C003 : Alternative Development Servicing Standards for Increased Sustainability

Corporate Report

NO: C003

COUNCIL DATE: April 9, 2001

COUNCIL-IN-COMMITTEE

TO: **Mayor & Council** DATE: **April 6, 2001**

FROM: **General Manager, Engineering** FILE: **2350-004/1**

SUBJECT: **Alternative Development Servicing Standards for Increased Sustainability**

RECOMMENDATION

That the City work with a willing developer on a pilot project for more sustainable drainage standards, in accordance with Option 3 outlined in this report.

INTENT

The intent of this Report is to seek Council's direction regarding the use of the alternative drainage standards developed as part of the East Clayton Neighbourhood Concept Plan (NCP) and to seek Council's approval, in principle, to develop and refine these standards by way of pilot developments within the East Clayton NCP.

BACKGROUND

On January 25, 1999, Council approved seven principles to help move towards achieving more sustainable development for the Clayton NCP. These principles are attached as Appendix 1. While, to a certain extent, the seven principles are inter-related, this Report deals only with the implementation of Principle 7, which is:

No. 7 Preserve the natural environment and promote natural drainage systems (in which storm water is held on the surface and permitted to seep naturally into the ground).

Principle 7 should be looked at as a direction to aim towards, rather than a hard and fast rule. In practice, it is not possible to hold back and infiltrate into the ground all surface water, expect for very light rainfall events. The extent to which infiltration is practical is also a function of subsurface soil conditions. The sub-surface conditions in Clayton are not very conducive to deep infiltration.

To put Principle 7 into practice will require the introduction of alternative drainage servicing standards.

The separate companion report from the General Manager, Planning and Development discusses the issues relating to Principles 1 to 6.

Drainage Standards in Surrey

Since the late 1970's, Surrey has been implementing ways of reducing the impacts of urbanization on the downstream creeks and rivers. The City's approach to drainage has been steadily evolving, as follows:

1970's	direct discharge to creeks and streams with no control measures.
1980's	detention ponds for each individual development to control 5 year return peak flows, rain water leaders to splash pads.
1990's	detention ponds provided on a catchment-wide basis, peak flows controlled for 2 and 5 year return peak flows. Wet lands created for water quality and habitat benefits. Detailed master drainage plans for all urban areas of Surrey prepared.

The introduction of alternative standards to help towards achieving Principle 7 in East Clayton is one more step in this evolutionary process and they are aimed at further increasing infiltration and reducing flows at source, thereby minimizing the increases in flow volumes, helping maintain base flows to creeks in the drier seasons and generally improving water quality. The proposed standards will help keep runoff volumes closer to pre-development levels through the implementation of on-lot, on-street and area wide measures to increase infiltration and storage potential.

The primary benefit of these measures will be to the downstream creeks and rivers and the aquatic life that they sustain. There will also be a reduced demand on downstream drainage infrastructure (i.e., pipes and detention ponds), although this benefit is not as significant as the benefit to the creeks and streams.

PROCESS

The City, with assistance from the Pacific Resource Centre, UBC and our consultant, Reid Crowther & Partners Ltd., has worked with all stakeholders in the East Clayton NCP to develop design concepts for the local road network and storm water management and to give consideration to the maintenance of roads and utility infrastructure. The stakeholders included urban design consultants, architects and City staff. The public, developers, environmental agency staff and utility companies were also consulted and involved in the process.

Acceptability to the City and Impacts on the Development Industry

New and untested approaches to drainage servicing are a challenge to both the City and the development industry. However the challenges are different. The City needs to ensure that the system has long term functionality, safety, and protects the downstream system. The development industry needs to provide developed land that is marketable and affordable. In theory, the new development standards should mean that more economical servicing can be provided, i.e., smaller pipes and detention ponds. In practice, until the new standards have been demonstrated to work, the City is taking on a considerable risk if it relies on the performance of these new standards in the design of the downstream system. If the systems do not perform as expected, retrofitting conventional systems would be very costly and disruptive to the community. As such, until the new systems can be proven to work effectively, the City must insist on some redundancy to build in a “safety factor”.

The City is thus faced with the situation where the new standards create extra costs for the developer without the off-setting downstream cost savings unless the City assumes this risk. Due to the potential for failure and lack of City control of drainage works on private property, we do not believe it is appropriate for the City to solely take on this risk.

Options for Proceeding

Based on the above discussion on acceptability and risk, there are 3 options for proceeding:

Option No. 1: Permit Development to Proceed as per the Status Quo (Conventional)

Pros	*Cons*
• Would likely be welcomed by some developers under the current condition of the market.	• Ignores previously attained public support and expectations associated with the East Clayton NCP.
• "Business as usual" approach to servicing.	• May require the NCP to be revisited in terms of servicing needs.
	• Ignore the wishes of other levels of government who have been involved in the planning and environmental approval process.
	• Misses an opportunity to move forward in the development of more environmentally sustainable drainage standards.

Option No. 2: Re-affirm Council's Desire to Achieve Fully Sustainable Drainage Standards in Accordance with the East Clayton NCP

Pros	*Cons*
• Consistent with public planning process and expectations of plan participants and governments.	• Resistance from some developers.
• Reinforces Surrey's image as a leader in innovation.	• May be some delays in development approvals due to new standards and design.
• Benefits of more sustainable infrastructure are foreseeable (in the medium/long term).	• First projects may be more costly due to requirement to incorporate larger safety factors.
• Downstream creeks and rivers, and their aquatic life, are better protected.	• First projects will require monitoring (i.e., to determine success) which needs funding.
	• The City may incur some extra costs to engage special expertise.
	• Benefits resulting from the application of the sustainable drainage standards will not be evident in the short term.

Option No. 3: Allow the First Project to Proceed with Significant Achievement of Sustainable Drainage Standards to Gain Experience and to Form the Basis for Full Implementation in Subsequent Phases

Pros	*Cons*
• Some improvements and alternatives to conventional standards will accrue. • May be more palatable to some developers. • May accommodate development sooner. • Partial benefits may be realized. • Experience will be gained from the first project. • Full implementation of sustainability is possible in the future.	• Significant move towards sustainable drainage standards is not a clearly defined quantity. • Cost/benefit issues need to be confirmed. • Opens up NCP to some uncertainty relative to drainage standards. • Undermines perceived commitment by Surrey to principles and implementation.

Discussion of Options

In looking at the options available we do not believe that the City should put aside the work of all the parties involved in developing new drainage standards and allow development under “status quo” standards (i.e., Option 1). However, due to the uncertainty for both the developer and the City, it is difficult to insist that all development in East Clayton fully meet all drainage requirements laid out in the NCP without significant financial support from senior governments (i.e., Option 2).

Consequently, we believe that Option 3 offers an avenue to move forward. The components of a more sustainable drainage standard between Options 1 and 2 are presented in Table 1. The Option 3 approach is in line with that recommended by the General Manager, Planning and Development.

Using Table 1 a developer will be free to choose from a wide variety of methods to implement these components to provide flexibility and assist with cost effectiveness in meeting the revised drainage objectives.

Appendix 2 provides background details regarding the development of these standards, together with information on construction and long-term maintenance issues associated with each potential storm water management method.

Current Development Proposal and Cost Issues

As outlined in the General Manager of Planning & Development's report, BWF Developments Ltd., have submitted a preliminary development application. We have reviewed the potential for implementing the drainage standards contained in Table 1 with the BWF and their consultant and found them to be technically feasible. However, BWF feels that the estimated cost of $3,000 to $3,500 a lot for these new drainage standards puts the proposed development at an unfair economic disadvantage, compared with similar developments in other NCPs. This additional cost compares with typical off-site drainage servicing costs of around $3,000.

In addition, the developer estimates that the total costs of all aspects of the sustainable development standards at around $5,000 per lot.

Implementation

Designing and constructing the alternative standards will require design specifications and refinements that can only be determined in practice and with adequate expertise. While a proposed conceptual design standard has been prepared, it will need to be refined in detail as part of the detailed design of the development. Once constructed, the area will have to be monitored to assess performance with further potential adjustments to the standards as experience is gained. Applications to the Green Infrastructure Program have been made to fund a 3-year program to assess the performance, functionality and long-term benefits of these standards. However, this application does not include a funding component for the risk or safety factors needed.

As outlined in the General Manager, Planning and Development's report, it is also proposed the City seeks additional financial contributions from other levels of government, including the regional level, to support the implementation of sustainability principles and standards in an initial pilot development and cover the risk or safety factor necessary. It is proposed that the local level contribution (i.e., City and regional) would be limited to $1,250 per lot, with the City share to be funded from DCCs and the drainage utility.

Potentially the existing infrastructure application for work on the sustainable standards could be amended to facilitate Federal and Provincial contributions.

LEADERSHIP ROLE IN REGION

The East Clayton Project, together with the development of the Simon Fraser Lands in Burnaby, are on the leading edge of implementing new, more sustainable drainage standards in the Lower Mainland. The attached letter from the GVRD, Manager, Policy & Planning, is indicative of the importance at a regional level that is being placed on implementing these new standards.

CONCLUSION

The City of Surrey has developed conceptual alternative drainage standards through the East Clayton NCP process that are at the leading edge of sustainable development. The standards, when applied with other sustainable principles in the East Clayton Plan, will assist in achieving the goals of cost-effective development and helping preserve our environment. Moving to alternative standards where we have limited experience does involve an element of risk and uncertainty. Expert technical assistance will be sought through funding from outside agencies to ensure the standards meet the necessary performance criteria before being adopted on a wider basis. Benefit is primarily environmental.

As outlined in the companion report from the General Manager, Planning and Development, an extensive process has been undertaken to reach the plan that currently exists for Clayton. We believe that as many of the aspects of the sustainable drainage standard as are practical (i.e., Table 1 attached) should be incorporated into the initial developments in Clayton. This is in line with the recommendation to move ahead on Option 3 (i.e., a phasing-in of the principals of sustainability) as outlined in the report from the General Manager, Planning and Development.

We believe that the primary benefit of the new, more sustainable, drainage standards will be to the environment rather than the City's drainage utility. Consequently, federal and provincial funding assistance is being sought to facilitate a pilot initial development with these standards.

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PH/VL:brb/sew/bea/kjj
Attachments

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