

**TO: CITY MANAGER**

**DATE: 1996 April 09**

**FROM: DIRECTOR ENGINEERING**

**FILE: 60-07-03**

**SUBJECT: STRIDE AVENUE LANDFILL CLOSURE**

**PURPOSE:** To present a comprehensive closure implementation program for the former Stride landfill site including alternatives to the green waste and construction waste operations that would be displaced by the closure.

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**RECOMMENDATIONS:**

1. That staff be authorized to proceed with the Stride landfill closure implementation program and its associated operations on the basis of the principles and approaches recommended in Section 4 of this report.

**SUMMARY**

In March 1995, Council received a staff report outlining a multi-phase program for the closure of the Stride Landfill site. The proposed closure program would provide a permanent solution to the methane gas and leachate control issues and bring the site into conformance with one of the key land use objectives in the adopted Edmonds Town Centre plan.

The purpose of this report is to outline an implementation program that would mark the beginning of the closure construction program. In the program planning process, it was recognized that the closure of Stride would cause the displacement of the public yard waste program and the City waste disposal operations currently existing at Stride and that alternatives must be developed as part of the closure program to ensure that the public's needs and the City's operational requirements can be sustained.

The initial phase of the recommenced implementation program would include site grading and installation of the permanent landfill gas control system at Stride, expansion of the resident only yard waste drop off centre at the Recycling Depot and development of a City owned site in the Big Bend for City construction material sorting and transferring uses. When the program is complete in 1997, it will help create a more compatible and integrated environment for the Edmonds community and allow progressive implementation of the Taylor Park development program and the final remaining leachate control and landfill cover works. Considering the growth potential in the Edmonds area and the need to maintain an acceptable level of service to the public with respect to environmental protection and yard waste management, it is recommended that the principles of the closure program as outlined in this report be approved and that staff be authorized to implement the plan accordingly.

**1.0 BACKGROUND**

The former Stride landfill had been used as a municipal solid waste disposal site from approximately the early 1900's to the late 1960's. Since its closure to refuse disposal, the landfill site has been used for Burnaby residents only yard waste disposal and has been accepted by the public as a convenient and free facility to dispose of bulky yard waste. In addition to the public yard waste disposal, Engineering and Parks Departments also utilize the site for disposal of excavation materials generated from City operations.

Recognizing the development growth in the Edmonds area and the need to convert the former landfill site to a land use that would reflect the goal of the Edmonds Town Centre Plan, a permanent closure planning program was initiated in early 1995 and was subsequently approved by the Environment & Waste Management Committee and Council in March 1995.

The approved plan consists of a four phase program that would address landfill gas management, leachate control, alternate waste disposal and final landfill surface treatment issues. The purpose of this report is to provide Council with an update on the project and to seek approval of a comprehensive implementation strategy and construction program related to landfill gas management and alternate green waste/excavation waste disposal options.

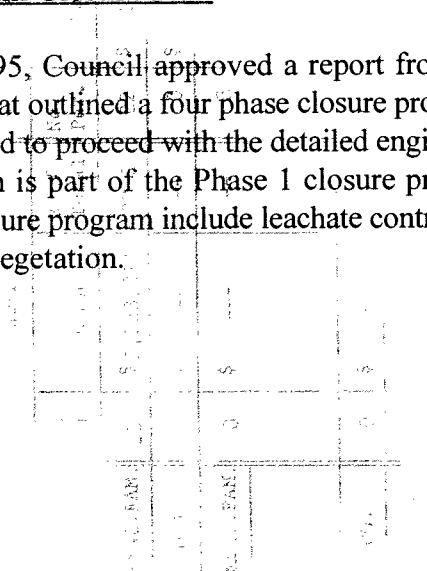
**2.0 ADOPTED CITY PLANS**

**2.1 Edmonds Town Centre Plan**

In September 1994, Council adopted the Edmonds Town Centre Plan which became the blueprint for future growth and development management in the Edmonds community. One of the key components of the plan is to create a liveable, complete and integrated community by enhancing park facilities and maintaining open spaces at the former Stride Landfill site.

**2.2 Stride Landfill Closure Plan**

In March 1995, Council approved a report from the Environment & Waste Management Committee that outlined a four phase closure program for the former landfill site. Staff were also authorized to proceed with the detailed engineering design of the methane gas extraction system which is part of the Phase 1 closure program. The other remaining phases of the approved closure program include leachate control, alternate waste disposal and final landfill cover and revegetation.



**2.3 Proposed Taylor Park Plan**

In January 1996, the Parks & Recreation Commission approved in principle the master plan for Taylor Park. The plan features various activities on the former Stride landfill site and includes a ball diamond, sports fields, tennis courts and passive open space. The plan was also endorsed by the Edmonds Area Advisory Committee which also recommended that the open space site (site of the current yard waste operation) be included in the 1996 park dedication bylaw.

The master plan serves as the framework for the proposed methane gas, grading and final landfill cover programs.

**3.0 PRESENT SITUATION**

The Stride site currently is available to all Burnaby residents for yard waste disposal. In addition to the public disposal, City Engineering and Parks Departments are also utilizing the land for disposal of excavation materials generated from city operations. After many years of disposal operations, the landfill site is approaching its total fill capacity relative to the proposed grading plan for the future Taylor Park.

The design of the permanent landfill gas extraction system is underway and will be ready for tender in September 1996. Currently ongoing methane gas monitoring and sampling programs are being carried out as a part of the environmental remediation plan for the landfill site.

**4.0 PROPOSED CLOSURE IMPLEMENTATION PROGRAM**

The closure of the Stride landfill site would ultimately help to create a more complete and integrated environment for the Edmonds community as well as meeting one of the environment and waste management objectives under Burnaby's State of the Environment Report.

It was expected that the closure of the landfill would cause the displacement of the public yard waste program and the city excavation material disposal operations. Management of yard waste and excavation waste is one of the key components in Burnaby's integrated solid waste management plan. The City is committed to provide waste reduction and recycling alternatives to its citizens before imposing any regulations or changing its services. Therefore, it is important that alternatives to the public and city operations that would be displaced at Stride be provided and incorporated as part of the overall closure plan.

Based on the foregoing premises, an implementation program has been developed and is presented in this report for Council consideration. The key components of the implementation program include:

- Landfill gas system installation and site grading contracts for the Stride site.
- Yard waste alternatives and public communication program.
- Alternate site for sorting and transferring city construction wastes.

Details of each component of the program are discussed as follows:

#### 4.1 Component 1 - Landfill Gas Control And Grading Contract

Discussion:

The main concern of landfill gas is related to migration of methane gas into adjacent facilities that may create an explosive hazard. Under the Ministry of Environment regulations for landfill operation, landfill gas management is required to control the potential gas hazard within and beyond the landfill site.

In order to provide a permanent solution compatible to the landfill closure and park development program, several gas control systems were examined and the conclusion indicated that a gas extraction system would provide the best alternative for collecting and removing the landfill gas in a controlled manner.

The design of the extraction system is currently underway and will be ready for tender in September 1996. As the gas collection system will become part of the permanent fixtures in the park, there is significant financial incentive to include the future park site grading work with the gas system installation program. Based on the approved park master plan, it is expected that the site grading work can be completed in 2 months with the provision that the construction work can be undertaken during the summer months for better site conditions and greater work efficiency. Given the narrow construction time window available, the grading work should begin no later than the first week in August.

The program calls for the initiation of the gas installation contract immediately following the grading work. The gas system construction would take approximately 6 to 9 months to complete including system start up and calibration and would extend through the winter months to 1997. Early completion of the gas control system would provide staff the opportunity to monitor the performance of the system and to achieve optimum control of the migrating methane gas. The estimated costs of the gas management system and the site grading work are \$800,000 and \$350,000 respectively.

Recommendation:

It is recommended that staff be authorized to proceed with the site grading work in the coming summer months in concert with the methane gas extraction system installation contract.

#### **4.2 Component 2 - Yard Waste Alternatives**

Discussion:

Under the framework of the Burnaby yard waste management program, the City offers a backyard composter program, yard waste drop off centres at Stride and the Still Creek Recycling Depot, and a limited duration yard waste curbside collection program. The yard waste centre at the Depot is used by residents for dropping off grass clippings and small loads of yard waste while the Stride site is used primarily by residents with large loads of bulky yard waste items.

The public yard waste drop off centre at Stride is located in the area which would be used as the staging area for the site grading operation. Due to site constraints and limited accessibility, there is no other available safe area within the landfill site that may be used to accommodate the public operation. In order to facilitate the grading and gas installation work and to avoid jeopardizing public safety, it is necessary to terminate the yard waste drop off program at Stride when the site grading work begins.

Yard waste is one of the key components in the solid waste management plan and constitutes a significant portion in the overall residential waste stream, therefore it is important that an alternative be provided to Burnaby residents before the public operation at Stride is terminated. In the context of waste reduction and recycling, the existing yard waste drop off centre at the Recycling Depot would provide an excellent means for the yard waste alternative. In conjunction with the existing recycling services provided at the Depot, an expanded drop off area for yard waste can be accommodated and would form part of the Depot operations.

Burnaby residents currently receive a “no charge” yard waste disposal service at Stride due to the fact that there is no end disposal cost associated with the operations. With the establishment of a replacement yard waste service at the Recycling Depot, the City would incur additional cost related to the transferring of the material to a composting facility. As a step towards a fully integrated “user pay” solid waste program, it is recommended that the City establish drop off charges for the proposed expanded yard waste services at the Depot. The revenues generated would be used to offset the additional costs of the expanded services and to lessen the financial impact on the City operations. It is recommended the following fee structure be established and included in Schedule A of the Burnaby Solid Waste Bylaw.

Yard Waste Only	Disposal Fee
1. Pick up load up to a maximum of 4'W x 8'L x 2'H	\$10.00
2. Large load (larger than #1 above).	\$5 per cubic yard

Given the uncertain volumes of yard waste that would be diverted to the Depot, it is recommended that the above fee structure be reviewed after 12 months in operation and adjusted as necessary to reflect market condition and actual volumes of yard waste processed. During the initial 12 month period, staff will compile data pertaining to the volumes of yard waste collected and review the feasibility of a City operated composting facility in order to establish a long term yard waste management strategy for the City.

The yard waste drop off service would be available to Burnaby residents for non-commercial uses only. Commercial landscapers would be advised of other private "fee for service" yard waste facilities available in the region and would not be permitted to use the City drop off centre. Subject to Council approval of the recommended strategy, the closure of the public operation at Stride and the provision of an expanded drop off facility at the Depot should be in place by July 30, 1996.

In addition to the public yard waste program, the City generates a significant volume of green waste from its Parks operations. With the closure of Stride, it will be necessary to undertake an alternate disposal system similar to that proposed for the public's yard waste management program.

The expansion of yard waste service at the Depot and the closure of Stride would have financial impact on the operating budget. The increase in operating cost will be related to the hauling of the yard waste from the Depot to the composting or processing facility and the associated tipping fee. Assuming that most of the yard waste currently delivered to Stride would be re-directed to the Depot, it is estimated that the additional operating cost required in 1996, for the public yard waste management program would be in the range of \$200,000 to \$250,000. The additional operating cost in 1996 for the City's green waste disposal program would be a further \$60,000. Thus the total budgetary impact for this program in 1996 would be in the range of \$260,000 - \$310,000. It is expected that the \$200,000 to \$250,000 required for the public portion of the yard waste program at the Recycling Depot would be offset by revenues generated through the tipping fee to be collected at the Depot.

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It is recommended that the following action items be initiated to facilitate the Stride landfill closure program:

1. Expand the yard waste facility at the Still Creek Recycling Depot for Burnaby residents to drop off clean yard waste for a prescribed fee.
2. Expand the public communication and education program relating to yard waste alternatives.
3. Develop an information package and signage for commercial landscapers pertaining to private yard waste facilities available in the region.
4. Terminate the public yard waste and City green waste disposal programs at Stride by July 30, 1996, or after the expanded drop off centre at the Depot is in operation.
5. Implement a "user pay" fee system for yard waste.

#### **4.3 Component 3 - City Excavation Waste**

##### Discussion:

The present multi-purpose use of the Stride landfill site includes yard waste disposal, excavation material fills, and clean gravel material storage. While alternatives are being sought to address the public yard waste service, it is necessary to develop an alternate site that can be used to accommodate the other remaining operations such as excavation waste and gravel storage that would be displaced when the closure program at Stride begins.

Under the principle of the integrated waste management approach, the current city construction practice has incorporated the reuse and recycling of construction waste, where possible, to reduce the demand for end disposal. In order to continue with such construction practice, a centralized operating site is required where excavation materials can be sorted for reuse, recycling or disposal. The operation would primarily be limited to hauling, mixing, sorting, and sorting of construction materials and the site selected should be for the long term in an area of compatible land use.

A review of the city land inventory has identified a city owned property in the Big Bend that potentially may be used for material sorting and storage purposes. The property (Figure 1) is situated south of Marine Way and east of Byrne Road and consists of 3 legal lots with a total site area of approximately 13.7 acres. Access to the site can be made via Marine Way, however, alternate access from Byrne Road should be pursued which would substantially reduce the cost of access construction and improve operational safety. The subject property is within the agricultural land reserve and identified as future M2 zoning in the Big Bend Development Plan. Preliminary discussion with the Land Commission indicated that the rezoning of the property for the proposed use is feasible and in general conformance with the overall land use in the area. The proposed city operations on site would require less than half of the available area but the rezoning of the entire property would allow the City to consider other development opportunities in the future for the portions that are not required for the city operations.

Subject to Council approval in principle of the proposed use, staff will submit a rezoning report outlining the city operations and land use requirements for final approval. As the site will be used predominately for material mixing, sorting and storage, the site servicing work would be limited to access construction (from Byrne Road) and minor surface preparation. The cost of the servicing work is expected not to exceed \$60,000.

Recommendation:

It is recommended that Council approve in principle the use of the property at 5722-62 Marine Way for city operations and staff be authorized to initiate the rezoning process for the intended use.

In summary, in order to initiate the environmental remediation program for the former Stride landfill site, a comprehensive implementation program has been developed for Council consideration. The recommended actions outlined in this report would mark the beginning of the Stride closure program as well as providing another building block for Burnaby's long term waste management plan. At the appropriate stage, staff will report back to Council on the progress of the program and provide an update on the plan and schedule for the park development program and the remaining leachate control and landfill cover components of the closure program.

5.0 FINANCIAL CONSIDERATIONS

The estimated construction cost of the gas management system and the site grading work at Stride is approximately \$1,150,000. The duration of the construction program will extend into 1997. The 1996 Provisional Capital Budget contains a provision of \$900,000 for the initial phase of the Stride closure program which is adequate for the projected expenditures in 1996 including the site servicing work for the proposed city waste transfer site. The remaining funds required for the project would be included in the 1997 budget provisions.

The cost of providing an expanded yard waste drop off service at the Recycling Depot (including Parks operation's) is expected to be in the order of \$260,000 to \$310,000 for 1996, contingent upon the actual number of public visits and the yard waste volumes. To accommodate the budgetary requirements for the expanded service, the 1996 Annual Budget will be adjusted to reflect this expenditure and the projected revenue that would be collected from the public component of the yard waste program at the Recycling Depot.

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6.0 CONCLUSION

Liveable community, environmental protection and integrated waste management are the three main criteria used in developing a balanced closure program for the former Stride landfill site. While the closure of the landfill site will satisfy the land use and liveable community objective, alternatives must also be provided to address environmental and waste management programs that would be displaced by the closure plan.

Following Burnaby's commitment to provide alternatives to its citizens before imposing any new regulations or changing its services, a multi-faceted implementation program has been developed that would address the public demands and meet the city's environmental protection and integrated waste management objectives. The implementation program would see the completion of the gas management system in 1997, the provision of a more integrated yard waste facility at the Recycling Depot by the summer of 1996 and the creation of a city construction material sorting and transferring terminal by the end of 1996.

To expedite the implementation of the program, it is recommended that staff be authorized to proceed with the detailed work tasks and operational changes as outlined in Section 4 of this report. Capital funds required for the gas management, site grading and site servicing works are identified in the 5 year Capital Program. Operating funds required for the expanded yard waste drop off facility at the Depot and the projected revenues will be included in the 1996 Annual Operating Budget. Further reports will be submitted to Council on the progress of the program and to update the plan and schedule for the park development program and the remaining leachate control and landfill cover work.

W.C.   
DIRECTOR ENGINEERING

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- cc: Director Finance
- Director Planning & Building
- Director Recreation & Cultural Services
- Medical Health Officer
- City Solicitor

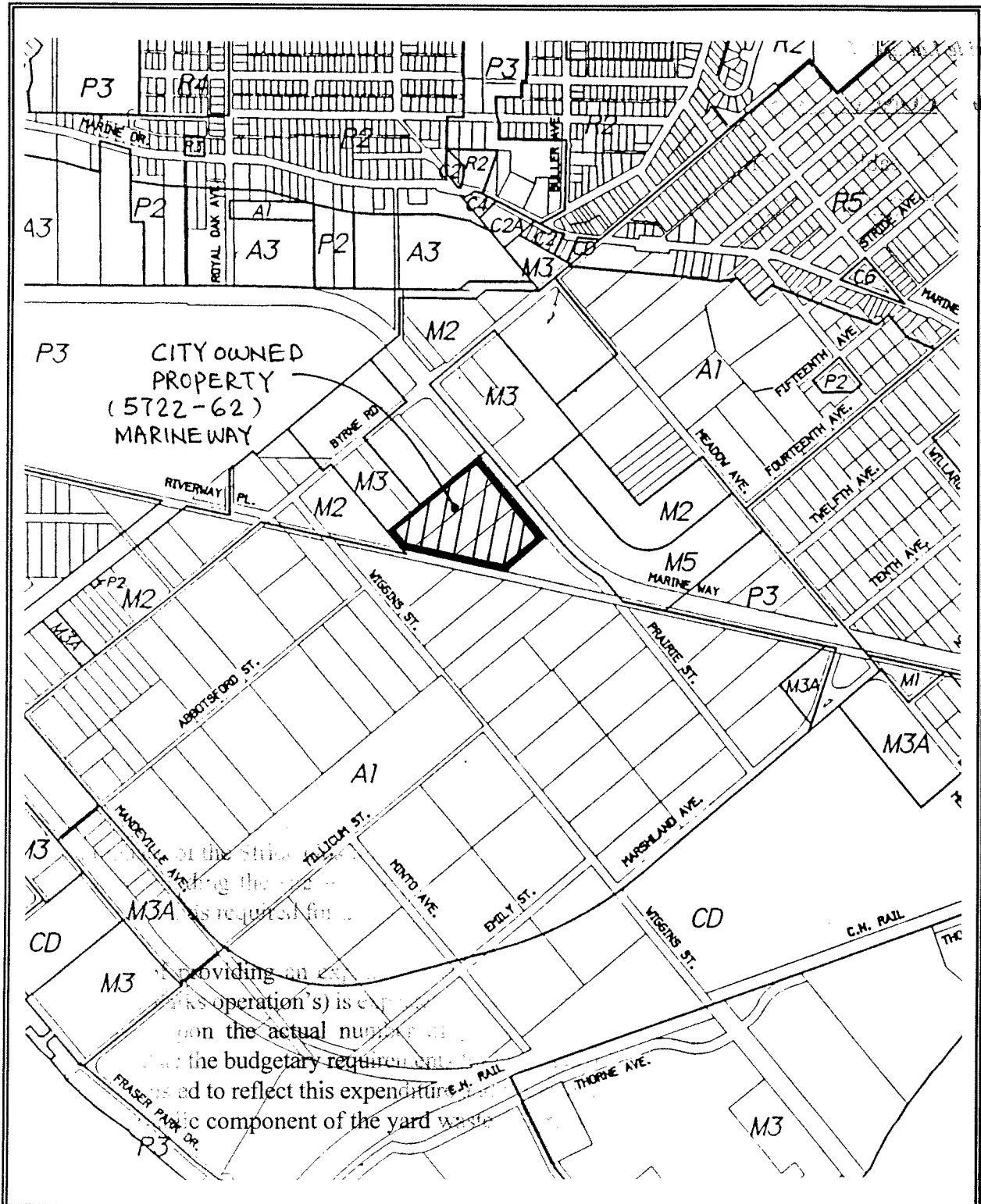


FIGURE 1 - PROPOSED CITY OPERATION SITE

