opportunities for recreational non-motorized boating and organized rowing to international standards;

   c) recognizing the high environmental and potential associated recreational benefits of Option 4A, staff be authorized to pursue this option at an estimated cost of $29M as the recommended management program and the basis of an application to the Infrastructure Canada Program and the Provincial/Federal Environmental Assessment Process;

   d) the advancement of Option 4A be subject to an acceptable level of funding grant by senior levels of government and approval under the Provincial/Federal Environmental Assessment Process;

   e) in addition to the Infrastructure Canada Program, staff be authorized to pursue appropriate funding from the Greater Vancouver Regional District;

   f) staff be directed to report back to Council on the outcome of the funding application and environmental assessment processes;

g) copies of this report be forwarded to all Burnaby MP's and MLA's; the Burnaby Lake Park Association; the Burnaby Lake Rowing Club; Chair, Greater Vancouver Regional District and all those who previously corresponded with Council on this subject.

REPORT

At its meeting of 2001 November 14, the Parks, Recreation and Culture Commission received the above noted report and adopted the recommendation contained therein.

KATE FRIARS
Director Parks, Recreation and
Cultural Services

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Attachment
p:\data\tc\Council\PK-BURNABY LAKE REJUVENATION PLAN

cc: Director Finance

TO: CHAIR & MEMBERS
PARKS, REC. & CULTURE COMMISSION

DATE: 2001 11 09

FROM: DIRECTOR ENGINEERING
DIRECTOR PLANNING & BUILDING
DIRECTOR PARKS, RECREATION & CULTURAL SERVICES

FILE: 40-09-03

SUBJECT: **BURNABY LAKE REJUVENATION PLAN**

PURPOSE: To provide a summary on the findings of the technical studies and the results of a public consultation process for the Burnaby Lake rejuvenation project and to recommend a lake management strategy for Council consideration.

RECOMMENDATION:

1. **THAT** the Parks, Recreation & Culture Commission recommend to Council that:

   a) a dredging program for Burnaby Lake include as its primary purpose the protection and enhancement of the lake ecosystem;

   b) a dredging program for Burnaby Lake include as its secondary purpose the provision of opportunities for recreational non-motorized boating and organized rowing to international standards;

   c) recognizing the high environmental and potential associated recreational benefits of Option 4A, staff be authorized to pursue this option at an estimated cost of $29M as the recommended management program and the basis of an application to the Infrastructure Canada Program and the Provincial/Federal Environmental Assessment Process;

   d) the advancement of Option 4A be subject to an acceptable level of funding grant by senior levels of government and approval under the Provincial/Federal Environmental Assessment Process;

   e) in addition to the Infrastructure Canada Program, staff be authorized to pursue appropriate funding from the Greater Vancouver Regional District;

   f) staff be directed to report back to Council on the outcome of the funding application and environmental assessment processes;

   g) copies of this report be forwarded to all Burnaby MP's and MLA's; the Burnaby Lake Park Association; the Burnaby Lake Rowing Club; Chair, Greater Vancouver Regional District and all those who previously corresponded with Council on this subject.

EXECUTIVE SUMMARY

Burnaby Lake is an old natural lake that was created some 12,000 years ago as a post-glacial depression. The lake is a natural haven within the region and together with the surrounding parkland, it is home to over 200 bird species and over 20 mammal, reptiles and amphibian species.

In the last century, the Burnaby Lake watershed has changed from a sparsely populated area to an urban centre. Sediment, nutrients and toxic pollutants from human activity and increased automobile traffic are washed into Burnaby Lake. Sediment deposited in the lake in the last two decades has reached a level that recreational boating access is severely restricted and opportunity for organized boating activity is slowly diminishing.

In January 2001, Council authorized a comprehensive environmental assessment program for Burnaby Lake to investigate the benefits and impact of four possible lake management options that would set the future management direction for the lake. The technical studies for the environmental assessment were completed in August, 2001. A complete set of draft reports (engineering, park use, fish, wildlife/vegetation and water quality/sediment/benthic) has been produced and was presented for public review and consultation in September, 2001.

This report provides an overview of the key conclusions of the technical studies and summarizes the results of the public consultation process. The technical studies point out that while Burnaby Lake is home to a diverse and abundant wildlife population, the lake has gradually filled in with sediment deposits and contains high levels of metal and hydrocarbon concentrations (lead, cadmium, copper and zinc, PAHs). Removal of contaminated sediments would improve the long term health of the lake and may enhance the wildlife. As dredging volume increases, the potential to improve the lake environment also increases with Option 4 (A and B) providing the greatest potential to improve lake conditions. The studies confirm that dredging can be undertaken with positive environmental attributes. Although the studies concluded that future increases in park use (general park visitation, recreational and organized boating activities) have the potential to impact on wildlife, they also concluded that the addition of open water and deeper water would benefit some wildlife species.

From the public review process, there is a strong consensus that some form of dredging is considered desirable. There is, however, a varied opinion on the level of dredging with cost and mitigative measures being influencing factors.

Based on the technical studies, a final conclusion was reached that Option 4A provides an effective means of maximizing the protection and enhancement of the lake environment. Furthermore, Option 4A provides a secondary benefit in the provision of opportunities for recreational and organized rowing to international standards.

REPORT

1.0 INTRODUCTION

In January 2001, Council approved an environmental assessment program for the Burnaby Lake Rejuvenation Plan and the approved work program included the following components.

- Technical studies (engineering, park use, fish, wildlife, vegetation, sediment, water quality and benthic) related to the lake management options.
- Public communication and consultation program to inform the public of the study alternatives and findings and to provide opportunities for public input.

The work program was initiated in February 2001. Following a stakeholder "expert" workshop and a pre-study public open house in April/May, 2001, four lake management options were identified which formed the framework of the technical studies. The four lake management options are:

Option 1 - No dredging (Leave the lake as is)

This option would leave the lake in its current state with no dredging being considered.

Option 2 - Dredging to provide environmental enhancement (Figure 1)

This option would include a dredging component that is specifically designed for environmental reasons such as removal of sediment contaminants or improved salmonid access. Key dredging areas would include the mouth of Still Creek, Deer Lake Brook/Lubbock's Creek outlet, Eagle Creek outlet and Ramsay Creek outlet.

Option 3 - Dredging to provide environmental enhancement and to improve recreational access to the lake (Figure 2)

This option would include selective dredging to enhance environmental and recreational values. It builds on the framework for Option 2 plus additional dredging for further enhancement of environmental values, recreational rowing, kayaking and canoeing as well as a four rowing lane training facility.

Option 4 - Dredging to provide environmental and recreational enhancement including an international standard rowing course (Figure 3)

This option further increases dredging volumes and would provide the highest level of environmental enhancement among all options and would also include an eight-lane international standard rowing course, 2166m long and 124m wide.

Under Option 4, two variations of the international rowing course standards (2m depth - Options 4A and 3m depth - Option 4B) were evaluated with respect to incremental environmental benefit as well as cost implication. The last lake dredging done in Burnaby Lake in 1971/72 was based on a 2m depth. Dredging to a 3m depth would permit the course to meet the highest competition standards.

The purpose of this report is to provide an overview of the findings and conclusions of the technical studies and to advance the recommended option for Council approval.

2.0 TECHNICAL STUDIES AND FINDINGS

As part of the environmental assessment program for the four management options, a multi-discipline consultant team was retained to undertake the comprehensive review that included the following objectives:

- Assess the potential positive and negative impacts of the four management options on water quality, benthic, fish, wildlife and vegetation in the lake.
- Review historical park use trends and project future park use trends.
- Confirm dredging and water treatment technology and prepare cost estimates for all dredging options.

The study program was initiated in February 2001 and completed in August 2001. The findings of the studies are documented in the draft reports which have been made available to the public since completion. The technical studies included a review of past studies and data, collection of additional data and technical evaluation conducted by the study team.

2.1 Present Conditions - Burnaby Lake Regional Nature Park

- The park is an important recreational resource for the residents of Burnaby and the Vancouver region.

- The park supports a diverse wildlife habitat. There are over 200 species of birds, 14 species of amphibians and reptiles and 10 species of mammals present in and around the lake.
- Sixteen rare and endangered species have been identified in the park including painted turtle, peregrine falcon, great blue heron and the short-eared owl.
- Approximately 100,000 m^3 of sediments migrated into the lake between 1973 and 2001.
- The lake sediments are contaminated with metals (lead, cadmium, copper and zinc) and hydrocarbons throughout most of the lake.
- Dissolved oxygen levels in the lake which is necessary for fish and aquatic life are depressed for many months of the year especially during the summer months.
- The open water area of the lake has been reduced over the years due to infilling sediment and plant community growth.
- Fourteen species of fish are present in the lake. Three spine stickleback, northern pikeminnow and carp are the most abundant species. Coho salmon and cutthroat and rainbow trout migrate through the lake to spawning streams from October to January.
- In 2000, approximately 300,000 people visited the park. An activity survey conducted by the GVRD identified the following key park use groups:
  - walking, jogging and hiking (74%)
  - nature related activities (11%)
  - picnicking and related activities (10%)
  - equestrian use (2%)
  - recreational lake based activities (1%)
  - organized rowing, canoeing and kayaking (2%)
- The lake has been used as a rowing facility since the 1930's. The 1973 Canada Summer Games provided the impetus for dredging the lake to accommodate an international standard rowing course. Rowing activities are severely restricted now due to sedimentation problem in the lake.

2.2 Assessment of Lake Management Option

The technical studies examined the potential short and long terms benefits and impacts for each lake management option identified. This section summarizes the key findings as they relate to the environment, cost and park use.

Option 1 - No Dredging

- The lake would continue to infill with sediment and eventually become more marsh-like with a narrow channel for drainage conveyance.

- The loss of open water would negatively impact wildlife, fish and boating activity. Duck species, painted turtle and fish abundance would decline due to loss of open water.
- If fish abundance declines, wildlife species such as osprey, bald eagles and mink that feed on fish would also reduce.
- Shorebirds would benefit from lake infilling and increased areas of mudflats and mud bars.
- The loss of open water would make migration by salmon to and from tributary streams more difficult.
- As vegetation increases, the amount of decaying vegetation on the lakebed would also increase and result in lower dissolved oxygen levels in the water and further deterioration of water quality.
- Continued loading of sediments and growth of the vegetation community into open water areas would eventually preclude lake-based activities.

Option 2 - Dredging for Environmental Enhancement

- Approximately 12 ha of pond lily habitat would be converted to open water and 5.3 ha of existing shallow water area would be deepened.
- The possible dredging areas were selected to maximize contaminated sediment removal and to improve fish passages with minimum disturbance to wildlife and the native vegetation community.
- Fish migration to Deer Lake Brook, Still Creek and Lubbock's Creek would be easier.
- Deeper water at selected creek mouths would provide slightly cooler water in these areas during summer months that may be beneficial to salmonids.
- The areas of dredging are probably not great enough to significantly reduce overall lake sediment contamination and dissolved toxic pollutants and improve dissolved oxygen levels. However, sediment quality in the areas of dredging would improve the aquatic environment and may reduce the risk of toxic effect to fish and wildlife such as amphibians and reptiles which over winter in lake sediments. The selected dredging areas also have the highest sediment contamination in the lake.
- The additional open water areas would benefit some wildlife species such as pie-billed grebe and mink but would reduce habitat opportunities for other bird species such as Great Blue Heron, dabbling ducks and Canada geese which depend on shallow water to feed.
- The estimated cost of this management option is approximately $21 M.
- The total surface area to be dredged is approximately 172,600 m^2 and the total dredging volume is 261,500 m^3.

Option 3 - Dredging for Environmental and Recreational Enhancement

- Approximately 17 ha of pond lily, purple loosestrife and mixed shrub habitat would be converted to open water and 8.3 ha of existing shallow water area would be deepened.
- The potential benefits and impact to fish and wildlife under this option would be similar to option 2.
- The extent of contaminated sediment removal would be greater and reduce the risk of transferring metals and polycylic aromatic hydrocarbons (PAHs) into the lake water.
- More water lily habitat and decaying plant materials on the lake bed would be removed which would improve dissolved oxygen levels around the dredged areas.
- This option would provide additional environmental benefit over and above Option 2 with respect to water quality and benthic invertebrates.
- More boat use is expected from the creation of a canoe loop, training lanes (4) and better boat access points and the increased use could have negative impact to wildlife.
- The better water access and more open water area would provide greater on-lake nature interpretation and education opportunities.
- Organized rowing competition event use of the lake would likely remain at the present level of two small events/year.
- An additional 4 bay boathouse (to be constructed by others) is identified that would replace the equivalent 3 bays storage below the existing grandstands. The additional facility would be accommodated within the existing structure footprint and within the adjacent open water area.
- The estimated cost of this management option is approximately $27M, excluding the boathouse upgrading cost.
- The total surface area to be dredged is approximately 260,700 m^2 and the total dredging volume is 368,000 m^3.

Option 4 - Dredging for Environmental and Recreational Enhancement Including an International Standard Rowing Course

- Approximately 22 ha of pond lily, purple loosestrife and mixed shrub habitat would be converted to open water and up to 22.6 ha of existing shallow water area would be deepened.
- Two sub-options (2m and 3m deep rowing course) were examined. A 2m deep course would accommodate most rowing events including World Masters and Canada Summer Games while a 3m deep course would meet the highest competition standards established by the International Federation of Rowing Associations (FISA) for high profile event such as the Olympic Games.

- The greatest volume of contaminated sediments would be removed and risk of toxins that may be taken up by lake plants which then consumed by fish and wildlife would be reduced further.
- Dissolved oxygen levels in the lake water would improve and phytoplankton and zooplankton (fish food organisms) would increase.
- Fish migration to and from upstream tributaries would be easier.
- Lake access for recreation, rowing, nature interpretation, education and organized rowing would be enhanced.
- The additional open water would provide incremental benefit for some wildlife species but could limit habitat opportunities for others that depend on shallow water to feed.
- Option 4 (A and B) have the greatest potential to improve lake water/sediment quality, dissolved oxygen, open water, fish, etc.
- Organized rowing activities would increase from the present 2% of total park use to approximately 11% (67,000 people/year) when the rowing course is used to its projected level.
- During the public input process, concerns were raised by the public related to timing and management of rowing events and their potential impact on wildlife. Further evaluation conducted by the study consultant team concluded that disturbance to wildlife may be minimized by employing practical management tools, e.g. on-site traffic/parking management, noise management, boat traffic management, etc., for the organized events.
- An additional 5 bay boathouse (to be constructed by other) is identified. The facility would seek to utilize the existing structure footprint and stay within the adjacent open water area.
- The estimated cost for Option 4A (2m deep rowing course) is $29M and for Option 4B (3m deep rowing course) is $37M, excluding the boathouse and associated rowing support infrastructure costs.
- For Option 4A, the total surface area to be dredged is approximately 364,000 m^2 and the total dredging volume is 403,000 m^3.
- For Option 4B, the total surface area to be dredged is approximately 444,000 m^2 and the total dredging volume is 562,000 m^3.

2.3 Comparison of Lake Management Options

To evaluate and compare the four lake management options, the potential benefits and impacts associated with each option were identified. A total of eight key parameters (vegetation, wildlife, fish, water quality, aquatic biota, sediment quality, park use and engineering) were assessed for each option. Within each key parameter, up to seven

individual sub-parameters were analyzed and assigned a ranking (highly negative to highly positive) according to the results of the assessment.. This assessment method follows the procedures recommended by the Canadian Environmental Assessment Agency and is integral to the Provincial Environmental Assessment process.

For the purpose of this staff report, the results of the impact assessment were consolidated with respect to the eight key parameters and are summarized in Figures 4 to 7.

For the management options involving dredging, Option 2 provides the framework for a plan that would protect the lake ecosystems while Options 3 and 4 provide increasing incremental environmental benefits through additional dredging that would further enhance the lake environment.

It is recognized that the primary purpose of any lake dredging is to protect and enhance the lake ecosystem. For the dredging options, Option 2 provides the framework that would meet the environmental protection and enhancement objective. The technical studies also concluded that while Option 3 would provide an incremental increase in environmental enhancement over Option 2, Option 4 would provide the greatest incremental benefit to the lake ecosystem through the highest removal of contaminated sediment and the greatest improvement to water depth. The technical studies also reviewed the potential of re-establishing recreational and organized boating activities on the lake for Option 4. Although there may be a negative impact on wildlife due to anticipated increase in boating activities for Options 3 and 4, on balance, Option 4 provides the greatest benefit satisfying a primary purpose of protecting and enhancing the lake ecosystem and a secondary purpose of providing boating opportunities on the lake. While Option 3 can provide recreational boating value as well as environmental enhancement to an estimated cost of $27M, an additional $2M (Option 4A) would provide a world class rowing facility on the lake while protecting and enhancing the lake ecosystem.

From the technical studies, it is evident that as dredging volume increases, the potential to improve lake conditions (sediment contamination, water temperature, dissolved oxygen, open water, etc.) hence the lake ecosystem also increases. However, as demonstrated by Option 4B, there is a diminishing return on the extra $8M cost over Option 4A. The additional water depth for Option 4B would provide only marginal water quality enhancement and as such, is not deemed to be cost effective with respect to environmental value as well as organized rowing requirements.

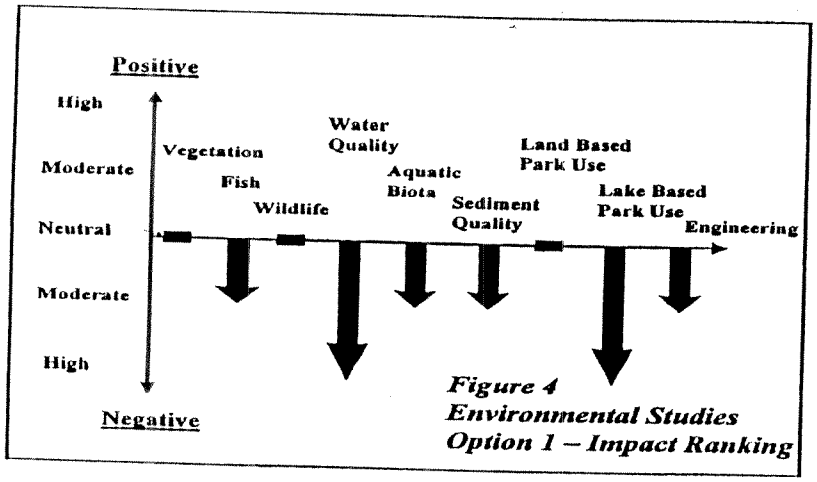

Figure 4
Environmental Studies
Option 1 – Impact Ranking

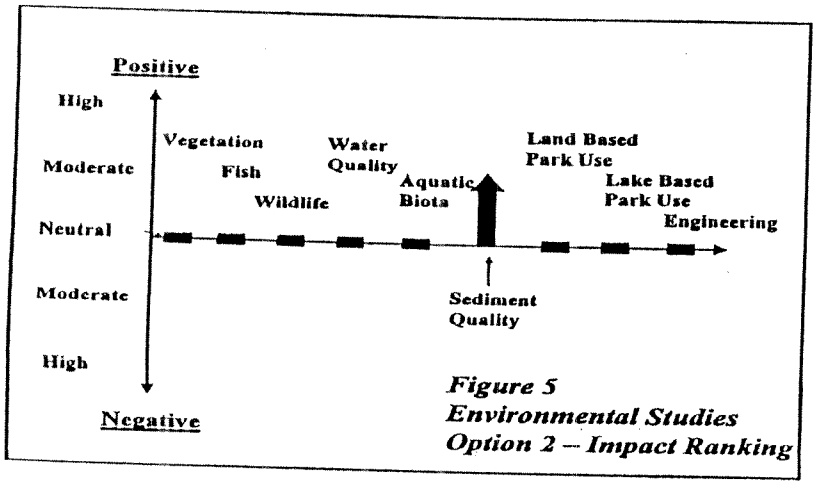

Figure 5
Environmental Studies
Option 2 – Impact Ranking

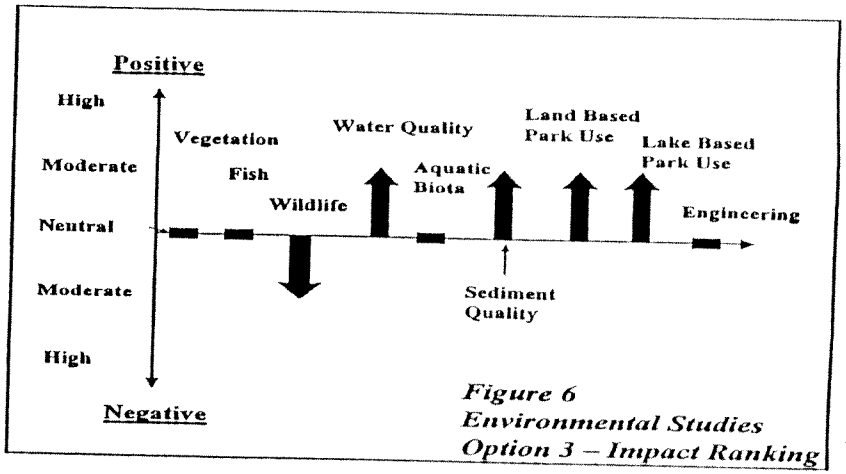

Figure 6
Environmental Studies
Option 3 – Impact Ranking

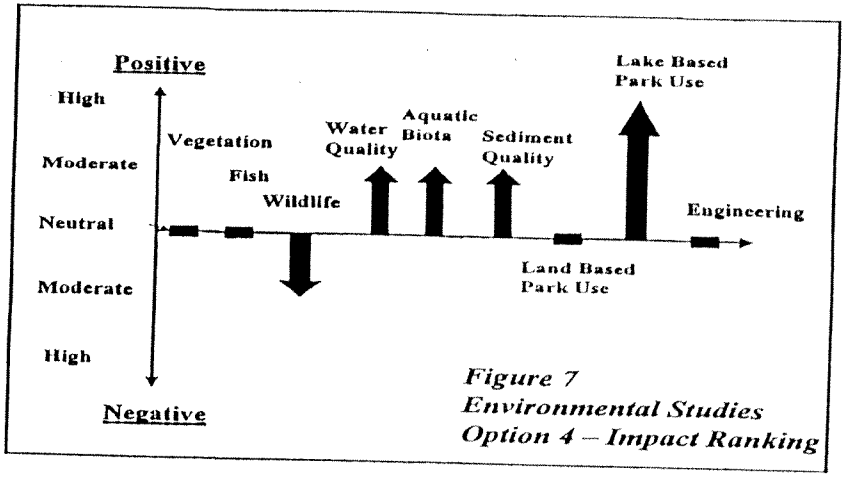

Figure 7
Environmental Studies
Option 4 – Impact Ranking

3.0 PUBLIC CONSULTATION PROCESS AND RESULTS

A comprehensive public consultation program was conducted to inform the public about the project, the possible management options and the technical study results and to gather public feedback on the studies. The consultation program commenced in February 2001 and completed in September 2001 with a series of mall display events and two public meetings. A highlight of the key components of the consultation program is provided as follows:

- February - April, 2001

  Special meetings (2) with the Burnaby Lake Park Association and the Burnaby Lake Rowing Club to review the terms of reference for the technical studies and to provide opportunities to both the Park Association and the Rowing Club to present their views and issues for the study team's consideration.

- April, 2001

  Expert workshop with key stakeholder groups to review the technical study methodology and level of details for the work program.

- May 2001

  Open house meeting in May to inform the public of the study and process. The meeting was attended by about 200 people.

- June - July, 2001

  Special meetings (3) with the Burnaby Lake Park Association and the Burnaby Lake Rowing Club to review the initial results of the study team.

- July - August, 2001

  24-hour dedicated telephone hotline for the project, newsletters mailout, project poster distribution, newspaper advertisement, and posting of project information, draft executive summary report mailout, and draft summary report and feedback form posting on Burnaby's website.

- September 2001

  Display of study findings on four separate days at Eastburn Community Centre, Metrotown, Lougheed and Brentwood Malls.

  Two public meetings in September 2001 (a total of 177 people attended) to present study results and to provide opportunities for public input.

In addition to the communication activities, the complete set of the technical study reports were made available at all Burnaby public libraries and the City Hall Engineering Department for public review.

Arising from the mall display and public meeting events in September 2001, a total of 151 feedback forms were returned in addition to 20 written submissions received between May and September 2001 and 5 recorded telephone messages.

A summary of the key comments from the 20 written submissions includes the following:

- questions from the May 2 Open House should be a part of the public record,
- do Option 4 to enhance environmental and recreational values,
- do not destroy Burnaby Lake with the construction of a large rowing facility,
- the lake provides important wildlife habitats and a large number of people entering and leaving the park for sports events would damage the environment,
- do not do any dredging - let the lake transform to a marsh environment and save the money,
- leave the area as a wildlife refuge with recreational activities only.

The following graphs provide a summary of the support ratings as indicated on the 151 project feedback forms returned by the public for each of the lake management options.

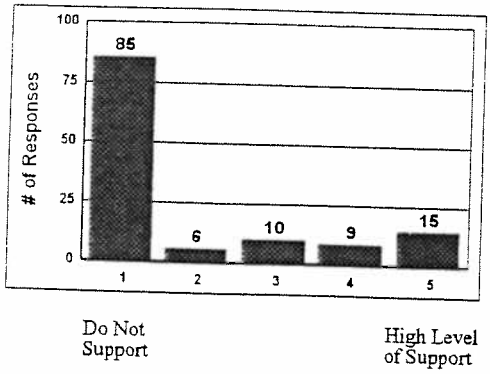

Figure 8
Option 1 - No Dredging

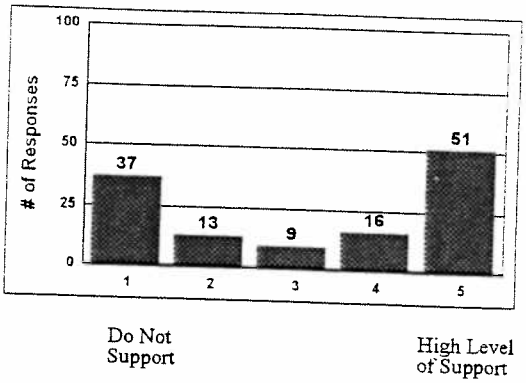

Figure 9
Option 2 - Dredging for Environmental Enhancement

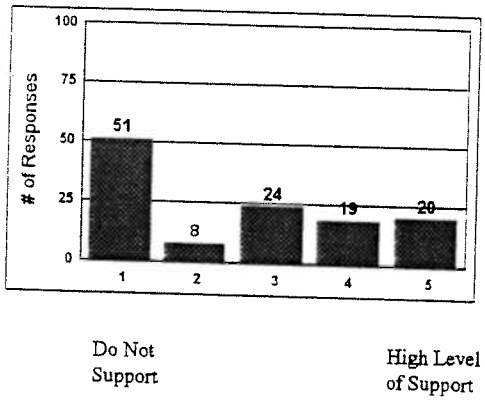

Figure 10
Option 3 - Dredging for Environmental and Recreational Enhancement

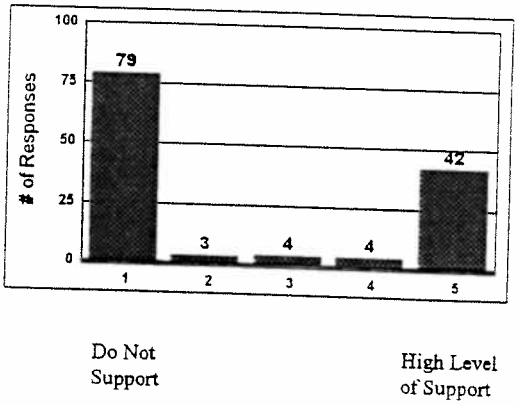

Figure 11
Option 4 - Dredging for Environmental and Recreational Enhancement Including an International Standard Rowing Course

From the information (151 returns) provided in Figures 8 to 11, the following observations may be made:

- the majority of opinion does not support Option 1,
- the support for Option 2 is divided with a slightly higher level supporting this option than not supporting it,
- while there is support for Option 3, the majority of opinion is opposed to this option and a significant number is in the near neutral zone,
- opinion on Option 4 is sharply divided between support and opposition with the majority supporting the latter.

As was evident during the public consultation process, public opinion is strongly divided on the appropriate dredging option. It is clear though that there is a strong support for undertaking some form of dredging work for Burnaby Lake. During the September public meetings, there were several key messages (some of which were conflicting) raised by the public and they are:

- The lake is important for nature and wildlife preservation and public enjoyment.
- Excessive dredging and competitive rowing will be detrimental to the environment.
- Need for better watershed wide sediment and runoff pollution management to protect the lake environment.
- Rowing activities can co-exist with other park users without creating negative impact to the lake environment.
- Organized rowing provides good social benefits and offers a healthy environment that fosters the pursuit of personal excellence.

A copy of the executive summary report for the public consultation program is included in Appendix A. A full copy of the consultation report is provided under separate cover to the Committee, Commission and Council.

4.0 CONCLUSIONS

Burnaby Lake is the central component of Burnaby Lake Regional Nature Park and is recognized on a regional scale as a significant ecological resource. Through its complex of habitats, it provides home for hundreds of species of plants and animals including several rare, endangered and protected species. However, because of the history of growth within the watershed, the lake is on the path of infilling which will transform the lake into a marsh-like ecosystem, losing its open water character. Human intervention in the form of lake dredging is necessary in order to reverse the process of infilling and to protect the lake ecosystem.

Based on lake survey data, it was calculated that approximately 100,000 m^3 of sediments migrated into or redistributed within the lake from 1972 to 2001. With the implementation of improved sediment control practices for construction sites and more effective stream erosion controls, it is projected that future infilling would be in the order of 1,200 m^3/year. Recognizing that dredging would reverse the lake sedimentation process and provide overall benefits to fish and wildlife, the technical studies concluded that Options 3, 4A and 4B have the increasing potential to improve lake conditions as a result of contaminated sediment removal, increased area of cooler bottom water particularly at the mouths of major tributaries, increased open water and light penetrations.

The result of the technical studies indicated that environment benefit would increase incrementally to a certain extent as dredging volume increases. Option 2 establishes the basis for an environmental protection program. Option 3 would provide further environmental enhancement while accommodating limited boating and rowing. Option 4 would provide an optimum level of protection and enhancement of the lake ecosystem and offer the potential of re-establishing a world class rowing facility for an incremental cost of $2M above Option 3. While it is expected that environmental benefit would increase as dredging volume increases, there is a diminishing return on the capital investment beyond Option 4A. Option 4B would cost $8M more than Option 4A but would offer only marginal water/sediment quality enhancement and as such, is not deemed to be cost effective with respect to the environmental value as well as organized rowing requirements.

Through the technical studies, it is recognized that Option 4A has the potential to impact on wildlife. The concern for wildlife was also amplified by some members of the public during the public consultation process. Based on further review by the study team in addressing wildlife disturbance, it was concluded that any impact that may be generated by boating related activities can be minimized by employing practical management tools, e.g. off-site traffic/parking plan, noise management, boat traffic management, etc., during organized rowing events. On balance, Option 4A provides the greatest range of benefits. With the continuing population growth in the region, it can be expected that future general park use visit will increase and will have an overall impact on the lake and the park with or without organized rowing.

Having completed the technical studies and evaluated the concerns and comments received from the public, a final conclusion was reached that Option 4A provides an effective means of maximizing the protection and enhancement measures for the lake ecosystem that would offer the following environmental benefits:

- reversing the lake infilling process,
- creation of the greatest area of open and deeper water,
- removal of sediments with highest concentration of contaminants thus reducing the risk of toxic effects to fish and wildlife,
- increasing micro organism abundance in the water and thereby increasing food for the fish population.

A secondary benefit of Option 4A beyond the environmental enhancement is the restoration of the rowing program and the creation of new recreational opportunities.

The technical assessment phase is now completed. During the study period, a significant portion of the time and effort was devoted to evaluating the environmental implication of the management options. The results of the study have produced a sound management strategy for the lake that reflects the environmental objective of lake rejuvenation. While the recommended Option 4A provides a balanced approach, it is important that other watershed management initiatives such as improved sediment management practices, effective flood control and sediment collection basin be considered in building a holistic and integrated management program that will meet the goal of protecting and enhancing Burnaby lake and the watershed in which it is located.

Given the magnitude of cost of the recommended program, it is recommended that the advancement of Option 4A be subject to an acceptable level of funding grant by senior levels of government and approval under the Provincial/Federal Environmental Assessment Process.

W.C. Sinclair, P.Eng
DIRECTOR
ENGINEERING

J.S. Belhouse
DIRECTOR PLANNING
& BUILDING

K. Friars
DIRECTOR PARKS,
RECREATION &
CULTURAL SERVICES

LSC:jh
attachment

cc: City Manager
Director Finance

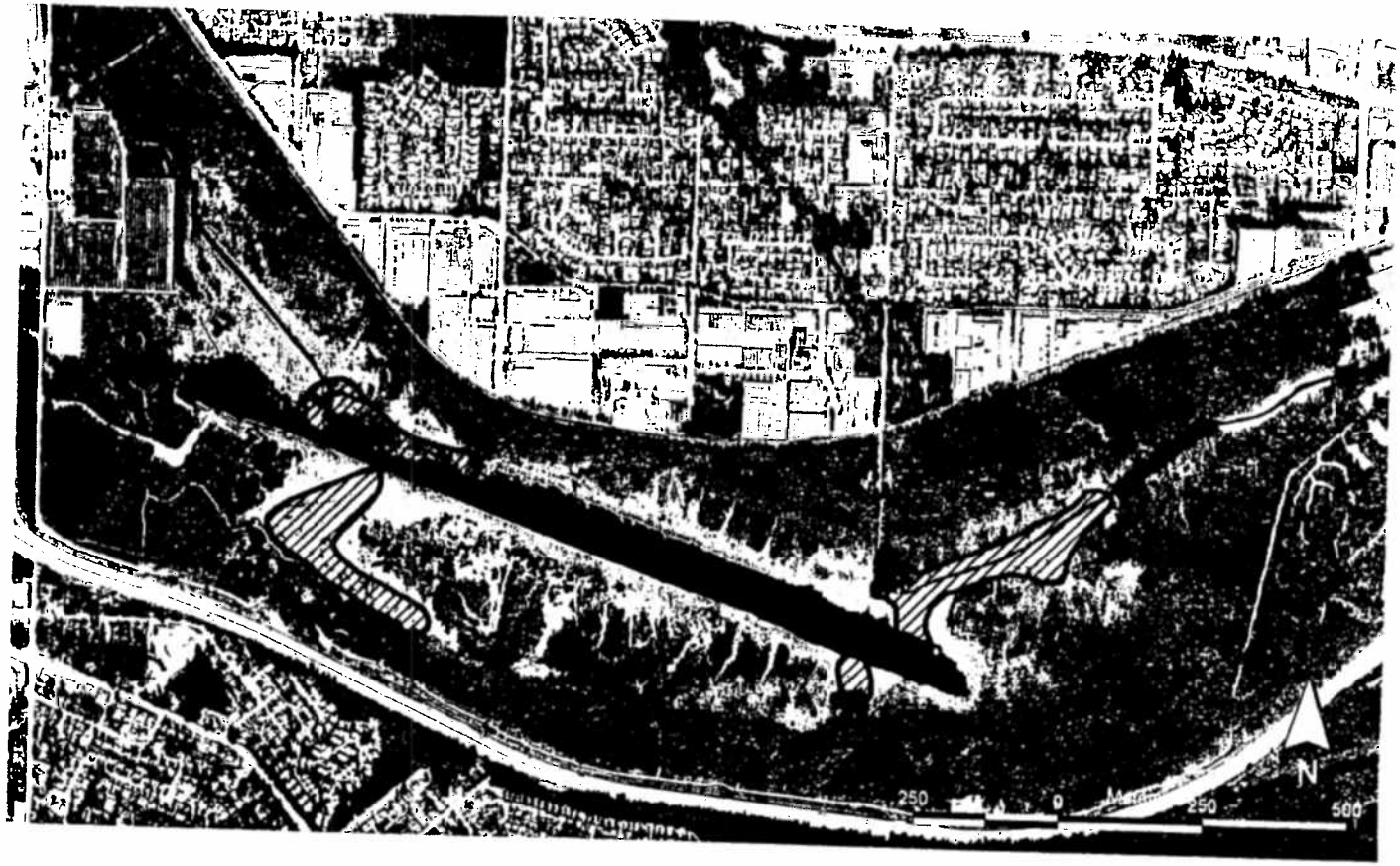

Figure 1

Option 2 – Dredging for Environmental Enhancement

Note: Delineated areas represent possible dredging areas

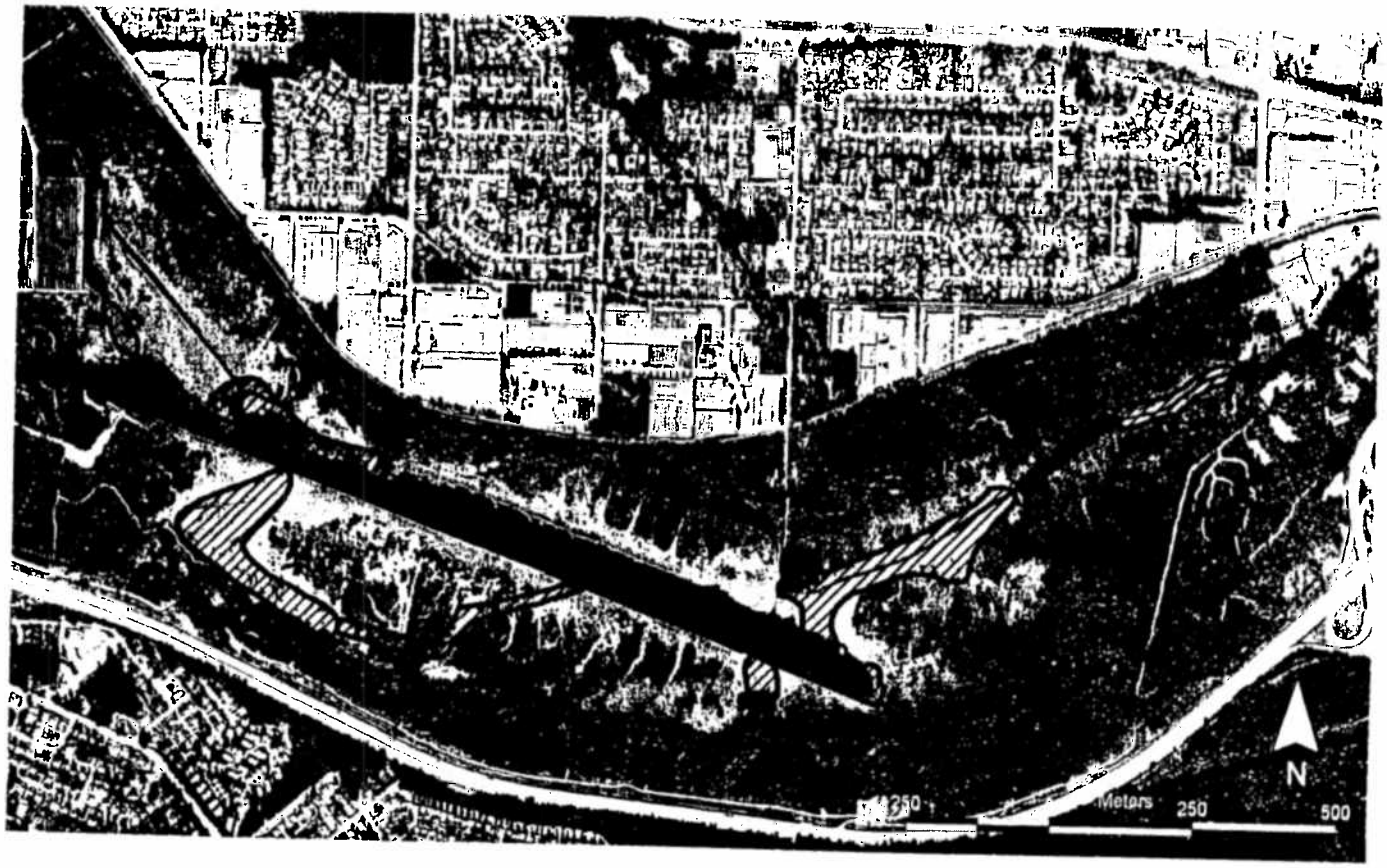

Figure 2
Option 3 – Dredging for Environmental and Recreational Enhancement

Note: Include Option 2 areas (blue)

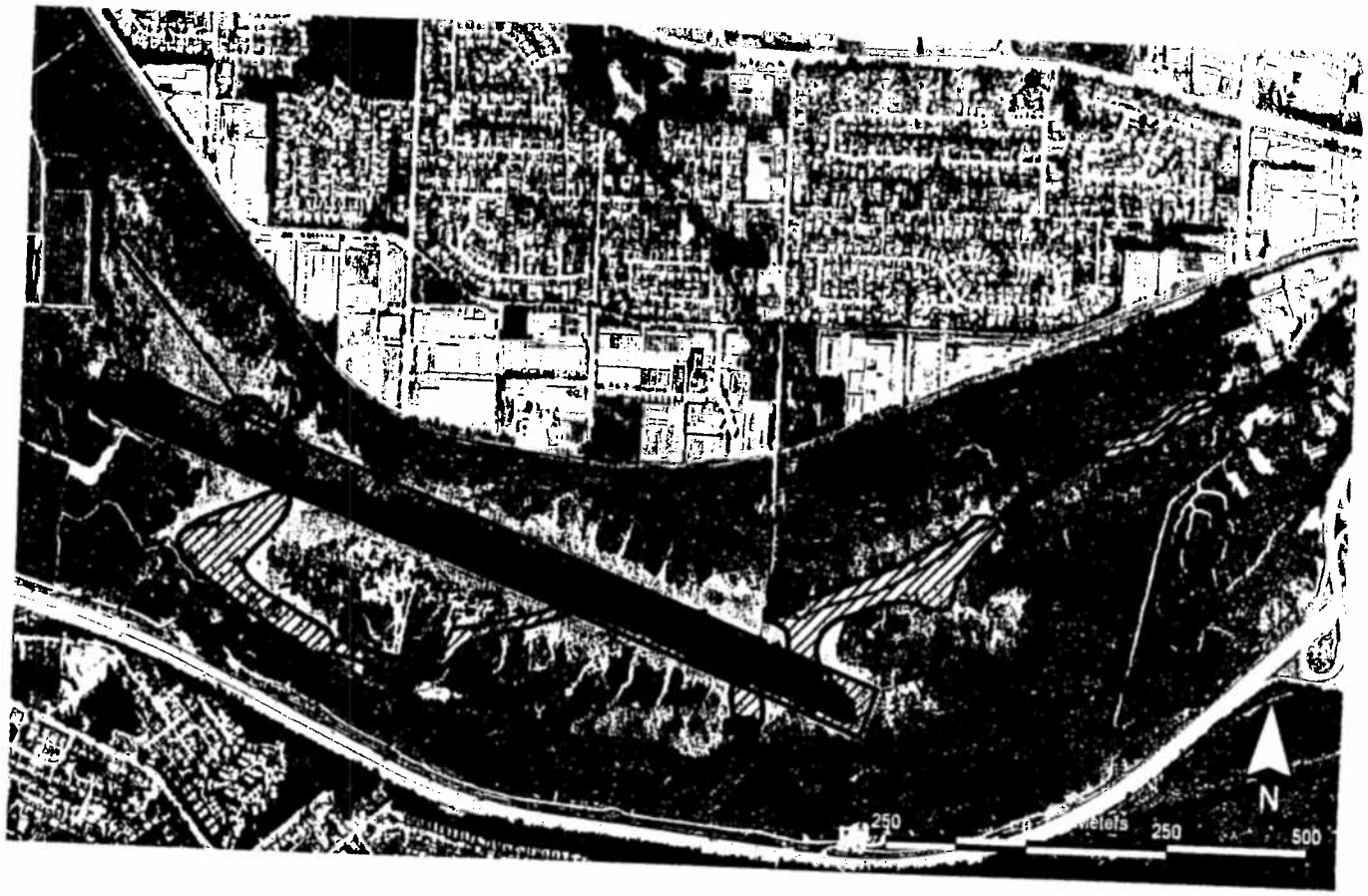

Figure 3

Option 4 – Dredging for Environmental and Recreational Enhancement Including An International Standard Rowing Course

Note: Include Option 2 (blue) and Option 3 (red) areas

EXECUTIVE SUMMARY

APPENDIX A

This report contains an outline of the communications program supporting the Burnaby Lake Rejuvenation Program and the feedback provided by members of the public during this communication program. This executive summary also provides a high level summary of this feedback, organized into categories. The body of the report and the appendices contain the more detailed responses that were received.

In addition, a copy of the May 2, 2001 Open House feedback has been included. This Open House was intended as an opportunity to provide information to the public about impending studies that were to be conducted during the summer of 2001 on 4 potential management options for Burnaby Lake. However, even prior to the studies being conducted, opinions on what the future of the lake were provided and documented.

The communication program was extensive, starting with workshops with key stakeholder groups, the aforementioned May 2nd Open House, posters in numerous locations, information newsletters, paid advertisements, public service announcements, a 24 hour dedicated telephone hot line, web site information, public mall displays, meetings with representatives from the Burnaby Lake Park Association and the Rowing Club, Burnaby Lake Environmental Assessment Draft Executive Summary Report and Draft Summary Report. The initial Open House and September Public Meetings were well attended (approximately 190 for May 2nd Open House and 101 on September 13th and 76 on September 15th Public Meetings). Approximately 276 people stopped to view the mall displays and 113 copies of the Draft Executive Summary Report were distributed in those venues. The Draft Executive Summary Report was also sent to the data base of those who had attended the May Open House, phoned or corresponded with the City. The complete set of technical study reports were also placed at all the Burnaby public libraries for interested members of the public to review and a set was also made available to the public at City Hall.

A total of 151 feedback forms were returned as part of the September consultation activities in addition to 11 written submissions and 5 telephone calls. The data base of those interested in this projects shows that there were approximately 75% Burnaby residents and 25% coming from surrounding municipalities.

The table below provides an overview of the support ratings for each of the management options addressed in the technical studies. These ratings have been summarized from the feedback forms submitted during the September consultation activities.

	Do not support				High level of support
	1	2	3	4	5
Option 1	85	6	10	9	15
Option 2	37	13	9	16	51
Option 3	51	8	24	19	20
Option 4	79	3	4	4	42

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Following is an amalgamated summary of the feedback from the September Public Meetings, feedback forms, written input, mail discussions and telephone calls.

Option 1 – No Dredging

There is some support for Option 1 while the majority of opinion is opposed to this option. Should this option be selected, management considerations suggested include:

- improve controls over sediments and water entering the lake
- monitor the environment including water quality, habitat, vegetation and wildlife
- develop appropriate public safety measures
- miscellaneous management considerations

Reasons for support for Option 1 emphasized the following:

- lake succession is a natural process
- best to not tamper with the current situation

Reasons for NOT supporting Option 1 emphasized the following:

- degradation of the environment is not addressed
- continued diminishing of recreational opportunities
- loss of space to enjoy

Option 2 – Dredging for Environmental Enhancement

The support for Option 2 is divided with a slightly higher level supporting this option than not supporting it. Should this option be selected, management considerations suggested include:

- protect habitat and wildlife
- manage incoming water quality and sediment
- support natural enjoyment of the park and lake
- ensure that recreational use of the lake is maintained
- plan and manage the dredging to improve the environment
- dredgeate disposal
- park management issues
- support native species

Reasons for support for Option 2 emphasized the following:

- better water quality than the status quo
- balanced solution for environment and recreation
- saves wildlife and habitat
- ensures that large events will not take place at the lake
- costs are reasonable

Reasons for NOT supporting Option 2 emphasized the following:

- costs are too high for what is achieved
- degradation of the environment is not addressed
- continued diminishing of recreational opportunities

Option 3 – Dredging for Environmental and Recreational Enhancement

While there is support for Option 3, the majority of opinion is opposed to this option and there is a significant number that indicate a neutrality on this option. Should this option be selected, management considerations suggested include:

- manage the environmental impacts

- managing use of the lake to minimize wildlife and habitat impacts
- improve active recreational opportunities
- support natural enjoyment of the park and lake
- manage incoming water quality and sediment
- dredgeate disposal
- plan and manage the dredging to improve the environment
- park management issues
- support native species
- improve the environment

Reasons for support for Option 3 emphasized the following:

- better on-lake opportunities than at present
- brings enhanced environmental benefits

Reasons for NOT supporting Option 3 emphasized the following:

- encourages over-use of the park
- negative effects on the environment
- limits use of lake for competitive rowing
- costs are too high

Option 4 – Dredging for Environmental and Recreational Enhancement, Including Creating an International Standard Rowing Course

There is support for Option 4 while the majority of opinion is opposed to this option – there are fewer people that either mildly support or don't support this option than the other options. Should this option be selected, management considerations suggested include:

- manage the environmental impacts
- managing use of the lake to minimize wildlife and habitat impacts
- manage incoming water quality and sediment
- dredgeate disposal
- park management issues
- improving recreational opportunities

Reasons for support for Option 4 emphasized the following:

- best impact for expenditure
- better on-lake opportunities than at present
- brings enhanced environmental benefits

Reasons for NOT supporting Option 4 emphasized the following:

- encourages over-use of the park
- negative effects on the environment
- do not want organized water-activity
- costs are too high

As was evident at the onset of this process, public opinion is strongly divided on the appropriate future for Burnaby lake.

The feedback from those that advocate Options 1 or 2 (and to some extent Option 3) stressed that this is a rare jewel as a natural area within an urban habitat. Their comments and focus of discussion stressed that this area is important for nature preservation and enjoyment. Their concerns also focussed on worries that the environmental impacts of any dredging, and in particular for Options 3 and 4 are unclear. Further, there was a concern that the level of on-lake activity that would be supported by Option 4 (and to a lesser extent by Option 3) would be excessive and detrimental to the environment. A number of people provided feedback that they

felt at the beginning of the process that there was already some hidden decision made to support an international standard rowing facility. This was also reported at the end of the process with claims that the Draft Summary Report is biased to support rowing.

Those opposed to significant dredging (Options 3 and 4) were most likely to feel that these options would be detrimental to the environment and disruptive to other passive park enjoyment activities.

Many opposed to any of the dredging options also cited concerns about the funding of such projects and a reluctance to have their tax dollars (or even casino funds) used for such purposes. The concern for potential difficulty in accessing the necessary funds was also expressed by many that supported some level of dredging (Options 2, 3 or 4). A few stakeholders were quite adamant that this was a waste of public funds and demanded a referendum should the City Council be inclined to support any of the dredging options.

Feedback from those that advocate Option 4 (and to some extent Option 3) stressed that they too are interested in the environment and Option 4 would be a return to previous conditions rather than something new. They noted that the studies indicate that Option 4 would provide the most environmental advantages and also the most support for water based activities. They noted that the lake has played and can continue to play an important role for water based activities, including competitive rowing and that in the past this was never a conflict with the environment or with other park users.

One theme that received unanimous support was the need to have a much more effective and active approach to dealing with the cause of sedimentation and pollution. This management concern was expressed in reference to whatever option the City may choose to pursue.