



**City of Richmond**

**Report to Committee**

**To:** Public Works and Transportation Committee *to Public Works & Transportation - June 22, 2005* **Date:** June 1, 2005  
**From:** Robert Gonzalez, P.Eng. **File:** 10-6400-01  
 Director, Engineering  
**Re: City Centre Sanitary Sewer Infrastructure**

**Staff Recommendation**

1. That \$930,000 be allocated for new sanitary sewer infrastructure in the Cook Road and Buswell Street area from project 40611 – Sanitary Pump Stations for New Development; project 40622 – Sanitary Sewer Pump Stations (2003) and project 40624 – City Centre / Fraser Study Area Sanitary Sewers (2004).
2. That capital costs for the new sanitary sewer infrastructure be recovered from development through a Latecomer agreement.

Robert Gonzalez, P.Eng.  
Director, Engineering  
(4150)

| FOR ORIGINATING DIVISION USE ONLY |                                     |                                     |                        |                                |                          |
|-----------------------------------|-------------------------------------|-------------------------------------|------------------------|--------------------------------|--------------------------|
| ROUTED TO:                        |                                     | CONCURRENCE                         |                        | CONCURRENCE OF GENERAL MANAGER |                          |
| Sewerage & Drainage.....          | Y                                   | <input checked="" type="checkbox"/> | N                      |                                |                          |
| Budgets .....                     | Y                                   | <input checked="" type="checkbox"/> | N                      |                                |                          |
| Development Applications.....     | Y                                   | <input checked="" type="checkbox"/> | N                      |                                |                          |
| <b>REVIEWED BY TAG</b>            | YES                                 | NO                                  | <b>REVIEWED BY CAO</b> | YES                            | NO                       |
|                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                        | <input type="checkbox"/>       | <input type="checkbox"/> |
|                                   | <i>DW</i>                           |                                     |                        |                                |                          |

## Staff Report

### Origin

The City completed a calibrated model of the City Centre sanitary sewer system in the fall of 2004. Since that time, this model has been used to identify future sanitary sewer capacity issues that will be created by imminent development and the longer term Official Community Plan. This approach is consistent with the Infrastructure Review information report Public Works and Transportation Committee received on August 25, 2004.

A number of properties in the Richmond Centre catchment were rezoned for higher density development in 1989 when the Zoning and Development Bylaw was adopted, without upgrading the sanitary sewer system to allow the additional capacity.

In early 2005, Engineering identified a capacity issue in the Richmond Centre sanitary sewer catchment using the City Centre sanitary sewer model. The density of this area has changed dramatically over the last 10 years, with high rise residential and commercial replacing one story commercial development. This trend is continuing, with at least four new residential towers being planned for completion in late 2006 or early 2007.

As a result of this residential growth and in anticipation of future growth, staff are recommending that the City Centre sanitary sewer infrastructure be upgraded.

### Analysis

Richmond's City Centre is a rapidly densifying area of the City. Tied to increasing density is increasing demand on utilities. In the Richmond Centre sanitary sewer catchment, the sanitary sewer between Buswell Street and the Richmond Centre sanitary pump station is currently at capacity (see attached). Several new high rise developments are planned for this area and cannot proceed until the sanitary sewer system capacity is improved.

Below are two options to improve the capacity of the sanitary sewer system in the Richmond Centre catchment to a level that meets short term and OCP level requirements.

**Option 1:** Divert elements of the Richmond Centre sanitary catchment into new sewers that connect to the existing Richmond Centre sanitary pump station.

Estimated cost: \$1,000,000.

This option is viable. It makes use of existing pump station infrastructure and will solve both short and medium term capacity issues. However, this option does require deep sanitary sewer construction across No. 3 Road, which would be very disruptive and also requires a right of way from the Richmond Centre shopping mall. Therefore, this option is not recommended.

**Option 2:** Divert elements of the Richmond Centre sanitary catchment into a new pump station located at the intersection of Cook Road and Buswell Street.

Estimated cost: \$930,000.

This option is preferred and recommended by staff. It is estimated to be the least expensive option with respect to capital cost. The new pump station is on City property in a location that allows additional elements of the existing catchment to be diverted when required and provides ease of access and maintenance by moving sanitary sewers into road way.

### **Cost Recovery**

Although the Richmond Centre sanitary sewers were installed in 1960, the upgrade is mostly required to support development. Therefore, it is not appropriate for the burden of paying for the upgrades to fall on the shoulders of the sanitary utility. Instead, it should be borne by the development community that is creating the demand for these upgrades. However, the capital costs, not part of the DCC program, are large and should not be borne by one or two discrete developments, but should be borne by all developments affected by the improvement.

To facilitate distributing the cost of the sanitary upgrade appropriately, staff recommends that the sanitary utility fund the sanitary improvements up front and that future developments pay the sanitary utility their fair share as they materialize, through a Latecomer Agreement bylaw. The calculation for contribution from individual developments is proposed to be a function of the capital cost of the sanitary improvement and the area of the development site. Developers will be required to pay the Latecomer fee when they connect their development to the sanitary sewer system. Though it may take a number of years for the sanitary utility to recover the capital construction cost, it allows the City to distribute these costs appropriately and facilitate development in this area.

### **Financial Impact**

In the short run, the sanitary utility will be burdened with the capital cost of the proposed sanitary sewer improvements. However, in the long run, the sanitary sewer utility will recover this capital from development.

Funding details are shown in Appendix A.

|   |                     |
|---|---------------------|
| Funding Required  | \$ 930,000          |
| Current Funding Available – Capital Projects 40611, 40622 & 40624 | \$1,560,600         |
| <b>Balance</b>  | <b>(\$ 630,600)</b> |

Project 40611: Sanitary Pump Stations for New Developments (2002); This project was approved to build new sanitary pump stations. The predicted need for these pump stations, thought to be required in Fraser Port has not materialized to date.

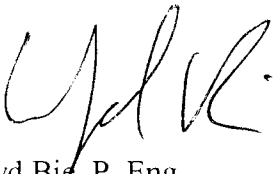
Project 40622: Sanitary Pump Stations (2003); This project was approved to build new sanitary pump stations.

Project 40624: City Centre / Fraser Study Area Sanitary Sewer (2004); The approved scope of this project is to create a sanitary model of the City Centre / Fraser, perform a structural analysis of City Centre sanitary sewers and correct deficiencies that are found in these studies.

## Conclusion

The sanitary sewer between Buswell Street and the Richmond Centre sanitary pump station is currently operating at full capacity. There are several high density developments that have been proposed for areas that contribute to this main that cannot proceed unless the capacity issues are resolved. Staff recommends that a new sanitary sewer infrastructure be constructed at Cook Road and Buswell Street to solve both short and long term capacity issues in this area.

Furthermore, staff recommends that the new pump station, including the associated force main, be funded from the sanitary utility and be recovered from development benefiting from the upgrade.

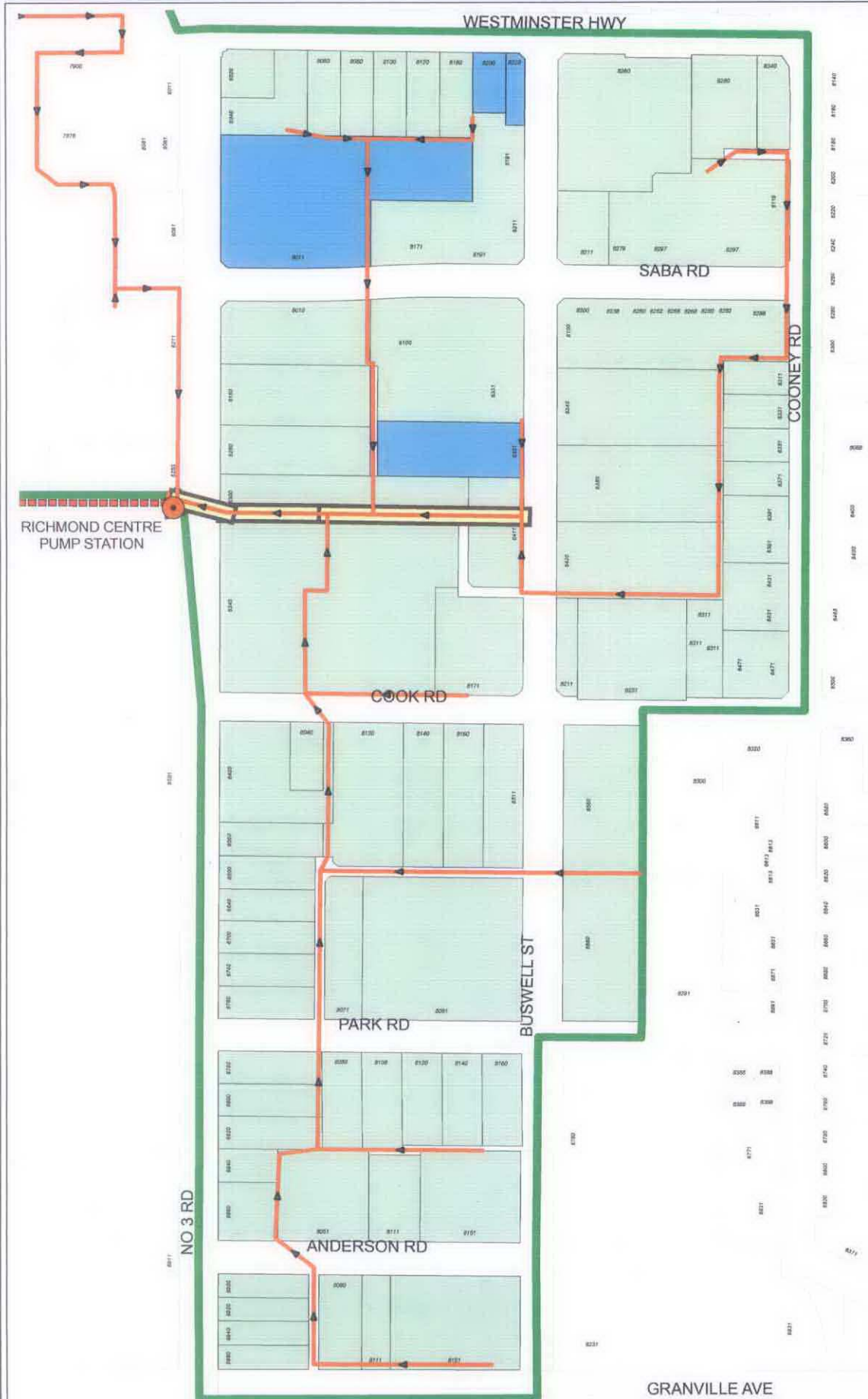
A handwritten signature in black ink, appearing to read 'L. Bie', is positioned above the typed name.

Lloyd Bie, P. Eng.

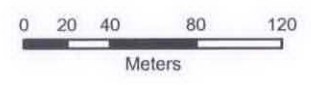
Project Engineer - Water and Sewer  
(4385)

## Appendix A

| <b>Funding Source</b>                    | <b>Project</b>  | <b>Unallocated<br/>Capital Funding</b> | <b>Funding<br/>Required</b> | <b>Funding<br/>Required<br/>(Unallocated)</b> |
|--|---|--|-----------------------------|---|
| 2002 Sewer<br>Utility<br>(Project 40611) | Sanitary Pump<br>Stations for New<br>Development        | \$611,600                              | \$440,000                   | (\$171,600)                                   |
| 2003 Sewer<br>Utility<br>(Project 40622) | Sanitary Sewer<br>Pump Stations                         | \$600,000                              | \$250,000                   | (\$350,000)                                   |
| 2004 Sewer<br>Utility<br>(Project 40624) | City Centre /<br>Fraser Study<br>Area Sanitary<br>Sewer | \$349,000                              | \$240,000                   | (\$109,000)                                   |
| <b>Total</b>                             |   | <b>\$1,560,600</b>                     | <b>\$930,000</b>            | <b>(\$630,600)</b>                            |

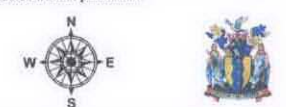


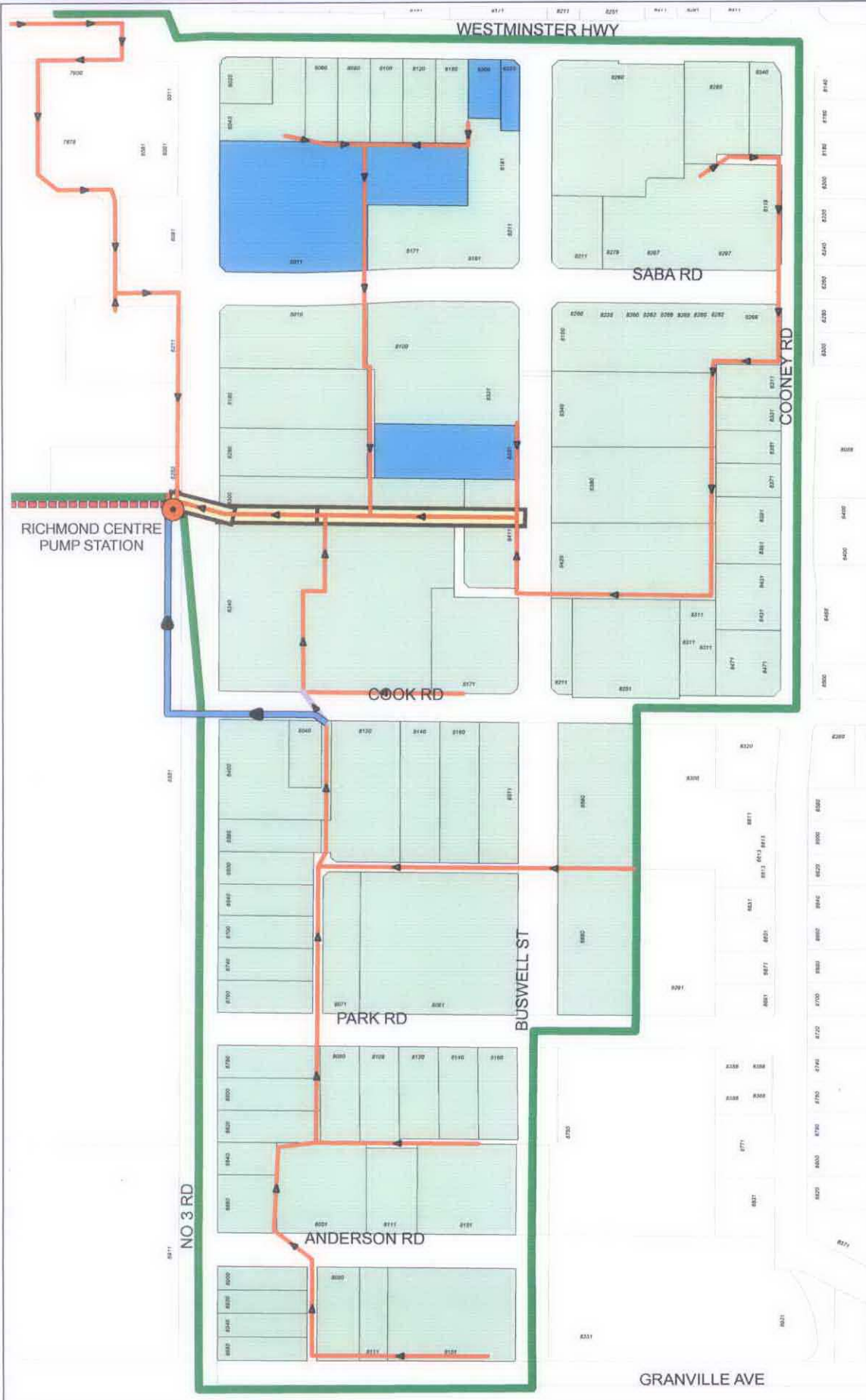
- Parcels East of 3 Rd
- Current Developments
- At Capacity Mains
- Catchment Area









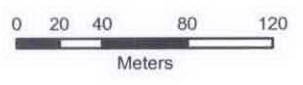
June, 2005

**Note:**  
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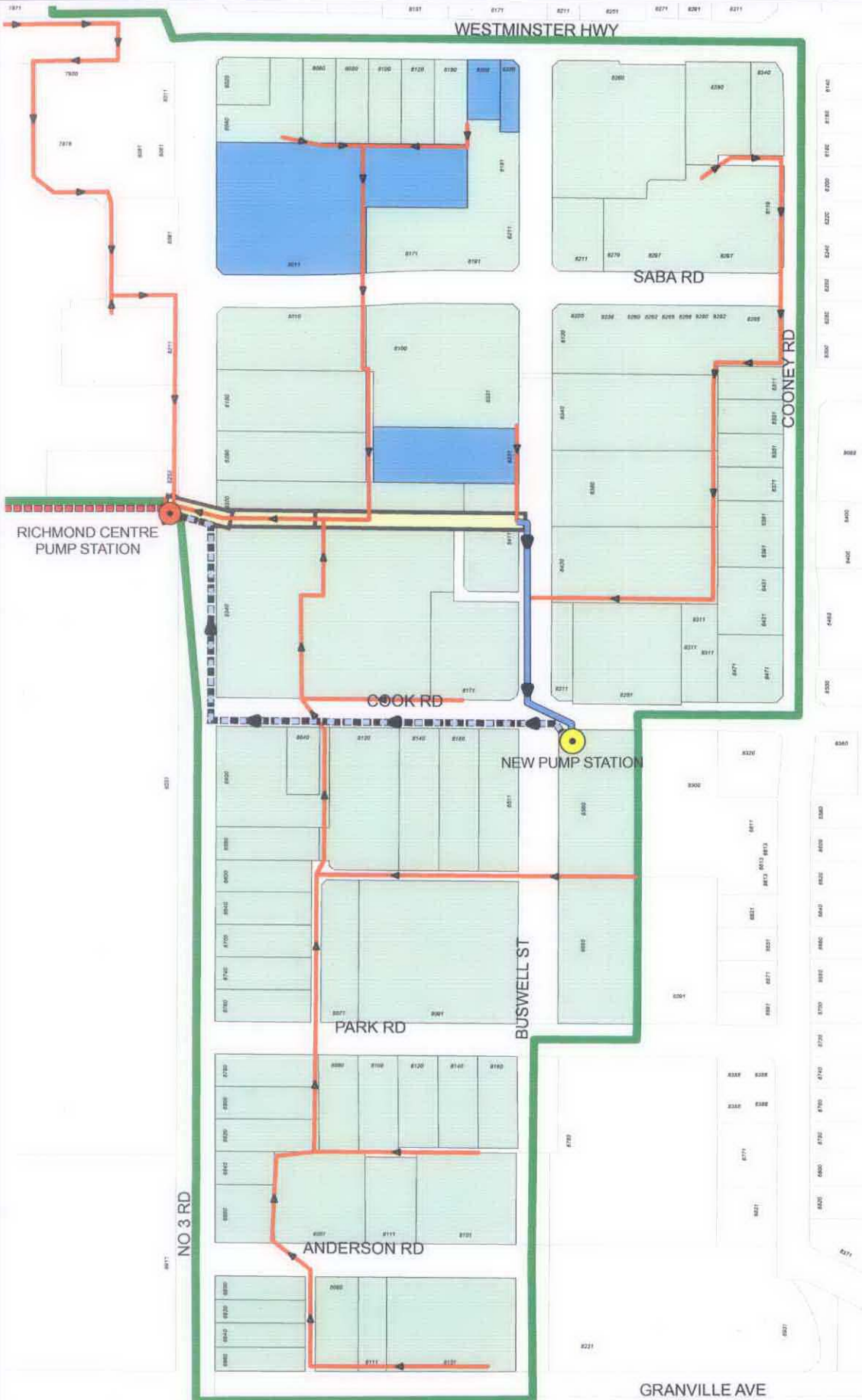
-  Parcels East of 3 Rd
-  Catchment Area
-  Current Developments
-  At Capacity Mains
-  New Gravity Main
-  Main Removed





June, 2005

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-  Parcels East of 3 Rd
-  Catchment Area
-  Current Developments
-  At Capacity Mains
-  New Gravity Main
-  New ForceMain
-  New Pump Station



June, 2005

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