

ENVIRONMENT COMMITTEE

*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

**SUBJECT: REGIONAL INTEGRATED LIQUID WASTE AND RESOURCE
MANAGEMENT PLAN**

RECOMMENDATIONS:

1. THAT Council endorse the municipal specific actions contained in the Regional Integrated Liquid Waste and Resource Management Plan subject to provincial and federal cost sharing of the wastewater treatment plant upgrades and Metro Vancouver addressing the overall financial and affordability issues raised in Section 2.0 of this report.
2. THAT Council send a copy of this report to Metro Vancouver, Attention: Johnny Carline, Chief Administrative Officer.

REPORT

The Environment Committee, at its meeting held on 2010 September 14, received and adopted the *attached* report providing staff comments on the Integrated Liquid Waste and Resource Management Plan (the Plan), and seeking endorsement of the municipal specific actions contained in the Plan.

Respectfully submitted,

Councillor D. Johnston
Chair

Councillor S. Dhaliwal
Vice Chair

Councillor A. Kang
Member

Copied to: City Manager Director Engineering Director Finance Director Planning and Building Chief Building Inspector

TO: CHAIR AND MEMBERS
ENVIRONMENT COMMITTEE **DATE:** 2010 September 09

FROM: DIRECTOR ENGINEERING
DIRECTOR FINANCE **FILE:** 36600 01

**SUBJECT: REGIONAL INTEGRATED LIQUID WASTE AND RESOURCE
MANAGEMENT PLAN**

PURPOSE: To provide the Committee and Council with staff comments on the Integrated Liquid Waste and Resource Management Plan (the Plan) and seek endorsement of the municipal specific actions contained in the Plan.

RECOMMENDATIONS:

1. **THAT** the Committee recommend Council to:
 - a) endorse the municipal specific actions contained in the Regional Integrated Liquid Waste and Resource Management Plan subject to provincial and federal cost sharing of the wastewater treatment plant upgrades and Metro Vancouver addressing the overall financial and affordability issues raised in Section 2.0 of this report.
 - b) send a copy of this report to Metro Vancouver, Attention: Johnny Carline, Chief Administrative Officer.

REPORT**SUMMARY**

The previous Liquid Waste Management Plan was adopted by Metro Vancouver and member municipalities and subsequently approved by the Province in 2002. One of the conditions stipulated in the plan is the review and update of the plan five years after adoption. In 2008, Metro Vancouver initiated the review and update of the plan which led to the development of the *Integrated Liquid Waste and Resource Management Plan* (the Plan). The Plan was adopted by the Board in 2010 May and member municipalities have been requested to endorse the municipal actions outlined in the Plan.

This report highlights the key municipal actions contained in the plan and offer staff comments on the plan elements. While staff support the Plan's principles, goals and

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action items, the detailed financial implications and affordability of the regional and municipal commitments remain uncertain at this time especially with respect to the level of cost sharing that will be available from the senior levels of government for the upgrading of the wastewater treatment plants at Lions Gate and Iona. A summary of the municipal commitments required under the Plan and the estimated financial implications, both capital and operating, are provided in Attachment #2. Additional City operating and capital expenditures that will arise from the approval of the Plan by the Province will be included in the future budget discussion process with Council.

Metro Vancouver has undertaken a comprehensive and consultative approach to update the 2002 Liquid Waste Management Plan and has produced a Plan that will provide further direction to the region and member municipalities on liquid waste management issues for years to come. The City of Burnaby has participated in the review process and provided comments on the Plan. Staff are in general support of the principles, goals and strategies of the Plan and recommend Council endorsement of the Plan subject to the conditions stated herein the report.

1.0 INTRODUCTION

Council received a letter recently from Lois Jackson, Chair of Greater Vancouver Sewerage and Drainage District requesting endorsement of the *Integrated Liquid Waste and Resource Management Plan* (the Plan),*Attachment #1, by member councils in the Vancouver region. The requested endorsement covers only the municipal actions in the Plan and shall be forwarded to Metro Vancouver by 2010 September 30. Council endorsements will then be assembled by Metro Vancouver and submitted to the BC Minister of Environment.

For background information, at the 2009 June 01 Council Meeting, Council received and adopted a report from the Chair of the Environment Committee on the draft Plan. The recommendations adopted in the report, in part, included supporting in principle the goals contained in the draft Plan contingent upon:

- a) the three levels of government equally funding the upgrading of the waste water treatment plants for Vancouver and North Shore Sewerage areas, and
- b) Metro Vancouver (MV) addressing concerns of financial implications of adoption of the remaining Plan elements in context of regional affordability prior to its final adoption by MV Board.

* Provided under separate cover

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Staff were further requested to bring a report back to Council upon completion of the draft Plan consultation program to apprise Council of the final Plan.

The purpose of this report is to respond to Chair Jackson's letter requesting municipal endorsement of the Plan. This report highlights key components of the Plan that require significant municipal commitments and seeks endorsement of the municipal specific actions contained in the Plan with conditions. Potential financial implications of those municipal specific actions are also outlined for Council's consideration.

2.0 THE PLAN

The previous liquid waste management plan for Metro Vancouver and member municipalities was approved in 2002 and included a requirement that the plan be reviewed and updated after five years. In 2008, Metro Vancouver initiated a review process to update the liquid waste management plan. Arising from the review, an updated Plan was developed.

At the 2010 May 21 meeting, the Greater Vancouver Sewerage and Drainage District Board considered and adopted the Plan (previously called Liquid Waste Management Plan). The Board, in its adoption, directed that the Plan be circulated for member Council's endorsement specific only to the municipal actions in the Plan. Municipal endorsements will be assembled by Metro Vancouver and forwarded to the Minister of Environment. Once approved by the Minister, the Plan will become enforceable under the Act.

The Plan adopted by the Board incorporates goals and strategies that were included in the 2002 plan for both Metro Vancouver and municipalities to manage and provide liquid waste services that are critical to protecting public health and maintaining a healthy environment. These services include wastewater collection and treatment, source control programs, rainwater (storm water) management, and supporting environmental monitoring programs.

In addition to this, new goals and strategies are introduced in the Plan to complement and strengthen the original goals. These updated goals include:

- a) Protection of public health and the environment,
- b) Use of liquid waste as resource and
- c) Effective, affordable and collaborative management.

These goals are supported by nine strategies and eighty six key actions which align the Plan with current Provincial, Metro Vancouver and municipal policies and directions introduced since 2002 including: *Integrated Resource Recovery*, *BC Climate Action Plan*, the *BC Energy Plan*, *Living Water Smart*, *A Guide to Green Choices*, *Burrard Inlet*

Environmental Management Plan and Fraser River Estuary Management Plan. Of the eighty six key action items, thirty key action items are specific to municipal actions in the Plan.

Staff Comments on the Plan:

The City supports the principle that new investment and ongoing reinvestment in aging infrastructure are essential to maintain service reliability. In addition, staff are also in support of the key municipal actions identified in the Plan subject to Metro Vancouver addressing issues outlined in this report. However, it should be noted that the implementation of the key action items will require significant financial commitment (see Attachment #2). From staff perspective, key issues with the Plan are:

2.1. Inflow and Infiltration Management

2.1.1. Public Sewer Laterals and Sanitary Sewers

As a component of developing and implementing Municipal Asset Management Plans, the Plan requires establishment of Inflow and Infiltration Program to comply with Metro Vancouver's wet weather inflow and infiltration allowances. This program is required as excessive rainwater and groundwater inflowing and/or infiltrating into the sanitary sewer takes away the sewer capacity for managing sanitary waste and burdens unnecessary treatment at the wastewater treatment plant.

The City has an established program to reduce inflow and infiltration from public laterals and does recognize the need for further reduction of flow and infiltration into the sanitary sewer. However as previously reported to Council, staff are of the view that the allowances set by Metro Vancouver for discharge rates from municipal sewers to regional trunk sewers and waste water treatment plants must be mindful of the municipal infrastructure age, land use density and local conditions in order to develop a more equitable and realistic solution. Not doing so could create significant financial implications to the City.

Staff Position:

In the current Plan, the sequencing and timelines with respect to inflow and infiltration measures need to be revised. Timelines for review of historical data and adjustment of average inflow and infiltration allowance for regional trunk sewers and waste water treatment plants (Section 1.1.9) should be advanced from 2013 to 2011. This will provide an effective evaluation of other alternatives prior to completion of the template to guide the preparation and implementation of inflow and infiltration management plans which would support sanitary sewer overflow reduction strategies.

2.1.2 Private Sewer Laterals

In order to effectively reduce inflow and infiltration into the sanitary sewers, City's existing inflow and infiltration program would also have to be expanded to include inspection of private laterals (service connections) and to require corrective actions by property owners. In Burnaby, private sewer laterals account for nearly 50% of the overall sewer system. Unlike the municipal and regional systems, homeowners are responsible for the maintenance of private sewer laterals.

There are approximately 350 kilometers of sanitary sewer private laterals in the City. Expansion of the City's inflow and infiltration inspection and monitoring program to include private laterals will require an additional \$350,000 annually. This cost estimate does not include any corrective work required of homeowners to correct infiltration problems that may be identified through the inspection program.

According to the Plan (Section 1.1.19), the City would have to review and enhance enforcement of its sewer use bylaw to prohibit against the unauthorized discharge of rainwater and groundwater to sanitary sewers. This would result in City staff inspecting private sewer laterals and where necessary, requiring homeowners to take corrective actions if the private sewer laterals are found to have infiltration and inflow rates higher than the rate prescribed under the plan. The additional effort for the City to manage enhanced enforcement of the sewer use bylaw and related plumbing bylaw will require one additional full time equivalent position. Details of the enhanced enforcement of the sewer use and related plumbing bylaw with respect to private laterals will be a subject of a separate report to Council in future.

Additionally, it is noted that in 2011 Metro Vancouver will work with the real estate industry and their regulators, and the municipalities to develop and implement a process for inspection and certification of private laterals being in good conditions as a required component of real estate transactions within Metro Vancouver. Costs implications to the City relating to the outcome of this process cannot be estimated at this time.

Staff Position:

The proposed action will impose an extra financial burden on home buyers to cover the cost of the inspection and certification process. Notwithstanding the outcome of the process, staff's position is that this process must be reviewed and managed by the real estate industry which includes industry in the field of inspection and certification of private laterals as well.

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2.2 Infrastructure Management Plan

The Plan requires asset management (100 year life cycle) and infrastructure renewal based on 1% renewal rates for both sanitary and storm sewer systems including the municipal systems. Burnaby initiated the combined sewer separation program for the North Burnaby area over a decade ago. The sewer separation program also provides an opportunity for the City to replace aging sewer pipes. It is expected that the current sewer separation program will continue and expand to include other aging sewer pipes when the existing combined sewer pipes have all been replaced.

Staff concur with the need to establish sound asset management practices. The proposed approach contained in the Plan aligns with Burnaby's infrastructure management plans. While replacement of aging sanitary sewer pipes in the City will be addressed through existing funding provisions, the long term replacement of the storm sewer (drainage) system will require additional City funding in the future. Based on our best projection at this time, it is estimated that the City will need to increase its annual storm sewer replacement fund by approximately \$4 to \$5 Million by 2019. In addition, one additional full time equivalent position will be required to develop and manage the municipal actions identified in the Plan.

It is noted that the Plan will require Metro Vancouver to create incentives to reduce inflow and infiltration by adjusting sewerage cost allocation within each allocation area (Section 3.1.2). The City has sections of combined sewer within both the Vancouver Sewerage Area and Fraser Sewerage Area. It is uncertain in the Plan how the cost allocation will be adjusted for municipalities with combined sewers.

Staff Position:

The 1% infrastructure renewal rate is prescriptive and may not be a realistic target for the sewer and water systems in some municipalities given the complex nature of the system components. Therefore, it would be more appropriate for municipalities to develop best practices for their infrastructure to meet local conditions and needs.

Metro Vancouver has not provided adjustments to cost allocation to Burnaby similar to what has been provided to another member municipality with combined sewer system. While current cost allocation is cost neutral, the changes to the cost allocation which applies "user pay" approach will result in potential cost implications to the City in future. These implications have also not been clearly articulated by Metro Vancouver.

2.3 Upgrading Vancouver and North Shore Sewerage Areas to Secondary Treatment

Two main actions in the draft Plan are the upgrading of the Vancouver and North Shore Sewerage Areas to secondary treatment, and the ongoing commitment to reinvest in aging infrastructure. According to the Plan, the Lions Gate wastewater treatment plant upgrade should be completed within 10 years subject to appropriate financial arrangements being in place (Section 1.3.4.c). The Iona Island wastewater treatment plant upgrade should be completed within 20 years. It is Metro Vancouver's desire to accelerate the completion of the Iona Island wastewater treatment plant upgrade within 10-20 year time frame subject to resolution of technical and land tenure issues, construction logistics and financial arrangements being in place (Section 1.3.4.d).

Given the significant cost of this work, regional, provincial, and federal cost sharing will be sought by Metro Vancouver and municipalities from both senior levels of government. The cost implications of the upgrades for member municipalities depend on level of cost sharing that will be provided by the Provincial and Federal governments. According to the Plan, the current regional average household levy for Metro Vancouver services varies from \$160-\$180 depending on sewerage area. In the worst case scenario, without cost sharing from the senior levels of government, the regional average household levies are estimated to increase by over 600% within the next two decades.

Staff's Position:

The Plan assumes that the provincial and federal financial commitments will be forthcoming. In order to not overburden the residences with additional levies, the Plan must make it clear that the upgrading of the wastewater treatment plants for Vancouver and North Shore Sewerage areas should be subject to three levels of government equally funding for the upgrades.

2.4 Developing programs to reduce greenhouse gas emissions from municipal liquid waste management systems

The Plan requires municipalities to develop and implement programs to reduce greenhouse gas emissions from municipal waste management systems to help achieve the federal, provincial and municipal greenhouse gas targets (Section 1.3.17).

Staff's Position:

While this action is supported in principle, the City can commit to achieve its own greenhouse gas targets only.

2.5 Ongoing Assessment of the System Performance

The Plan identifies the need for municipalities to undertake tri-annual internal audit of best practices of one municipal liquid waste management sub-program in each municipality to identify opportunities for innovation and improvements (Section 3.2.4).

Staff's Position:

The City already has established internal monitoring and assessment process to seek out opportunities and apply best management practices, innovative approaches and improvements in operating its liquid waste management system. As such, while the City supports this action in principle, it should be left up to municipalities to opt into this process should they desire to do so.

2.6 Using Collaborative Management to Address Evolving Needs

A key feature of the Plan is to use collaborative management to addressing the evolving needs. This is to be undertaken through establishment of a new overarching committee, the Integrated Utility Management Advisory Committee (IUMAC), to advise Metro Vancouver on plan implementation, particularly from the perspective of integrated planning and resource recovery across utility systems (Section 3.5.1).

Staff's Position:

While the establishment of the overarching committee is supported in principle, greater degree of clarity and input is required from member municipalities with respect to Committee membership and terms of reference. Furthermore, as many of the regional and municipal action items in the Plan are inter-related, it is important that an adequate level of municipal representation be established for this committee.

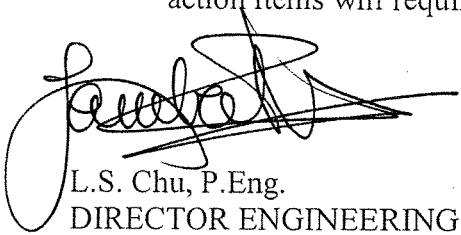
2.7 Cost Implications

The Plan comprises of eighty six actions of which thirty action items are specific to municipal actions. Attachment #2 describes the action items identified under the Plan that would require municipal commitment. The potential cost implication of these items to Burnaby's future capital and operating budgets is difficult to accurately predict. Capital costs are expected to be somewhere in the magnitude of \$5 million dollars annually. Annual operating costs are estimated at between \$500,000 and \$700,000 depending on the program development activities in a given year, with incremental depreciation increase of \$70,000 to \$100,000 each year. Attachment 2 provides additional details on the costs.

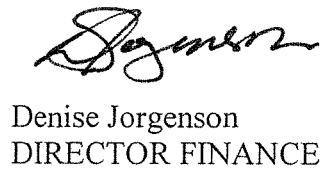
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3.0 CONCLUSION

The Plan establishes goals, strategies and actions which align with other regional and provincial plans to further protect public health and the environment. The overarching goals and strategies of the Plan are sound and staff support the municipal specific actions identified in the Plan subject to Metro Vancouver addressing key issues outlined in this report. However, it should be noted that the implementation of the municipal specific action items will require significant long-term financial commitment by the City.



L.S. Chu, P.Eng.
DIRECTOR ENGINEERING



Denise Jorgenson
DIRECTOR FINANCE

DD:br

Copied to: City Manager
Director Planning & Building
Chief Building Inspector

Implementation of the Liquid Waste Management Plan

Goal 1 Protect public health and the environment	Timeline	Implications (additional cost over existing level) Operating Funds	Implications (additional cost over existing level) Capital Funds
Strategy 1.1 Reduce liquid wastes at their source			
<u>Source control</u>			
Review and enhance sewer use bylaws to reduce liquid waste at source, including contaminants identified by the <i>Canadian Environmental Protection Act</i> .	2012	included in current programs	
Continue existing programs of permitting and inspection to support and enforce sewer use bylaws.	ongoing	included in current programs	
Identify and regulate pesticides and lawn care products which negatively affect rainwater runoff quality and urban stream health	2014	\$25,000	
Continue outreach plans to support liquid waste source control programs.	ongoing	\$15,000	
<u>Inflow and Infiltration and Rainwater Management</u>			
Develop and implement inflow and infiltration management plans, using the Metro Vancouver template as a guide, to ensure wet weather inflow and infiltration volumes are within Metro Vancouver's allowances as measured at Metro Vancouver's flow metering stations.	2012	\$200,000 to develop plans	additional capital costs to implement TBD
Enhance enforcement of sewer use bylaw prohibition against the unauthorized discharge of rainwater and groundwater to sanitary sewers.	2010	TBD	
Update municipal bylaws to require on-site rainwater management sufficient to meet criteria established in municipal integrated stormwater plans or baseline region-wide criteria.	2014	included in current programs	
Update municipal utility design standards and neighbourhood design guidelines to enable and encourage on-site rainwater management.	2014	\$75,000	
Strategy 1.2 Reduce wet weather overflows			
Work with Metro Vancouver to develop and implement municipal-regional sanitary overflow management plans.	2013	\$150,000 to develop plans	additional capital costs to implement TBD
Burnaby, New Westminster and Vancouver will work with Metro Vancouver to give effect to 1.2.2 and, specifically, implement plans to prevent combined sewer overflows by 2050 for the Vancouver Sewerage Area and 2075 for the Fraser Sewerage Area and separate combined sewers at an average rate of 1% and 1.5% of the system per year in the Vancouver Sewerage Area and Fraser Sewerage Area respectively.	ongoing		\$6M annually included in current capital program

Strategy 1.3 Reduce environmental impacts from liquid waste management to a minimum	Timeline	Implications (additional cost over existing level) Operating Funds	Implications (additional cost over existing level) Capital Funds
<u>System Operation and Maintenance</u>			
Develop and implement operational plans for municipal sewerage facilities to ensure infrastructure reliability and optimal performance.	ongoing	\$20,000	
Work with Metro Vancouver to develop and implement emergency sanitary sewer overflow plans including contingency plans to minimize impacts of unavoidable sanitary sewer overflows resulting from extreme weather, system failures or unusual events.	ongoing	\$20,000	
<u>Other environmental impact mitigation actions:</u>			
Work with private marina operators, Ministry of Environment and Environment Canada to develop and implement regulations to ensure all new marinas and marinas where planned renovations exceed 50% of the assessed existing improvements value have pleasure craft pump-out facilities.	ongoing	included in current programs	
Require all pleasure craft pump out facilities to connect to a municipal sanitary sewerage system or a provincially permitted on-site treatment and disposal system or have established enforceable protocols for transporting liquid waste for disposal at a permitted liquid waste management facility.	ongoing	included in current programs	
Continue existing municipal odour control programs and implement new programs for targeted municipal sewer facilities	2020		\$150,000 to develop programs – implementation costs to be determined
Develop and implement air emissions management programs for standby power generators at municipal sewer pump stations.	2016		\$50,000 to develop programs – implementation costs to be determined
Develop and implement programs to reduce greenhouse gas emissions from municipal liquid waste management systems to help achieve federal, provincial and municipal greenhouse gas targets (see Action 3.3.4).	2020		\$75,000 to develop programs – implementation costs to be determined
Include Metro Vancouver and municipalities in the Ministry's (MOE) processes to review and establish official water uses and official water quality objectives for specific water bodies within Metro Vancouver.	ongoing	\$15,000	
Goal 2 Use liquid waste as a resource			
Strategy 2.1 Pursue liquid waste resource recovery in an integrated resource context			
	Timeline	Implications (additional cost over existing level) Operating Funds	Implications (additional cost over existing level) Capital Funds

Work with Metro Vancouver to give effect to 2.1.1, 2.1.2 and 2.1.3 of the LWMP.	ongoing	\$25,000 to develop programs – implementation costs to be determined (TBD)	Implications (additional cost over existing level) Capital Funds
Goal 3 Effective, affordable and collaborative management	Timeline	Implications (additional cost over existing level) Operating Funds	
Strategy 3.1 Manage assets and optimize existing liquid waste operations			
Assess the performance and condition of municipal sewerage systems by: (a) inspecting municipal sanitary sewers on a twenty year cycle; (b) maintaining current maps of sewerage inspection, condition and repairs; and (c) using the Metro Vancouver "Sewer Condition Reporting Template Standard Report, November 2002" as a guide to ensure a consistent approach to sewer system evaluation and reporting.	ongoing	Current program includes mainlines only NEW: \$7M total or \$350,000/yr over 20 yrs for inspection of sewer laterals (connections)	
Develop and implement asset management plans targeting a 100 year replacement or rehabilitation cycle for municipal sewerage infrastructure and provide copies of such plans to Metro Vancouver.	Annual	Development included in current programs	- Details of implementation to be determined in planning stage - assume 1% of asset value equals \$6M/yr for each of Sanitary and Storm - this represents a current shortfall of \$4.8M/yr for Storm - \$6M/yr is currently targeted to sewer separation) from Sanitary
Strategy 3.2 Use innovative approaches and technologies			
Undertake a tri-annual internal audit of best practices of one municipal liquid waste management sub-program in each municipality to identify opportunities for innovation and improvements.	Triennially	\$25,000	

Strategy 3.3 Monitor the performance of the liquid waste system and impacts on the receiving environment	<p>In collaboration with Metro Vancouver, estimate and document the greenhouse gas emissions and odours associated with the operation of the municipal and regional liquid waste management systems.</p> <p>Estimate and report on the frequency, location and volume of sewage overflows from municipal combined and sanitary sewers, and where feasible identify and address the probable causes.</p> <p>Maintain and, if necessary, expand the existing municipal sewer flow and sewer level monitoring network.</p>	<p>2014</p> <p>ongoing</p> <p>ongoing</p>	<p>\$100,000</p> <p>\$50,000</p> <p>included in current programs</p>	
Strategy 3.4 Provide resilient infrastructure to address risks and long-term needs	<p>In collaboration with Metro Vancouver and the Integrated Partnership for Regional Emergency Management (IPREM), develop emergency management strategies and response plans for municipal and regional wastewater collection and treatment systems.</p> <p>Adapt infrastructure and operations to address risks and long-term needs.</p> <p>Ensure liquid waste infrastructure and services are provided in accordance with the Regional Growth Strategy and coordinated with municipal Official Community Plans.</p> <p>Develop and implement integrated stormwater management plans at the watershed scale that integrates with land use to manage rainwater runoff</p>	<p>2015</p> <p>Ongoing</p> <p>Ongoing</p>	<p>\$30,000 details TBD</p> <p>included in current programs</p> <p>included in current programs</p>	<p>Policy decision required to identify funding sources to implement plans</p>
Strategy 3.5 Use collaborative management to address evolving needs	<p>Biennially, through Metro Vancouver, produce a progress report on plan implementation for distribution to the Ministry of the Environment that:</p> <p>(a) summarizes progress from the previous two years on plan implementation for all municipal actions, including the status of performance measures.</p> <p>(b) includes summaries and budget estimates for proposed LWMP implementation programs for the subsequent two calendar years.</p>	<p>plans by 2014</p> <p>by July 1st biennially</p>	<p>\$750,00 over 5 years</p>	<p>included in current programs</p>