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CORPORATE REPORT

NO: R051 COUNCIL DATE: March 10, 2025

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**March 6, 2025**
FROM:	**General Manager, Engineering**	FILE:	**5260-07**
		XC:	**3150-01**
SUBJECT:	**10-Year (2025-2034) Servicing Plan**		

RECOMMENDATION

The Engineering Department recommend that Council:

1. Receive this report for information; and

2. Endorse the proposed 10-Year (2025-2034) Servicing Plan attached to this report as Appendix "I".

INTENT

The purpose of this report is to obtain Council endorsement of an updated Engineering 10-Year Servicing Plan that includes priority projects that are needed to meet the growing needs of Surrey over the next 10 years.

BACKGROUND

The 10-Year Servicing Plan establishes the City's Engineering capital expenditure plan for the construction of new and replacement of existing engineering infrastructure that will service existing neighbourhoods and support new growth across the City. The plan outlines all foreseen projects and initiatives that are planned over the next 10 years that would be funded through utility fees, road and traffic levy, Development Cost Charges ("DCCs"), and external funding sources from other levels of government.

The 10-Year Servicing Plan is a dynamic document that is reviewed annually, and is updated every year or two, with the last plan being issued in 2023. The plan is generally updated to include new Council priorities, add infrastructure projects required for new land use plans, assess increases in cost estimates due to inflation, and remove projects that have been completed. The 10-Year Servicing Plan provides a summary of the planned engineering projects in the City and is the basis for developing engineering DCC rates to finance growth projects.

DISCUSSION

The 10-Year Servicing Plan, which provides new infrastructure for growth and replaces aging and upsized infrastructure, includes an approximate $2.7 billion investment in the City's infrastructure over the next 10 years to support delivery of new roads and utilities in new neighbourhoods, as well as to maintain, upgrade, and replace aging infrastructure in existing neighbourhoods across the City.

Summary of 10-Year Servicing Plan Costs

10-Year Program	2023-2032 Plan Total ($)	2025-2034 Plan Total ($)	Percent Growth Funded (DCCs)
Transportation	$1,074,067,000	$966,778,000	56%
Water	$218,610,000	$252,275,000	43%
Sanitary Sewer	$250,996,000	$261,963,000	59%
Drainage	$374,937,000	$435,890,000	35%
Campbell Heights	$180,814,000	$128,981,000	100%
Total	**$2,099,424,000**	**$2,045,883,000**	
Area Specific Program (Buildout Horizon)			
City Centre Property Acquisition	$65,000,000	$43,000,000	100%
Highway 99 Corridor	$69,656,000	$48,544,000	100%
Anniedale-Tynehead	$354,503,000	$363,563,000	100%
Redwood Heights	$38,445,000	$40,004,000	100%
Darts Hill	$28,086,000	$30,964,000	100%
Total	**$555,690,000**	**$526,075,000**	

Funding for the 10-Year Servicing plan is obtained from the following primary sources:

- Road and Traffic Levy for non-growth related transportation works;
- Utility fees and levy for: water, sewer, and drainage utilities;
- TransLink (GVTA) funding for Major Road Network ("MRN") routes;
- Development cost charges for growth related projects; and
- TransLink, ICBC, Federal and Provincial grants.

While the 10-year servicing plan sets out the foreseen infrastructure needs in Surrey over the next decade, funding for non-growth related projects is determined through annual budgeting processes through setting of utility rates, road levy, and DCC rates.

The most substantial increases to the 10-Year Servicing Plan costs are due to needs for Council's short-term transportation priorities, including 72 Avenue extension, and drainage projects related to the City's contribution to match Federal Disaster Mitigation Adaptation Fund ("DMAF").

Notable decreases in program costs have been made for City Centre property acquisitions and servicing in Campbell Heights due to current DCC reserves and updated servicing strategies.

The proposed 10-Year (2025-2034) Servicing Plan is attached as Appendix "I".

CONCLUSION

Council's approval of the proposed 10-Year Servicing Plan provides the vision for delivery of much needed transportation and utility services and sets a target for annual budgeting and rate setting for utilities and DCCs.

Scott Neuman, P.Eng.
General Manager, Engineering

DTM/cc

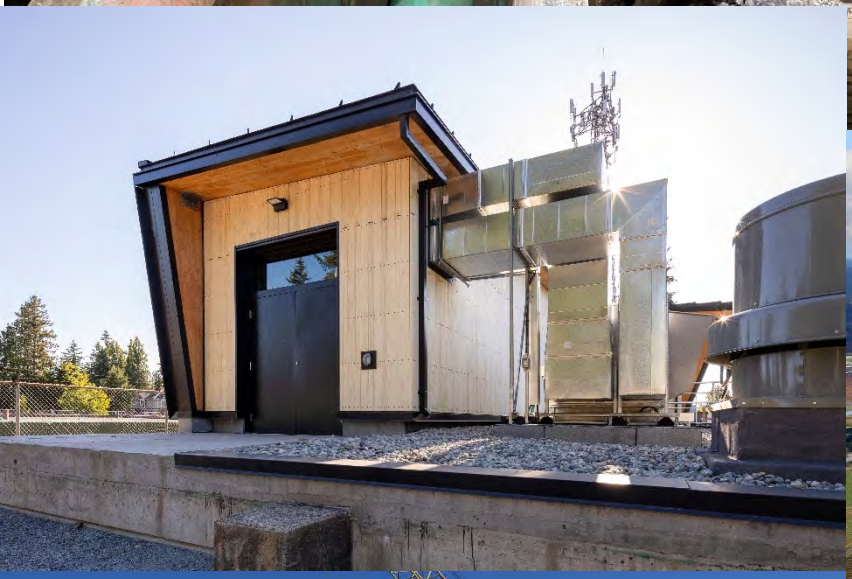
Appendix "I" - 10-Year (2025-2034) Servicing Plan

APPENDIX "I"

2025 - 2034

10-YEAR SERVICING PLAN

Engineering Department



CITY OF SURREY

City of Surrey
Engineering Department

10-YEAR SERVICING PLAN (2025-2034)

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1. OVERVIEW OF THE PLAN

The objectives of the 10-Year Servicing Plan (the "Servicing Plan") are to establish a program of transportation, drainage, water and sanitary sewer infrastructure that is required to service the existing population and the projected growth over the next 10-years (2025-2034), as well as establish the infrastructure program required to service ultimate build-out for Neighbourhood Concept Plans ("NCPs") with area-specific Development Cost Charges ("DCCs").

The Servicing Plan is developed based on the following plans and documents:

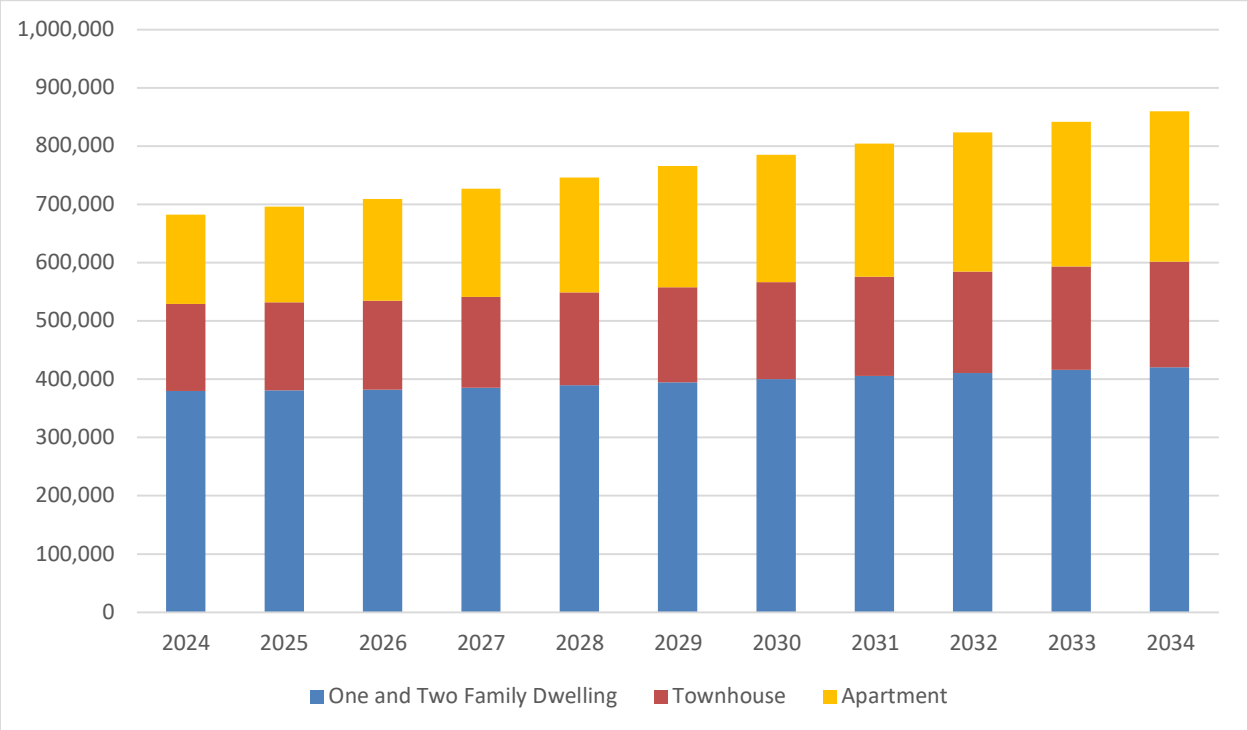
- Official Community Plan ("OCP");
- NCPs, Town Centre Plans ("TCPs") and Local Area Plans ("LAPs");
- Previous 10-Year Servicing Plan;
- Transportation Plans; and
- Integrated Stormwater Management Plans and Coastal Flood Adaptation Strategy.

The needs identified in the Servicing Plan are used by the Finance Department to prepare the 5-Year Engineering Capital budget and utility/levy rates. The identified growth-related components in the Servicing Plan are used to determine the DCCs for engineering infrastructure.

1.1 Population Projections

Growth related needs are primarily driven by the increase in population. The Servicing Plan is developed based on the population projections estimated by the City's Planning & Development Department. The City's population, for the purposes of engineering services, is estimated to increase by approximately 114,200 residents over the next 10 years.

Figure 1.1 - Population Projections



The infrastructure needs used in the development of this Plan are classified under three categories:

- Infrastructure required to support the existing population (non-growth);
- Infrastructure required to support future development (growth);
- Population projections and dwelling units developed by the Planning & Development Department; and
- External funding offsets non-growth costs.

1.2 Infrastructure Required to Support the Existing Population (Non-Growth)

A portion of the servicing requirements included in the Servicing Plan are to support the City's existing population (non-growth) through maintaining, servicing and replaces our existing assets such that they are in a state of good repair. In addition, this category includes works to overcome deficiencies within already developed areas. These servicing requirements are funded by the existing residents and businesses through their utility rates and General Revenue (Roads and Traffic Levy).

Examples of non-growth related works included in the Servicing Plan are:

- Repaving of roads and bridges;
- New sidewalks, on-street parking, and streetlights for developed areas;
- Converting on-street bike lanes to protected cycling facilities;
- Resolution of existing drainage problems;
- Drainage main, water main and sanitary sewer main replacements, including due to condition or change in material; and
- Climate change adaptation for increased runoff and sea level rise, as applicable.

1.3 Infrastructure Required to Support Development (Growth)

A portion of the servicing requirements included in the Servicing Plan are to support future development (growth).

To ensure that growth related projects are cost-effective, the following were considered in the sizing of infrastructure and the timing of works:

- Life cycle of mains, pipes and other materials used in the construction of municipal services (typically spans 50 to 100 years);
- Incremental costs for upsizing trunk sewers or feeder mains that are relatively small compared to the total construction cost or to the cost of further relief work at a future date;
- Extent and effect of disruptions caused by phased and/or sectional improvement works; and
- Strategy of upgrading arterial roads to service growth while having development complete the ultimate sidewalk as road allowance becomes available through redevelopment.

Some projects support the existing population as well as future development. Examples of this type of project are replacement or improvements to an existing water main or arterial road that is also upsized to provide additional capacity for future growth. In this case, the replacement cost would be assigned to non-growth needs and the upsizing cost to growth needs, based on capacity or traffic volume percentage increase.

1.4 Financing Infrastructure to Support Future Development (Growth)

There are a number of financial strategies available for developers or property owners that fund growth-related projects to recover an appropriate share of costs to service growth. Examples of these are:

- Development Cost Charge Front-Enders Agreements ("DCCFEAs");
- Developments Works Agreements; and
- Latecomer Charges Agreements.

Financing strategies for major servicing elements included in the Servicing Plan allow for a cooperative approach between the City and developers to use DCCs generated in respective developing areas.

Some projects identified in the Servicing Plan DCCFEA have been constructed and financed by developers. These agreements allow DCCs collected in the benefiting catchments to be refunded to the respective front-ending developer over a period of 10 to 20 years, depending on Council Policy and specific DCCFEA. For those capital projects with an executed DCCFEA, the capital cost in the Servicing Plan remains fixed at the value within the executed DCCFEA.

The Servicing Plan includes major servicing requirements for lands in the Highway 99 Corridor, Campbell Heights and South Campbell Heights. The City's ability to directly provide, or facilitate developers to provide, these servicing requirements supports the City's goal to increase economic development activity.

1.5 Area-Specific Financing Strategies

The Highway 99 Corridor, Campbell Heights, Anniedale-Tynehead, Darts Hill, Redwood Heights, and South Campbell Heights areas have been treated as specific areas for some aspects of infrastructure servicing from the overall City-wide DCC-funded Servicing Plan due to the higher costs of providing services to these areas.

This has allowed greater flexibility in the financing of services through the use of specified area charges and public-private partnerships. Servicing requirements for these areas are included in separate sections of the Servicing Plan based on the ultimate servicing requirements.

1.6 Timing and Funding Summary of Projects

The tables of works are based on the anticipated pace and expected locations of future growth. Should development and growth occur differently, then the timing of individual projects may have to change as well; therefore, the projects, and in particular their timelines and extents of work shown, should be regarded as conceptual and subject to change.

The estimated project timeline ranges within the Servicing Plan are classified as follows:

Annual	Every year
Short Term	1 - 5 years
Long Term	6 – 10 years
NCP Driven	Timing depends on development within NCP area and may exceed 10 years
Upsizing Contribution	1 – 10 years

All costs quoted in the Servicing Plan are capital costs, exclusive of long-term operating and maintenance costs, expressed in 2025 dollars. The majority of these costs are indicative (Class D) level estimates. For annual projects, the total cost of the program is provided over 10 years whereas the area-specific projects/programs are based on a full build-out horizon (i.e. 30 years) as opposed to a 10-year horizon.

Table 1.1 summarizes the cost of the overall Servicing Plan.

Table 1.1 - 2025-2034 10-Year Servicing Plan Cost Summary for City-wide Programs

Program	Growth ($)	Non-Growth ($)	External ($)[1]	TransLink ($)	Total ($)
Transportation (Arterial)	$471,498,000	$220,191,000	$15,593,000	$184,627,000	$966,778,000
Transportation (Collector)	$74,865,000				
Water	$108,440,000	$143,835,000	$0	$0	$252,275,000
Sanitary Sewer	$157,088,000	$104,875,000	$0	$0	$261,963,000
Drainage	$151,646,000	$199,021,000	$85,223,000	$0	$435,890,000
Total	**$963,537,000**	**$667,922,000**	**$100,816,000**	**$184,627,000**	**$1,916,902,000**

Table 1.2 - 2025-2034 Servicing Plan Cost Summary for Area Specific Programs

Program	Growth ($)	Non-Growth ($)	External ($)[2]	TransLink ($)	Total ($)
City Centre Property Acquisition	$43,000,000	$0	$0	$0	$43,000,000
Campbell Heights	$109,586,000	$0	$5,735,000	$13,660,000	$128,981,000
Highway 99 Corridor	$44,784,000	-	-	$3,760,000	$48,544,000
Anniedale-Tynehead	217,699,000	-	98,223,000	47,491,000	$363,563,000
Redwood Heights	$40,004,000	$0	$0	$0	$40,004,000
Darts Hill	$30,964,000	$0	$0	$0	$30,964,000
Total	**$455,073,000**	**$0**	**$103,958,000**	**$64,911,000**	**$624,092,000**

[1] External funding includes MoTI, ICBC, Federal Government, etc.

2. TRANSPORTATION

To meet the current and future transportation needs of residents, Surrey is building a transportation system that is efficient, equitable, safe and sustainable. One that offers increased choice and better access, supports compact and complete communities, and improves the way all users travel within Surrey.

The transportation network improvements outlined in the 10-Year Servicing Plan are, in principle, guided by Surrey's Transportation Strategic Plan. The Transportation Strategic Plan is the overarching framework which seeks to develop a balanced transportation system that supports all mobility needs, including pedestrians, cyclists, transit users, car drivers, and the movement of goods and services.

2.1 Funding Sources for Transportation Infrastructure

There are two primary sources of City funding for the continuous planning, design, delivery and maintenance of new and existing transportation infrastructure: General Revenue (including the Roads and Traffic Levy); and DCCs. The City also receives funding from TransLink and other external agencies, such as: the Ministry of Transportation and Infrastructure ("MoTI"); the Federal Government; and the Insurance Corporation of British Columbia ("ICBC"). Additionally, the City collects funding for transportation infrastructure from developments in City Centre as cash-in-lieu for parking relaxations.

2.1.1 General Revenue, Roads and Traffic Levy

General Revenue is collected by the City annually through property taxes and includes the Roads and Traffic Levy. This funding source is used for non-growth capital projects that are for rehabilitating infrastructure for a state-of-good repair and completing infrastructure in established neighbourhoods.

Examples of non-growth capital projects in the 10-Year Servicing Plan include:

- Repaving of roads;
- Traffic signal rehabilitation;
- Sidewalk and cycling installation in developed areas;
- Bus stop infrastructure; and
- Traffic Calming and road safety improvements.

General Revenue and the Roads and Traffic Levy are also used for other operational programs such as day-to-day City operations and maintaining existing infrastructure that is not identified in the 10-Year Servicing Plan. This includes:

- General Street Operations (pothole repair, sweeping, winter maintenance, etc.)
- Traffic Operations (Traffic Management Centre, signals, streetlights, pavement marking);
- Hydro Utility for streetlights and traffic signals; and
- Other Transportation plans, studies and operations.

2.1.2 Development Cost Charges

DCCs are collected from developments to fund the growth-related cost of Arterial and Collector (non-arterial) road infrastructure improvements that are required to service new development areas. Examples of growth-related projects funded by DCCs in the 10-Year Servicing Plan include:

- Arterial widening of roads in, or connecting to, high growth areas;
- Collector road improvements to accommodate traffic and provide complete streets beyond the local road requirements;
- New cycling infrastructure on arterial and collector roads;
- Strategic property acquisition for future arterial and collector road improvements;
- Intersection improvements for capacity, including new signals and roundabouts;
- New and widened bridges and overpasses; and
- Cost-share towards provincial interchange upgrades (i.e. new access ramps) with funding allocation based on City growth as a percentage of total increased traffic volume.

2.1.3 TransLink

TransLink is the City's largest sustained cost-sharing agency. TransLink provides a significant source of funding through the following funding programs:

Operations, Maintenance and Rehabilitation Funding

In April of 1999, the Province declassified Provincial Highways across Metro Vancouver, including three within Surrey: King George Highway; Fraser Highway; and Scott Road. In conjunction with the creation of TransLink and highway downloading, TransLink established the Major Road Network ("MRN") to support the safe and efficient movement of people and goods across the region.

Annually, TransLink provides annual Operations, Maintenance and Rehabilitation ("OMR") in contribution funding to Surrey for the MRN, based on the number of lane kilometres of MRN in the City. There is currently 593 km of MRN, for which the City receives approximately $14.2 million of funding. $5.9 million is allocated for pavement rehabilitation ("R") which is included in the TransLink total in Program 1016 (Arterial Paving) of the plan. The remainder ($8.3 million) is allocated for operations and maintenance ("O&M") funding for general street operations and signal maintenance on MRN roads

Annual Capital Funding Programs

TransLink has a variety of annual capital cost-sharing programs that support projects both on the MRN and within other areas that meet supportive criteria. These programs have an allotment of annual funding based on population and employment, and other funding programs are of a competitive nature.

The programs are as follows:

- Major Road Network and Bike ("MRNB") (Estimated $7.2 M allocated) to support widening and cycling improvements on the MRN.
- Bicycle Infrastructure Capital Cost Sharing ("BICCS") (Estimated $2.5 M allocated plus competitive program) to supports the implementation of cycling infrastructure in Town Centres and transit development areas.
- Walking Infrastructure to Transit ("WITT") ($0.8 M allocated plus competitive program) to support new and improved sidewalks near transit stops.
- MRN Structures ("MRNS") (up to $5 M competitive available) for the rehabilitation of bridges, retaining walls, culverts, and large structures on the MRN.
- Transit Related Road Infrastructure Program ("TRRIP") (up to $0.5 M competitive) for the construction of new and improved accessible bus stops.
- Bus Speed and Reliability Program ("BSR") (up to $1.0 M competitive) towards transit only lanes and bus queue jumpers that support bus operational improvements.

The total amount of funding anticipated from the OMR and capital cost-sharing programs is represented as TransLink funding in the 10-Year Servicing Plan.

2.1.4 External Funding

Funding sources from external sources are included in the 10 Year Servicing Plan. These can include various grants available from the Provincial and Federal governments and ICBC's Roads Improvement Program for projects outlined in the 10-Year Servicing Plan that have broader Provincial or Federal implications and safety benefits for the transportation of goods and/or people.

Additionally, the City may partner with the Ministry of Transportation and Infrastructure for cost-sharing on enhanced infrastructure on Provincial Highways that supports municipal growth. The municipal cost-share is based on the percentage of localized growth related traffic volumes whereas the Provincial share is based on regional traffic volumes.

This strategic application for external funding partners is vital for optimizing the City's budget and ensuring funding received from Surrey taxpayers is leveraged to the highest extent in the delivery of key regional and local transportation infrastructure.

2.2 Road Classifications and Transportation Inventory

Surrey classifies the road network into four categories based on traffic volumes, design standards and multi-modal amenities. These classifications reflect the role a road has within the network, from providing capacity on the highest volume corridors to providing access to local properties and businesses. A road classification map illustrating arterial and collector roads, along with their corresponding road widths, are shown in the *Surrey Subdivision and Development By-law, 1986, No. 8830,* as amended from time to time.

Roads are classified into the following four categories:

- Provincial Highways: Provincial Highways are those roads in Surrey that are owned and maintained by the Ministry of Transportation and Infrastructure.
- Arterial Roads: Arterial roads are the main transportation corridors for the movement of all vehicles as they carry the highest traffic volumes and provide important corridors for

transit services and goods movement. Arterials are protected for a standard of five lanes (four lanes for general purpose traffic plus left-turn access), cycling facilities, sidewalks, boulevards, and lighting. Heavy truck travel is generally restricted to Provincial highways and arterial roads.

- Collector Roads: Collector roads are primarily intended to collect and distribute traffic between local and arterial roads. Collector Roads typically include cycling facilities, sidewalks, boulevard trees and parking.

- Local Roads: Local roads provide access to residences, schools, recreational facilities and local businesses. Parking is usually available on both sides of the road.

The City's current inventory of roads and a sample of supporting infrastructure are summarized in **Table 2.1**. A map illustrating all the Provincial Highways, Arterial (both MRN and non-MRN), and Collector roads is shown on **Figure 2.1**. The width and classification of the City's Arterial and Collector road networks are identified in the Major Road Allowance Map and the Road Classification Map (R-91), both contained within the *Surrey Subdivision and Development By-law, 1986, No. 8830,* as amended from time to time.

Table 2.1 – Current Transportation Asset Inventory

Roads - Centreline Length	
Arterial Roads (including MRN roads)	380 km
Collector Roads	274 km
Local Roads	1,133 km
Lanes	204 km
Total Surrey Roads	1991km
Provincial Highways	122km
Total Surrey & Provincial Roads	2113km
Lane Kilometer Length	
Major Road Network	593 km
City Arterials	1,059 km
Collectors	547 km
Supporting Infrastructure	
Multi-use Pathways	147 km
Bridges and Structures	67
Streetlights	32,707
Traffic & Pedestrian Signals	626
Traffic Signs	54,888

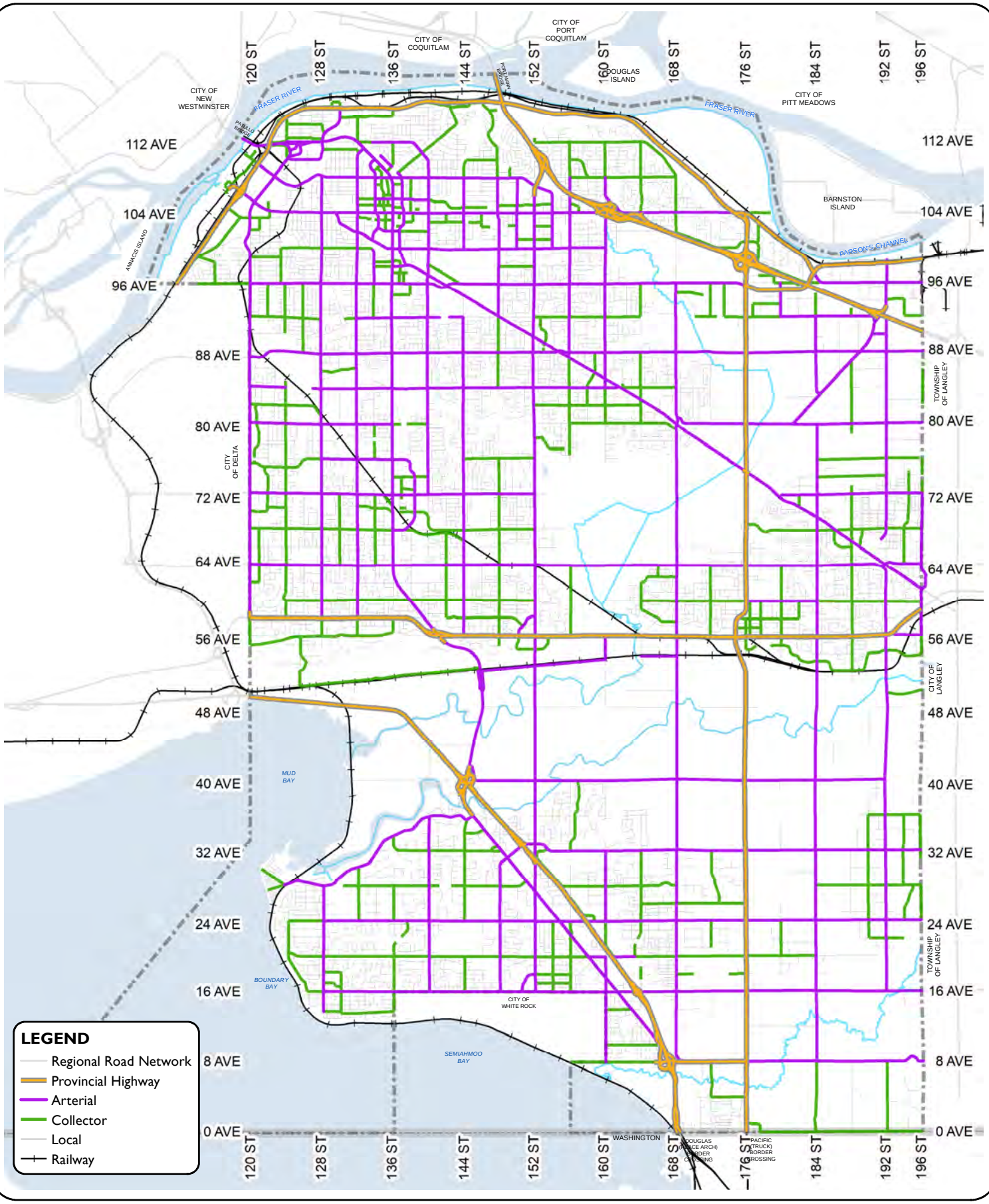


FIGURE 2.1 - ROAD NETWORK

0 0.5 1 2 3 KM

SCALE: 1:115,000

GIS SECTION
ENGINEERING

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2.3 Capital Planning

The planning process for major capital works begins in advance of when the projects begin construction. The City uses a data driven, evidence-based approach to identify projects for inclusion in the 10-Year Servicing Plan. This process also uses a multiple account evaluation methodology to ensure which projects from the Local Area Plans and NCP's are prioritized as well as projects that meet the goals and objectives outlined in the Transportation Strategic Plan.

2.4 Project Delivery

Based on the funding source, the City delivers transportation infrastructure through either development or capital works.

2.4.1 Development

For developments fronting Local or Collector roadways, the developer is responsible for constructing all the road works. The developer funds 100% of road improvements to the local road standard and receives DCC contributions for the "incremental upsize" on Collector roads. For developments on arterial roadways, the developer funds and constructs the frontage sidewalk, and the City ultimately delivers the four-lane corridor-wide improvements once sufficient property is secured, utilizing DCC revenues.

2.4.2 Capital Works

Most major capital construction, along with minor construction improvements, are led by the City. They are subject to regular review and prioritized based on demands. Typically, the City obtains a contractor for these works; however, the City's Operations Division is responsible for daily repairs and minor maintenance on the road system.

2.5 Transportation Programs

To accommodate existing and future demands on the transportation network, funding is allocated to 12 transportation network servicing programs, which are categorized into capital and capital rehabilitation work. The programs that deliver new capital assets are summarized in the next section.

2.5.1 New Capital Programs

Program 1000 – Arterial Improvements

The Arterial Improvements program is based on completing strategic and planned Arterial connections in the City's road network that are identified as part of concept plans and are included in the City's road classification map. These important connections facilitate improved distribution of traffic to help relieve congested intersections and corridors, and improve cycling, walking and transit movement through the City. Arterial widening projects are prioritized using traffic model projections, growth trends due to development in NCP areas, and where vehicle volumes exceed capacity.

Program 1004 – Collector Improvements

This program consists of projects that address collector roads, the classification is typically based on access management and is not required to be widened to five lanes, Prioritization of collector projects is based on factors that include improving the operational safety of the corridor and introducing new or enhanced facilities including left-turn bays at intersections, cycling infrastructure and street lighting.

Several collector roads remain incomplete, and upgrades are completed at locations near schools and recreation facilities in areas that are not expected to redevelop in the next 20 years. Unlike arterial roads, the need for collector widening is not strictly driven by capacity, but rather to provide improved pedestrian, cyclist, on-street parking and a finished streetscape.

Program 1006 – Strategic Property Acquisition

This program funds property acquisition solely for arterial road projects, as per the Province's Best Practices Guide for DCCs, for future projects that are expected in the long-term (beyond 10-years) and in advance of detailed design. The properties acquired are those that are anticipated to be significantly impacted through new arterial roads or from arterial road widening have been identified through concept plans or as part of the City's road classification and allowance maps.

The majority of collector road projects are completed within existing road allowances, and in instances where property is acquired for collector projects it is secured through funding in Program 1004.

Per the Province's Best Practice's Guide for DCCs, the construction of local roads or lanes, and the related property acquisition, is not a DCC eligible expense. In instances where new local roads are required to support development, the fronting or adjacent properties are required to dedicate and construct the relevant local road or lane, which is commonly completed through half-road segments; and in some instances within the City's Town Centre Plans / NCPs this is achieved in exchange for additional or cluster density (gross density).

Within City Centre, there is an area-specific DCC for strategic property acquisition for a select list of arterial and collector roads as discussed in Program 1026.

Program 1008 – Development Coordinated Improvements

The Development Coordinated Improvements Program includes both Development Coordinated Works ("DCW") and collector upsizing, which uses DCCs collected to complete the work.

DCW accommodates the construction of works that are not identified in the 10-Year Servicing Plan in conjunction with the development of adjacent properties. The intent is to construct required works that will improve the transportation system and are unlikely to occur through subsequent development or until a future iteration of the 10-Year Servicing Plan. It is often cost effective to construct certain works adjacent to development sites that are not expected to be completed through future development projects. This includes road widening/completion, sidewalks and other works completed through active development projects. As these works are in response to development activity, it is not possible to predict a detailed program of works.

Most collector road widening projects are constructed in conjunction with development with DCC upsizing funds. Developers are responsible for construction of the applicable local road standard (based on zoning) including curb and gutter, drainage works, sidewalk, streetlights and landscaping. Through a DCW agreement, the City will fund the incremental payment in collector road standard for cycling and taller streetlighting if applicable.

Program 1012 – Intersection Improvements

The Intersection Improvements program is a warrant-based program that focuses on projects that increase capacity or mitigate the impact of traffic growth on roadways with respect to safety, and improving pedestrian crossing opportunities. Most of the works include construction of roundabouts, additional travel lanes at intersections, and/or extensions and improvements of left-turn bays.

Program 1020 – Major Road Infrastructure

The program consists of major or large structures on City roads, such as bridges and overpasses, which are required to accommodate new or growth-related arterial projects, including the widening of existing structures. Costs are allocated between growth and non-growth based on growth component and in accordance with the Province's Best Practices guide. Significant external funding is often required from the Province (through cost-sharing) or TransLink (through MRN funding) to complete these projects.

This project also includes upgrades to assets owned by the Province, such as a highway interchange, where there may be cost-sharing from the City to add additional interchange ramps or support grade-separation, and railway crossing improvements. The City's share of the costs is based on applicable cost-sharing formulas.

Rehabilitation of existing municipal structures, where no additional growth capacity is included, is funded through Program 1160.

Program 1074 – Local Area Service

Areas of Surrey that developed before the current servicing standards usually lack roads that are completed to final standard; missing components can include sidewalks, curbs, streetlights, etc. For local roads, upgrades can be carried out under the Local Area Service ("LAS") program. The LAS program provides residents, who have the support of their neighbours, to petition for the upgrading of works, and share the cost of upgrading between fronting property owners and the City. The LAS program funding is from non-growth sources and used to cost-share in projects that are considered eligible based on the City's LAS criteria.

Program 1108 - Crosswalks and Traffic Calming

This program consists of implementing crosswalks, traffic circles and other traffic calming measures throughout the City. The types of projects within this program are speed humps, speed tables, traffic circles, Rapid Rectangular Flashing Beacon ("RRFB") crosswalks, and pavement narrowing through curb extensions (bulges). These projects are funded through the City's Road and Safety levy ("general revenue"), as opposed to DCCs, as they are not often required to support growth.

Program 1120 – Active Transportation

This program includes cycling projects, pedestrian projects, and transit-oriented projects. As cycling facilities are a standard part of arterial and collector roads, a significant portion of cycling infrastructure is completed through new or widening projects, with funding being included within the respective programs. Therefore, this program focuses on improving cycling and walking connections, and addressing existing "gaps", in critical locations near schools and transit, or key corridors, where no arterial or collector project is anticipated in the next 10 years.

Where no cycling infrastructure exists, cycling projects can be funded by DCCs whereas upgrades to existing cycling facilities, such as converting on-street bike lanes to off-street facilities, requires funding through general revenue. There are significant external funding programs, from TransLink, Provincial and Federal Governments, that support this program. Multi-use pathways within parks, greenways and utility corridors are funded and delivered by the Parks, Recreation & Culture Department.
The walking infrastructure projects provide sidewalks and related curbs and boulevard in locations that have the greatest likelihood of pedestrian activity, but without plans for road widening or development. The growth-related funding in this program targets pedestrian improvements on arterial and collector roads where no sidewalk exists. Projects in this program are prioritized based on areas within 500m of a school, park or frequent transit. The City applies for annual TransLink funding to compliment this program.

The transit infrastructure improvements allocates non-growth funding towards cost-sharing projects with TransLink or Coast Mountain which support transit services, including: enhanced bus stops for accessibility, bus only lanes, transit pre-emption and "queue jump" lanes. The City regularly applies for annual TransLink funding to compliment this program.

2.5.2 Capital Rehabilitation Programs

Program 1016 –Road Paving

The City uses a sophisticated pavement management system that integrates raw road data, such as pavement condition and surface distress, into a centralized database which analyses corridors under current and future traffic loading conditions, and then generates a pavement deterioration curve. This is a vital asset management tool for optimizing the schedule of repaving and repairs to achieve least cost for maintenance and capital repaving over the life cycle.

The paving program is separated into the different road classifications: arterial, collector, and local. General revenue is allocated for roads repaving, as it pertains to the overall maintenance and operation of the City, and additional funding is provided through TransLink's OMR Paving Rehabilitation program for arterial MRN roads.
Program 1160 –Infrastructure Rehabilitation

This program identified major non-growth replacement and rehabilitation of existing infrastructure, such as bridges, overpasses, traffic signals, and street lighting to ensure assets are maintained in a state of good repair.

The City undertakes condition assessments annually, which identifies immediate and short-term assets or projects. General Revenue is allocated for the rehabilitation of bridge, overpasses, traffic signals, and street lights. The rehabilitation on MRN structures is partially funded through TransLink's MRNS funding.

2.5.3 Other Programs

Program 1026 – City Centre Property Acquisition

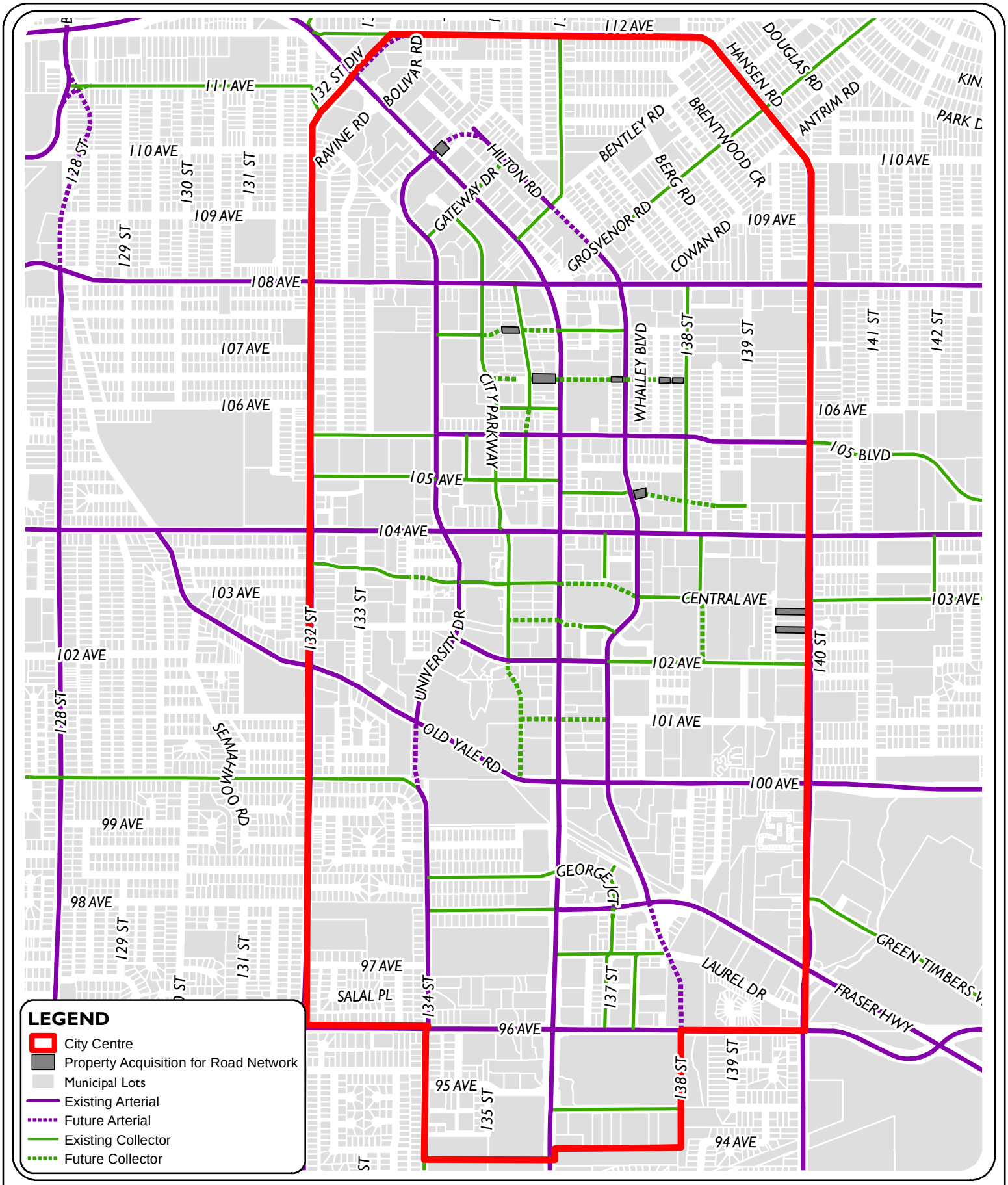
This is an area-specific program that is funded through an additional DCC rate applicable in the City Centre only. This program funds the acquisition of key properties that are unlikely to be dedicated to the City through redevelopment but are critical to achieve the finer grained arterial and collector road network in City Centre, specific to the following road connections:

Road	**Project**
Hilton Rd	Connection to King George Boulevard
107A Ave	Connection to 135A Street
104A Ave	Connection to 138A Street
104A Ave	Connection to Whalley Boulevard
106A Ave	Connection to City Parkway
106A Ave	Connection to King George Boulevard
140 St	Arterial widening, 102 Avenue to 104 Avenue
106A Ave	Connection from Whalley Boulevard to 138 Street
106A Ave	Connection to Whalley Boulevard
106A Ave	Connection to 138 Street

Land to support these road connections are often acquired as they become available, or if adjacent development is occurring and the connection is required imminently. Total area-specific funding for this program is estimated to be $43 Million based on the 2024 appraised value, for the specific road connections noted above and funding will only be collected and utilized from this area-specific program

Program 1505 – Road Network Development

This program allocates funding for future works project planning, studies, policy development and resources that are required to support growth related planning work such as Transportation Plans for Neighbourhood Concept Plan areas.



LEGEND

- City Centre
- Property Acquisition for Road Network
- Municipal Lots
- Existing Arterial
- Future Arterial
- Existing Collector
- Future Collector

City Centre Future Acquisitions for Road Network

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2.4 Transportation Cost Summary

No.	Program	Program Type	Growth Arterials ($)	Growth Non-Arterial ($)	Growth Area Specific	Non-Growth ($)	External* ($)	TransLink ($)	Total ($)
100	New Road Connections	Capital	292,435,000	$0	$0	$85,970,000	$442,000	$61,164,000	$440,010,000
100	Existing Road Improvement	Capital	$0	$36,764,000	$3,980,000	$6,251,000	$0	$2,549,000	$49,548,000
100	Strategic Property	Capital	$20,000,000	$7,000,000	$0	$0	$0	$0	$27,000,000
100	Development Coordinated	Capital	$8,906,000	$5,000,000	$0	$3,000,000	$0	$0	$16,906,000
1012	Intersection Improvements	Capital	$80,358,000	$12,436,000	$0	$18,120,000	$1,564,000	$831,000	$113,308,000
1016	Road Paving	Rehab	$0	$0	$0	$50,500,000	$0	$55,500,000	$106,000,000
102	Major Road Infrastructure	Capital	$44,059,000	$0	$0	$19,521,000	$7,210,000	$13,888,000	$84,677,000
107	Local Area Service (LAS)	Capital	$0	$0	$0	$600,000	$0	$0	$600,000
1108	Crosswalks and Traffic Calming	Capital	$0	$5,300,000	$0	$11,220,000	$0	$120,000	$16,640,000
1120	Active Transportation	Capital	$23,740,000	$4,385,000	$0	$7,814,000	$6,377,000	$37,300,000	$79,619,000
1160	Infrastructure Rehabilitation	Rehab	$0	$0	$0	$17,195,000	$0	$13,275,000	$30,470,000
1505	Road Network Development	Non-Capital	$2,000,000	$0	$0	$0	$0	$0	$2,000,000
Total			**$471,498,000**	**$70,885,000**	**$3,980,000**	**$220,191,000**	**$15,593,000**	**$184,627,000**	**$966,778,00**

* External funding includes MoTI, ICBC, Community Works Fund, Federal funding etc.

2.5 Transportation Projects by Program

This section contains tables and figures that identify the projects under the key transportation programs.

The tables provide the following information:

a) Project ID - the unique identifier of the project
b) Project name - the specific name or generic name that depicts the type of work
c) Project location - the geographic extent of the works
d) Priority - the intended time frame for when the project is planned to proceed (subject to change)
e) Costs – the high-level estimates in 2021 dollars (subject to change at the actual time of construction)

The costs are comprised of growth, non-growth, external and TransLink funding components. Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations throughout Surrey may not be shown on the maps.

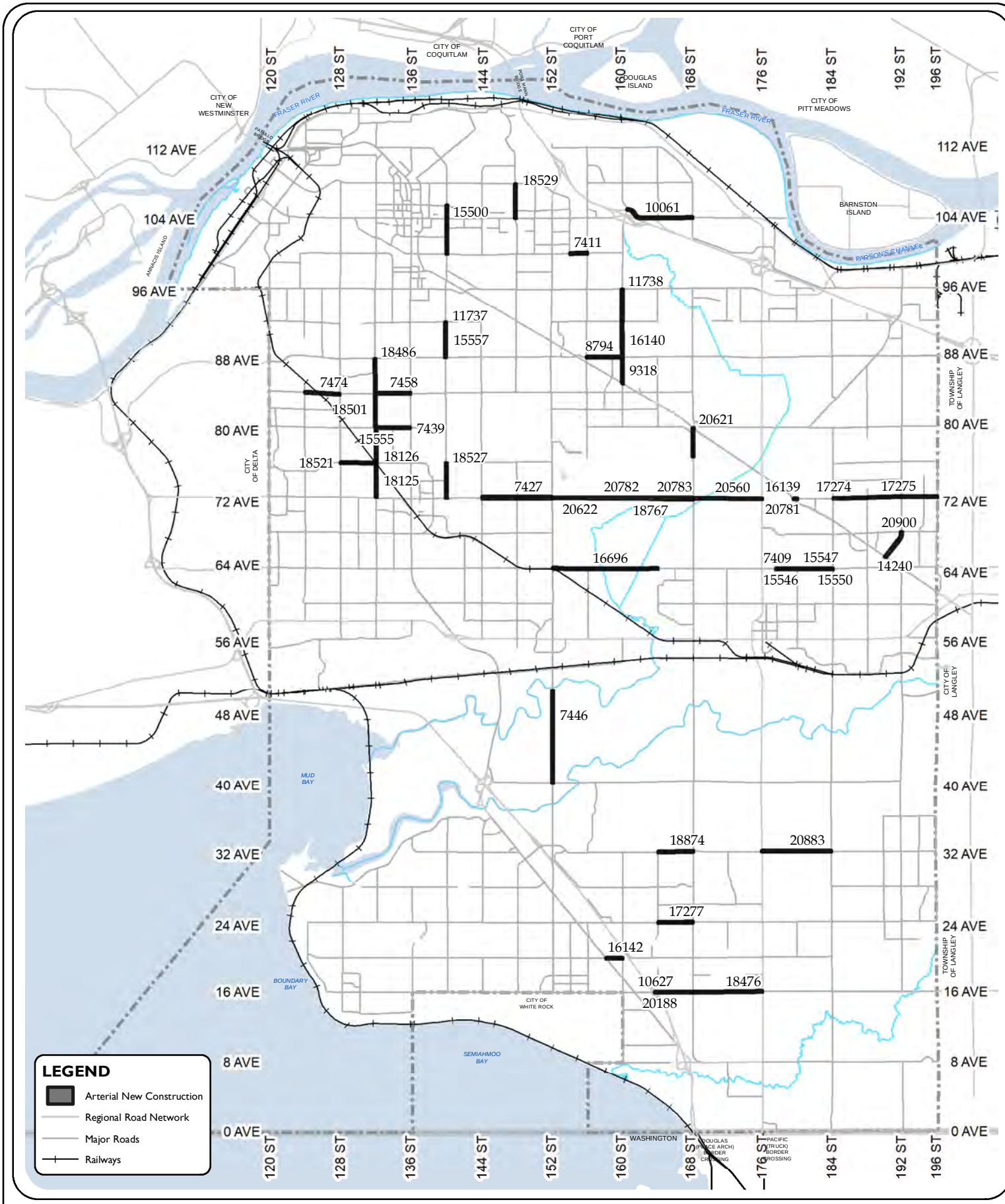

FIGURE 2.2 - Transportation
Arterial Improvements (Program 1000)

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ROADS

Program 1000 - T - Arterial Improvements

Program Totals	440,010,000	292,435,000	-	-	85,970,000	442,000	61,164,000

				Funding Source						
Project ID	Project Name	Project Location	Priority	Total	Growth Arterials	Growth Collectors	Growth Area Specific	Non Growth	External	Translink
7411	Arterials - Widening	100 Ave: 154 St - 156 St	Long Term (6 - 10 Yrs)	3,235,000	2,312,000	0	0	324,000	0	600,000
7427	Arterials - Widening	072 Ave: 144 St - 152 St	Short Term (1 - 5 Yrs)	20,528,000	13,226,000	0	0	0	0	7,301,000
7439	Arterials - Widening	080 Ave: 132 St - KGB	Short Term (1 - 5 Yrs)	9,189,000	7,281,000	0	0	793,000	184,000	932,000
7458	Arterials - Improvements	084 Ave: 132 St - KGB	Long Term (6 - 10 Yrs)	7,407,000	4,763,000	0	0	441,000	0	2,203,000
7474	Arterials - New Construction	084 Ave: 124 St - 128 St	Short Term (1 - 5 Yrs)	18,000,000	18,000,000	0	0	0	0	0
8794	Arterials - Widening	088 Ave: 156 St - 160 St	Short Term (1 - 5 Yrs)	9,500,000	5,353,000	0	0	0	0	4,147,000
9318	Arterials - Widening	160 St: Fraser Hwy - 88 Ave	Short Term (1 - 5 Yrs)	9,600,000	5,581,000	0	0	0	0	4,019,000
10061	Arterials - Improvements	104 Ave: 164 St - 168 St	Short Term (1 - 5 Yrs)	7,424,000	6,717,000	0	0	707,000	0	0
11737	Arterials - Widening	140 St: 088 Ave - 092 Ave	Short Term (1 - 5 Yrs)	10,428,000	7,002,000	0	0	1,926,000	0	1,500,000
11738	Arterials - Widening	160 St: 092 Ave - 096 Ave	Long Term (6 - 10 Yrs)	11,081,000	7,162,000	0	0	0	0	3,919,000
14240	Arterials - New Construction	192 St: Fraser Hwy - 68 Ave	Short Term (1 - 5 Yrs)	14,000,000	14,000,000	0	0	0	0	0
15500	Arterials - Widening	140 St: 100 Ave - 105A Ave	Long Term (6 - 10 Yrs)	13,444,000	12,268,000	0	0	1,176,000	0	0
15555	Signals - Traffic. New with Widening	080 Ave & 134 St	Short Term (1 - 5 Yrs)	477,000	477,000	0	0	0	0	0
15557	Signals - Traffic. New with Widening	090 Ave & 140 St	Short Term (1 - 5 Yrs)	810,000	810,000	0	0	0	0	0
16139	Arterials - New Construction	072 Ave: Fraser Hwy - 180 St	Long Term (6 - 10 Yrs)	8,382,000	8,381,000	0	0	1,000	0	0
16140	Arterials - Widening	160 St: 88 Ave - 92 Ave	Long Term (6 - 10 Yrs)	11,081,000	7,162,000	0	0	0	0	3,919,000
16142	Arterials - Improvements	020 Ave: KGB - 160 St	Long Term (6 - 10 Yrs)	1,196,000	1,196,000	0	0	0	0	0
16696	Arterials - Widening	064 Ave: 152 St - 164 St	Short Term (1 - 5 Yrs)	9,357,000	8,897,000	0	0	0	258,000	202,000
17274	Arterials - Widening	072 Ave: 184 St - 188 St	Long Term (6 - 10 Yrs)	12,484,000	11,999,000	0	0	485,000	0	0
17275	Arterials - Widening	072 Ave: 188 St - 196 St	Short Term (1 - 5 Yrs)	14,000,000	13,353,000	0	0	647,000	0	0
17277	Arterials - Widening	024 Ave: 164 St - 172 St	Short Term (1 - 5 Yrs)	12,000,000	10,000,000	0	0	2,000,000	0	0
18125	Arterials - Widening	132 St: 072 Ave - 076 Ave	Short Term (1 - 5 Yrs)	6,471,000	5,177,000	0	0	1,294,000	0	0
18126	Arterials - Widening	132 St: 076 Ave - 080 Ave	Short Term (1 - 5 Yrs)	11,500,000	9,882,000	0	0	1,618,000	0	0
18476	Arterials - Widening	016 Ave: 170 St - 176 St	Long Term (6 - 10 Yrs)	13,320,000	7,160,000	0	0	0	0	6,160,000
18486	Arterials - Widening	132 St: 084 Ave - 088 Ave	Long Term (6 - 10 Yrs)	12,471,000	11,177,000	0	0	1,294,000	0	0
18501	Arterials - Widening	132 St: 080 Ave - 084 Ave	Short Term (1 - 5 Yrs)	9,900,000	8,606,000	0	0	1,294,000	0	0
18521	Arterials - Widening	076 Ave: 128 St - 132 St	Short Term (1 - 5 Yrs)	12,567,000	12,567,000	0	0	0	0	0
18527	Arterials - Widening	140 St: 072 Ave - 076 Ave	Long Term (6 - 10 Yrs)	7,835,000	7,835,000	0	0	0	0	0
18529	Arterials - Widening	148 St: 104 Ave - 108A Ave	Long Term (6 - 10 Yrs)	9,817,000	7,054,000	0	0	2,763,000	0	0
18874	Arterials - Widening	032 Ave: 164 St - 168 St	Long Term (6 - 10 Yrs)	7,838,000	3,919,000	0	0	0	0	3,919,000
20621	Arterials - Widening (Feasibility)	168 St: 76 Ave - Fraser Hwy	Short Term (1 - 5 Yrs)	1,600,000	1,500,000	0	0	100,000	0	0
20883	Arterials - Widening	032 Ave: 176 St - 184 St	Short Term (1 - 5 Yrs)	6,468,000	6,468,000	0	0	0	0	0
20901	Arterials - New Construction	072 Ave: 152 St - 176 St (pre-loading)	Short Term (1 - 5 Yrs)	16,000,000	5,000,000	0	0	8,280,000	0	2,720,000
20943	Arterials - New Construction	072 Ave: 152 St - 176 St	Short Term (1 - 5 Yrs)	120,600,000	40,150,000	0	0	60,827,000	0	19,623,000

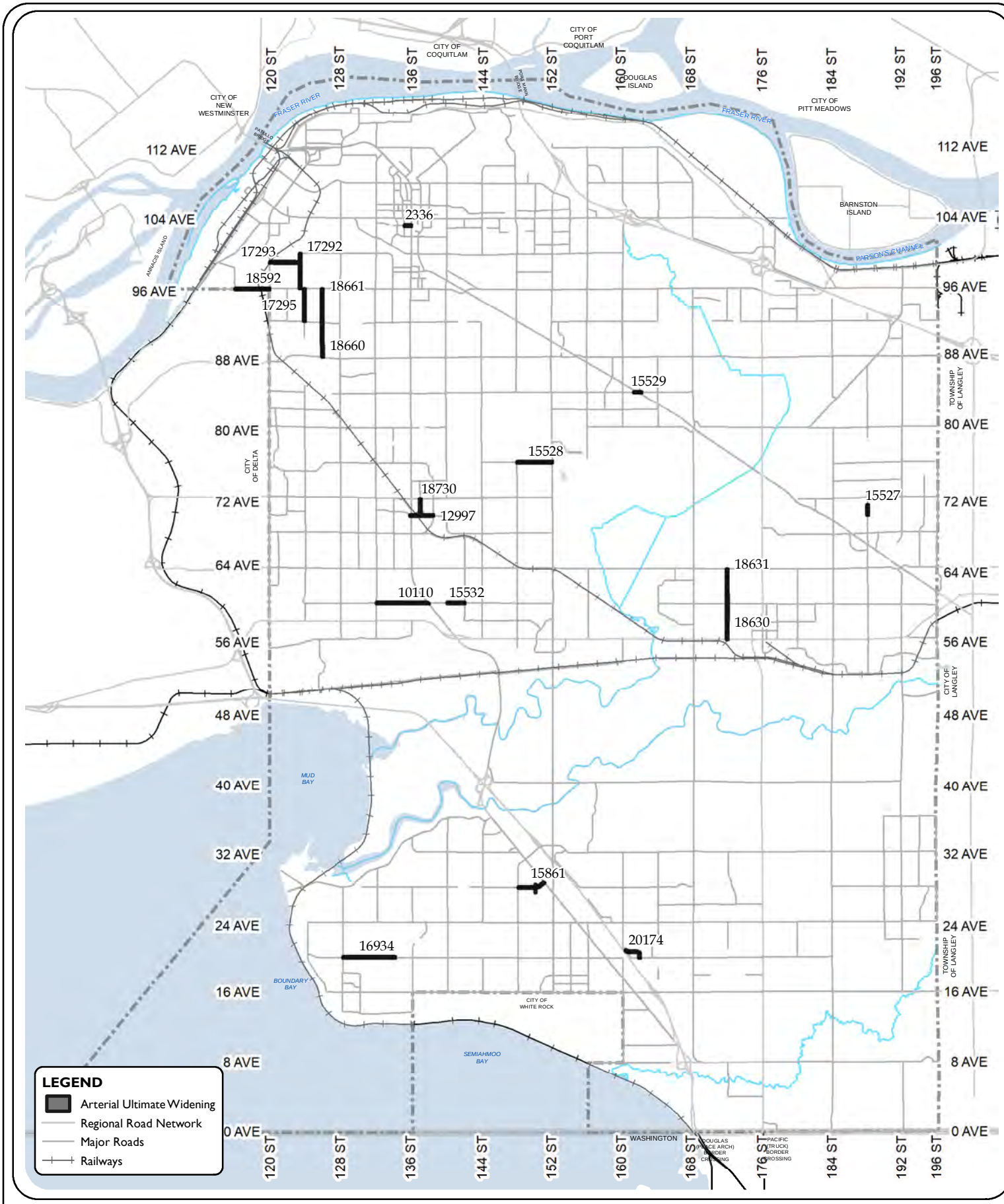

FIGURE 2.3 - Transportation
Collector Improvements (Program 1004)

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Program 1004 - T - Collector Improvements

Program Totals	**49,548,000**	**-**	**36,764,000**	**3,980,000**	**6,251,000**	**-**	**2,549,000**

				Funding Source						
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Arterials**	**Growth Collectors**	**Growth Area Specific**	**Non Growth**	**External**	**Translink**
2336	Collectors - Widening	Central Ave (103 Ave): City Pkwy - KGB	Long Term (6 - 10 Yrs)	1,263,000	0	1,263,000	0	0	0	0
10110	Collectors - Widening	060 Ave: 136 St - KGB	Long Term (6 - 10 Yrs)	1,261,000	0	1,009,000	0	252,000	0	0
12997	Collectors - New Construction	070 Ave: KGB - 138 St	Short Term (1 - 5 Yrs)	3,905,000	0	2,809,000	0	0	0	1,096,000
15527	Collectors - Widening	188 St: 070 Ave - 071 Ave (W.Side)	Long Term (6 - 10 Yrs)	630,000	0	504,000	0	126,000	0	0
15528	Collectors - Widening	076 Ave: 148 St - 152 St	Long Term (6 - 10 Yrs)	3,556,000	0	2,844,000	0	711,000	0	0
15529	Collectors - New Construction	084 Ave : Fraser Hwy - 162 St	Long Term (6 - 10 Yrs)	1,142,000	0	1,142,000	0	0	0	0
15532	Collectors - Widening	060 Ave: 140 St - 142 St (S. Side)	Long Term (6 - 10 Yrs)	630,000	0	504,000	0	126,000	0	0
15861	Collectors - Widening	028 Ave: 148 St - 150 St	Long Term (6 - 10 Yrs)	1,636,000	0	818,000	0	818,000	0	0
16934	Collectors - Widening	020 Ave: 128 St - 134 St	Long Term (6 - 10 Yrs)	3,783,000	0	3,026,000	0	757,000	0	0
17292	Collectors - Widening	123A St: 096 Ave - 100 Ave	Long Term (6 - 10 Yrs)	2,522,000	0	2,018,000	0	504,000	0	0
17293	Collectors - Widening	099 Ave: 120 St - 123A St	Long Term (6 - 10 Yrs)	2,207,000	0	1,765,000	0	441,000	0	0
17295	Collectors - Widening	124 St: 092 Ave - 096 Ave	Long Term (6 - 10 Yrs)	2,522,000	0	2,018,000	0	504,000	0	0
18592	Collectors - Widening	096 Ave: 116 St - 120 St	Short Term (1 - 5 Yrs)	4,053,000	0	2,100,000	0	500,000	0	1,453,000
18630	Collectors - Widening	172 St: 056 Ave - 060 Ave (E.Side)	Long Term (6 - 10 Yrs)	2,522,000	0	2,269,000	0	252,000	0	0
18631	Collectors - Widening	172 St: 060 Ave - 064 Ave (E.Side)	Long Term (6 - 10 Yrs)	2,522,000	0	2,269,000	0	252,000	0	0
18660	Collectors - Widening	126 St: 088 Ave - 092 Ave	Long Term (6 - 10 Yrs)	2,522,000	0	2,018,000	0	504,000	0	0
18661	Collectors - Widening	126 St: 092 Ave - 096 Ave	Long Term (6 - 10 Yrs)	2,522,000	0	2,018,000	0	504,000	0	0
18730	Collectors - New Construction	137 St: 070 Ave - 072 Ave	Short Term (1 - 5 Yrs)	2,628,000	0	2,628,000	0	0	0	0
20174	Collectors - Widening	Croydon Dr: 020 Ave - 2200 Blk	Short Term (1 - 5 Yrs)	3,742,000	0	3,742,000	0	0	0	0
20929	Collectors - Road Upsizing	190 St: 028 Ave - 032 Ave	Long Term (6 - 10 Yrs)	1,560,000	0	0	1,560,000	0	0	0
20930	Collectors - Road Upsizing	028 Ave: 192 St - 196 St	Long Term (6 - 10 Yrs)	800,000	0	0	800,000	0	0	0
20931	Collectors - Widening	028 Ave: 192 St - 194A St	Long Term (6 - 10 Yrs)	520,000	0	0	520,000	0	0	0
20932	Collectors: Road Upsizing	194 St: 022 Ave - 24 Ave	Long Term (6 - 10 Yrs)	800,000	0	0	800,000	0	0	0
20933	Collectors: Road Upsizing	194 St: 032 Ave - 036 Ave	Long Term (6 - 10 Yrs)	300,000	0	0	300,000	0	0	0

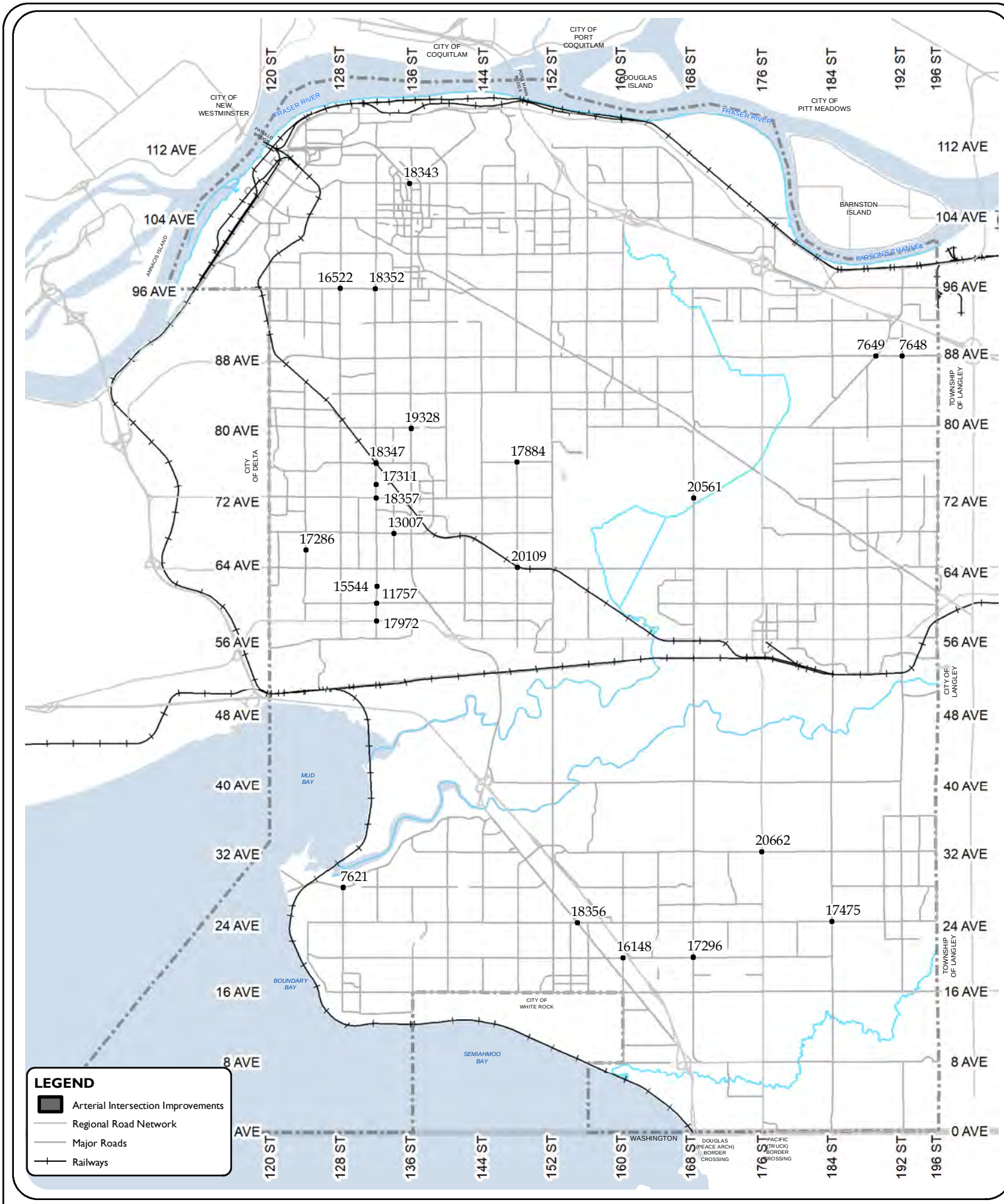

FIGURE 2.4 - Transportation
Intersection Improvements (Program 1012)

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Program 1012 - T - Intersection Improvements

Program Totals	113,308,000	80,358,000	12,436,000	-	18,120,000	1,564,000	831,000

				Funding Source						
Project ID	Project Name	Project Location	Priority	Total	Growth Arterials	Growth Collectors	Growth Area Specific	Non Growth	External	Translink
7621	Intersections - Roundabout	Crescent Rd & 128 St	Short Term (1 - 5 Yrs)	2,640,000	1,765,000	0	0	875,000	0	0
7648	Signals - Traffic. New	088 Ave & 192 St	Short Term (1 - 5 Yrs)	381,000	381,000	0	0	0	0	0
7649	Intersections - Roundabout	088 Ave & Harvie Rd	Short Term (1 - 5 Yrs)	1,910,000	1,590,000	0	0	320,000	0	0
11757	Intersections - Roundabout	060 Ave & 132 St	Short Term (1 - 5 Yrs)	1,740,000	1,166,000	0	0	574,000	0	0
13007	Intersections - Roundabout	068 Ave & 134 St	Short Term (1 - 5 Yrs)	1,000,000	0	0	0	1,000,000	0	0
15544	Signals - Traffic. New	062 Ave & 132 St	Short Term (1 - 5 Yrs)	813,000	755,000	0	0	0	58,000	0
16148	Signals - Traffic. New	020 Ave & 160 St	Short Term (1 - 5 Yrs)	843,000	843,000	0	0	0	0	0
16522	Signals - Traffic. Rebuild. MRN	096 Ave & 128 St	Short Term (1 - 5 Yrs)	1,580,000	609,000	0	0	8,000	132,000	831,000
17286	Intersections - Roundabout	066 Ave & 124 St	Short Term (1 - 5 Yrs)	1,800,000	0	0	0	1,800,000	0	0
17296	Signals - Traffic. New	020 Ave & 168 St	Short Term (1 - 5 Yrs)	876,000	876,000	0	0	0	0	0
17311	Signals - Traffic. New	Comber Way & 132 St	Short Term (1 - 5 Yrs)	381,000	381,000	0	0	0	0	0
17475	Signals - Traffic. New	024 Ave & 184 St	Short Term (1 - 5 Yrs)	1,432,000	1,303,000	0	0	0	130,000	0
17884	Intersections - Roundabout	076 Ave & 148 St	Short Term (1 - 5 Yrs)	1,800,000	0	1,800,000	0	0	0	0
17972	Intersections - Improvements. Arterials	058 Ave & 132 St	Short Term (1 - 5 Yrs)	1,500,000	1,500,000	0	0	0	0	0
18343	Intersections - Improvements. Arterials	108 Ave & KGB	Short Term (1 - 5 Yrs)	1,991,000	398,000	0	0	398,000	1,194,000	0
18347	Intersections - Improvements. Arterials	076 Ave & 132 St	Short Term (1 - 5 Yrs)	500,000	400,000	0	0	100,000	0	0
18352	Intersections - Improvements. Arterials	096 Ave & 132 St	Short Term (1 - 5 Yrs)	1,500,000	450,000	0	0	1,000,000	50,000	0
18356	Intersections - Improvements. Arterials	024 Ave & KGB	Short Term (1 - 5 Yrs)	1,400,000	1,200,000	0	0	200,000	0	0
18357	Intersections - Improvements. Arterials	072 Ave & 132 St	Short Term (1 - 5 Yrs)	500,000	400,000	0	0	100,000	0	0
19328	Signals - Traffic. Rebuild. MRN	080 Ave & KGB	Short Term (1 - 5 Yrs)	538,000	488,000	0	0	50,000	0	0
19705	10YP Intersections - Improvements. Arterials	Various. ST	Short Term (1 - 5 Yrs)	8,580,000	4,290,000	0	0	4,290,000	0	0
19706	10YP Intersections - Improvements. Arterials	Various. LT	Long Term (6 - 10 Yrs)	10,580,000	8,290,000	0	0	2,290,000	0	0
19707	10YP Intersections - Improvements. Collectors	Various. ST	Short Term (1 - 5 Yrs)	2,636,000	0	1,318,000	0	1,318,000	0	0
19708	10YP Intersections - Improvements. Collectors	Various. LT	Long Term (6 - 10 Yrs)	5,114,000	0	1,318,000	0	3,797,000	0	0
19709	10YP Intersections - Left Turn Bays	Various. ST	Short Term (1 - 5 Yrs)	5,850,000	5,850,000	0	0	0	0	0
19710	10YP Intersections - Left Turn Bays	Various. LT	Long Term (6 - 10 Yrs)	15,700,000	15,700,000	0	0	0	0	0
19711	10YP Intersections - Roundabout	Various. ST	Short Term (1 - 5 Yrs)	4,000,000	0	4,000,000	0	0	0	0
19712	10YP Intersections - Roundabout	Various. LT	Long Term (6 - 10 Yrs)	4,000,000	0	4,000,000	0	0	0	0
19758	10YP Signals - Pedestrians. New	Various. ST	Short Term (1 - 5 Yrs)	3,500,000	3,500,000	0	0	0	0	0
19759	10YP Signals - Pedestrians. New	Various. LT	Long Term (6 - 10 Yrs)	11,018,000	11,018,000	0	0	0	0	0
19760	10YP Signals - Traffic. New	Various. ST	Short Term (1 - 5 Yrs)	5,500,000	5,500,000	0	0	0	0	0
19761	10YP Signals - Traffic. New	Various. LT	Long Term (6 - 10 Yrs)	11,000,000	11,000,000	0	0	0	0	0
20109	Intersections - Improvements. Arterials	064 Ave & 148 St (North Leg)	Short Term (1 - 5 Yrs)	355,000	355,000	0	0	0	0	0
20662	Intersections - Improvements. Arterials	032 Ave & 176 St	Short Term (1 - 5 Yrs)	350,000	350,000	0	0	0	0	0

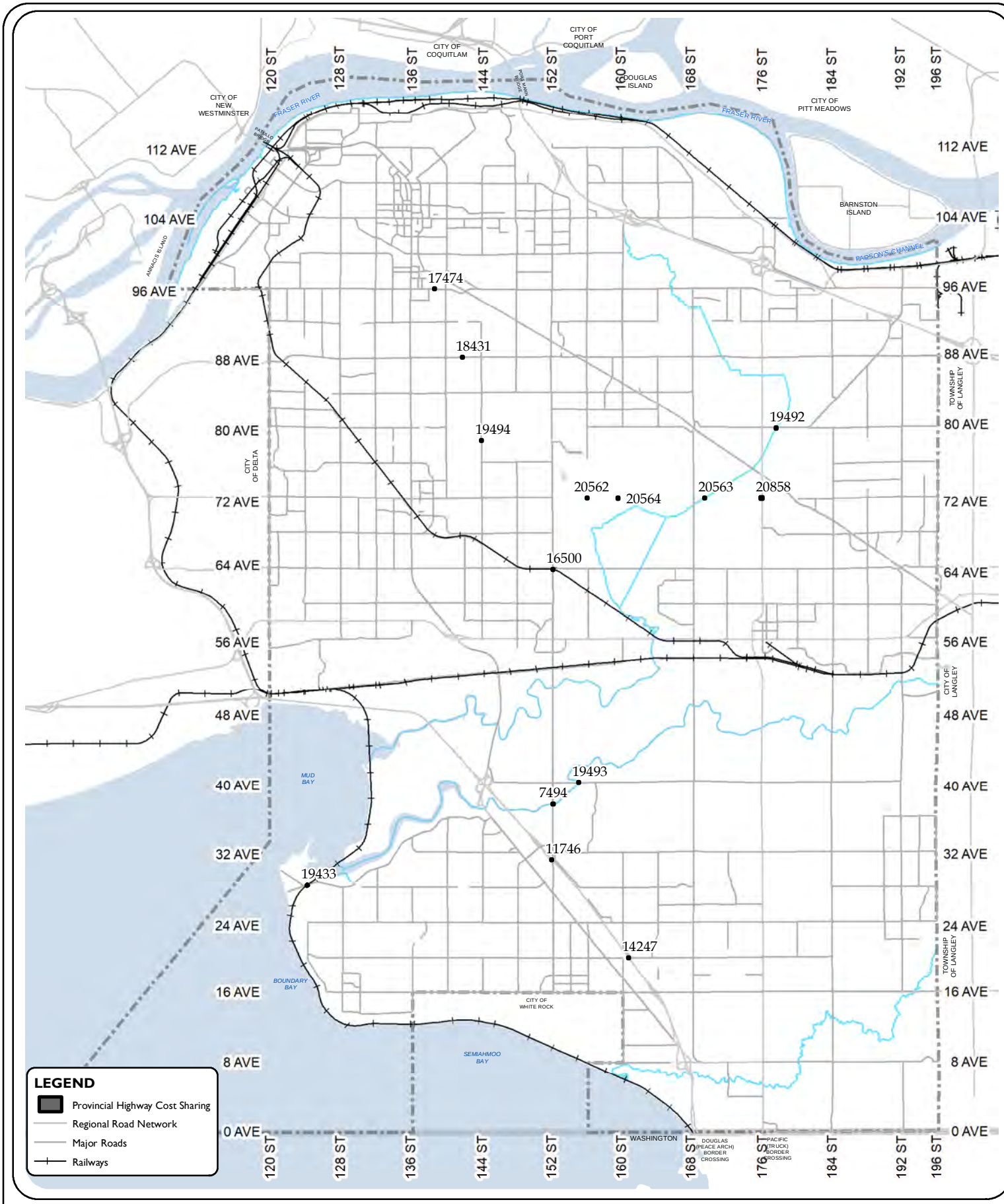

FIGURE 2.5 - Transportation
Major Road Infrastructure (Program 1020)

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ROADS

Program 1020 - T - Major Road Infrastructure

Program Totals	**84,677,000**	**44,059,000**	**-**	**-**	**19,521,000**	**7,210,000**	**13,888,000**

				Funding Source						
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Arterials**	**Growth Collectors**	**Growth Area Specific**	**Non Growth**	**External**	**Translink**
7494	DMAF Crossings - Bridge. New	152 St & Nicomekl River	Short Term (1 - 5 Yrs)	15,087,000	8,153,000	0	0	0	4,934,000	2,000,000
11746	Crossings - Overpass. New	152 St Overpass of Highway 99	Long Term (6 - 10 Yrs)	24,676,000	14,938,000	0	0	0	0	9,738,000
14247	Crossings - Bridge. New	020 Ave & Hwy 99 - Overpass Citywide	Short Term (1 - 5 Yrs)	12,000,000	12,000,000	0	0	0	0	0
16500	Railway - Improvements	064 Ave & 152 St (Mile 10.2)(SRY)	Short Term (1 - 5 Yrs)	1,147,000	628,000	0	0	0	520,000	0
17474	Crossings - Bridge. Replacement. MRN	096 Ave & Quibble Creek	Short Term (1 - 5 Yrs)	4,517,000	0	0	0	2,361,000	6,000	2,150,000
18431	Crossings - Bridge. Replacement	140 St & Bear Creek	Short Term (1 - 5 Yrs)	5,600,000	0	0	0	5,600,000	0	0
19492	Crossings - Bridge. Replacement	080 Ave & Serpentine River	Short Term (1 - 5 Yrs)	4,075,000	0	0	0	3,200,000	875,000	0
19493	Crossings - Bridge. Replacement	040 Ave & Nicomekl River	Short Term (1 - 5 Yrs)	4,075,000	0	0	0	3,200,000	875,000	0
19494	Crossings - Bridge. Replacement	144 St & Bear Creek	Short Term (1 - 5 Yrs)	4,000,000	0	0	0	4,000,000	0	0
19717	10YP Railway - Improvements	Various. ST	Short Term (1 - 5 Yrs)	900,000	540,000	0	0	360,000	0	0
19718	10YP Railway - Improvements	Various. LT	Long Term (6 - 10 Yrs)	8,600,000	7,800,000	0	0	800,000	0	0

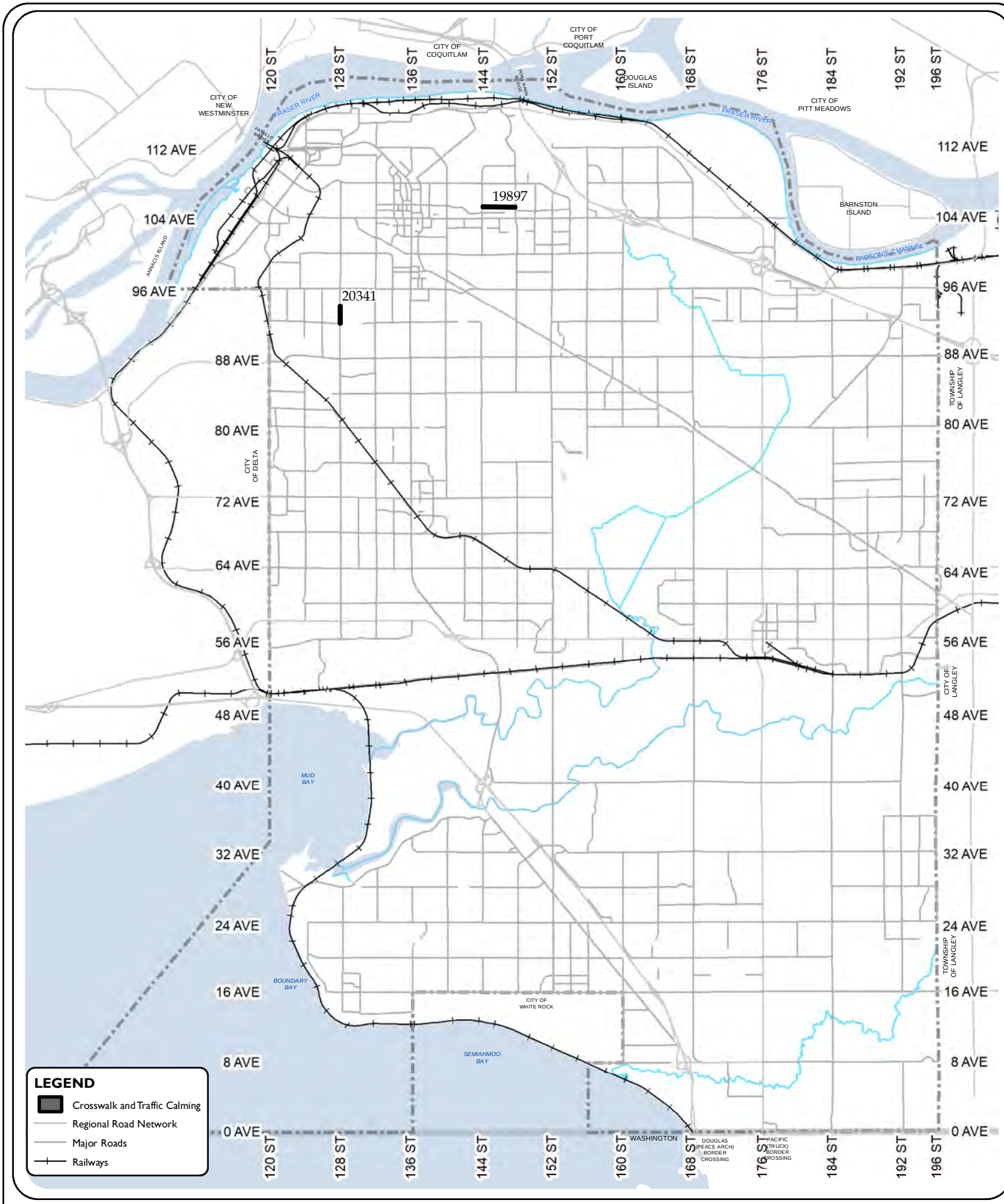

FIGURE 2.6 - Transportation
Crosswalks & Traffic Calming (Program 1108)

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ROADS

Program 1108 - T - Crosswalks & Traffic Calming

Program Totals	16,640,000	-	5,300,000	-	11,220,000	-	120,000

				Funding Source						
Project ID	Project Name	Project Location	Priority	Total	Growth Arterials	Growth Collectors	Growth Area Specific	Non Growth	External	Translink
19768	10YP Traffic Calming - Speed Reader Boards	Various. ST	Short Term (1 - 5 Yrs)	600,000	0	0	0	600,000	0	0
19769	10YP Traffic Calming - Speed Reader Boards	Various. LT	Long Term (6 - 10 Yrs)	600,000	0	0	0	600,000	0	0
19770	10YP Traffic Calming - Circles & Bulges	Various. ST	Short Term (1 - 5 Yrs)	1,800,000	0	450,000	0	1,350,000	0	0
19771	10YP Traffic Calming - Circles & Bulges	Various. LT	Long Term (6 - 10 Yrs)	450,000	0	450,000	0	0	0	0
19772	10YP Traffic Calming - Speedhumps	Various. ST	Short Term (1 - 5 Yrs)	750,000	0	0	0	750,000	0	0
19773	10YP Traffic Calming - Speedhumps	Various. LT	Long Term (6 - 10 Yrs)	750,000	0	0	0	750,000	0	0
19774	10YP Crosswalks - RRFB	Various. ST	Short Term (1 - 5 Yrs)	3,500,000	0	1,400,000	0	2,100,000	0	0
19775	10YP Crosswalks - RRFB	Various. LT	Long Term (6 - 10 Yrs)	3,500,000	0	1,400,000	0	2,100,000	0	0
19776	10YP Crosswalks - Activated Flashing	Various. ST	Short Term (1 - 5 Yrs)	2,000,000	0	800,000	0	1,200,000	0	0
19777	10YP Crosswalks - Activated Flashing	Various. LT	Long Term (6 - 10 Yrs)	2,000,000	0	800,000	0	1,200,000	0	0
19897	Curb Bulges & Crosswalk	105A Ave: 144 St - 148 St	Short Term (1 - 5 Yrs)	400,000	0	0	0	400,000	0	0
20341	STAAR - Traffic Calming	128 St: 9400 Blk - 092 Ave	Short Term (1 - 5 Yrs)	120,000	0	0	0	0	0	120,000
20890	2025 Minor Civil Works	Multiple	Short Term (1 - 5 Yrs)	170,000	0	0	0	170,000	0	0

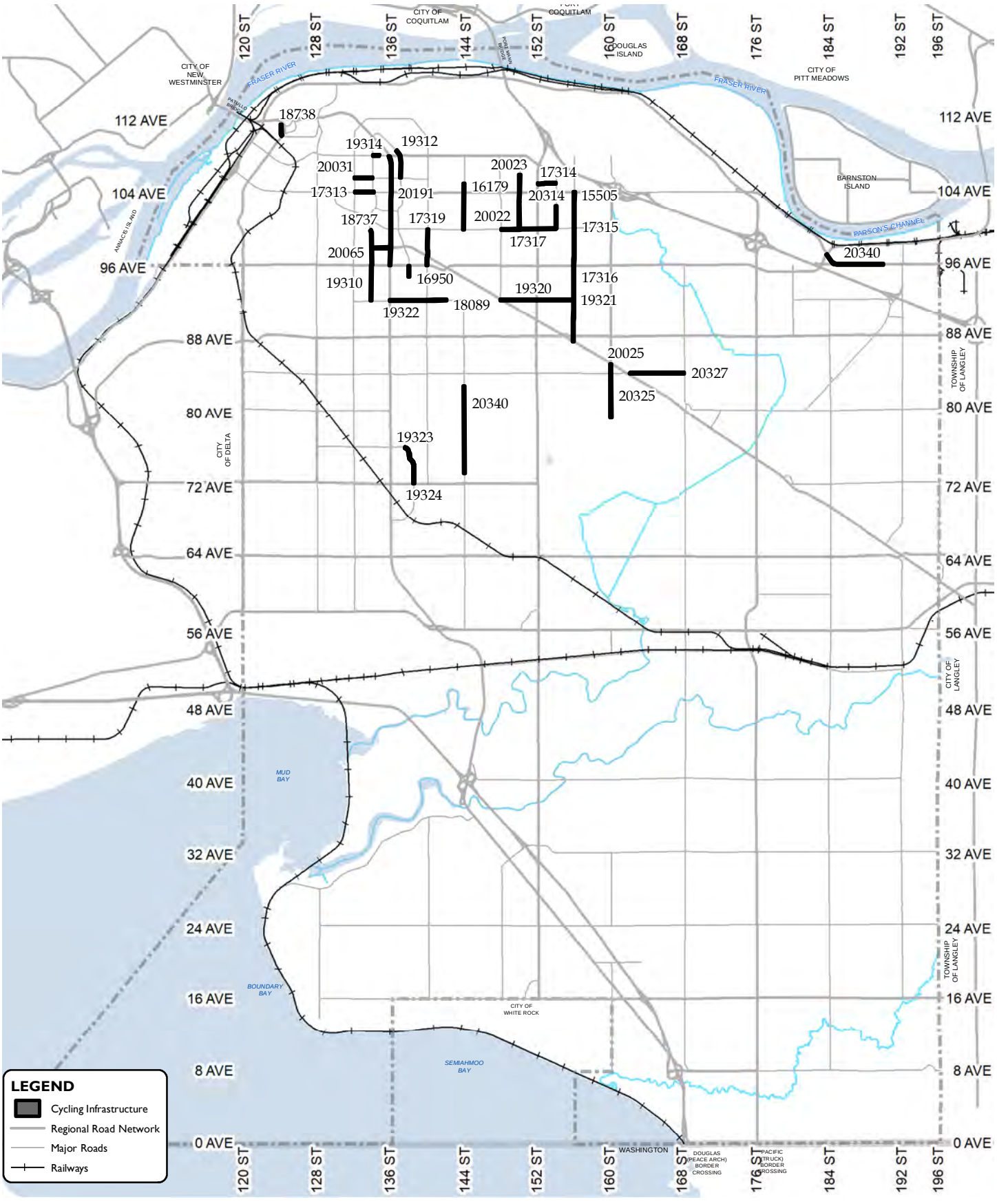

FIGURE 2.7 - Transportation
Active Transportation (Program 1120)

0 0.5 1 2 3 KM

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ROADS

Program 1120 - T - Active Transportation

Program Totals	79,619,000	23,740,000	4,385,000	-	7,814,000	6,377,000	37,300,000

				Funding Source						
Project ID	Project Name	Project Location	Priority	Total	Growth Arterials	Growth Collectors	Growth Area Specific	Non Growth	External	Translink
16179	Cycling - MUP	144 St: 100 Ave - 104 Ave	Short Term (1 - 5 Yrs)	3,007,000	1,304,000	0	0	0	0	1,704,000
17313	Cycling - Cycle Tracks	104 Ave: 132 St - University Dr	Long Term (6 - 10 Yrs)	1,043,000	521,000	0	0	0	0	521,000
17317	Cycling - Cycle Tracks	100 Ave: 148 St - 154 St	Short Term (1 - 5 Yrs)	3,128,000	1,564,000	0	0	0	0	1,564,000
17319	Cycling - Cycle Tracks	140 St: Green Timbers Way - 100 Ave	Short Term (1 - 5 Yrs)	1,442,000	0	0	0	0	500,000	942,000
18737	Cycling - MUP	134 St: 096 Ave to 100 Ave	Long Term (6 - 10 Yrs)	845,000	0	0	0	0	422,000	422,000
18738	Cycling - MUP	124 St: 110 Ave to 111A Ave	Short Term (1 - 5 Yrs)	676,000	0	0	0	338,000	0	338,000
19310	Cycling - MUP	134 St: 092 Ave - 096 Ave	Long Term (6 - 10 Yrs)	845,000	0	0	0	0	422,000	422,000
19312	Cycling - Cycle Tracks	Whalley Blvd: 105A Ave - Grosvenor Rd	Short Term (1 - 5 Yrs)	633,000	0	0	0	0	316,000	317,000
19778	Cycling - 10YP ST	Various. ST	Short Term (1 - 5 Yrs)	2,800,000	0	0	0	0	1,400,000	1,400,000
19779	Cycling - 10YP LT	Various. LT	Long Term (6 - 10 Yrs)	2,800,000	0	0	0	0	1,400,000	1,400,000
19780	10YP Transit - Priority	Various. ST	Short Term (1 - 5 Yrs)	9,500,000	2,375,000	0	0	0	0	7,125,000
19781	10YP Transit - Priority	Various. LT	Long Term (6 - 10 Yrs)	11,875,000	4,750,000	0	0	0	0	7,125,000
19782	10YP Transit - TRRIP	Various. ST	Short Term (1 - 5 Yrs)	1,800,000	0	0	0	900,000	0	900,000
19783	10YP Transit - TRRIP	Various. LT	Long Term (6 - 10 Yrs)	1,800,000	0	0	0	900,000	0	900,000
19784	10YP Arterials - Sidewalks	Various. ST	Short Term (1 - 5 Yrs)	3,210,000	3,210,000	0	0	0	0	0
19785	10YP Arterials - Sidewalks	Various. LT	Long Term (6 - 10 Yrs)	8,400,000	8,400,000	0	0	0	0	0
19786	10YP Collectors - Sidewalks	Various. ST	Short Term (1 - 5 Yrs)	3,650,000	0	1,500,000	0	0	0	2,150,000
19787	10YP Collectors - Sidewalks	Various. LT	Long Term (6 - 10 Yrs)	3,650,000	0	1,500,000	0	0	0	2,150,000
19788	10YP Locals - Sidewalks	Various. ST	Short Term (1 - 5 Yrs)	9,000,000	0	0	0	5,400,000	0	3,600,000
19789	10YP Locals - Sidewalks	Various. LT	Long Term (6 - 10 Yrs)	3,600,000	0	0	0	0	0	3,600,000
20022	Cycling - MUP	150 St: 100 Ave - 102A Ave	Short Term (1 - 5 Yrs)	900,000	450,000	0	0	0	0	450,000
20025	Cycling - Cycle Tracks	160 St: 084 Ave - Fraser Hwy	Long Term (6 - 10 Yrs)	200,000	0	0	0	100,000	0	100,000
20031	Cycling - MUP	105A Ave: 132 St - University Dr	Long Term (6 - 10 Yrs)	340,000	0	0	0	0	170,000	170,000
20065	Cycling - MUP	098 Ave: 134 St - KGB	Long Term (6 - 10 Yrs)	1,000,000	0	0	0	0	1,000,000	0
20191	Sidewalks - Arterials. Safe Mobility	KGB: 104A Ave - 108 Ave	Short Term (1 - 5 Yrs)	1,250,000	326,000	0	0	176,000	747,000	0
20314	Cycling - Cycle Tracks	154 St: 100 Ave - 102A Ave	Long Term (6 - 10 Yrs)	425,000	0	425,000	0	0	0	0
20327	Cycling - Cycle Tracks	084 Ave: 162 St - 168 St	Long Term (6 - 10 Yrs)	960,000	0	960,000	0	0	0	0
20340	Sidewalks - STAAR. Walking Infrastructure	Multiple	Short Term (1 - 5 Yrs)	840,000	840,000	0	0	0	0	0

3. WATER

The water utility strives to provide reliable, safe and clean drinking water to the residents of the City through the efficient management of the City's water system. To achieve this, the City:

- Replaces assets that are comprised of non-approved materials such as asbestos cement and cast iron etc.;
- Replaces assets that have high operation and maintenance costs;
- Upsizes or install new distribution mains, feeder mains and other essential assets, including pump stations and pressure reducing valves, to meet the increased demand in the system; and
- Improves overall water system management, including water quality monitoring, water conservation, water loss (leakage) reduction, and water metering.

3.1 Water Supply

The City receives its water supply from a system of transmission mains and reservoir structures operated by the Greater Vancouver Water District ("GVWD"). Currently, the GVWD system supplies water at the following six reservoirs:

- Whalley
- Newton
- Clayton
- Sunnyside
- Kennedy
- Grandview Heights

In addition, there are a number of direct connections to GVWD's transmission mains from which the City also receives its water supply. The overall regional water system in Surrey is shown in **Figure 3.1.**

The GVWD has a responsibility under the GVWD Water Act to provide the required water demand at the supply points. GVWD is also obligated to upgrade its facilities to meet increased demand due to growth within the City, except for certain facilities where there is an existing agreement between the City and the GVWD that stipulates the timing of the works and cost-sharing mechanism between the City and GVWD.

The GVWD has identified and completed a number of projects that would directly improve water supply to the City. Below is the list of GVWD's projects in the City and their status as of end of 2024:

- Annacis water main tunnel: construction has started in 2022, with anticipated completion in 2027/2028;
- Kennedy-Newton feeder main:
    - Phase 2 (between 72 Ave and Newton PS): construction is mostly complete.
    - Phase 3 (between 84 Ave and Kennedy PS): construction has started, with anticipated completion in 2025;
- New Fleetwood reservoir: construction started, anticipated completion in 2025.

3.2 Water Distribution System

The City distributes the water to its customers from GVWD reservoirs and direct connections. Under the agreement between the City and the GVWD, the GVWD has no obligation to provide a set of minimum residual pressure at their supply points. As a result, the City operates a system of pump stations to provide adequate pressure under peak demand conditions and for firefighting purposes. The existing water distribution system throughout the City is illustrated in **Figure 3.1**. The characteristics of the City's distribution system is summarized in **Table 3.1**.

Table 3.1 – Major Water System Infrastructure Summary

Water Mains (approved materials)	1,754 km (typically constructed after 1970)
Water Mains (non-approved materials)	113 km (typically constructed before 1970)
Pressure Reducing Valve (PRV) Stations	93
Pump Stations	9

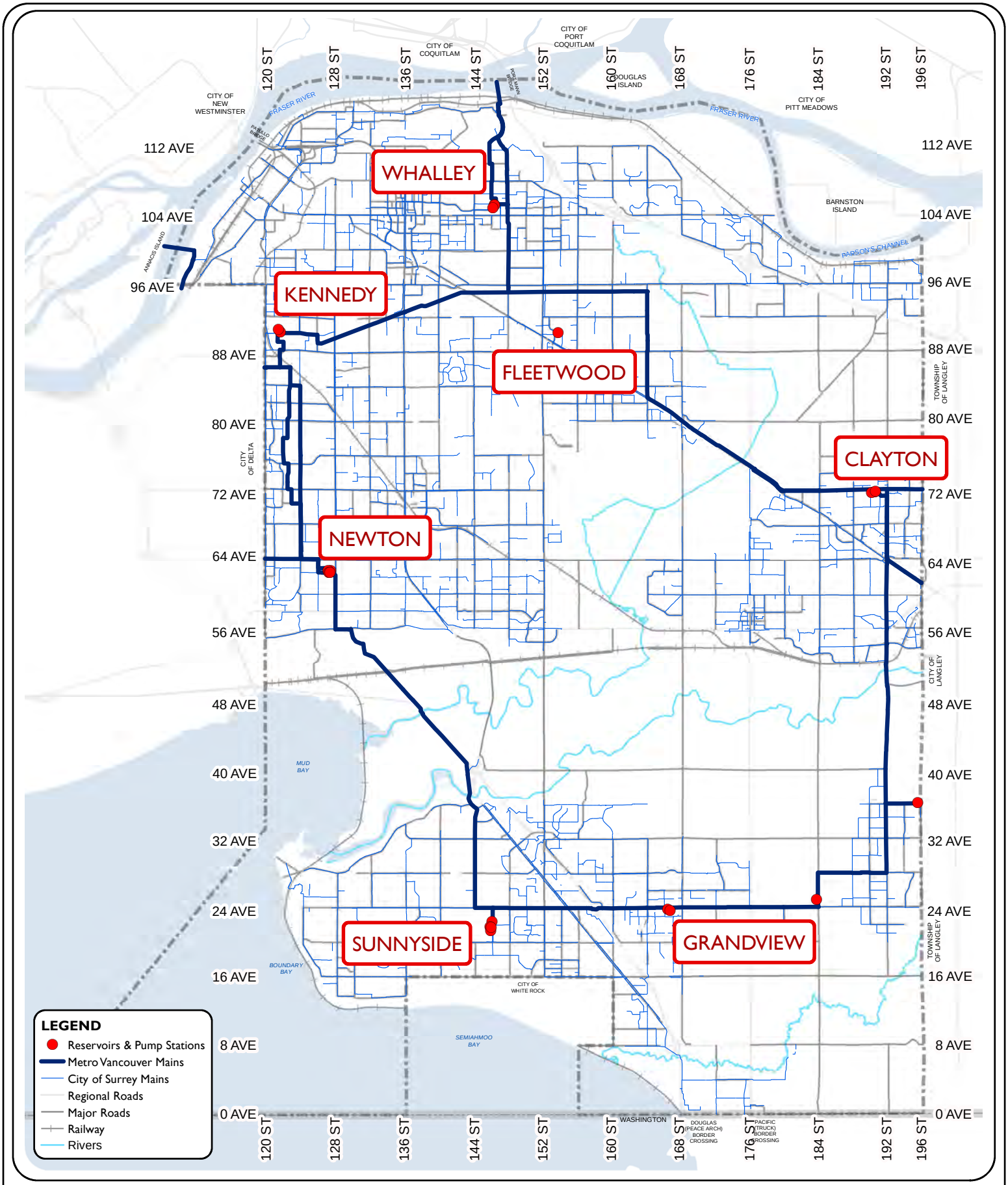

FIGURE 3.1 - MAJOR WATER NETWORK

0 0.5 1 2 3 KM

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3.3 Water System Replacement Strategy

As part of the City's Sustainable Service Delivery (SSD) initiative, the City proactively manages the replacement and/or upgrade of key water system's assets, which include water mains, Pump Stations (PS), Pressure Reducing Valve (PRV) stations and water meters. The asset replacement is prioritized based on its age, material, size, condition, maintenance records, locations, failure risk, and other relevant criteria.

Water mains constructed in the 1950s and 1960s were mainly cast iron and asbestos cement. These materials are no longer used and are considered as non-approved materials. The service life of these materials is generally between 50 to 65 years and, as a result, most of these pipes are at the end of their service life and are due for replacement. The City aims to replace these pipe materials in the next 20 years.

The service life of water mains constructed of currently approved materials, such as plastic and ductile iron pipes, is estimated to be 75 years. Currently, it is assumed that plastic and ductile iron pipes will be replaced when they reach 75 years old. This assumption will be reviewed periodically to consider more up-to-date information.

The service life of the mechanical, piping and electrical components in a PS and PRV is assumed at 50 years. Some PS components, like the building structure, may have longer service life, and may not need full asset replacement unless identified otherwise.

Water meters are important assets to support City's financial sustainability. The expected service life of a water meter is typically 20 years. Meter replacement is prioritized mainly based on its age, total water volume and location.

The water system replacement requirements over the next 50 years is summarized in **Table 3.2.**

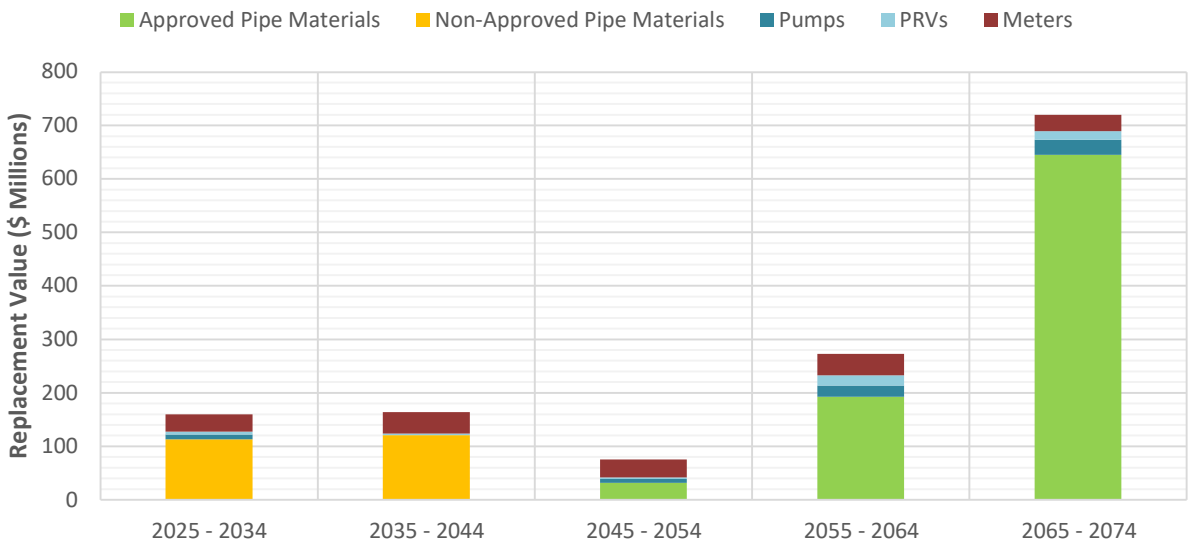
Table 3.2 Water System Replacement Requirements in the Next 50 Years

Asset Type	Total Asset Inventory (2022)	Replacement Forecast (2072)	Estimated Replacement Cost (2072) [1]
Approved Pipe Materials: PVC, PE, HDPE, Ductile Iron	1,754 km (94% of entire pipe system by length)	561 km	$870 million
Non-approved Materials: Cast Iron, Asbestos Cement, Concrete, Copper, Galvanized Iron, Steel	113 km (6% of entire pipe system by length)	113 km	$234 million
Pump Station (PS)	9	8	$65 million
Pressure Reducing Valve (PRV)	93	71	$47 million
Water Meters	73,065	> 73,065	$177 million

[1] *No annual inflation applied to the cost*

The estimated cost to replace key water system assets in the next 10 years is $160 million, and $1.4 billion in the next 50 years. The replacement cost in the next 50 years is illustrated in **Figure 3.2**.

Figure 3.2 – Estimated Water System Replacement Costs over the Next 50 Years



It is too early to establish a strategy for the replacement of pipes beyond 50 years, as changing technologies, developments in asset management and demand management practices may influence the replacement strategy in that period.

3.4 Water Servicing Program

Program 1600 – Water Planning & Studies

The City conducts different Neighbourhood Concept Plan (NCP) studies and servicing plans to identified works required to support increased water demand associated with population growth in the City.

Most of the studies are based on numerical hydraulic models. The model analyzes the anticipated water demand distribution associated with the growth throughout the City and identifies areas with deficiencies and where increased pipe or pump capacity is needed.

This program covers a portion of the engineering services and staff time required to perform these studies, including the maintenance of the water model.

The works identified through these studies are included under the following programs:

- Program 1602 – Distribution Mains
- Program 1610 – Supply Works and Feeder Mains
- Program 1620 – Development Coordinated Works (DCW)Upsizing

Program 1602 - Distribution Mains (<= 300mm)

This program funds the replacement of local distribution water mains with size of 300mm or less. Water main replacement where no upsizing is required is considered non-growth cost, and where larger size is required due to growth in the area, their replacement has a growth cost component.

The City aims to complete pipe replacement works in conjunction with road reconstruction or widening or other utilities related works to minimize road surface restoration and to avoid construction in the same area within a short period of time.

This program also funds the replacement of the water meter asset. Water meters are mainly replaced based on their age, meter type and model. Within this 10-year plan, the City is increasing its commitment to replace the older water meters to ensure accurate meter reading across the city is maintained.

Program 1610 - Supply Works and Feeder Mains

This program includes replacement of major water facilities such as pump stations and pressure reducing valves, as well as large-diameter feeder mains. These facilities serve overall City-wide supply needs and are generally beyond the servicing requirements of individual developers.

The replacement of the pump stations, pressure reducing valves or feeder mains is a non-growth cost component, unless upsizing is required which is a growth cost component. All new feeder mains are funded through growth cost component.

Program 1620 - DCW Upsizing

Neighbourhood Concept Plan (NCP) studies identify the need for new local/distribution mains where there are currently no water mains or the upsizing of the existing main where it does not have adequate capacity to service the new development. In these cases, the minimum (or base) water main size necessary for the fronting properties is funded by the fronting or benefiting properties, and the cost to upsize the water main from the base size to the ultimate size is funded by the DCC program.

An allowance is included in this program to upsize existing water mains not currently identified in the NCPs. The upsizing provision will allow for a cost-effective installation of the appropriate size distribution mains, as development opportunities arise.

3.5 Water Cost Summary

No.	Program	Program Type	Growth ($)	Non-Growth ($)	Total ($)
1600	Water Planning & Studies	Non-Capital	$791,000	$107,000	**$898,000**
1602	Distribution Mains (<=300mm)	Capital	$23,367,000	$88,041,000	**$111,408,000**
1610	Supply Works and Feeder Mains	Capital	$82,942,000	$55,027,000	**$137,969,000**
1620	DCW Upsizing	Capital	$1,340,000	$660,000	**$2,000,000**
		TOTAL	**$108,440,000**	**$143,835,000**	**$252,275,000**

3.6 Water Projects by Program

This section contains tables and figures that identify the projects under the key water programs.

The tables provide the following information:

a) Project ID - the unique identifier of the project
b) Project name - the specific name or generic name that depicts the type of work
c) Project location - the geographic extent of the works
d) Priority - the intended time frame for when the project is planned to proceed (subject to change)
e) Costs – the high-level estimates in 2022 dollars (subject to change at the actual time of construction). The costs are comprised of growth and non-growth components.

Each program table is accompanied by a figure that shows the location and extent of the projects. Projects that are general in nature or in various locations throughout Surrey may not be shown on the figures.

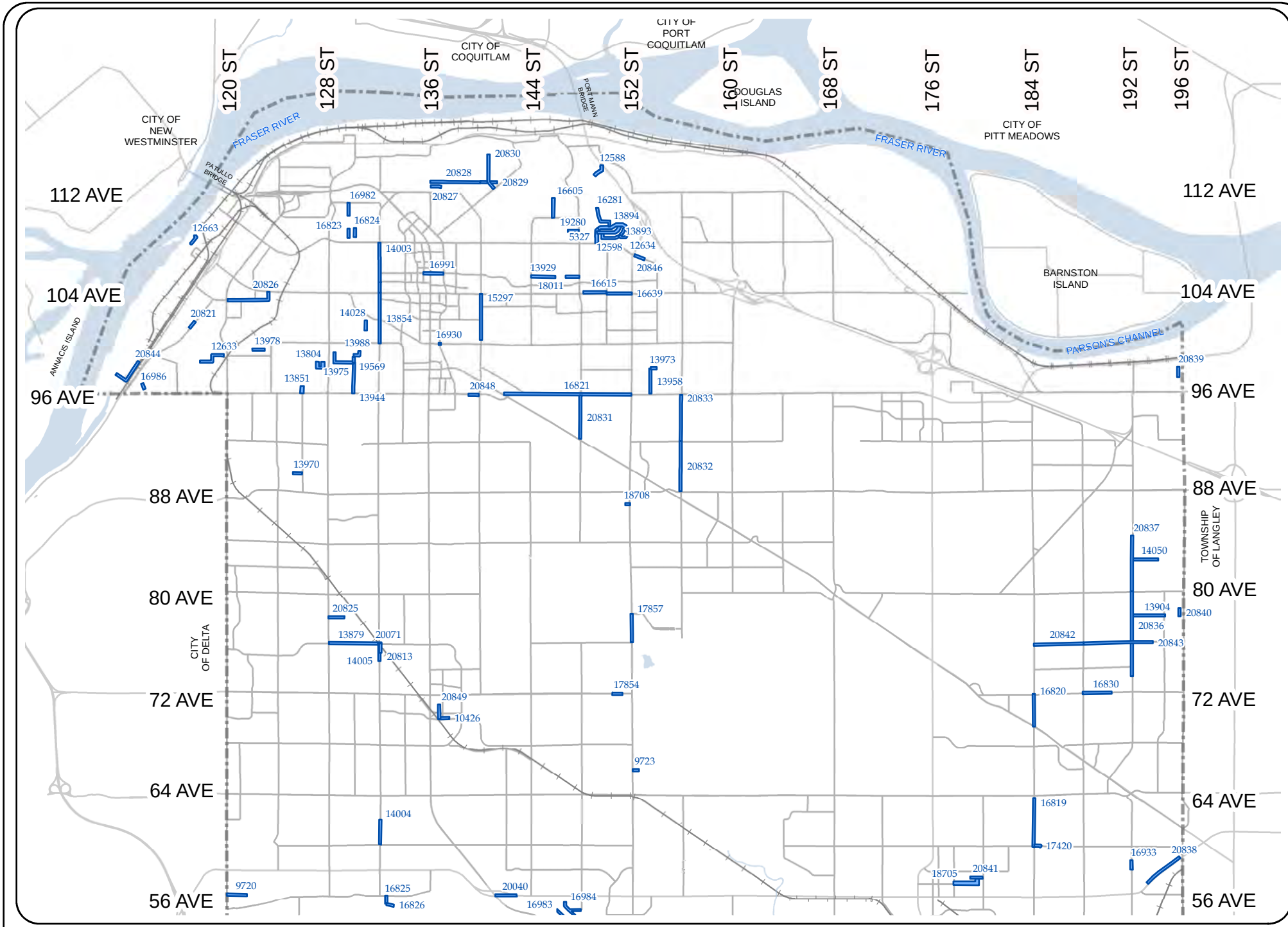


FIGURE 3.2 - Water
Distribution Mains <=300mm (Program 1602)

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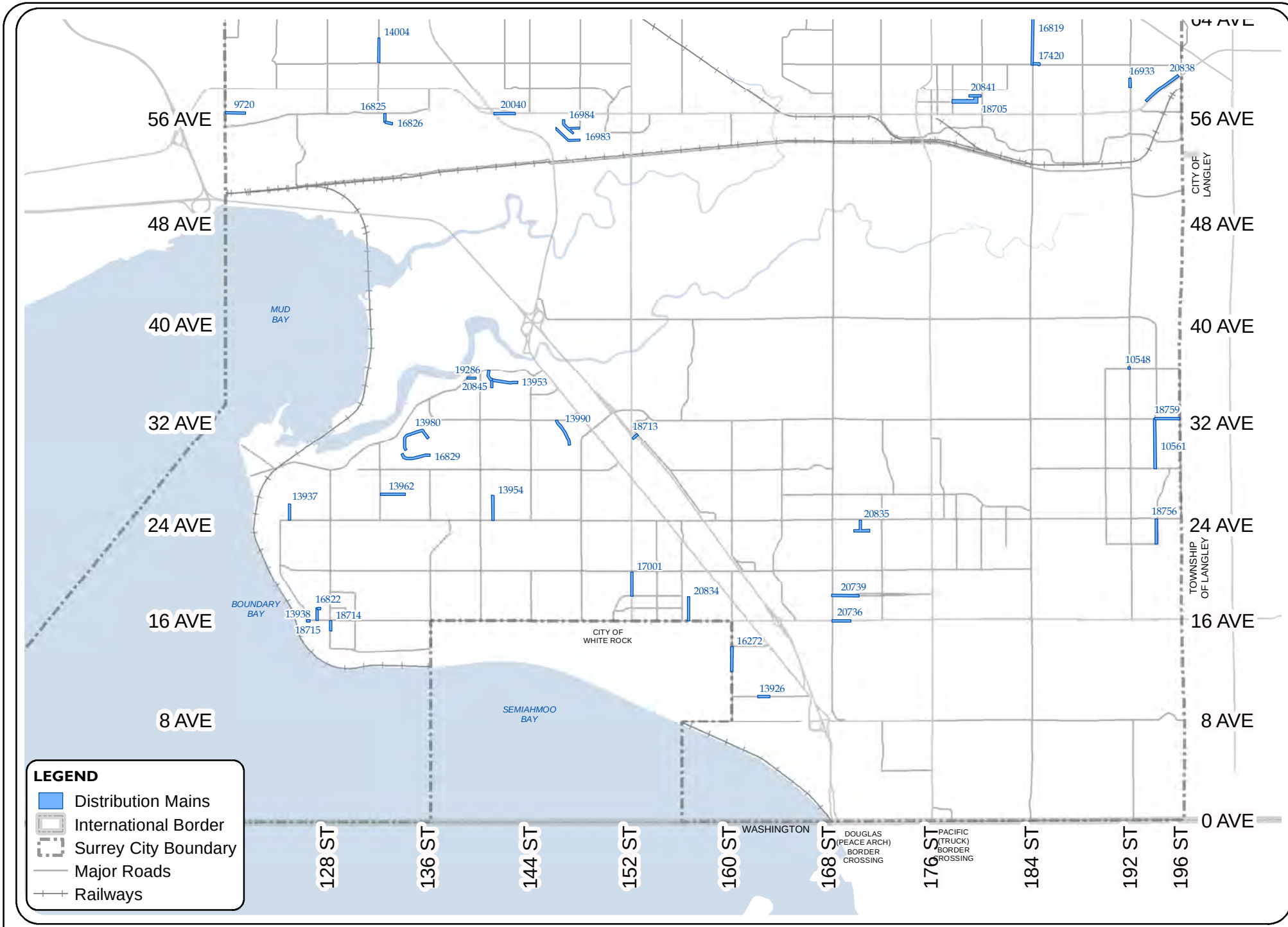

FIGURE 3.2 - Water
Distribution Mains <=300mm (Program 1602)

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WATER

Program 1602 - W - Distribution Mains (<=300mm)

Program Total	111,408,000	23,367,000	88,041,000	-	-

					Breakdown by Funding Source			
Project ID	Project Name	Project Location	Priority	Total	Growth Component	Non-Growth Component	External Funding	Translink Funding
5327	240m of 200mm diameter	Oriole Dr: 108 Ave - Canary Dr	Short Term (1 - 5 Yrs)	525,000	0	525,000	0	0
9720	300m of 200mm diameter	056 Ave: 120 St - 121A St	Short Term (1 - 5 Yrs)	525,000	0	525,000	0	0
9723	90m of 300mm diameter	066 Ave: 152 - 152A St	Short Term (1 - 5 Yrs)	180,000	0	180,000	0	0
10426	155m of 250mm diameter	070 Ave: 136B - 137A St	Short Term (1 - 5 Yrs)	280,000	101,000	179,000	0	0
12588	220m of 200mm diameter	Loughren Dr: Perth Dr - Hwy 1	Short Term (1 - 5 Yrs)	385,000	0	385,000	0	0
12598	550m of 200mm diameter	Raven Pl: Bluebird Cres - Canary Dr	Short Term (1 - 5 Yrs)	962,000	0	962,000	0	0
12633	400m of 200mm diameter	098A - 99 Ave: 118 - 119B St	Short Term (1 - 5 Yrs)	700,000	0	700,000	0	0
12634	110m of 200mm diameter	Dove Pl: Raven Pl - lot 15151	Short Term (1 - 5 Yrs)	192,000	0	192,000	0	0
12663	160m of 300mm diameter	Dyke Rd: Tannery Rd - lot 10839	Short Term (1 - 5 Yrs)	320,000	0	320,000	0	0
13804	150m of 100mm diameter; 210m of 200mm diameter	098 Ave: 127A - 128 St; 127A St & 127B St (dead-ends)	Short Term (1 - 5 Yrs)	630,000	0	630,000	0	0
13851	90m of 200mm diameter	126 St: 96 - 96A Ave	Short Term (1 - 5 Yrs)	158,000	0	158,000	0	0
13854	970m of 300mm diameter	132 St: 100 - 104 Ave	Long Term (6 - 10 Yrs)	2,425,000	0	2,425,000	0	0
13879	850m of 300mm diameter	076 Ave: 128 - 132 St	Short Term (1 - 5 Yrs)	2,125,000	0	2,125,000	0	0
13893	460m of 200mm diameter	Bluebird Cr: Oriole Dr - Canary Dr	Short Term (1 - 5 Yrs)	805,000	0	805,000	0	0
13894	600m of 200mm diameter	Canary Dr: Oriole Dr - 152 St	Short Term (1 - 5 Yrs)	1,050,000	0	1,050,000	0	0
13904	550m of 200mm diameter	078 Ave: 192 - 194A St	Short Term (1 - 5 Yrs)	962,000	0	962,000	0	0
13926	200m of 200mm diameter	010 Ave: 162 - 163 St	Short Term (1 - 5 Yrs)	438,000	0	438,000	0	0
13929	425m of 300mm diameter	105A Ave: 144 - Lot 14611	Short Term (1 - 5 Yrs)	850,000	468,000	382,000	0	0
13937	200m of 200mm diameter	124B St: 24 - 25 Ave	Short Term (1 - 5 Yrs)	350,000	0	350,000	0	0
13938	200m of 200mm diameter	127 St: 16 - 17 Ave	Short Term (1 - 5 Yrs)	350,000	0	350,000	0	0
13944	500m of 300mm diameter	130 St: 96 - 98A Ave	Short Term (1 - 5 Yrs)	1,000,000	0	1,000,000	0	0
13953	430m of 200mm diameter	Greencrest Dr: 141St-Lot14291;141St:Lot 3467-Greencre	Short Term (1 - 5 Yrs)	752,000	0	752,000	0	0
13954	400m of 200mm diameter	141 St: 24 - 26 Ave	Short Term (1 - 5 Yrs)	700,000	0	700,000	0	0
13958	400m of 200mm diameter	153A St: 96 - 98 Ave	Short Term (1 - 5 Yrs)	700,000	0	700,000	0	0
13962	400m of 200mm diameter	026 Ave: 132 - 134 St	Short Term (1 - 5 Yrs)	700,000	0	700,000	0	0
13970	150m of 200mm diameter	089A Ave: 125 - 126 St	Short Term (1 - 5 Yrs)	262,000	0	262,000	0	0
13973	100m of 200mm diameter	098 Ave: 153A - 154 St	Short Term (1 - 5 Yrs)	175,000	0	175,000	0	0
13975	500m of 200mm diameter	98A Ave: 128A - 130 St; 128A St: 98A - 99 Ave	Short Term (1 - 5 Yrs)	875,000	0	875,000	0	0
13978	140m of 200mm diameter	99A Ave: 122A - Lot 12292	Short Term (1 - 5 Yrs)	245,000	0	245,000	0	0
13980	700m of 200mm diameter	Balsam Cr: Woodcrest Dr - 136 St	Short Term (1 - 5 Yrs)	1,225,000	0	1,225,000	0	0
13988	150m of 200mm diameter	Pekin Pl: 130 St - Lot 13095	Long Term (6 - 10 Yrs)	262,000	0	262,000	0	0
13990	475m of 200mm diameter	Semiahmoo Trail: 30 - 32 Ave	Short Term (1 - 5 Yrs)	1,039,000	0	1,039,000	0	0
14003	800m of 300mm diameter	132 St: 104 - 108 Ave	Long Term (6 - 10 Yrs)	2,000,000	0	2,000,000	0	0
14004	380m of 300mm diameter	132 St: 60 - 62 Ave	Short Term (1 - 5 Yrs)	950,000	0	950,000	0	0
14005	280m of 300mm diameter	132 St: Lot 7445 - Lot 7550	Short Term (1 - 5 Yrs)	580,000	0	580,000	0	0
14028	250m of 200mm diameter	131 St: 101 - 101B Ave	Short Term (1 - 5 Yrs)	438,000	0	438,000	0	0
14050	430m of 300mm diameter	82A Ave: 192 - 194 St	Short Term (1 - 5 Yrs)	860,000	482,000	378,000	0	0
15297	750m of 300mm diameter	140 St: Lot 10029 - 104 Ave	Short Term (1 - 5 Yrs)	1,875,000	0	1,875,000	0	0
16272	200m of 200mm diameter	160 St: 12 - 14 Ave	Short Term (1 - 5 Yrs)	438,000	0	438,000	0	0
16281	440m of 200mm diameter	Partridge Cr: Canary Dr - Blackbird Cr	Short Term (1 - 5 Yrs)	770,000	0	770,000	0	0
16605	340m of 200mm diameter	146 St: 110 - 111A Ave	Short Term (1 - 5 Yrs)	595,000	0	595,000	0	0
16615	300m of 300mm diameter	104 Ave: Lot 14835 - 150 St (North)	Long Term (6 - 10 Yrs)	750,000	0	750,000	0	0
16639	430m of 300mm diameter	104 Ave: 150 - 152 St (North)	Long Term (6 - 10 Yrs)	1,075,000	0	1,075,000	0	0
16819	850m of 300mm diameter	184 St: 60 - 64 Ave	Long Term (6 - 10 Yrs)	2,125,000	0	2,125,000	0	0
16820	520m of 300mm diameter	184 St: Fraser Hwy - 72 Ave	Short Term (1 - 5 Yrs)	1,300,000	0	1,300,000	0	0
16821	2050m of 300mm diameter	096 Ave: Fraser Hwy - 152 St	Long Term (6 - 10 Yrs)	5,125,000	0	5,125,000	0	0
16822	60m of 100mm diameter	017 Ave: 127 St - Lot 12745	Short Term (1 - 5 Yrs)	73,000	0	73,000	0	0
16823	100m of 200mm, 40m of 100mm	129A St: Lot 10823 - 109 Ave	Short Term (1 - 5 Yrs)	245,000	0	245,000	0	0
16824	150m of 200mm diameter	130 St: Lot 10843 - 109 Ave	Short Term (1 - 5 Yrs)	262,000	0	262,000	0	0
16825	120m of 200mm diameter	132A St: 55A - 56 Ave	Short Term (1 - 5 Yrs)	210,000	0	210,000	0	0

16826	120m of 200mm diameter	55A Ave: 132A St - Lot 13295	Short Term (1 - 5 Yrs)	210,000	0	210,000	0	0
16829	500m of 200mm diameter	Vine Maple Dr: Woodcrest Dr - 136 St	Short Term (1 - 5 Yrs)	875,000	0	875,000	0	0
16830	420m of 300mm diameter	072 Ave: 188 St - Lot 18855; 72 Ave: 189 St - Lot 19041	Short Term (1 - 5 Yrs)	1,050,000	578,000	472,000	0	0
16930	Watermain Tie-in 250mm to 450mm	100 Ave / Whalley Blvd	Long Term (6 - 10 Yrs)	350,000	0	350,000	0	0
16933	160m of 200mm diameter	192 St: Enterprise Way - 59 Ave	Short Term (1 - 5 Yrs)	350,000	0	350,000	0	0
16982	Seismic Upgrades - 200m of 200mm diameter	129A St: 110 - 111 Ave	Short Term (1 - 5 Yrs)	350,000	0	350,000	0	0
16983	500m of 200mm diameter	Southview Dr/54 Ave: 146 - 148 St	Short Term (1 - 5 Yrs)	875,000	0	875,000	0	0
16984	500m of 200mm diameter	Bakerview Dr:55A Ave-Lot 5452; 055 Ave: Bakerview Dr-	Short Term (1 - 5 Yrs)	875,000	0	875,000	0	0
16986	Seismic Upgrades - 100m of 50mm diameter	Regent Pl: Regal Dr - Lot 9630	Short Term (1 - 5 Yrs)	110,000	0	110,000	0	0
16991	250m of 300mm diameter	105A Ave: 135A St - Whalley Blvd	Short Term (1 - 5 Yrs)	625,000	0	625,000	0	0
17001	400m of 300mm diameter	152 St: 18 - 20 Ave (East Side)	Short Term (1 - 5 Yrs)	1,000,000	0	1,000,000	0	0
17420	100m of 300mm diameter	060 Ave: 184 St - lot 18456	Long Term (6 - 10 Yrs)	250,000	78,000	172,000	0	0
17854	180m of 300mm diameter	072 Ave: 150A St - Lot 15116	Short Term (1 - 5 Yrs)	450,000	248,000	202,000	0	0
17857	450m of 300mm diameter	152 St: 76 Ave - Lot 7844	Short Term (1 - 5 Yrs)	1,125,000	1,125,000	0	0	0
18011	225m of 300mm diameter	105A Ave: Lot 14689 - 148 St	Short Term (1 - 5 Yrs)	450,000	248,000	202,000	0	0
18421	Meter Install and Replacement	Various Locations	Annual	20,000,000	0	20,000,000	0	0
18705	250m of 200mm main	Shannon Pl: 57A Ave - Lot 17903	Short Term (1 - 5 Yrs)	438,000	0	438,000	0	0
18708	Short Main Replacements - Phase 2	Various Locations (see Locations tab)	Annual	50,000	0	50,000	0	0
18713	150m of 300mm diameter	No. 99 Hwy Crossing between 152 St and Croydon Dr/31	Short Term (1 - 5 Yrs)	350,000	192,000	158,000	0	0
18714	200m of 200mm diameter	128 St: 15 Ave - 16 Ave	Short Term (1 - 5 Yrs)	438,000	0	438,000	0	0
18715	50m of 100mm diameter	16 Ave: West of 126A St	Short Term (1 - 5 Yrs)	61,000	0	61,000	0	0
19280	200m of 200mm diameter	109 Ave: Lot 14696 - 148 St	Long Term (6 - 10 Yrs)	350,000	0	350,000	0	0
19286	140m of 100mm diameter	35A Ave: East of Crescent Rd	Short Term (1 - 5 Yrs)	170,000	0	170,000	0	0
19287	Volunteer Meter Supply	Various Locations	Annual	875,000	0	875,000	0	0
19288	Meter Testing	Various Locations	Annual	-	0	0	0	0
19569	65m of 300mm	130 St: 98A - 98B Ave	Short Term (1 - 5 Yrs)	130,000	0	130,000	0	0
20040	250m of 200mm diameter	56 Ave: KGB - Lot 14280	Short Term (1 - 5 Yrs)	547,000	0	547,000	0	0
20071	BC Hydro Rwy Crossing	132 St / 76 Ave	Short Term (1 - 5 Yrs)	350,000	0	350,000	0	0
20736	400m of 300mm diameter	16 Ave: 168 St - 170 St	Short Term (1 - 5 Yrs)	1,100,000	1,100,000	0	0	0
20739	400m of 300mm diameter	18 Ave: 168 St - 170 St	Short Term (1 - 5 Yrs)	1,100,000	1,100,000	0	0	0
20813	150m of 300mm Diameter	132 St: Lot 7550 to 76 ave	Short Term (1 - 5 Yrs)	375,000	0	375,000	0	0
20821	100m of 300mm	Grace Rd: Lot 10128 - Lot 10156	Short Term (1 - 5 Yrs)	200,000	0	200,000	0	0
20823	South Campbell Heights (SCH) – Watermain Upsizing Pha	Various Locations	Short Term (1 - 5 Yrs)	1,320,000	1,320,000	0	0	0
20825	240m of 300mm	Anvil Way: 128 St - Lot 12935	Short Term (1 - 5 Yrs)	480,000	269,000	211,000	0	0
20826	775m of 300mm	103A Ave: Scott Rd - 123A St; 123A St: 103A Ave - 104 Av	Long Term (6 - 10 Yrs)	1,550,000	868,000	682,000	0	0
20827	170m of 300mm	112A Ave: 136 St - lot 13690	Short Term (1 - 5 Yrs)	340,000	190,000	150,000	0	0
20828	800m of 300mm	113 Ave: 136 St - 140 St	Long Term (6 - 10 Yrs)	1,600,000	896,000	704,000	0	0
20829	260m of 300mm	113 Ave: 140 St - 141A St	Long Term (6 - 10 Yrs)	520,000	291,000	229,000	0	0
20830	600m of 300mm	140A St: Kindersley Dr - 115 Ave; Kindersley Dr: 113 Ave	Long Term (6 - 10 Yrs)	1,200,000	672,000	528,000	0	0
20831	700m of 350mm	148 St: Fraser Hwy - 96 Ave	Long Term (6 - 10 Yrs)	1,750,000	0	1,750,000	0	0
20832	800m of 300mm	156 St: 88 Ave - 92 Ave	Short Term (1 - 5 Yrs)	2,000,000	0	2,000,000	0	0
20833	800m of 300mm	156 St: 92 Ave - 96 Ave	Short Term (1 - 5 Yrs)	2,000,000	0	2,000,000	0	0
20834	400m of 300mm	156A St: 16 Ave - 18 Ave	Short Term (1 - 5 Yrs)	800,000	448,000	352,000	0	0
20835	425m of 300mm	170 St: 24 Ave - 23 Ave; 23 Ave: Lot 16965 - 171 St	Long Term (6 - 10 Yrs)	850,000	476,000	374,000	0	0
20836	1400m of 300mm	192 St: Lot 7329 - 80 Ave	Short Term (1 - 5 Yrs)	3,500,000	1,960,000	1,540,000	0	0
20837	900m of 300mm	192 St: 80 Ave - Lot 8430	Short Term (1 - 5 Yrs)	2,250,000	1,260,000	990,000	0	0
20838	670m of 300mm	Highway 10 (Langley Bypass): Lot 19335 - Lot 19561	Long Term (6 - 10 Yrs)	1,675,000	938,000	737,000	0	0
20839	170m of 300mm	19580 Telegraph Trail	Short Term (1 - 5 Yrs)	340,000	105,000	235,000	0	0
20840	130m of 300mm	195B St: 78 Ave - lot 7874	Long Term (6 - 10 Yrs)	260,000	146,000	114,000	0	0
20841	200m of 300mm	57A Ave: Lot 17900 - 180 St	Long Term (6 - 10 Yrs)	400,000	224,000	176,000	0	0
20842	800m of 300mm	76 Ave: 184 St - 188 St	Long Term (6 - 10 Yrs)	2,000,000	1,120,000	880,000	0	0
20843	1100m of 300mm	76 Ave: 188 St - lot 19342	Long Term (6 - 10 Yrs)	2,750,000	1,540,000	1,210,000	0	0
20844	550m of 300mm	9815 Robson Rd	Long Term (6 - 10 Yrs)	1,100,000	616,000	484,000	0	0
20845	180m of 300mm	Greencrest Dr: 141 St - Crescent Rd	Short Term (1 - 5 Yrs)	360,000	202,000	158,000	0	0
20846	175m of 300mm	Guildford Dr: 152 St - Lot 15357	Long Term (6 - 10 Yrs)	350,000	0	350,000	0	0
20848	170m of 300mm	96 Ave: 140 St - Lot 13932	Short Term (1 - 5 Yrs)	425,000	0	425,000	0	0
20849	240m of 250mm	136B St: Lot 7120 - 70 Ave	Long Term (6 - 10 Yrs)	420,000	235,000	185,000	0	0

20935	Connection to GVWD	192 St / 36 Ave	Long Term (6 - 10 Yrs)	795,000	795,000	0	0	0
20937	800m of 350mm diameter	194 St: 32 -28 Ave	Long Term (6 - 10 Yrs)	1,634,000	1,634,000	0	0	0
20938	400mm of 300mm diameter	194 St: 22 - 24 Ave	Long Term (6 - 10 Yrs)	721,000	721,000	0	0	0
20939	400m of 300mm diameter	32 Ave: 194 - 196 St	Long Term (6 - 10 Yrs)	721,000	721,000	0	0	0

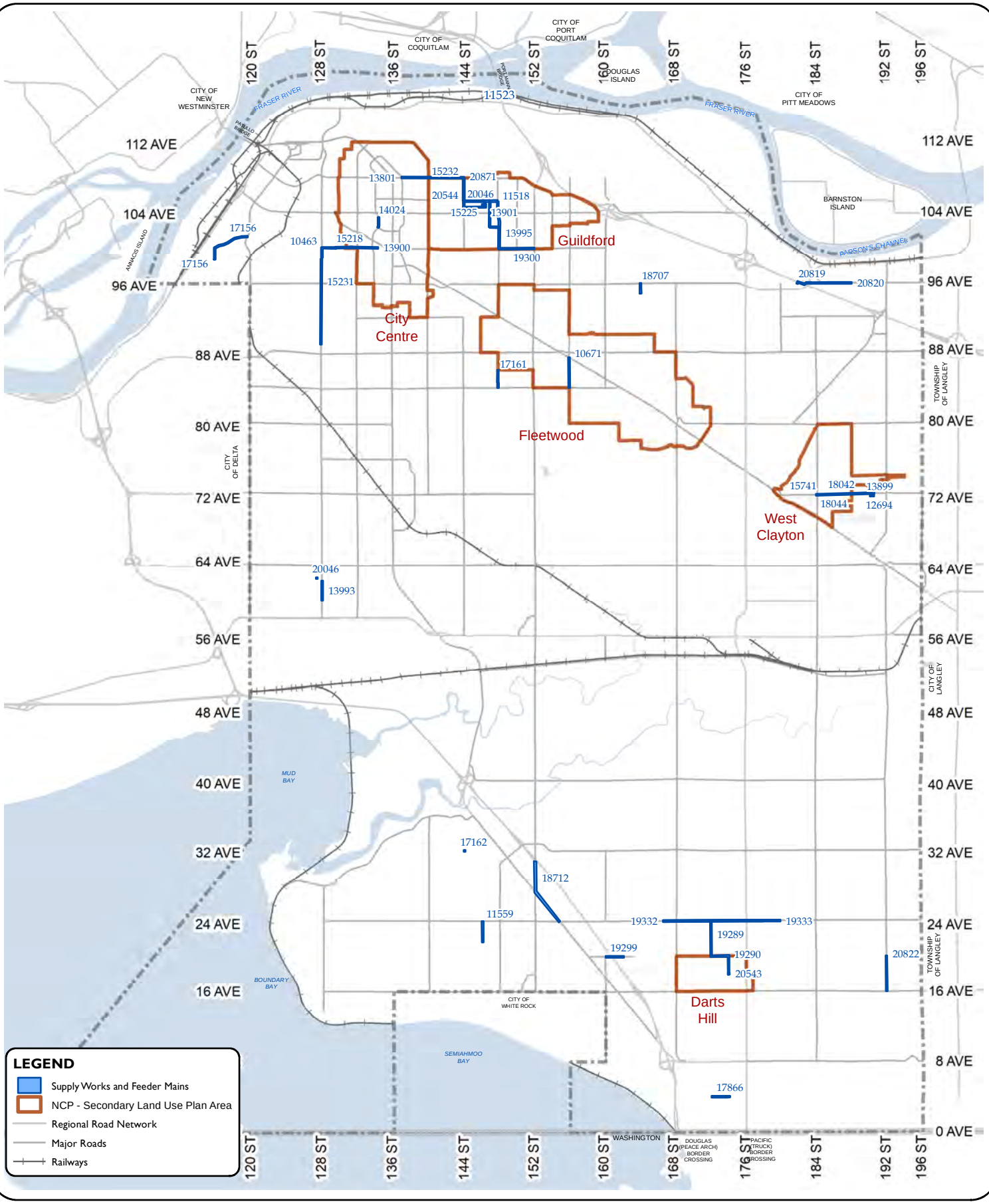

FIGURE 3.3 - Water Supply Works & Feeder Mains (Program 1610)

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WATER

Program 1610 - W- Supply Works & Feeder Main

Program Total	137,969,000	82,942,000	55,027,000	-	-

					Breakdown by Funding Source			
Project ID	Project Name	Project Location	Priority	Total	Growth Component	Non-Growth Component	External Funding	Translink Funding
10463	600m of 600mm diameter	128 St: 99 Ave - 100 Ave; 100 Ave:128 St - 129A St	Long Term (6 - 10 Yrs)	2,925,000	2,925,000	0	0	0
10671	750m of 450mm diameter	156 St: 84 Ave - Fraser Hwy	Long Term (6 - 10 Yrs)	3,047,000	3,047,000	0	0	0
11518	450m of 1200mm diameter	105A Ave: 146 - 148 St	Short Term (1 - 5 Yrs)	3,195,000	2,396,000	799,000	0	0
11559	550m of 900mm diameter - Low Pressure Main	146 st: 22 ave - 24 ave	Long Term (6 - 10 Yrs)	3,190,000	957,000	2,233,000	0	0
12694	Clayton P.S. 5th pump	72 Ave / 190 St	Short Term (1 - 5 Yrs)	525,000	525,000	0	0	0
13801	1460m of 600mm diameter	108 Ave: Whalley Blvd - 144 St	Long Term (6 - 10 Yrs)	7,118,000	3,132,000	3,986,000	0	0
13899	Clayton P.S. 6th pump	72 Ave / 190 St	Short Term (1 - 5 Yrs)	525,000	525,000	0	0	0
13900	740m of 600mm diameter	100 Ave: 131A St - 134A St / Old Yale Rd	Long Term (6 - 10 Yrs)	3,608,000	0	3,608,000	0	0
13901	750m of 1200mm diameter	105A Ave: Lot 14619 - 144 St	Short Term (1 - 5 Yrs)	5,325,000	3,248,000	2,077,000	0	0
13993	510m of 750mm diameter	128 St: 60 - 62A Ave	Long Term (6 - 10 Yrs)	2,869,000	1,033,000	1,836,000	0	0
13995	1500m of 900mm diameter	148 St: 100 - 105A Ave	Long Term (6 - 10 Yrs)	10,875,000	5,981,000	4,894,000	0	0
14024	180m of 600mm diameter	University Dr: 102A - 103A Ave	Long Term (6 - 10 Yrs)	878,000	0	878,000	0	0
15218	450m of 750mm diameter	100 Ave: 129A - 131A St	Long Term (6 - 10 Yrs)	2,025,000	1,296,000	729,000	0	0
15225	Whalley Pump Station Electrical & Mechanical Replacem	105A Ave: lot 14620	Short Term (1 - 5 Yrs)	6,000,000	0	6,000,000	0	0
15231	1980m of 750mm diameter	128 St: 8900 block - 99 Ave	Long Term (6 - 10 Yrs)	11,138,000	7,128,000	4,010,000	0	0
15232	480m of 1200mm diameter	105A Ave: 144 St-Whalley PS	Short Term (1 - 5 Yrs)	3,408,000	2,556,000	852,000	0	0
15741	West Clayton PRV Stations	072 Ave / 184 St	Short Term (1 - 5 Yrs)	550,000	275,000	275,000	0	0
17156	1200m of 600mm diameter	116 St: Bailey Cres - River Rd; River Rd: 116 St - Scott Rd	Short Term (1 - 5 Yrs)	4,680,000	4,680,000	0	0	0
17161	400m of 450mm diameter	148 St: 84 - 86 Ave	Short Term (1 - 5 Yrs)	1,625,000	1,625,000	0	0	0
17162	PRV Upgrade	032 Ave / 144 St	Short Term (1 - 5 Yrs)	550,000	302,000	248,000	0	0
17866	450m of 400mm diameter	004 Ave: 172 - 174 St	Short Term (1 - 5 Yrs)	1,547,000	0	1,547,000	0	0
18042	600m of 750mm water main (90m zone main)	72 Ave: Clayton Res - 188 St	Long Term (6 - 10 Yrs)	3,375,000	3,375,000	0	0	0
18044	800m of 450mm water main (115m zone main)	72 Ave: 184 St - 188 St	Short Term (1 - 5 Yrs)	3,250,000	3,250,000	0	0	0
18707	170m of 750mm main	164 St: 95 ave - 96 ave	Long Term (6 - 10 Yrs)	956,000	344,000	612,000	0	0
18709	Feeder Main Valve Upgrade	Various Locations	Short Term (1 - 5 Yrs)	3,000,000	0	3,000,000	0	0
18712	1550m of 450mm diameter (Kensington W110/Morgan (	KGB: 24 Ave - 152 St; 152 St: KGB-Croydon Dr	Long Term (6 - 10 Yrs)	6,297,000	6,297,000	0	0	0
19289	800m of 450mm diameter (high pressure)	172 St: 20 Ave - 24 Ave	Short Term (1 - 5 Yrs)	3,250,000	3,250,000	0	0	0
19290	800m of 450mm diameter	20 Ave: 172 St - 174 St; 174 St: 20 Ave - 18 Ave	Short Term (1 - 5 Yrs)	3,250,000	3,250,000	0	0	0
19299	420m of 300mm DI	20 Ave: Lot 16211 - 160 St	Short Term (1 - 5 Yrs)	2,300,000	1,288,000	1,012,000	0	0
19300	2250m of 900m	147 St: 105A Ave - 102A Ave; 102A Ave: 147 St - 148 St;	Long Term (6 - 10 Yrs)	13,050,000	3,915,000	9,135,000	0	0
19332	24 Ave Feeder Main Upsizing (High Pressure)	24 Ave: 16666 24 Ave – 178 St	Short Term (1 - 5 Yrs)	2,232,000	2,232,000	0	0	0
19333	24 Ave Feeder Main Upsizing (Low Pressure)	24 Ave: 16666 24 Ave – 180 St	Short Term (1 - 5 Yrs)	2,280,000	2,280,000	0	0	0
20046	PS Generator Upgrades	Various Locations	Short Term (1 - 5 Yrs)	3,000,000	0	3,000,000	0	0
20543	PRV Installation	174 St / 18 Ave	Short Term (1 - 5 Yrs)	550,000	550,000	0	0	0
20544	300m of 750mm	144 St: 104 Ave & 105A Ave	Long Term (6 - 10 Yrs)	1,688,000	1,688,000	0	0	0
20819	300m of 750mm	96 Ave/ Highway 1 (Crossing)	Long Term (6 - 10 Yrs)	2,000,000	1,120,000	880,000	0	0
20820	1000m of 750mm	96 Ave: Lot 18376 - 188 St	Short Term (1 - 5 Yrs)	5,625,000	3,150,000	2,475,000	0	0
20822	800m of 350mm	192 St: 16 Ave - 20 Ave	Short Term (1 - 5 Yrs)	2,500,000	2,500,000	0	0	0
20871	550m of 1200mm	144 St: 105A Ave - 108	Long Term (6 - 10 Yrs)	3,763,000	2,822,000	941,000	0	0

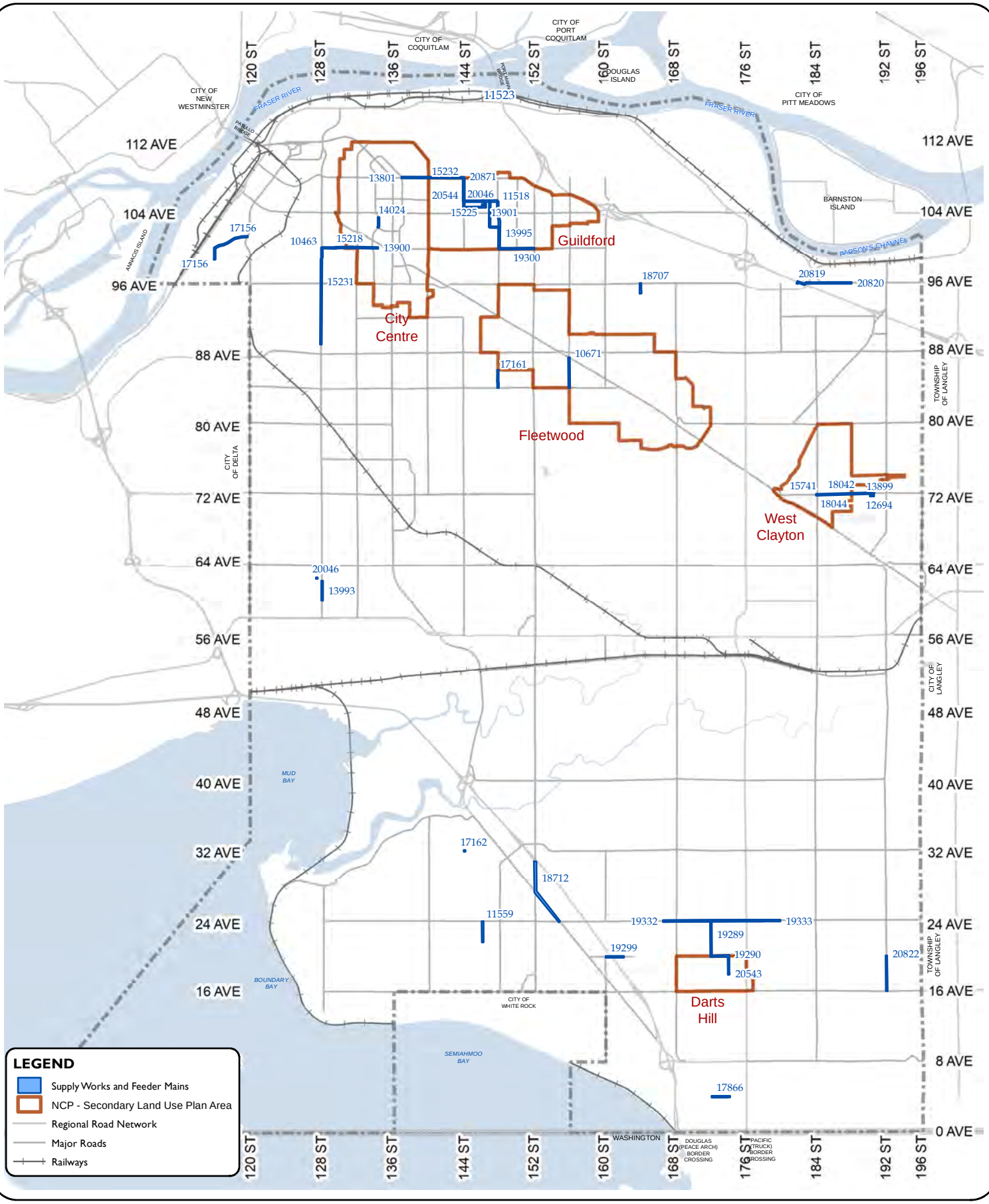

FIGURE 3.3 - Water Supply Works & Feeder Mains (Program 1610)

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4. SANITARY SEWER

The City strives to build and maintain a robust sanitary sewer system that is cost-effective, scalable, long-lasting and environmentally responsible. To have a robust sanitary sewer system, the approach includes:

- Build a system that accommodates future growth and additional sewer catchments, by upsizing sewers whenever opportunities arise;
- Build a system to minimize or eliminate sanitary sewer overflows;
- Replace systems that have high operation and maintenance costs; and
- Replace sewers that are at the end of their service life.

The role of sanitary sewer system is the collection of sewage from all homes and businesses that are connected in the service area, and to safely convey sewage to regional sewer interceptors for conveyance to the Annacis Island Wastewater Treatment Plant. All responsibilities for inter-municipal conveyance and sewage treatment is the responsibility of the Greater Vancouver Sewerage and Drainage District (GVS&DD) also known as Metro Vancouver.

4.1 Sewer Works Inventory

Surrey has approximately 1,626 km of sanitary sewers, as summarized in **Table 4.1**. Much of this system is relatively young and in good condition. However, there are older sections of the system, constructed of asbestos cement (AC), vitrified clay (VC) and other currently non-acceptable materials that are showing signs of deterioration due to wear and tear, cracks, settlement, and joint dislocations, and are subject to excessive groundwater infiltration and rainwater inflow. Surrey's existing sanitary sewer system is shown in **Figure 4.1.**

Table 4.1 – Current Sanitary Sewer System Inventory

Trunk Sewers	156 km
Local Sewers	1,381 km
Pressure Sewers (LPS, Forcemains, Siphons, Pressure Sewers)	94.6 km
Vacuum Sewers	9.4 km
Sanitary Pump Stations	46
Odour Control Facilities	8

4.2 Sewer System Replacement and Rehabilitation Strategy

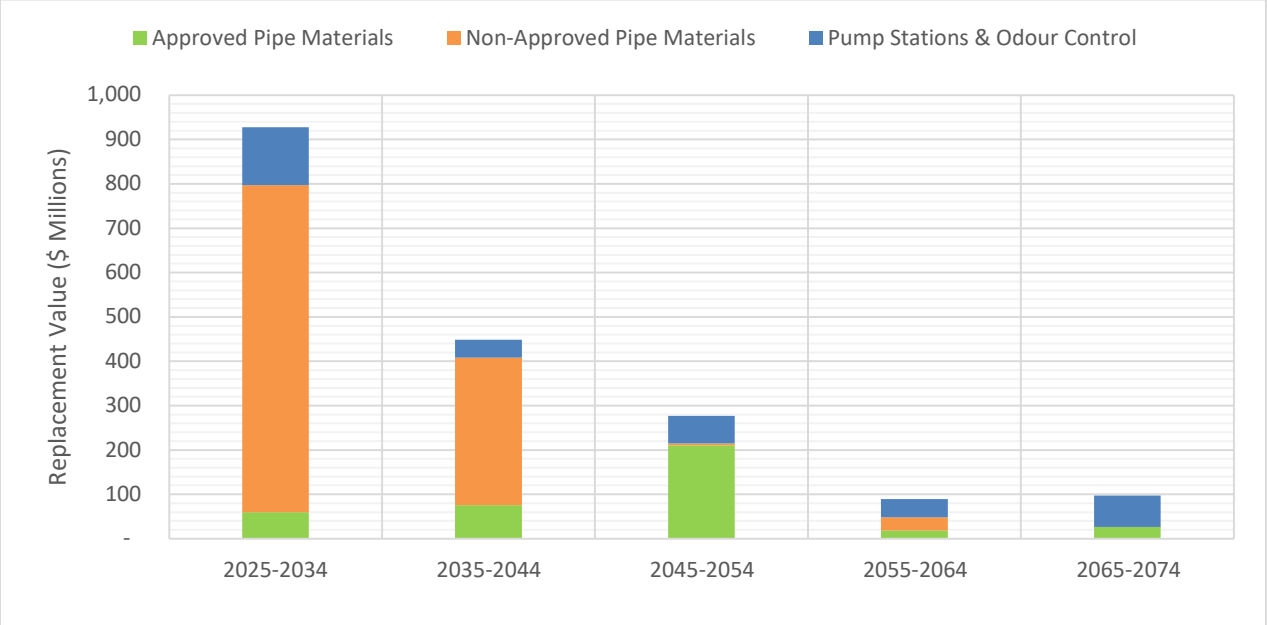
As part of the City's commitment to Strategy 3.1 – Manage Assets and Optimize Existing Sanitary Sewerage Operations under Metro Vancouver's Integrated Liquid Waste and Resource Management Plan, the City has developed an asset management funding strategy targeting a 80-100-year replacement or rehabilitation cycle for the sanitary system.

The oldest sewers in Surrey's inventory date back to the mid-1950s, where sewers were predominately constructed from AC and VC. These early sewers are mostly in North Surrey in the Whalley and Guildford neighbourhoods, and also in older parts of Cloverdale, Newton, and Semiahmoo. AC sewers are prone to structural failure as they age, and both AC and VC sewers have high rates of rainwater inflow and groundwater infiltration (I&I) which reduces available sewer capacity and can cause sewer flooding. Currently the City is prioritizing the replacement of small AC sewers which are the most critical in terms of poor condition and capacity, as well as moving along the strategy of phasing out existing vacuum sewer systems, which comprises almost 25% of the system.

A large part of sewer replacement and rehabilitation of the sewer system in the coming decades will focus on utilizing redevelopment and growth opportunities to address undersized and aging sewers. Redevelopment in City Centre and Guildford neighbourhoods will help with ongoing AC and VC replacement programs. As it will be a decades long program to replace aging and deteriorating pipes, annual pipe inspection programs and flow monitoring programs will continue to provide updated conditions and capacity assessment that will support a long-term strategy for the replacement of pipes as changing technologies, development in asset management, and demand management practices may influence the replacement strategy in that period. **Table 4.2** and **Figure 4.1** provides some insight of the potential replacement demand over the next 50 years based on age and pipe material. As can be seen in Figure 4.1, there is a large amount of aging pipe that will need to be replaced that far exceeds our current funding. To address this detailed risk assessment will aid planning of replacements to better balance asset replacement over the next twenty years, and cost-effective relining of local sewers will be utilized where possible to reduce the cost of replacement.

In the next 50 years, 26% of all sewer mains are planned to have to be replaced based on age at a cost of $1.8 billion, which will address the oldest pipes. The remaining sewers will reach their end of service life in the subsequent 50 years. Such a large resource requirement necessitates careful planning and development of strategies to deal with the replacement demand, which the City is now actively preparing. The replacement value in the next 10 years exceeds $900 million based on the amount of old AC and VC sewer pipes reaching the end of life. The City is strategically reviewing alternative repair and replacement options to extend the life of these assets at a lower cost than full replacement.

Figure 4.1 – Sanitary System Replacement Costs over the Next 50 Years by Age



The rehabilitation work through the City's Inflow and Infiltration ("I&I") reduction program will assist in dealing with part of this replacement demand as materials, such as VC pipe may be used for longer periods than expected, provided they are rehabilitated.

Under this Servicing Plan, funding has been identified for sewer replacements over the next ten years and is focused on sewer replacement in North Surrey, and capacity upgrades in growth areas throughout Surrey.

Table 4.2 – Sanitary System Replacement Requirements in the Next 50 Years

Asset Type	Total Asset Inventory (2024)	50 Year Replacement Forecast	50 Year Replacement Cost
Approved Pipe Materials: PVC, HDPE, CIPP, Concrete, Steel	1,291 km (78% of entire pipe length)	72 km	$391 million
Non-Approved Pipe Materials: Asbestos Cement, Vitrified Clay, Cast Iron, Ductile Iron	354km (22% of entire pipe length)	354 km	$1.1 billion
Pump Station	46	46	319 million
Odour Control Facilities (replacement 20 year cycle)	8	16	26 million

Through an established maintenance management program, the gravity sewer system is systematically video inspected to determine its condition. The rehabilitation needs for structural deficiencies are confirmed based on this inspection data. Based on the current projections and levels of expenditures, the estimated rehabilitation and asset replacement needs over the next 10 years is in the range of $930 million. The rehabilitation and continued serviceability of the sanitary sewer system, including the control of I&I, is a municipal commitment under the Metro Vancouver Integrated Liquid Waste and Resource Management Plan.

Rehabilitation or replacement of the gravity sewer system components are included as projects within Program 1632 – Sewer Mains.

4.3 Sewer Servicing Program

Program 1630 – Sewer Planning & Studies

Sewer planning is an ongoing task to address new areas of growth in Neighbourhood Concept Plans, consider new development applications, and to continually assess the performance and capacity of the sewer system. New development and growth contributes to additional sewage flows which may cause some sections or components of the sewer system to reach capacity and, consequently, increase the need for sewer upgrading. These upgrading works can range from flow diversions, relief pump stations, sewer twinning or replacement with a larger sewer, to upgrading pump stations to provide more capacity.

Sewer planning and development of specific studies are also conducted annually to address both system-wide and specific issues that includes capacity assessment (flow monitoring and sewer modeling), condition assessment, and new growth areas.

The works necessary to provide additional capacity are included in the following programs:

- Program 1632 – Sewer Mains
- Program 1644 – Sewer Facilities
- Program 1650 - DCW Upsizing & Connections

These programs do not include works associated with the GVS&DD system, which are the responsibility of the GVS&DD, and are funded on a regional basis.

The provision of infrastructure for new growth is handled in two ways:

i) Where infrastructure services a large area, and is of high cost which makes it unreasonable to expect one fronting or benefiting property to finance the works, the works are included in either Program 1632 – Sewer Mains or Program 1644 – Sewer Facilities. Typically, trunk sewer improvements, with a peak flow of more than 40 litres per second, are related to growth. Where smaller sewers are required to be upgraded due to limited capacity, these would also be attributed to growth and could have shared general revenue funding where asset replacement was required; and
ii) Where servicing can be reasonably provided through an upsizing or extension contribution for a fronting or benefiting property, then the works are included in Program 1650 – DCW Upsizing & Connections.

In addition to flow monitoring and sewer modeling, planning studies are required to develop master sewer plans, servicing plans, Neighborhood Concept Plans, and specific project details. The costs of these engineering services are included in this program. Further, this program covers of the costs of software and staff time related to Planning initiatives.

Program 1632 – Sewer Mains

There are several sections of the existing sewer system that will not have sufficient capacity over the next 10 years to meet one or more of the following:

- Servicing demand from future OCP designated land uses; or
- Current flows that may have increased due to I&I.

Replacement of the existing system that is needed to provide capacity to meet current demand, or to meet the reduction in capacity due to structural failure of the existing sewer, are considered to be non-growth related costs. Upsizing these replacements, to allow for new growth to OCP designations, is considered to be growth related costs. Where a relief sewer is necessary for new growth, costs have been primarily assigned to growth, with a small contribution from non-growth to represent the depreciated value of the replaced asset.

In recent years, the City has concentrated on the replacement of aging sewers, primarily comprised of small diameter asbestos cement pipe material. The prioritized replacement plan targets high I&I catchment areas and concurrently eliminating side and rear yard sewers where possible. This program covers the replacement of these sewers.

Program 1644 – Sewer Facilities

Sewer facilities include sewage lift stations, permanent flow meters, odour control facilities, pressure sewers, and replacement of vacuum sewer system. In some cases, sewer facilities do benefit existing customers, and therefore a portion of the projects costs is attributed as non-growth. Some of the sewer facilities projects include:

- The replacement and/or upgrade of pump station components;
- Relief of Bear Creek trunk sewer through relief pump station and forcemain;
- Quibble Creek pump station twin forcemain pump station upgrade;
- The addition of new pump stations
- The addition of new odour control facilities; and
- The addition of new permanent flow meters.

Program 1650 - DCW Upsizing & Connections

Trunk mains to service new areas can be provided, with the City funding the upsize component from the base size which is necessary for fronting or benefiting properties. For these trunk sewers, only the upsizing cost (the cost from the base size required for a fronting property to the size required for the overall catchment) is included. As the timing of these works is strictly dependent on the fronting property owners or development, no estimate of timing is provided.

In addition to the upsizing of identified trunks, an allowance for upsizing yet-to-be identified works is included in the overall provision for upsizing.

This program also provides funding for situations where it is beneficial to pre-install sanitary service connections within the road allowance for any un-serviced lots when a sewer is extended by a land development project.

Program 1658 - Land Acquisition

Land acquisition and requirements, such as rights-of-way and working easements, are occasionally required for capital projects. This program deals with various such requirements for the projects listed under various programs.

4.5 Sanitary Sewer Cost Summary

No.	Program	Program Type	Growth ($)	Non-Growth ($)	Total ($)
1630	Sewer Planning & Studies	Non-Capital	$1,575,000	$1,075,000	$2,650,000
1632	Sewer Mains	Capital	$85,363,000	$90,913,000	$176,276,000
1644	Sewer Facilities	Capital	$57,416,000	$12,037,000	$69,453,000
1650	DCW Upsizing & Connections	Capital	$11,984,000	$400,000	$12,384,000
1658	Land Acquisition	Capital	$750,000	$450,000	$1,200,000
		Total	$157,088,000	$104,875,000	$261,963,000

4.6 Sanitary Sewer Projects by Program

This section contains tables and figures that identify the projects under the key Sanitary Sewer programs.

The tables provide the following information:

a) Project ID - the unique identifier of the project
b) Project name - the specific name or generic name that depicts the type of work
c) Project location - the geographic extent of the works
d) Priority - the intended time frame for when the project is planned to proceed (subject to change)
e) Costs – the high-level estimates in 2023 dollars (subject to change at the actual time of construction). The costs are comprised of growth, non-growth and external components.

Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations throughout Surrey may not be shown on the maps.

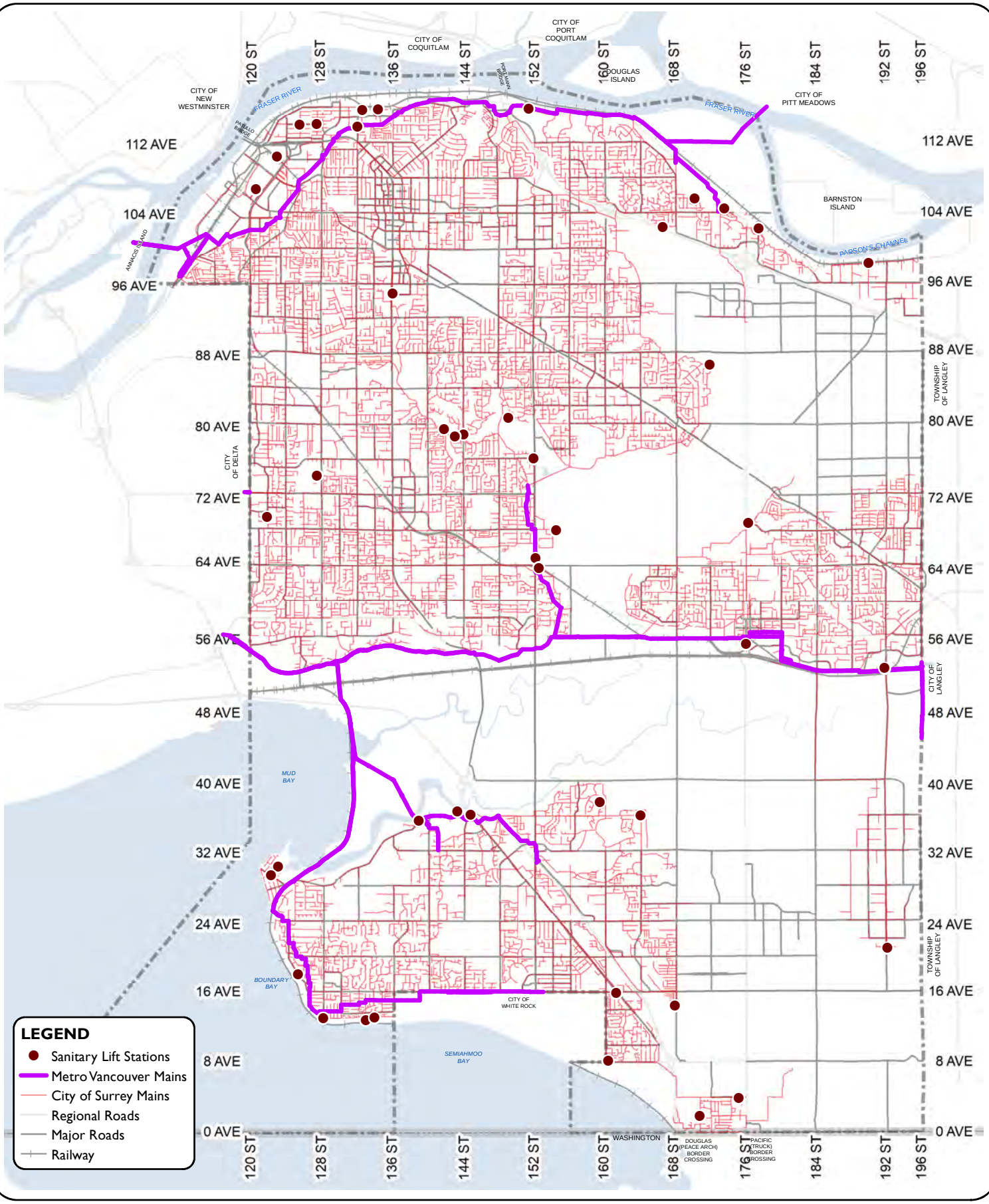


FIGURE 4.1 - SANITARY SEWER SYSTEM

0 0.5 1 2 3 KM

SCALE: 1:115,000

N

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Source: G:\MAPPING\GIS\Maps\Recurring\CCP\10yrCCP_Plan\10yrServicingPlan2025\MXD Files\Figure4_1-SanitarySewerSystem.mxd

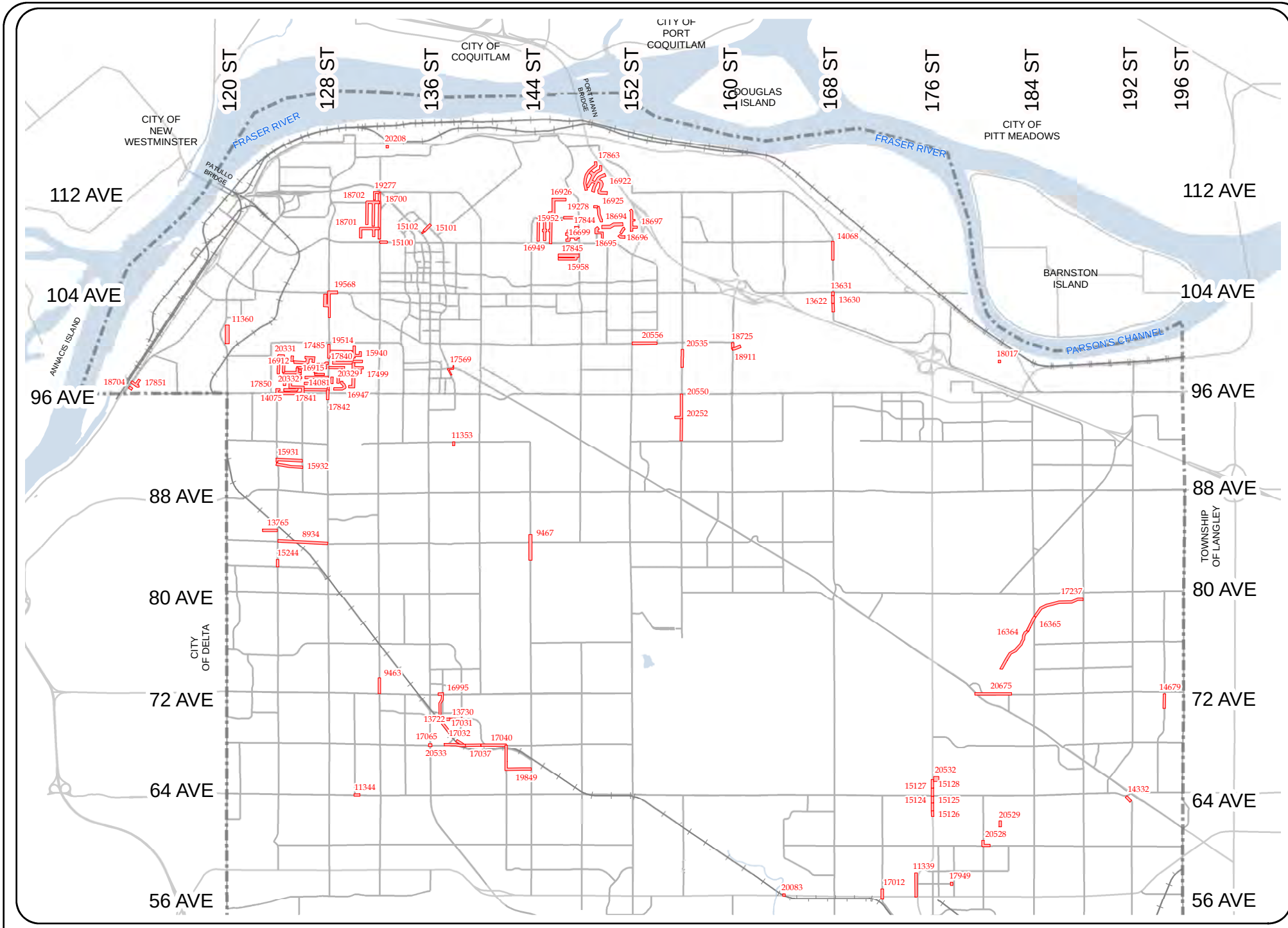

FIGURE 4.2 - Sewer
Sewer Mains (Program 1632)

Date Printed: 2024-12-12 Cartographer: P205803 © City of Surrey
Source: G:\MAPPING\GIS\Maps\Recurring\CCP\10yrCCP_Plan\10yrServicingPlan2025\MXD Files\Figure4-2-SewerNorth.mxd

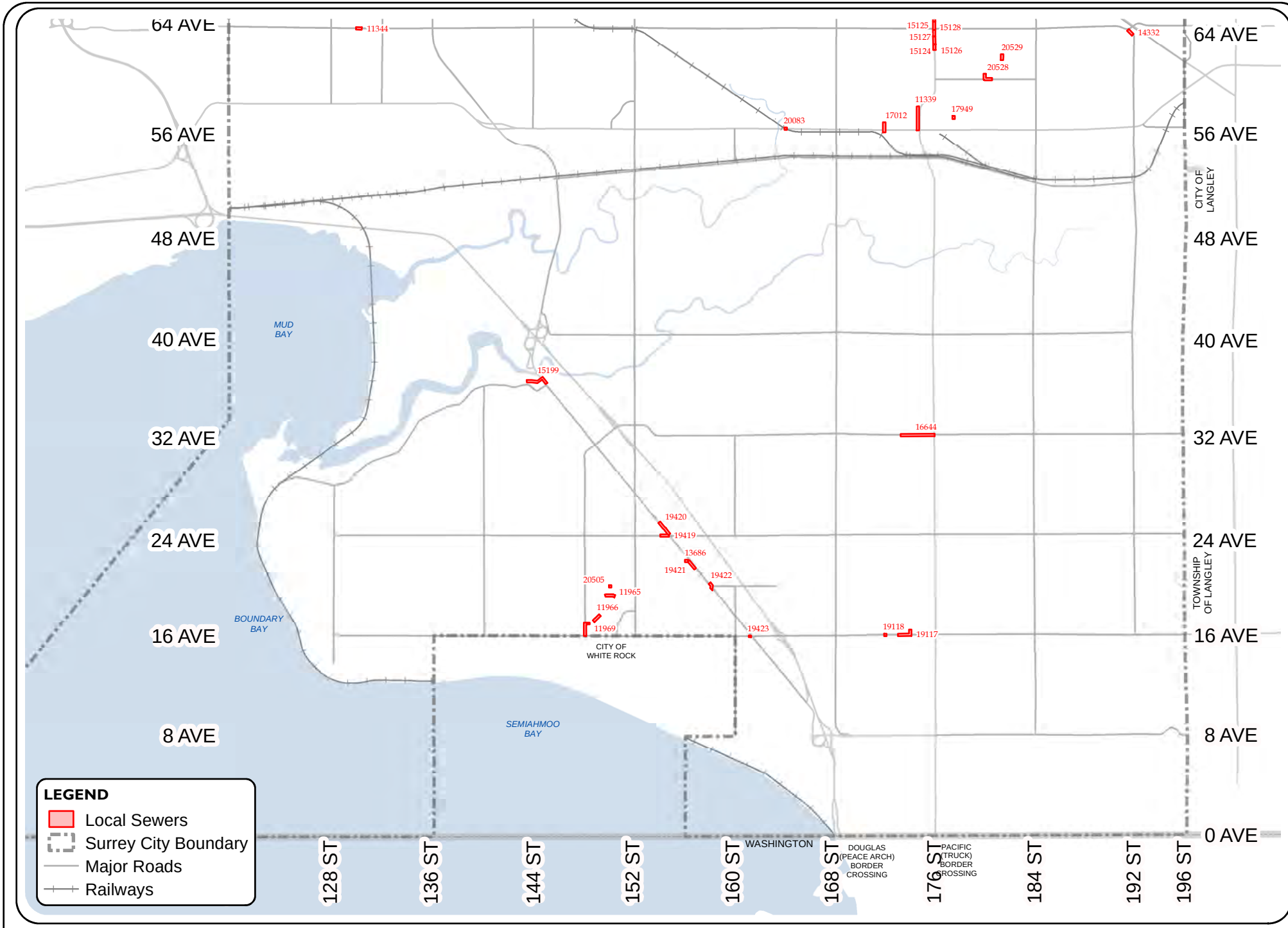

FIGURE 4.2 - Sewer
Sewer Mains (Program 1632)

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SEWER

Program 1632 - S - Sewer Mains

Program Total	176,295,000	85,363,000	90,913,000	19,000	-

					Breakdown by Funding Source			
Project ID	Project Name	Project Location	Priority	Total	Growth Component	Non-Growth Component	External Funding	Translink Funding
8934	820m of 525mm diameter Trunk Sewer	084 Ave: 12450 - 128 St	Short Term (1 - 5 Yrs)	4,512,000	4,512,000	0	0	0
9463	300m of 375mm diameter sewer	132 St: 072 - 073 Ave North laneway	Short Term (1 - 5 Yrs)	1,770,000	1,062,000	708,000	0	0
9467	400m of 525mm diameter Trunk sewer	144 St: 082A Ave - 8469	Long Term (6 - 10 Yrs)	2,342,000	2,342,000	0	0	0
11339	WC NCP: Cloverdale TS - 414m of 1350mm diameter	175 St: Cloverdale By-pass - Hwy 10	Short Term (1 - 5 Yrs)	3,772,000	3,772,000	0	0	0
11344	90m of 300mm diameter	064 Ave: 130 St - 13031 64 Ave	Long Term (6 - 10 Yrs)	369,000	295,000	74,000	0	0
11353	55m of 250mm diameter (diversion)	138 St: 92 Ave to #9177	Short Term (1 - 5 Yrs)	250,000	200,000	50,000	0	0
11360	332m of 375mm to 450mm diameter Trunk	120 St: 100 Ave - 101A Ave	Long Term (6 - 10 Yrs)	1,344,000	1,344,000	0	0	0
11965	Semiahmoo TC NCP: 151m of 300mm diameter sewer (t	Southmere Cres: Southmere Pl to 19A Ave	Short Term (1 - 5 Yrs)	515,000	515,000	0	0	0
11966	Semiahmoo TC NCP: 141m of 450mm diameter (to be D	17 Ave: 148A St to Southmere Cr	Short Term (1 - 5 Yrs)	651,000	651,000	0	0	0
11969	Semiahmoo TC NCP: 271m of 450mm diam sewer (to be	148 St: 16 Ave to 17 Ave; 17 Ave: 148 St to #14812	Short Term (1 - 5 Yrs)	1,436,000	1,436,000	0	0	0
13622	DCCFE: 140m of 300mm diameter	168 St: 102 Ave - 103 Ave	Long Term (6 - 10 Yrs)	53,000	53,000	0	0	0
13630	DCCFE: 126m of 250mm diameter	168 St: 103 Ave to 10362 168 St	Long Term (6 - 10 Yrs)	48,000	48,000	0	0	0
13631	DCCFE: 60m of 250mm diameter	168 St: 104 Ave to 10362 168 St	Long Term (6 - 10 Yrs)	23,000	23,000	0	0	0
13686	60m of 375mm diameter (to be DCW)	022 Ave: 156 St - King George Blvd (ROW W1974-0509)	Short Term (1 - 5 Yrs)	165,000	165,000	0	0	0
13722	191m of 525mm diameter	70 Ave: 137A to 138 St	Short Term (1 - 5 Yrs)	932,000	746,000	186,000	0	0
13730	Newton TC NCP: 157m of 525mm to 675 mm diameter	70 Ave: 136B St to 137A St	Short Term (1 - 5 Yrs)	791,000	633,000	158,000	0	0
13765	236m of 375mm diameter sewer upgrade	123 St: lot 8482 (ROW E1975-0018)	Short Term (1 - 5 Yrs)	920,000	736,000	184,000	0	0
14068	302m of 450mm diameter Trunk Sewer	168 St: 108 Ave to #10663	Long Term (6 - 10 Yrs)	1,395,000	1,395,000	0	0	0
14075	320m of 200mm diameter (Robson)	Robson South	Short Term (1 - 5 Yrs)	893,000	0	893,000	0	0
14081	155m of 200mm diam (Robson FRRS)	97A Ave: 127 St to 128 St	Short Term (1 - 5 Yrs)	432,000	0	432,000	0	0
14102	Rehab & Replacement of AC Mains	Various Locations	Long Term (6 - 10 Yrs)	7,500,000	0	7,500,000	0	0
14332	DCCFE: 79m of 250mm diameter twinning (Langley Bypa	19146 64 Ave - 6363 192 St	Long Term (6 - 10 Yrs)	52,000	52,000	0	0	0
14679	Langley Bypass: 220m of 300mm diam twinning (to be D	194A St: SouthPL of 7185 to 71 Ave	NCP Driven	750,000	750,000	0	0	0
15100	City Centre NCP: 101m of 525mm diameter Trunk	108 Ave / 132A St (intersection)	NCP Driven	592,000	592,000	0	0	0
15101	City Centre NCP: 153m of 450mm diameter	Bentley Rd: 13546 to Hilton Rd	NCP Driven	707,000	707,000	0	0	0
15102	City Centre NCP: 43m of 525mm diameter	Bentley Rd: King George Blvd to 13546 Bentley Rd	NCP Driven	210,000	210,000	0	0	0
15124	WC NCP: Cloverdale TS (56 Ave to 68 Ave): 127m of 900r	Hwy 15: N of 062A Ave	NCP Driven	1,224,000	1,224,000	0	0	0
15125	WC NCP: Cloverdale TS (56 Ave to 68 Ave): 107m of 900r	Hwy 15: S of 064 Ave	NCP Driven	1,031,000	1,031,000	0	0	0
15126	WC NCP: Cloverdale TS (56 Ave to 68 Ave): 89m of 900m	Hwy 15: 062 Ave - 062A Ave	NCP Driven	858,000	858,000	0	0	0
15127	WC NCP: Cloverdale TS (56 Ave to 68 Ave): 133m of 900r	Hwy 15: N of 064 Ave	NCP Driven	1,282,000	1,282,000	0	0	0
15128	WC NCP: Cloverdale TS (56 Ave - 68 Ave): 136m of 900m	Hwy 15: S of 065A Ave	NCP Driven	1,310,000	1,310,000	0	0	0
15199	330m of 450mm diameter Flow Diversion (Elgin)	King George Blvd - Elgin Rd: lot 3653 (South Port P.S.)	Short Term (1 - 5 Yrs)	4,700,000	1,410,000	3,290,000	0	0
15244	120m of 375mm Sanitary Sewer Flow Diversion	124 St and 82 Ave	Short Term (1 - 5 Yrs)	468,000	468,000	0	0	0
15931	710m of 250 mm diameter (FRRS)	90A Ave: 124 St to 126 St	Short Term (1 - 5 Yrs)	1,510,000	755,000	755,000	0	0
15932	455m of 250 mm diameter (FRRS)	90 Ave: 124 St to 125 St	Short Term (1 - 5 Yrs)	1,780,000	890,000	890,000	0	0
15940	350m of 200 mm diameter (Robson)	9975 130 St to 13090 Pekin Pl	Long Term (6 - 10 Yrs)	1,074,000	0	1,074,000	0	0
15952	275 m of 250 mm diameter (FRRS)	110 Ave: 14790 to 14661	Short Term (1 - 5 Yrs)	896,000	0	896,000	0	0
15958	670m of 200mm to 250 mm diameter (Birdland FRRS)	107 Ave: 14610 to 148 St, Lane N of 107 Ave:14610 to 14	Short Term (1 - 5 Yrs)	1,902,000	0	1,902,000	0	0
16364	WC NCP: NCTS Section 5 - 764m of 900mm trunk (to be I	74 ave: lot 18175 (through ROW) to 7747 184 St	Short Term (1 - 5 Yrs)	4,600,000	4,600,000	0	0	0
16365	WC NCP: NCTS Section 6 - 235m of 750mm dia (to be DC	7747 184 St (through ROW)	Short Term (1 - 5 Yrs)	1,180,000	1,180,000	0	0	0
16644	550m of 600mm diam trunk Redwood Heights (outside N	32 Ave: Highway 15 to 17325	NCP Driven	3,445,000	3,445,000	0	0	0
16699	255m of 600mm diameter trunk sewer (Birdland diversic	Bluebird Cr, Oriole Dr	Long Term (6 - 10 Yrs)	1,331,000	0	1,331,000	0	0
16912	582m of 200mm to 250mm diam (Robson Replacement	Grove Cr:12502 99 Ave to woodland Pl	Short Term (1 - 5 Yrs)	1,897,000	0	1,897,000	0	0
16915	260m of 250mm diam (Robson FRRS)	98 Ave: 128 St to lane E of 129 St	Long Term (6 - 10 Yrs)	848,000	0	848,000	0	0
16922	1235m of 200mm to 250mm diam sewer (Birdland Repla	Birdland North Area	Short Term (1 - 5 Yrs)	3,728,000	0	3,728,000	0	0
16925	255m of 200 to 250mm diam sewers (Birdland Replacem	Partridge Cr: 10960 to Blackbird Cr	Short Term (1 - 5 Yrs)	724,000	0	724,000	0	0
16926	645m of 200mm to 250mm diam (Birdland Replacement	110 Ave to 111A Ave: 146 St to 147A St.	Short Term (1 - 5 Yrs)	2,038,000	0	2,038,000	0	0
16947	300m of 200mm to 250mm diam (Robson FRRS)	96A Ave to 129 St	Long Term (6 - 10 Yrs)	900,000	0	900,000	0	0
16949	1260m of 200mm diameter sewers (Birdland)	108 Ave to 110 Ave: 144A St to 148 St	Long Term (6 - 10 Yrs)	3,515,000	0	3,515,000	0	0
16995	Newton TC NCP: 460m of 250mm to 450mm diam sanita	72 Ave: 13671 to 137 St, 136B St:70 Ave to 72 Ave	Short Term (1 - 5 Yrs)	1,864,000	1,864,000	0	0	0

17012	Cloverdale TC NCP: 161m of 375mm to 450mm Diam	172 St: South PL of 17222 57 Ave to MV Sewer South of I	NCP Driven	751,000	751,000	0	0	0
17031	Newton TC NCP: 350m of 675mm Diam	Alongside BC Hydro Rwy at 13720 70 Ave	Long Term (6 - 10 Yrs)	1,412,000	1,412,000	0	0	0
17032	Newton TC NCP: 143m of 675mm Diam	At 13855 68 Ave	Long Term (6 - 10 Yrs)	769,000	769,000	0	0	0
17037	Newton TC NCP: 271m of 675mm Diam	68 Ave: BCH RWY to 140 St	Long Term (6 - 10 Yrs)	1,458,000	1,458,000	0	0	0
17040	Newton TC NCP: 410m of 675mm Diam	68 Ave: 140 St to 142 St	Long Term (6 - 10 Yrs)	2,206,000	2,206,000	0	0	0
17065	Newton KGB NCP: Flow Diversion - 450mm diam	68 Ave and King George Blvd	Short Term (1 - 5 Yrs)	262,000	262,000	0	0	0
17237	WC NCP: NCTS - 910m of 750mm dia Trunk Phase 2	184 St to 188 St: South of 80 Ave through ROWs	NCP Driven	4,200,000	4,200,000	0	0	0
17485	1300m of 200mm to 375mm diam (Robson Replacement	99 Ave and 128 St	Short Term (1 - 5 Yrs)	3,800,000	0	3,785,000	15,000	0
17499	670m of 200 to 250mm diam (Robson ACRP FRRS)	130 St: 96A Ave to 98A Ave	Long Term (6 - 10 Yrs)	2,001,000	0	2,001,000	0	0
17569	City Centre NCP: 225m of 900mm Trunk Sewer	138 St and Fraser Hwy West and South to 97B Ave and 1	Long Term (6 - 10 Yrs)	2,168,000	2,168,000	0	0	0
17840	840m of 200mm to 300mm diam (Robson Replacement)	98 Ave: 125A st to 128 St	Short Term (1 - 5 Yrs)	2,649,000	0	2,649,000	0	0
17841	1230m of 200 to 250mm diam (Robson Repl)	Lane N of 97 Ave to Lane N of 96 Ave from 126 St to 128	Long Term (6 - 10 Yrs)	3,650,000	0	3,650,000	0	0
17842	135m of 250mm diam (Robson Replacement) FRRS	128 St: #9577 to #9609	Long Term (6 - 10 Yrs)	528,000	0	528,000	0	0
17844	71m of 200mm diameter sewers (Birdland)	Lane South of 109A Ave: #14763 to 148 St	Long Term (6 - 10 Yrs)	198,000	0	198,000	0	0
17845	566m of 200mm diameter sewers (Birdland FRRS)	108 Ave to 109 Ave: 146 St to 148 St	Long Term (6 - 10 Yrs)	1,579,000	0	1,579,000	0	0
17850	1740m of 200-375mm diameter (Robson)	96 Ave to 98 Ave:124A St to 126 St	Short Term (1 - 5 Yrs)	4,645,000	0	4,645,000	0	0
17851	230m of 200mm to 250mm diam. (Royal Heights)	Regal Dr: 11301 to River Rd	Short Term (1 - 5 Yrs)	718,000	0	718,000	0	0
17863	535m of 675mm to 750mm diam Trunk Sewer (Birdland)	Glen Avon Dr: Ellendale Dr to St Andrews Dr	Short Term (1 - 5 Yrs)	3,345,000	3,345,000	0	0	0
17949	Cloverdale TC NCP: 51m of 300mm Diam	57 Ave: 177B St West to lane	NCP Driven	174,000	174,000	0	0	0
18017	Repair Exposed Trunk Sewer at Creek Crossing	Creek behind 9842 181 St	Short Term (1 - 5 Yrs)	450,000	0	450,000	0	0
18694	350m of 200mm diam (Birdland ACRP)	Canary Dr: #14943 to #15134	Short Term (1 - 5 Yrs)	976,000	0	976,000	0	0
18695	110m of 200mm diameter sewer (Birdland FRRS)	Dove Pl: #15144 to Raven Pl	Short Term (1 - 5 Yrs)	306,000	0	302,000	4,000	0
18696	110m of 200mm diameter sewer (Birdland FRRS)	Raven Pl: #15139 to #15117	Short Term (1 - 5 Yrs)	307,000	0	307,000	0	0
18697	521m of 200mm to 300mm diameter sewer (Birdland)	152 St, Flamingo, Hummingbird	Long Term (6 - 10 Yrs)	1,858,000	0	1,858,000	0	0
18700	650m of 250mm to 375mm diameter sewer (AC Repl)	132 St: 108 Ave to King George Blvd	Short Term (1 - 5 Yrs)	2,228,000	0	2,228,000	0	0
18701	614m of 200mm to 250mm diameter sewer (AC Repl)	108 ave to 109 Ave; 130A St to 132 St	Long Term (6 - 10 Yrs)	1,756,000	0	1,756,000	0	0
18702	945m of 200mm diameter sewer (AC Repl)	131 St to 132 St; 109 Ave to 111 Ave	Long Term (6 - 10 Yrs)	2,637,000	0	2,637,000	0	0
18704	57m of 200mm diam (Royal Heights)	Queens Pl: Cul-de-sac to River Rd	Short Term (1 - 5 Yrs)	50,000	0	50,000	0	0
18725	103m of 900mm diameter sewer (deep)	160 St: #9945 to 100 Ave	Long Term (6 - 10 Yrs)	1,158,000	1,158,000	0	0	0
18911	141m of 900mm diameter trunk sewer (Upper Tynehead	South of 99B Ave: 160 St East to the Tynehead Siphons	Long Term (6 - 10 Yrs)	1,832,000	1,832,000	0	0	0
19117	Darts Hill NCP: 316m of 450mm to 600mm diameter sew	174 St: 16A Ave to 16 Ave; 16 Ave: 173 St to 174 St	NCP Driven	1,655,000	1,655,000	0	0	0
19118	Darts Hill NCP: 26.9m of 600mm Trunk Sewer (to be DCC	172 St and 16 Ave to Siphon	Short Term (1 - 5 Yrs)	154,000	154,000	0	0	0
19277	202m of 200mm to 250mm diameter sewer (AC Replace	131A St and 112 Ave	Short Term (1 - 5 Yrs)	577,000	0	577,000	0	0
19278	63m of 300mm diameter sewers (AC Repl Birdland)	Blackbird Cr: Oriole Dr to Partridge Cr	Short Term (1 - 5 Yrs)	215,000	0	215,000	0	0
19419	Semiahmoo TC NCP: 137m of 250mm to 375mm diamet	24 Ave: 154 St to King George Blvd	NCP Driven	551,000	551,000	0	0	0
19420	Semiahmoo TC NCP: 255m of 450mm diam Trunk Sewer	King George Blvd: 54 Ave to #2500	NCP Driven	1,414,000	1,414,000	0	0	0
19421	Semiahmoo TC NCP: 164m of 450mm diam sewers	King George Blvd: #2205 to #2143	NCP Driven	909,000	909,000	0	0	0
19422	Semiahmoo TC NCP: 110m of 250mm diam (LD 23-0056	King George Blvd: #2062 to #1972	NCP Driven	430,000	430,000	0	0	0
19423	Semiahmoo TC NCP: 11m of 450m diam	King George Blvd and 16 Ave (North Bluff PS)	NCP Driven	61,000	61,000	0	0	0
19514	213m of 250mm to 375mm diam sewers (Robson Replac	128 St: 100 Ave to 99 Ave	Short Term (1 - 5 Yrs)	871,000	0	871,000	0	0
19568	550m of 200 to 250mm diameter (Robson)	102 Ave to 104 Ave, 127B st to 128A St	Short Term (1 - 5 Yrs)	1,595,000	0	1,595,000	0	0
19576	CIPP Pipe Replacement	Various Locations	Annual	20,000,000	0	20,000,000	0	0
19849	Newton KGB NCP: 790m of 600mm to 750mm diam sew	142 St: 68 Ave - 66 Ave, and 66 Ave: 142 St to 144 St	Long Term (6 - 10 Yrs)	5,000,000	5,000,000	0	0	0
20083	Upgrade to Pressure Manholes x 3	56 Ave and Old McLellan Rd	Short Term (1 - 5 Yrs)	160,000	0	160,000	0	0
20208	Lougheed 1 PS Inlet Pipe Regrading	11568 132A St	Short Term (1 - 5 Yrs)	600,000	0	600,000	0	0
20252	385m of 300mm diam sewer	156 St: 92 Ave to 94 Ave	Short Term (1 - 5 Yrs)	1,576,000	788,000	788,000	0	0
20329	210m of 200mm diam (Robson ACRP)	Lanes E and W of 128 St: 96B Ave North	Short Term (1 - 5 Yrs)	586,000	0	586,000	0	0
20331	375m of 200m diam (Robson Pipe burst or Reline)	124 St and 98 Ave to 99 Ave and 124A St	Short Term (1 - 5 Yrs)	754,000	0	754,000	0	0
20332	171m of 200mm diam (Robson)	124A St: 97B Ave to Pinewood Cr	Short Term (1 - 5 Yrs)	477,000	0	477,000	0	0
20505	21m of 250mm diam sewer diversion (to be DCW)	150 St and 20 Ave	Short Term (1 - 5 Yrs)	100,000	100,000	0	0	0
20528	195m of 375m Trunk Sewer	60 Ave and 180 St	Short Term (1 - 5 Yrs)	853,000	853,000	0	0	0
20529	92m of 375mm diam Trunk Sewer	181A St: 61A Ave to 61B Ave	Long Term (6 - 10 Yrs)	359,000	359,000	0	0	0
20532	81m of 450mm diam Trunk Sewer	65A Ave: Hwy 15 to 176A St	Short Term (1 - 5 Yrs)	374,000	374,000	0	0	0
20533	233m of 600mm diam Trunk	Hyland Rd: 138 St to 68 Ave	Long Term (6 - 10 Yrs)	1,516,000	1,516,000	0	0	0
20535	290m of 375mm diam Sewer	156 Ave: 99A Ave to 98 Ave	Long Term (6 - 10 Yrs)	1,357,000	1,357,000	0	0	0
20550	502m of 300mm to 450mm diam Trunk Sewers	94 Ave/155A St East and North to 156 St/96 Ave	Short Term (1 - 5 Yrs)	2,700,000	2,700,000	0	0	0
20556	Guildford NCP: 395m of 675mm diam Trunk Sewer	100 Ave: 152 St to 154 St	Short Term (1 - 5 Yrs)	2,550,000	2,550,000	0	0	0

20675	590m of 375mm diam sewers (to be DCCFE)	72 Ave: 182 St to 17929 Fraser Hwy	Long Term (6 - 10 Yrs)	2,301,000	2,301,000	0	0	0

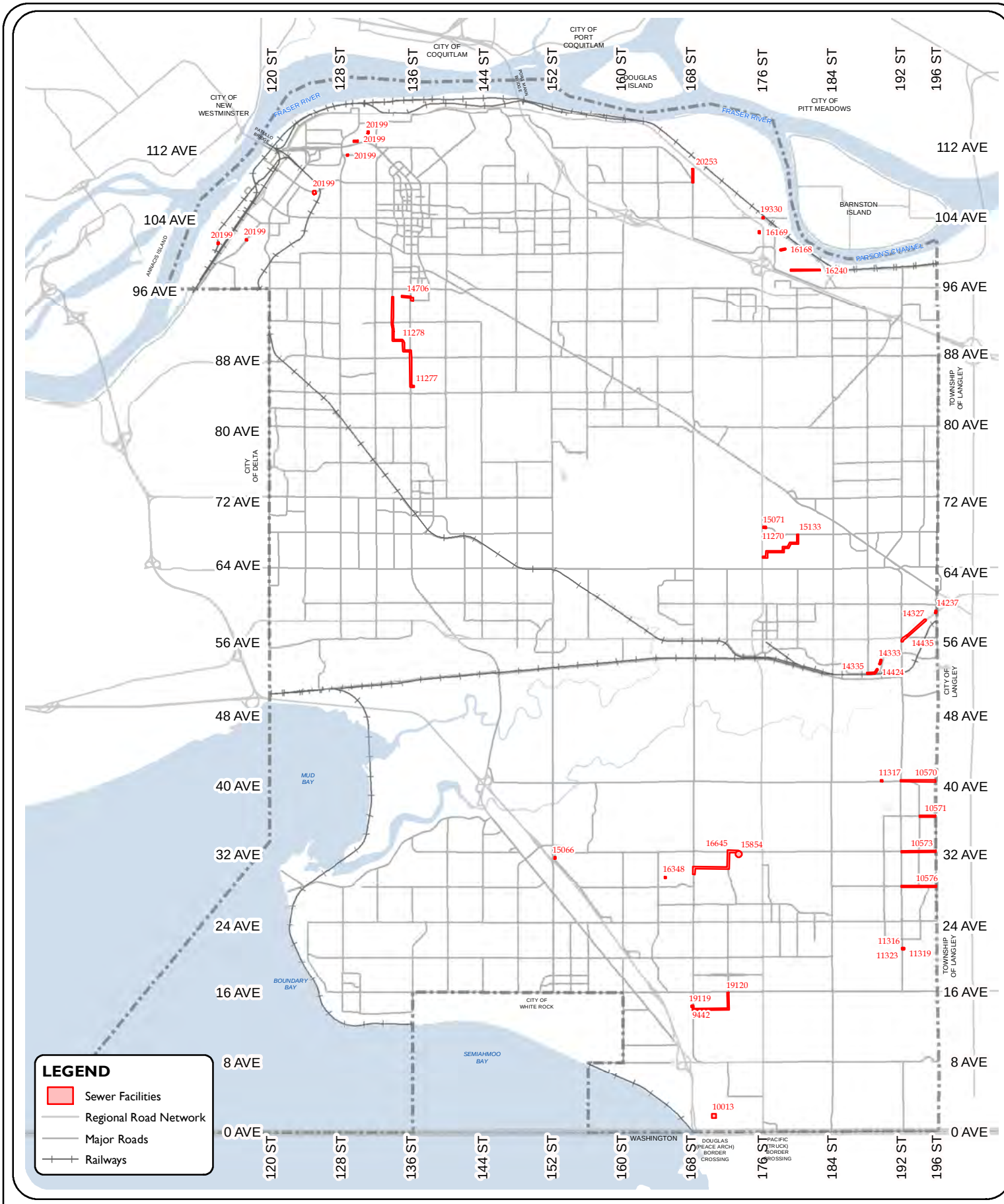

FIGURE 4.3 - Sewer
Sewer Facilities (Program 1644)

0 0.5 1 2 3 KM

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SEWER

Program 1644 - S - Sewer Facilities

Program Total	**69,687,000**	**57,416,000**	**12,037,000**	**234,000**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
9442	DCCFE: Grandview South/Fergus Pump Station & Forcem	168 St / 13 Ave	Long Term (6 - 10 Yrs)	1,276,000	1,276,000	0	0	0
10013	DCCFE: Emergency Storage for Douglas Pump Stn (West)	171 St / 002 Ave	Long Term (6 - 10 Yrs)	300,000	300,000	0	0	0
11270	WC NCP: North Cloverdale PS Upgrade Phase 1	176 St / 68 Ave	NCP Driven	3,500,000	3,500,000	0	0	0
11277	Bear Creek Relief Pump Station	King George Blvd and 84 Ave	Long Term (6 - 10 Yrs)	14,700,000	14,700,000	0	0	0
11278	Bear Creek Relief PS FM: 2,820m of 650mm forcemain	134 St: 95 Ave to 90 Ave, 135A St, 89A Ave, KGB, 84 Ave	Short Term (1 - 5 Yrs)	11,280,000	11,280,000	0	0	0
11281	Odour Control Facility	Various Locations	Long Term (6 - 10 Yrs)	2,750,000	688,000	2,062,000	0	0
11287	Pump Stations Upgrades	Various Locations	Annual	5,000,000	0	5,000,000	0	0
14237	Langley Bypass: 32m of 525mm diameter (DCCFE)	Hwy 10/196 St	Long Term (6 - 10 Yrs)	31,000	31,000	0	0	0
14327	Langley Bypass: 150m of 600mm diameter twinning (DC	19425 Hwy 10	Long Term (6 - 10 Yrs)	461,000	461,000	0	0	0
14333	Langley Bypass: 84m of 450mm diameter twinning (DCCI	5358 - 189 St East side ROW	Long Term (6 - 10 Yrs)	66,000	66,000	0	0	0
14335	Langley Bypass: 50m of 675mm diameter twinning (DCCI	052 Ave: South of 18833	Long Term (6 - 10 Yrs)	170,000	170,000	0	0	0
14424	Langley Bypass: 93m of 675mm diam twinning (LD7815-(	18872 - 52 Ave	NCP Driven	266,000	266,000	0	0	0
14435	Langley Bypass: 18m of 600mm diameter twinning (DCCI	19219 Hwy 10	Long Term (6 - 10 Yrs)	140,000	140,000	0	0	0
14706	Quibble Creek Pump Station Upgrade	King George Blvd / 94A Ave	Short Term (1 - 5 Yrs)	7,750,000	7,750,000	0	0	0
15066	Odour Pre-treatment Facility for Rosemary Heights Bio-b	Croydon Dr: Lot 3144 (Rosemary Heights Bio-bed)	Long Term (6 - 10 Yrs)	1,550,000	0	1,550,000	0	0
15071	WC NCP: North Cloverdale PS Overflow Storage Tank Ph	176 St/68 Ave (N)	NCP Driven	2,165,000	2,165,000	0	0	0
15133	WC NCP: 180th St Sewer Diversion (DCCFE)	180 St: 68 - 67 St; 67 St: 180 St - 67 Ave: Lot 17926; &mo	Long Term (6 - 10 Yrs)	346,000	346,000	0	0	0
15854	Grandview Heights East PS to be DCCFE (outside NCP co	17325 32 Ave	Short Term (1 - 5 Yrs)	1,100,000	1,100,000	0	0	0
16168	DCCFE: 101m of 900mm diameter Sewer (LD 7816-0032-	17800blk of 100A Ave	Long Term (6 - 10 Yrs)	89,000	89,000	0	0	0
16169	DCCFE: 71m of 900mm diameter sewer (7816-0032-01)	10245 176 St	Long Term (6 - 10 Yrs)	128,000	128,000	0	0	0
16240	182A St Sanitary Pump Station and Forcemain (to be DC	182A St and Hwy 17; 182A St: Hwy 17 to 98 Ave;	NCP Driven	2,810,000	2,810,000	0	0	0
16348	Odour Facility for GH East PS Redwood H (outside NCP c	16484 29A Ave	Long Term (6 - 10 Yrs)	400,000	400,000	0	0	0
16645	1080m of 500mm dia FM Redwood H. to be DCCFE (outs	Redwood Heights	Short Term (1 - 5 Yrs)	1,237,000	1,237,000	0	0	0
19119	Darts Hill NCP: Fergus PS Upgrade and OCF (DCCFE)	Fergus PS (1400 Blk and 168 St)	Short Term (1 - 5 Yrs)	400,000	400,000	0	0	0
19120	Darts Hill NCP: Twin Siphon Sanitary Sewer (DCCFE)	172 St & 16 Ave to Fergus PS (7820-0186-00)	Short Term (1 - 5 Yrs)	5,236,000	5,236,000	0	0	0
19330	3 Pump Station Demolition	Big Bend, Bridgeview East, Bridgeview West	Short Term (1 - 5 Yrs)	1,434,000	0	1,200,000	234,000	0
20199	LPS Permanent Flow Meters (x5)	Bridgeview and Southwestminster	Short Term (1 - 5 Yrs)	1,000,000	0	1,000,000	0	0
20253	500m of 750mm diam pressure sewer	168 St: 108 ave to MV main	Short Term (1 - 5 Yrs)	2,450,000	1,225,000	1,225,000	0	0
20920	Campbell Hts. Pump Station - 2nd Upgrade to 210 L/s	021 Ave / 192 St		539,000	539,000	0	0	0
20923	Campbell Hts Grit Chamber	040 Ave / 19000 blk (N)		747,000	747,000	0	0	0
20924	Odour Control Facilities at Pump station	021 Ave / 192 St		366,000	366,000	0	0	0

5. DRAINAGE

The City's drainage basins are comprised of upland and lowland areas. Generally, the upland areas are being urbanized while the lowlands are within the designated Agricultural Land Reserve ("ALR"), with the exception of the Fraser River and Crescent Beach floodplain areas. The City drains to four rivers - the Serpentine, Nicomekl, Little Campbell and Fraser Rivers - through a network of watercourses (rivers, creeks and ditches) and storm sewers.

These watercourses are habitat areas that support aquatic life, including various species of Pacific salmon. In general, the upland drainage system operates as a free-flowing gravity system through open watercourses and storm sewers. The lowland drainage system's operation is impacted by the diurnal ocean tides and the extended wet weather of Pacific Northwest winters, and relies on a system of dyking, floodplain storage and pump stations.

The diverse meteorological, hydrological, topographical and eco-system characteristics of the City's watersheds and watercourses have created a complex drainage environment with distinct rainfall-runoff impact control needs. This poses many challenges in developing and managing a viable servicing scheme for the City, as mandated by the *Local Government Act*, that addresses current and long-term needs based on the current characteristics and those that may be impacted through climate change, including sea level rise.

The 10-Year Servicing Plan aims to ensure the City's drainage utility provides a high level of service within the natural constraints highlighted above. This includes operation and maintenance of the existing system; planning, design and construction of new infrastructure to support growth and development; and monitoring system performance. Climate adaptation investigations to determine vulnerable areas and projected servicing requirements are also a part of the Servicing Plan.

5.1 Drainage Inventory

The drainage system in the City generally consists of a combination of storm sewers in urban areas, constructed drainage ditches in rural and older urban areas, natural watercourses, streams and rivers, and dykes, flood boxes and pump stations in lowland areas. The current estimated inventory is shown in **Table 5.1**.

Table 5.1 – Major Drainage System Infrastructure Summary

Storm Sewers	2,035 km
Ditches	954 km
Watercourses	286 km
Serpentine River	31 km
Nicomekl River	21 km
Little Campbell River	15 km
TOTAL	**3,342 km**

5.2 Drainage Program Needs

The capital needs for drainage comprise of various programs of work to meet the needs of the existing residents as well as support new growth.

Programs dealing with servicing existing residents are focused on infrastructure to address the following:

- Public safety;
- Preserving aquatic habitat;
- Avoiding property damage from flooding and land erosion;
- Asset management and infrastructure renewal;
- Reducing inconvenience to the public from problems like localized ponding; and
- Climate change adaptation.

The growth-related programs of works identified are intended to:

- Meet the drainage servicing needs for new growth; and
- Mitigate any downstream impacts associated with growth.

Figure 5.1 provides an overview of the City's drainage system.

The works included in the 10-Year Servicing Plan reflect current design criteria requirements, policies to promote orderly development, and protection of natural watercourses including the more holistic approaches proposed in Master Drainage Plans ("MDPs"), Functional Plans, NCPs, Integrated Stormwater Management Plans ("ISMPs") and Drainage Strategies that are either complete or substantially complete.

ISMPs are a municipal action item included in Metro Vancouver's Integrated Liquid Waste and Resource Management Plan ("ILWRMP"). These plans are aimed at bridging the gap between traditional drainage planning through MDPs and land-use planning, while protecting the recreational, environmental and physical functionalities of the City's natural drainage system. According to the ILWRMP, an ISMP must be completed for every urban (or potentially urban) watershed within the region.

There are drainage related impacts due to urbanization that are not fully addressed in the programs mentioned above. These include impacts to water quality, base flows and groundwater. In these situations, the City relies on the development community to address these issues through the provisions of Best Management Practices ("BMPs") and source controls. A framework for implementation of these BMPs is provided through ISMPs, MDPs and NCPs.

The 10-Year Servicing Plan only identifies the offsite drainage work necessary to manage and mitigate the impacts of development. Onsite works, as identified by ISMPs and NCPs, may be required in certain areas of the City. Onsite works are the responsibility of the developer, and they are not a DCC eligible item.

The City has developed a Coastal Flood Adaptation Strategy ("CFAS"). This strategy looks at the potential impact of sea level rise and climate change on Surrey's coastal community. The strategic direction proposes a suite of recommendations to assist with adaptation efforts and flood resiliency moving forward.

In 2019, the City was successful in obtaining Federal grant funding through the Disaster Mitigation and Adaptation Fund ("DMAF") to assist with funding of key projects which arose from the CFAS initiative. The proportion of federal funding is based on the type of expenditure, asset ownership and partnership arrangements and is capped at an overall contribution rate of 41.5% of eligible expenditures. DMAF projects total $187 million (up to $76.6 million Federal funding, approximately $61 million City funding, and the balance from partners and other grant sources) and are to be implemented before March 31, 2028. The City's 10 Year Servicing Plan reflects this funding, which is enabling the City to increase its resilience to coastal flooding and adapt to climate change and sea level rise, while upgrading older infrastructure.

The City has seen further success in securing external Provincial and Federal grant funding for various other lowland projects. The 10 Year Servicing Plan also reflects this grant funding.

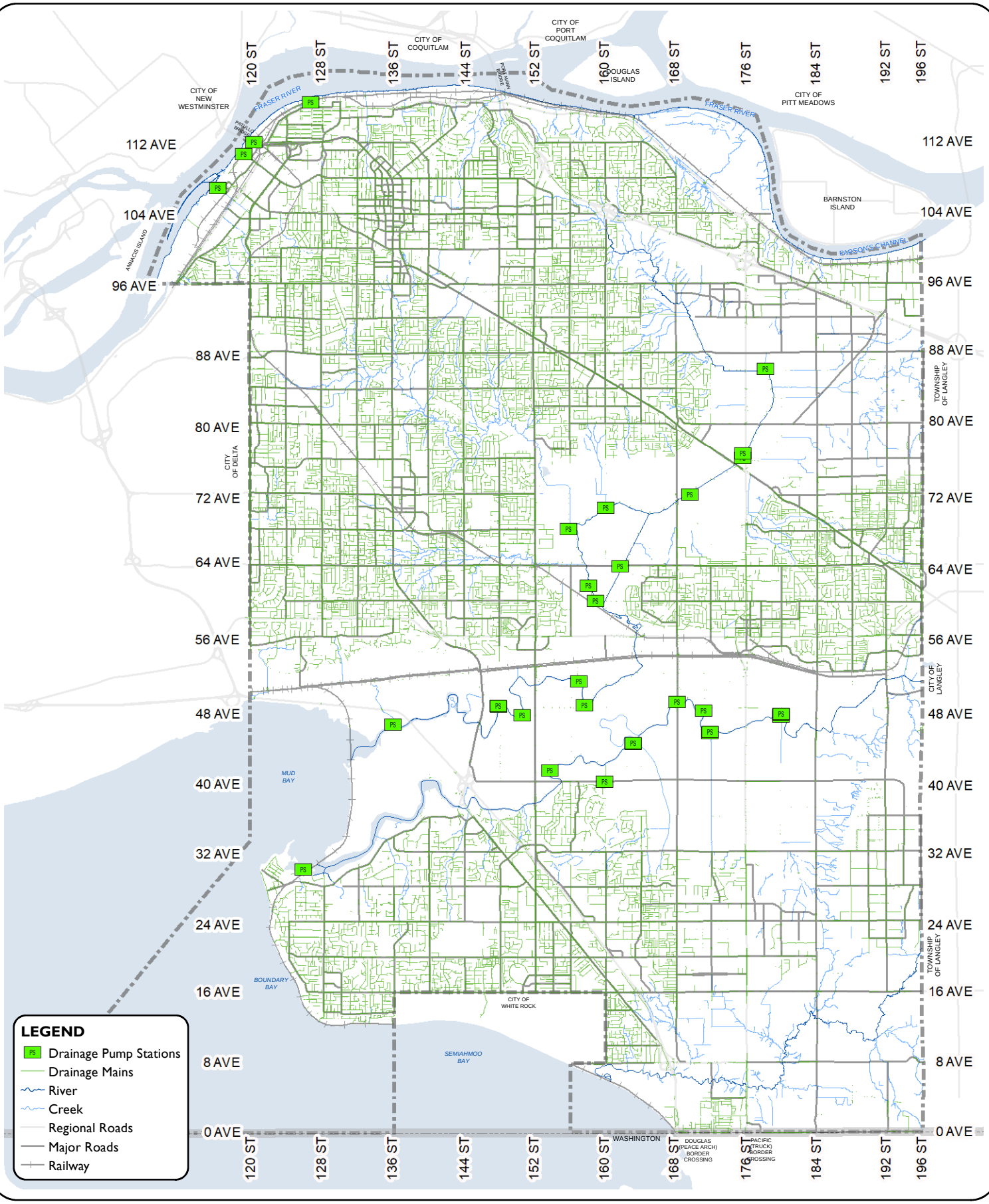

FIGURE 5.1 - DRAINAGE SYSTEM

0 0.475 0.95 1.9 2.85 KM

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5.3 Drainage Main Replacement Strategy

As part of the City's Sustainable Service Delivery (SSD) initiative, the City proactively manages the replacement of key drainage system's assets, which include drainage pipes and pump stations. Asset replacements are prioritized based on age, material, size, condition, maintenance records, locations, failure risk, and other relevant criteria.

The characteristics of the drainage pipes and pump stations requiring replacement in the next 50 years is summarized in **Table 5.2.**

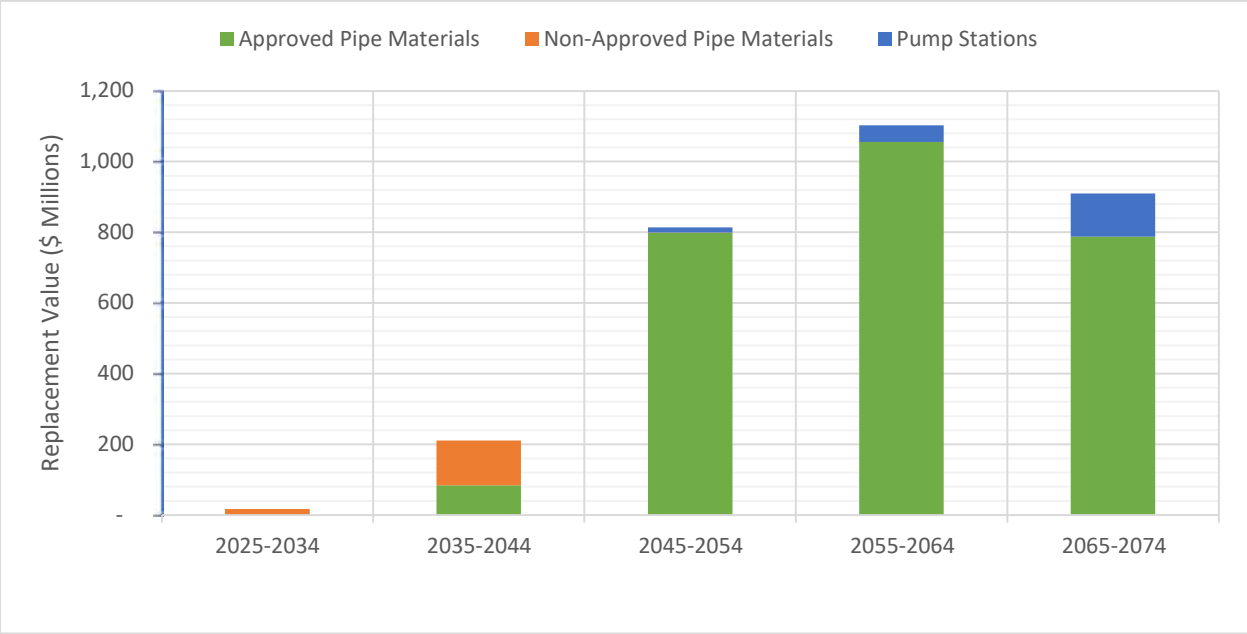
Table 5.2 Drainage System Replacement Requirements in the Next 50 Years

Asset Type	Total Asset Inventory (2024)	50 Year Replacement Forecast	50 Year Replacement Cost (1)
Approved Pipe Materials: Aluminum, Concrete, Polyethylene, Poly Vinyl Chloride, Polypropylene	2,004 km (98.5% of entire pipe length)	922 km	$2.726 Billion
Non-Approved Pipe Materials: Asbestos Cement, Corrugated Metal Pipe, Cast Iron, Ductile Iron, Steel Pipe, and Wood	31 km (1.5% of entire pipe length)	31 km	$145 million
Pump Stations	31	17	$184 million

(1) *No annual inflation applied to the cost.*

The estimated cost to replace aging drainage pipes and pump stations over the next 50 years is $2.87 billion and $184 million, respectively. The annual replacement cost over the next 50 years is illustrated in **Figure 5.2**.

Figure 5.2 – Estimated Drainage System Replacement Costs over the Next 50 Years



The service life of drainage pipes, constructed of currently approved materials and installed after the 1970's, is estimated to be 75 years. Assuming there is an average 75-year lifespan for these materials, only a small amount of drainage pipes may have to be replaced in the next 50 years.

It is too early to establish a strategy for the replacement of pipes beyond 50 years, as changing technologies and developments in asset management may influence the replacement strategy in that period.

5.4 Drainage Servicing Program

Program 1660 – Drainage Planning & Studies

This program is comprised of projects necessary for the planning, design and operation of the drainage system. Some of the projects include:

- Funding resources required to manage all aspects of the drainage program including servicing plans, staffing, public liaison, the review and project management of ISMPs and NCPs, as well as internal coordination with other divisions in Engineering and other departments.
- Monitoring initiatives that assist in all factors of drainage planning and system operation. A Surrey-wide rainfall, flow and water quality monitoring program is in place to provide more accurate predictions of rainfall, stream flows and water quality. The monitoring also provides staff with a better understanding of existing system operations after significant rainfall or drought events. Through the OceanMet monitoring program, the City is monitoring winds, waves, storm surges and tides around the Boundary Bay area. This data assists with emergency planning and to resolve questions regarding the local rate of sea level rise in the bay area.

Program 1662- Existing System Upgrades

Drainage improvements within this program seek to resolve documented or potential flooding and environmental concerns. Improving the drainage systems in older neighbourhoods has been an ongoing issue and will likely continue beyond the current extent of the 10-Year Servicing Plan.

Included within this program are existing system upgrades in the Robson and Birdland areas which have older drainage systems with limited service.

Program 1664 - Lowlands Flood Control

The City's approach towards lowlands flood control involves extending and raising dykes along the Serpentine and Nicomekl Rivers, as well as constructing pump stations and upgrading conveyance improvements throughout the lowland area in an effort to meet the Agricultural and Rural Development Subsidiary Agreement ("ARDSA") drainage service criteria.

The lowland strategy also includes the recommendations of the CFAS strategy for coastal areas. CFAS identified critical dykes, pump stations and infrastructure that require upgrading to address projected changes along the coastal environment. The City was successful in obtaining DMAF funds to assist with implementation of key projects; relevant projects in the 10-Year Servicing Plan include:

- Nicomekl and Serpentine River sea dam replacement or rehabilitation;
- Upgrades to the Colebrook dykes;
- Upgrades to the Serpentine dykes between King George Boulevard and 152 Street; and
- Mud Bay foreshore enhancements.

Through other external grant funding, the City is working to implement the following projects:

- Fry's Corner pump station cut-off wall to address seepage concerns;
- New drainage pump station near 16060 60 Avenue;
- Dyke raising along the Upper Serpentine River and Latimer Creek between Highway 15 and Fraser Highway; and
- Dyke raising along the Nicomekl River between 16900 block and 184 Street.

Program 1670 - Relief and Trunk Systems

Relief and trunk storm systems consist of storm sewers, overland flow paths, ditches and other conveyance systems that have a catchment area greater than 20 hectares and serve areas of urban development. These systems are sometimes applied as diversion systems to reduce erosive flows to the natural creeks, and as alternatives to stormwater detention ponds. In this case, the storm diversion provides a similar function as a detention pond to reduce peak storm discharges to streams.

With the recent Council endorsement of the South Campbell Heights Stage 2 Plan, the proposed drainage servicing projects have been added to the 10 Year Servicing Plan. These projects are DCC eligible and include:

- Ditch enhancements along 192 Street and 16 Avenue for water quality treatment;
- Roadside bioswales for water quality treatment, with infiltration capabilities, along new roadways;
- New storm sewers where necessary; and
- Storm sewer outfalls to the Little Campbell River, including energy dissipation structures.

Program 1672 - Community Detention

This program includes provisions for land acquisition and construction of stormwater detention ponds. These ponds are planned and designed to reduce peak flows to natural streams and improve water quality. The detention facilities listed have been recommended through existing ISMPs, MDPs and NCPs. Also included are detention/infiltration corridors proposed through applicable NCPs.

Program 1679 - Erosion and Ravine Stabilization

Creeks form an integral part of the City's drainage system. Although the City practices stormwater management to reduce impacts of peak flows on natural creeks, some allowance for erosion control is necessary due to local conditions. Detailed assessments of problem areas continue and the projects identified within this program are to address high-risk areas.

Program 1680 - DCW Upsizing

The design of community-level infrastructure (e.g., trunk sewers and ponds) in developing areas has been optimized to provide the best possible long-term system for the City. In some cases, this leads to increased local drainage servicing requirements beyond the minimum fronting servicing needs for properties/developments.

Since these larger local systems are integral to proper functioning of the community system, allocation has been made under this specific upsizing program through funding for growth. An allowance has been made based on a detailed review of the City's current drainage system make-up and anticipated future drainage system construction in developing neighbourhoods. The anticipated costs for upsizing are entirely linked to growth.

Program 1688 – Land Acquisition

This program includes provisions for land acquisition or statutory right of ways for storm infrastructure, stormwater detention ponds, erosion control sites and water quality facilities.

5.5 Drainage Cost Summary

No.	Program	Program Type	Growth ($)	Non-Growth ($)	External ($)	Total ($)
1660	Drainage Planning & Studies	Non-Capital	$5,731,000	$4,943,000	$5,462,000	$16,136,000
1662	Existing System Upgrades	Capital	$7,810,000	$48,584,000	$2,306,000	$58,700,000
1664	Lowlands Flood Control	Capital	$17,033,000	$86,932,000	$72,955,000	$176,920,000
1670	Relief and Trunk Systems	Capital	$52,417,000	$49,237,000	$4,500,000	$106,154,000
1672	Community Detention	Capital	$45,096,000	$225,000	$0	$45,321,000
1679	Erosion and Ravine Stabilization	Capital	$1,948,000	$7,769,000	$0	$9,717,000
1680	DCW Upsizing	Capital	$9,250,000	$0	$0	$9,250,000
1688	Land Acquisition	Capital	$12,361,000	$1,331,000	$0	$13,692,000
		Total	**$151,646,000**	**$199,021,000**	**$85,223,000**	**$435,890,000**

5.6 Drainage Projects by Program

This section contains tables and figures that identify the projects under the key drainage programs.

The tables provide the following information:

a) Project ID - the unique identifier of the project;
b) Project name - the specific name or generic name that depicts the type of work;
c) Project location - the geographic extent of the works;
d) Priority - the intended time frame for when the project is planned to proceed (subject to change); and
e) Costs – the high-level estimates in 2024 dollars (subject to change at the actual time of construction). The costs are comprised of growth and non-growth components.

Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations throughout Surrey may not be shown on the maps.

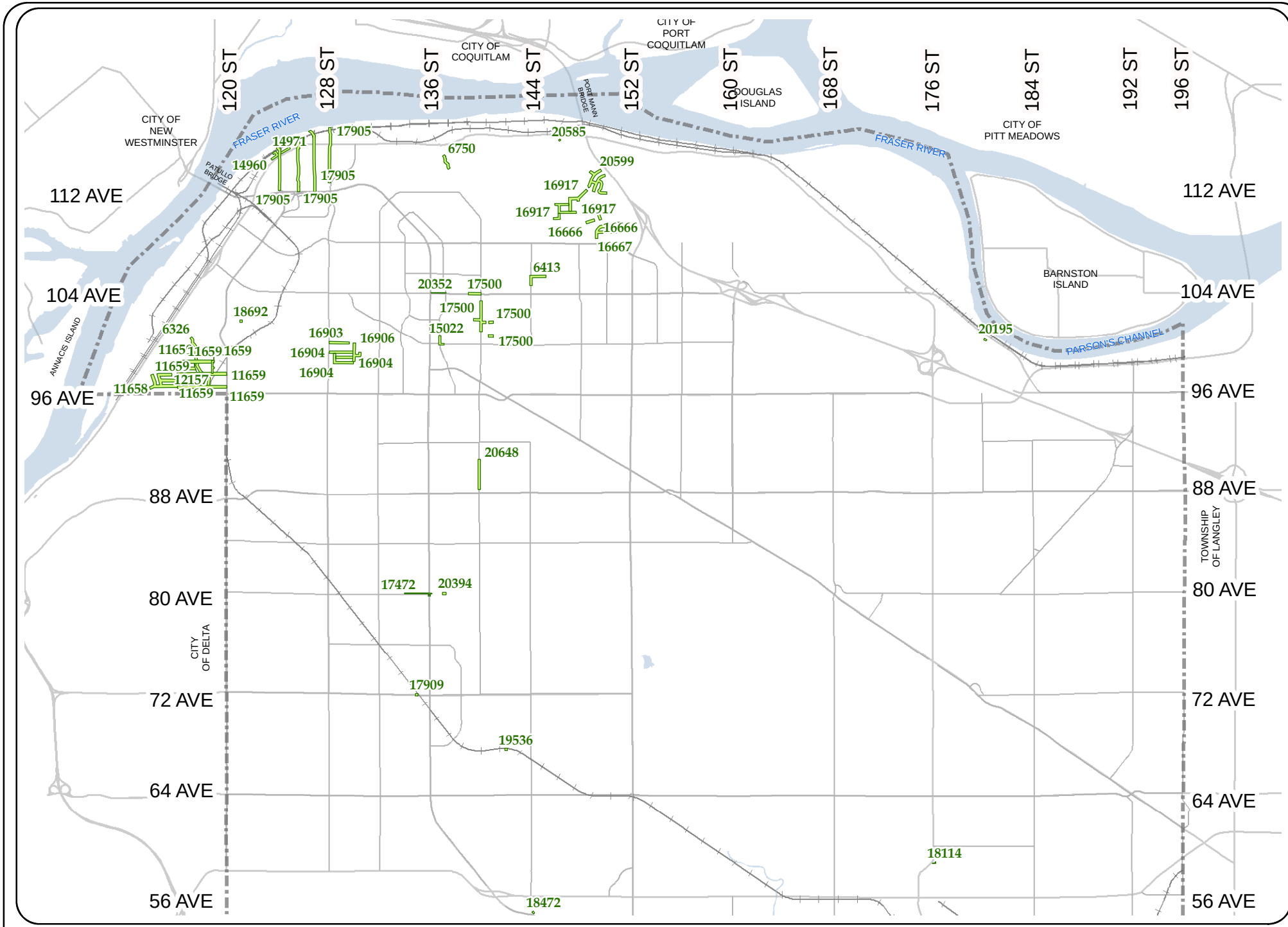


FIGURE 5.2 - Drainage
Existing System Upgrades (Capital) (Program 1662)

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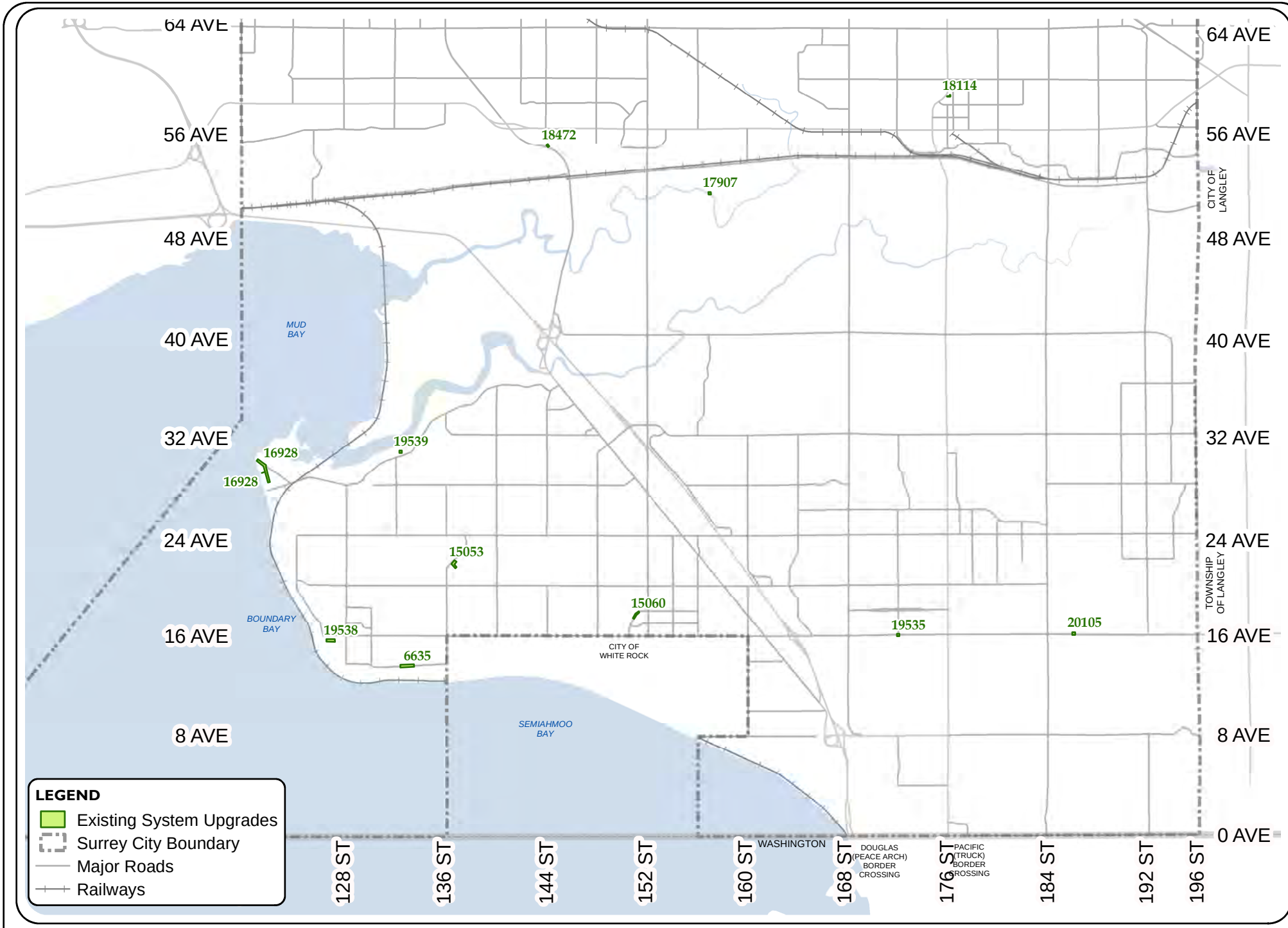

FIGURE 5.2 - Drainage
Existing System Upgrades (Capital) (Program 1662)

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DRAINAGE

Program 1662 - D - Existing System Upgrades

Program Total	**58,700,000**	**7,810,000**	**48,584,000**	**2,306,000**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
6326	Delta Creek Ravine protection	118 St 96 - River Rd (100 Ave)	Short Term (1 - 5 Yrs)	791,000	160,000	631,000	0	0
6413	350m of 375mm diameter. Pipe Upgrades	105A Ave: 144 - 145 St	Long Term (6 - 10 Yrs)	1,461,000	146,000	1,315,000	0	0
6635	Marine Drive Storm Upgrade	Marine Dr: 13245 Marine Dr to Knudson Creek	Long Term (6 - 10 Yrs)	810,000	0	810,000	0	0
6750	Southward Creek Diversion 759 m	138 St 114 Ave to 137 and 115 Ave	Long Term (6 - 10 Yrs)	3,172,000	634,000	2,538,000	0	0
11658	96A Ave to 97A Ave: 116 St -Townline Div Storm Sewer U	96A Ave to 97A Ave: 116 St - Townline Div	Long Term (6 - 10 Yrs)	2,161,000	0	2,161,000	0	0
11659	96A Ave to 99A Ave: 116 St - 120 St Storm Sewer Upgrad	96A Ave to 99 Ave: 116 St - 120 St	Long Term (6 - 10 Yrs)	4,432,000	0	4,432,000	0	0
12157	Storm Sewer Extension (In-house Design)	118B Street: 98Ave to 97A Ave	Short Term (1 - 5 Yrs)	571,000	0	571,000	0	0
14960	Industrial Rd and 116 Ave (Bridgeview Upgrade)	Industrial Rd and 116 Ave at SFPR	Long Term (6 - 10 Yrs)	1,546,000	773,000	773,000	0	0
14971	16m culvert upgrade to 2400mm	culvert under 126A St at Royal City PS	Short Term (1 - 5 Yrs)	300,000	60,000	240,000	0	0
15022	192m pipe upgrade on Whalley Blvd and 100 Ave	Whalley Blvd at 100 Ave	Long Term (6 - 10 Yrs)	947,000	189,000	758,000	0	0
15053	Sediment and Water Quality Device Upper Chantrell Crk	2101 - 136A St	Short Term (1 - 5 Yrs)	300,000	0	300,000	0	0
15060	125m pipe upgrade to 450mm	Martin Drive and Southmere Crescent,	Short Term (1 - 5 Yrs)	469,000	469,000	0	0	0
16666	East Bon Accord - S.Birdland Phs 2 & 4 - 2020	Partridge Cres	Short Term (1 - 5 Yrs)	1,021,000	0	1,021,000	0	0
16667	East Bon Accord - S.Birdland Phs 2 & 4 - 2021	Canary Dr, Bluebird Cres, & Oriole Dr	Long Term (6 - 10 Yrs)	3,775,000	755,000	3,020,000	0	0
16903	Phase 2 Robson Southeast	100 Ave from 129A to 128 St	Long Term (6 - 10 Yrs)	1,300,000	0	1,300,000	0	0
16904	Phase 3 Robson Southeast Drainage	99 Ave from 130 St to 128 St; 98B Ave from 130 St to 128	Short Term (1 - 5 Yrs)	5,551,000	1,100,000	4,451,000	0	0
16906	Phase 5 Robson Southeast Drainage - Part 2	130 St and Pekin Pl	Long Term (6 - 10 Yrs)	1,840,000	0	1,840,000	0	0
16917	Birdland Ellendale Dr. (Phases 1 to 3)	Ellendale Dr, 111A Ave, 111 Ave, 146A St, 110A Ave, 148	Short Term (1 - 5 Yrs)	5,945,000	1,189,000	4,756,000	0	0
16928	DMAF - Crescent Beach Phase 4	portions of Ohare Lane, Mcbride, sunshine alley, McKen	Short Term (1 - 5 Yrs)	5,007,000	0	2,914,000	2,093,000	0
17472	80th Ave storm upgrade to be done with road upgrades	80th Ave - 134 to KGB	Short Term (1 - 5 Yrs)	2,281,000	680,000	1,601,000	0	0
17500	Storm sewer upgrade on 140th St	140th st from 100 to 108 Ave	Long Term (6 - 10 Yrs)	3,403,000	681,000	2,722,000	0	0
17905	BridgeView Culvert Replacements	Bridgeview	Short Term (1 - 5 Yrs)	265,000	0	265,000	0	0
17907	Gray Creek Drainage Pump Station Forebay Expansion	Grey Creek Drainage Pump Station near 5117 157 St	Short Term (1 - 5 Yrs)	476,000	0	476,000	0	0
17909	Replace existing 900mm Wood Stave Pipe	72 Ave & Hall Rd	Short Term (1 - 5 Yrs)	229,000	0	229,000	0	0
18114	5871-176A St ROW Drainage Improvement	5871-176A St	Short Term (1 - 5 Yrs)	125,000	0	125,000	0	0
18472	Upsize 200mm to 250mm PVC 5439 144A St	5439 144A St	Short Term (1 - 5 Yrs)	280,000	0	280,000	0	0
18692	Missing Invert 450 CSP	121 St & 101B Ave	Short Term (1 - 5 Yrs)	766,000	0	766,000	0	0
19535	600 CP Inlet Capacity Constraint	16 Ave and 172 St	Short Term (1 - 5 Yrs)	180,000	0	180,000	0	0
19536	142 St Inlet Capacity Constraint	Hyland Road and 142 St	Short Term (1 - 5 Yrs)	550,000	0	550,000	0	0
19538	15A Ave Storm Sewer Replacement	15A Ave east of 126A St	Short Term (1 - 5 Yrs)	450,000	0	450,000	0	0
19539	13237 Crescent Rd Storm Sewer Outfall / Diversion	13237 Crescent Rd	Short Term (1 - 5 Yrs)	750,000	0	750,000	0	0
20105	18605 16 Ave Culverts Replacement (Twin Creeks)	18605 16 Ave	Short Term (1 - 5 Yrs)	880,000	667,000	0	213,000	0
20195	10030 181 St Water Quality Pond Retrofit	10030 181 Street	Short Term (1 - 5 Yrs)	165,000	33,000	132,000	0	0
20352	104 Ave (Whalley Blvd to KGB) Storm Sewer Upgrade	104 Ave Whalley Blvd to KGB	Short Term (1 - 5 Yrs)	778,000	0	778,000	0	0
20394	Hook Brook Culvert Outlet Replacement (Site ID 45-75)	13715 80 Ave	Short Term (1 - 5 Yrs)	170,000	34,000	136,000	0	0
20585	Surrey Rd Box Culvert Rehabilitation	11597 Surrey Rd	Short Term (1 - 5 Yrs)	260,000	0	260,000	0	0
20599	Birdland - Perth Dr to Kew Dr	South and West of Glen Avon Dr	Short Term (1 - 5 Yrs)	4,093,000	0	4,093,000	0	0
20648	140 St (88 to 90A Ave) Storm Sewer Upgrade	from 9063 140 St to 8825 140 St	Short Term (1 - 5 Yrs)	1,200,000	240,000	960,000	0	0

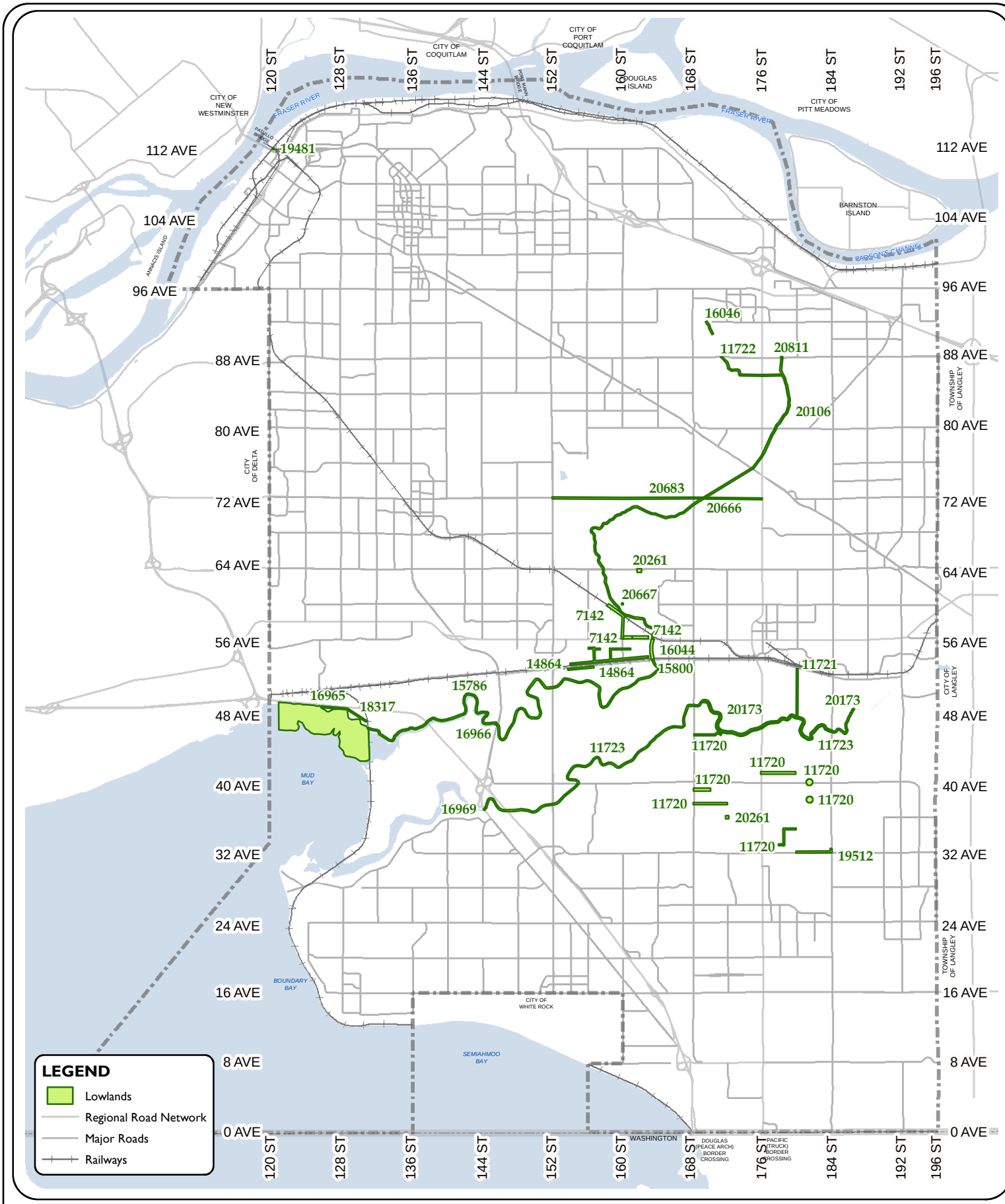

FIGURE 5.3 - Drainage
Lowlands (Capital) (Program 1664)

0 0.5 1 2 3 KM

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DRAINAGE

Program 1664 - D - Lowlands Flood Control (Cap)

Program Total	**176,920,000**	**17,033,000**	**86,932,000**	**72,955,000**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
7142	Hook Brook Drainage Improvements	Various Locations	Long Term (6 - 10 Yrs)	3,500,000	700,000	2,800,000	0	0
11720	Erickson Lowland Upgrades	Erickson Lowland Areas	Short Term (1 - 5 Yrs)	10,000,000	2,000,000	8,000,000	0	0
11721	Hall's Prairie Lowlands Conveyance Works (180 St Ditch)	180 St from 48 Ave to 52 Ave	Short Term (1 - 5 Yrs)	1,500,000	300,000	1,200,000	0	0
11722	DMAF - Serpentine River Dyking	Serpentine River KGB to 152 St	Short Term (1 - 5 Yrs)	3,010,000	247,000	2,330,000	433,000	0
11723	DMAF - Nicomekl River Dyking	Elgin Rd at Nicomekl River to 40 Ave	Short Term (1 - 5 Yrs)	2,352,000	226,000	1,514,000	612,000	0
14864	Surrey Lowlands - Gray Creek North of Colebrook Rd	152 St to Serpentine River	Short Term (1 - 5 Yrs)	5,000,000	1,000,000	4,000,000	0	0
14944	Floodbox Replacement Program (10YP)	various	Annual	4,000,000	0	4,000,000	0	0
15786	DMAF - Colebrook Dyke Upgrades - Provincial Portion	Colebrook dyke - BNSF to Western PL of 4981 KGB	Short Term (1 - 5 Yrs)	8,058,000	0	3,000	8,055,000	0
15800	DMAF - Dyke Reinstatement and Tie-Ins (remaining phas	Serpentine River: Colebrook Road to SRY	Short Term (1 - 5 Yrs)	762,000	0	762,000	0	0
16044	DMAF BC rail abutment tie in to dyke (2022 phase)	Serpentine River between Highway 10 and Colebrook Rd	Short Term (1 - 5 Yrs)	325,000	0	300,000	25,000	0
16046	Upper Serpentine Dyke Upgrade at 17040 92 Ave	17040 92 Ave	Short Term (1 - 5 Yrs)	400,000	0	400,000	0	0
16965	DMAF - Nature-based Coastal Climate Adaptation Projec	Boundary Bay and Mud Bay Coastline	Short Term (1 - 5 Yrs)	14,564,000	0	5,985,000	8,579,000	0
16966	DMAF - Serpentine Sea Dam Construction	Serpentine Sea Dam location downstream of KGB	Short Term (1 - 5 Yrs)	46,658,000	6,040,000	25,649,000	14,969,000	0
16969	DMAF - Nicomekl Sea Dam Construction	Nicomekl River: Elgin Rd to KGB	Short Term (1 - 5 Yrs)	44,675,000	3,130,000	15,349,000	26,196,000	0
18317	DMAF - Mud Bay Park Dykes - Series 100 - Provincial Por	Mud Bay Park	Short Term (1 - 5 Yrs)	6,942,000	0	2,780,000	4,162,000	0
19153	Minor Projects - Lowlands (TCA) (10YP)	Various	Annual	1,000,000	0	1,000,000	0	0
19481	Replace Pattullo Pump Station Pump Motors	Pattullo Pump Station	Short Term (1 - 5 Yrs)	350,000	0	350,000	0	0
19512	32 Ave Drainage Conveyance Upgrades (from 180 to 184	32 Ave from 180 St and 184 St	Short Term (1 - 5 Yrs)	3,000,000	1,550,000	0	1,450,000	0
20106	Upper Serpentine Dyke (A-1 to A-4)	Upper Serpentine Dykes from Hwy 15 to Fraser Hwy	Short Term (1 - 5 Yrs)	3,107,000	124,000	496,000	2,487,000	0
20173	Nicomekl Right Bank Dyke Upgrade (GARDM)	Nicomekl Right Bank: 16990 blk to 184 St	Short Term (1 - 5 Yrs)	1,371,000	73,000	293,000	1,005,000	0
20261	Drainage Pump Stations Repairs/Replacements	throughout the City - see Location tab	Short Term (1 - 5 Yrs)	3,150,000	0	3,150,000	0	0
20666	Coast Meridian Pump Station Replacement	6842 168 St	Short Term (1 - 5 Yrs)	5,730,000	1,146,000	4,584,000	0	0
20667	60 Ave Pump Station	16000 Blk 60 Ave	Short Term (1 - 5 Yrs)	4,982,000	0	0	4,982,000	0
20683	72 Ave Drainage Improvements (lowland)	72 Ave from 152 St to 176 St	Short Term (1 - 5 Yrs)	2,000,000	400,000	1,600,000	0	0
20811	88 Ave and Lakiotis Crk (178 St) Crossing Replacement	88 Ave and 178 St	Short Term (1 - 5 Yrs)	484,000	97,000	387,000	0	0

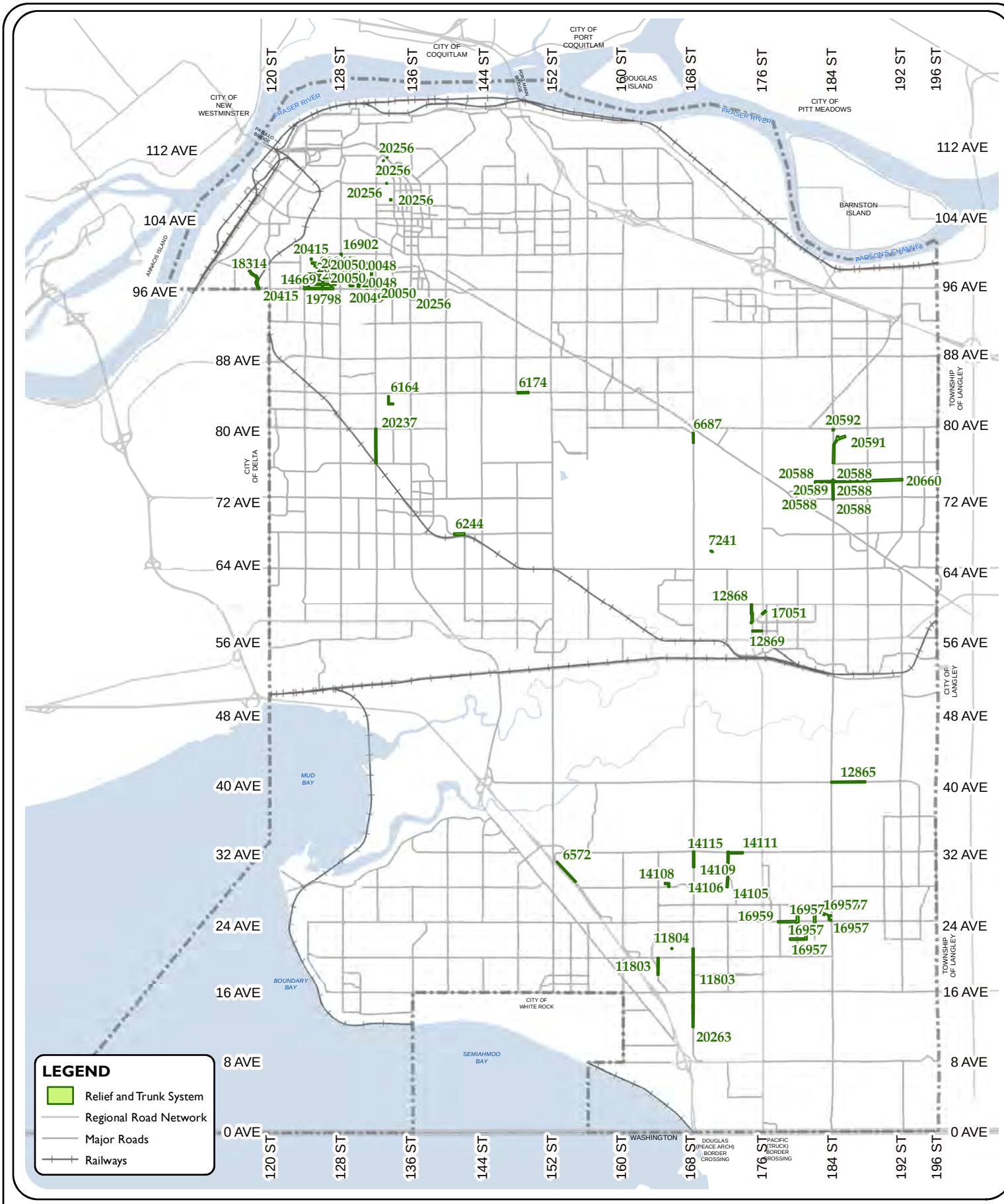

FIGURE 5.4 - Drainage
Relief & Trunk System (Program 1670)

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DRAINAGE

Program 1670 - D - Relief & Trunk System

Program Total	**106,154,000**	**52,417,000**	**49,237,000**	**4,500,000**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
6164	Trunk Upgrade on 133A and 134 St from 81 to 83A Ave	133A and 134 St from 81 to 83A Ave	Long Term (6 - 10 Yrs)	4,850,000	0	4,850,000	0	0
6174	Trunk: 213m - 750 -900mm	84 Ave: E of 148 St	Short Term (1 - 5 Yrs)	1,665,000	1,665,000	0	0	0
6244	900mm Upgrade Existing Storm	068 Ave: 141 - 142 St	Long Term (6 - 10 Yrs)	1,333,000	1,333,000	0	0	0
6572	425m of 1,200mm trunk sewer	Croydon Dr: 029 - 031 Ave (Rosemary Hts Bus Prk NCP)	Short Term (1 - 5 Yrs)	3,574,000	3,574,000	0	0	0
6687	250m of 750mm diameter Trunk	168 St: 80 Ave- 078 Ave	Long Term (6 - 10 Yrs)	1,755,000	1,755,000	0	0	0
7241	Culvert Drainage	066 Ave / 171 St	NCP Driven	242,000	121,000	121,000	0	0
11804	Ditch/Channel Erosion Protection	Sunnyside Heights NCP	NCP Driven	35,000	35,000	0	0	0
12865	South Surrey - Drainage Channel DC5	40 ave 188 to 184 St. Erickson watershed Page 162 Table	NCP Driven	253,000	253,000	0	0	0
12868	Cloverdale - 175th St. Storm sewer Upgrade	175th St from 60 Ave to Cloverdale Bypass	Short Term (1 - 5 Yrs)	4,313,000	1,725,000	2,588,000	0	0
12869	57th Ave Storm Sewer Upgrade	057 Ave: 175 to 176 St	Short Term (1 - 5 Yrs)	1,367,000	0	1,367,000	0	0
14105	South Surrey - 172 St trunk sewer upgrade to 600 mm d	172 St alignment behind 2815 to 2875 Country Woods D	NCP Driven	668,000	668,000	0	0	0
14106	South Surrey - 172 St trunk sewer upgrade to 1200 mm c	172 St from 32 ave to back of 2875 Country Woods Dr	NCP Driven	5,343,000	5,343,000	0	0	0
14108	South Surrey - April Creek headwaters trunk sewer	165 St at 28 Ave north to April Creek (Old Logging ISMP)	Short Term (1 - 5 Yrs)	808,000	0	808,000	0	0
14109	Southt Surrey - 168 St trunk sewer upgrade	168 St from 30A Ave to 32 Ave (Old Logging/Burrow's ISI	Long Term (6 - 10 Yrs)	2,632,000	0	2,632,000	0	0
14111	South Surrey - 32 Avenue trunk sewer to 1050mm diam	32 Ave from 172 St to 17300 blk (Old Logging/Burrow's IS	Long Term (6 - 10 Yrs)	2,516,000	0	2,516,000	0	0
14115	South Surrey - Burrow's Ditch at 32 Avenue culvert upgr	32 Ave at 172 St (Old Logging/Burrow's ISMP)	Short Term (1 - 5 Yrs)	277,000	0	277,000	0	0
14669	Robson South Phase 4 and 5 (partial)	99 Ave to 98 Ave, Grove Cr to 128 St	Short Term (1 - 5 Yrs)	5,922,000	1,184,000	4,738,000	0	0
16902	Phase 1 robson southeast storm sewer replacement	128 St from 100 Ave to 75m south of 98 Ave	Long Term (6 - 10 Yrs)	2,076,000	396,000	1,680,000	0	0
16957	Redwood Heights NCP Pond 1 - Phase 2 (Trunk Sewer)	Catchment C-1A in Redwood Heights NCP	NCP Driven	1,103,000	1,103,000	0	0	0
16959	Redwood Heights NCP Pond 2 - Phase 2 (Trunk Sewer)	Catchment C-2A in Redwood Heights NCP	NCP Driven	2,373,000	2,373,000	0	0	0
17051	Cloverdale TC - Upgrade between Highway 15 & 176A St	5945 176A St From 176 to 176A St	Long Term (6 - 10 Yrs)	6,888,000	2,755,000	4,133,000	0	0
18314	Delta Creek Diversion Design and Construction	Delta Creek, from 96 Ave to 98 Ave	Short Term (1 - 5 Yrs)	5,405,000	1,122,000	4,283,000	0	0
19798	Robson South Phase 5 (partial) and Phase 6	96 to 97A Ave, 126 to 128 St	Short Term (1 - 5 Yrs)	4,393,000	0	4,393,000	0	0
20047	Robson SE Phase 7	96A Ave to 98 Ave, 128 St to 129A St	Long Term (6 - 10 Yrs)	2,761,000	0	2,761,000	0	0
20048	Robson SE Phase 6 North	98 Ave from 130 to 130A St, 130A St, 130 St from 97 to 9	Long Term (6 - 10 Yrs)	779,000	0	779,000	0	0
20049	Robson SE Phase 6 South	97 Ave to 96 Ave and 130 to 131 St	Long Term (6 - 10 Yrs)	2,133,000	0	2,133,000	0	0
20050	Robson SE Phase 4	131A St to 132 St and 96A Ave to 98 Ave	Long Term (6 - 10 Yrs)	1,503,000	0	1,503,000	0	0
20237	Storm Upsizing along 132 St from 76 to 80 Ave	132 St, 76-80 Ave	Short Term (1 - 5 Yrs)	2,021,000	404,000	1,617,000	0	0
20256	City Centre WQ Infrastructure (D&C)	Various locations	Short Term (1 - 5 Yrs)	2,000,000	2,000,000	0	0	0
20263	168 St Storm Trunk Upgrade (1461 168 St to 12 Ave)	West side of 168 St from 1461 168 St to 12 Ave	Short Term (1 - 5 Yrs)	5,363,000	5,363,000	0	0	0
20415	Robson South Phase 2 and 3	Robson South - 124A St and 99A Ave	Short Term (1 - 5 Yrs)	7,489,000	1,531,000	5,958,000	0	0
20588	West Clayton Pond 1 Related Storm Trunks	West Clayton NCP Area	NCP Driven	1,267,000	1,267,000	0	0	0
20589	West Clayton Pond 1 - Water Quality Diversion Structure	74 Ave and 184 St	NCP Driven	88,000	88,000	0	0	0
20591	West Clayton Pond 2 Related Storm Trunks	West Clayton	NCP Driven	2,585,000	2,585,000	0	0	0
20592	West Clayton Pond 2 - Water Quality Device	West Clayton	NCP Driven	24,000	24,000	0	0	0
20660	74 Ave Drainage Trunk (182 to 192 St)	74 Ave from 182 to 192 St	Short Term (1 - 5 Yrs)	9,100,000	4,500,000	100,000	4,500,000	0
20809	CH - Remaining Storm Exfiltration System in Campbell He	40 Ave: 190-192 St	NCP Driven	1,550,000	1,550,000	0	0	0
20877	South Campbell Heights - Ditches	various locations in South Campbell Heights.	NCP Driven	3,850,000	3,850,000	0	0	0
20878	South Campbell Heights - Trunks and Outfalls	various locations throughout SCH	NCP Driven	3,850,000	3,850,000	0	0	0

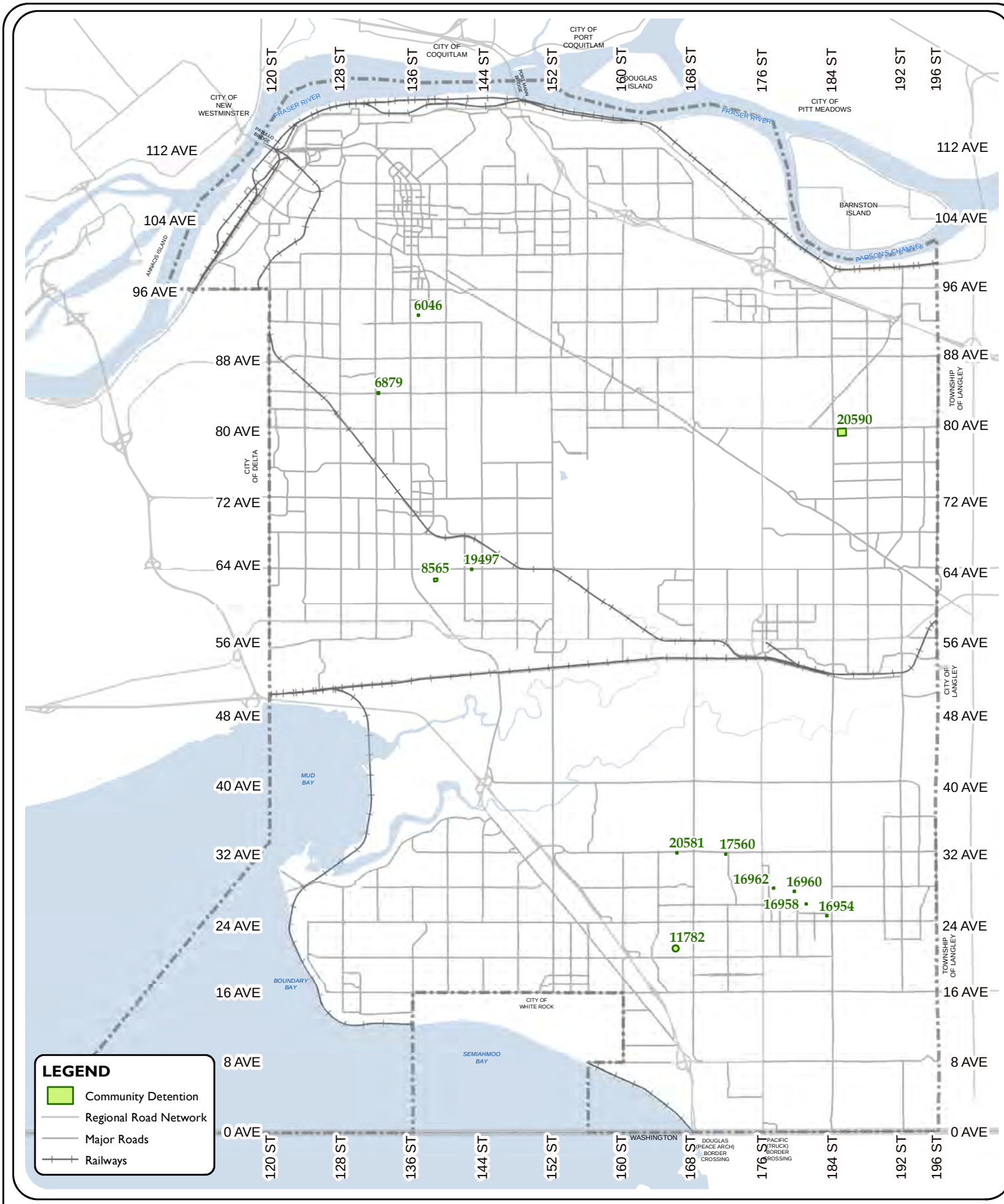

FIGURE 5.5 - Drainage
Community Detention (Program 1672)

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DRAINAGE

Program 1672 - D - Community Detention

Program Total	**45,321,000**	**45,096,000**	**225,000**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
6046	Sediment Pond for Quibble Creek	093Ave: 136A St - Hydro ROW	Short Term (1 - 5 Yrs)	250,000	25,000	225,000	0	0
6879	Mahood Cruikshank Pond 3	13229/13277 84 Ave	Short Term (1 - 5 Yrs)	20,000,000	20,000,000	0	0	0
8565	Archibald Detention Pond Modifications	13859 and 13886 62 Ave	Short Term (1 - 5 Yrs)	400,000	400,000	0	0	0
11782	Stormwater Corridors for Sunnyside Heights NCP	Grandview Heights #2 (Sunnyside Heights) NCP	NCP Driven	6,041,000	6,041,000	0	0	0
16954	Redwood Heights NCP Pond 1 - Phase 1 (pond)	NW corner of 184 St and 24 Ave	NCP Driven	2,376,000	2,376,000	0	0	0
16958	Redwood Heights NCP Pond 2 - Phase 1 (pond)	NE corner of 180 St and 24 Ave	NCP Driven	992,000	992,000	0	0	0
16960	Redwood Heights NCP Pond 3	SW corner of 180 St and 28 Ave	NCP Driven	3,993,000	3,993,000	0	0	0
16962	Redwood Heights NCP Pond 4	SE corner of 28 Ave and Highway 15	NCP Driven	2,217,000	2,217,000	0	0	0
17560	Chia Detention Pond	NE corner of 17190 32 Avenue	NCP Driven	2,000,000	2,000,000	0	0	0
19497	South Newton Pond P5 (14280 64 Ave)	14280 64 Ave	Long Term (6 - 10 Yrs)	2,500,000	2,500,000	0	0	0
20581	North Grandview Heights NCP Pond F (7815-0336)	16618 32 Ave (adjacent to 32 Ave)	NCP Driven	607,000	607,000	0	0	0
20590	West Clayton Pond #2 (Pond)	184 St/80 Ave	NCP Driven	3,545,000	3,545,000	0	0	0
20882	Campbell Heights – Latimer Lake DCCFEA Repayment	192 St / 028 Ave		400,000	400,000	0	0	0

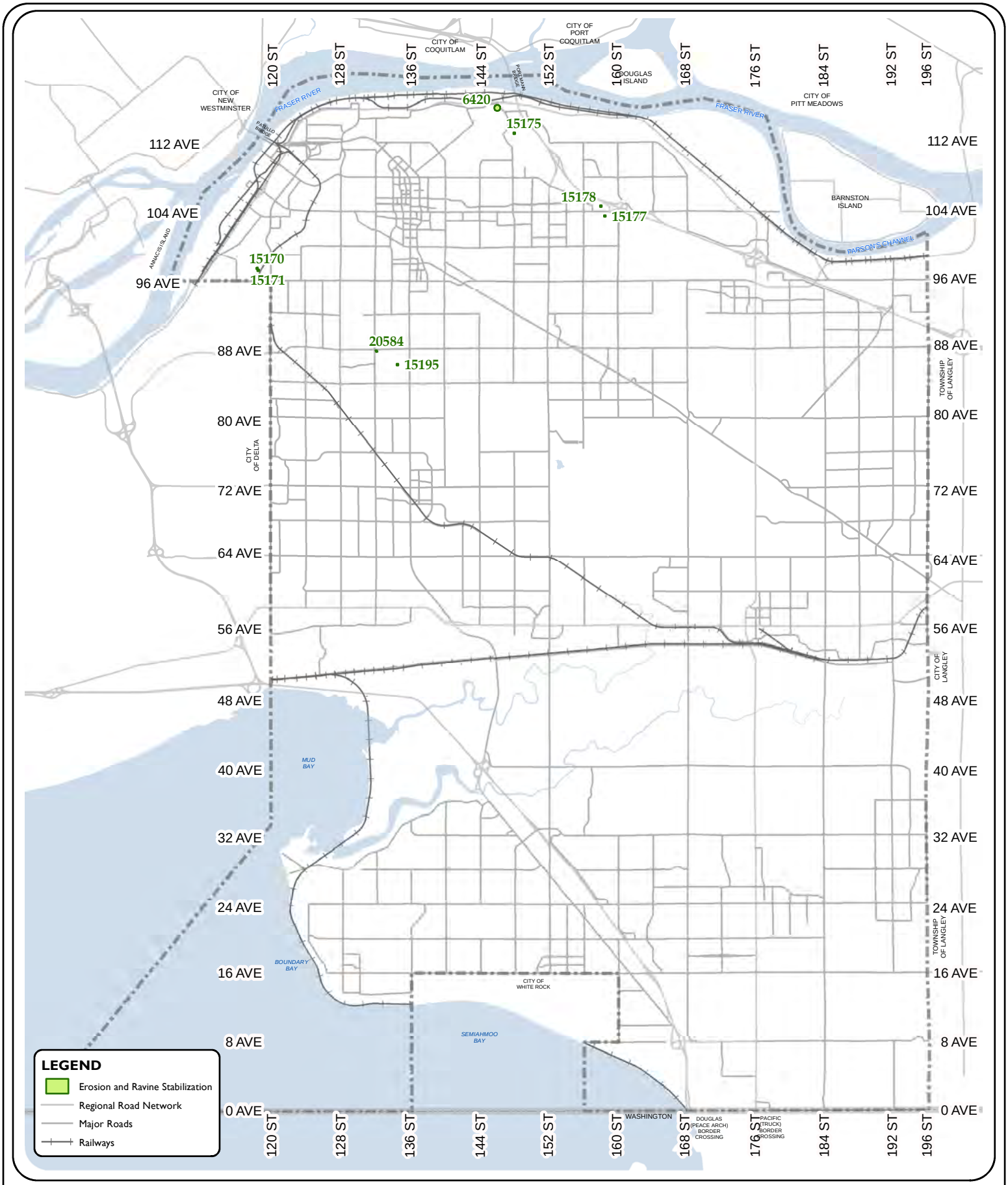

FIGURE 5.6 - Drainage
Erosion & Ravine Stabilization (Program 1679)

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DRAINAGE

Program 1679 - D - E&R Stabilization (Capital)

Program Total	**9,717,000**	**1,948,000**	**7,769,000**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
6420	Remove Flume and Rehab Bon Accord Crk	Surrey Road to 14610 116A Ave and to 14595 St. Andrew	Long Term (6 - 10 Yrs)	350,000	70,000	280,000	0	0
15170	Erosion site - Delta Creek #1 (Site ID 1-20)	Delta Creek: 11846 97 Ave	Long Term (6 - 10 Yrs)	300,000	60,000	240,000	0	0
15171	Erosion site - Delta Creek #2 (Site ID 1-20-2)	Delta Creek: 11851 97 Ave (118B St / 96A Ave)	Long Term (6 - 10 Yrs)	300,000	60,000	240,000	0	0
15175	Erosion site (high risk): Wallace Creek outfall	Wallace Creek: 11348 Roxburgh Rd (Wellington Dr)	Short Term (1 - 5 Yrs)	315,000	66,000	249,000	0	0
15177	Erosion site : Upper Serpentine (Site ID 23-2)	Serpentine River Trib:10336 158A St (158A St/102B Ave)	Short Term (1 - 5 Yrs)	300,000	60,000	240,000	0	0
15178	Erosion site - Guildford Brook Creek#1 (Site ID 24-20)	Guildford Brook Creek: 10461 158 St (158 St / 104 Ave)	Long Term (6 - 10 Yrs)	302,000	62,000	240,000	0	0
15195	Erosion site - Mahood (Bear) Creek (Site ID 48-95)	Bear Creek: 8626 Tulsy Cr E (Tulsy Cr / Tulsy Cr E)	Long Term (6 - 10 Yrs)	300,000	60,000	240,000	0	0
20584	Healy Crk High Risk Erosion Site (Site ID 49-204)	13225 87B Ave	Short Term (1 - 5 Yrs)	495,000	99,000	396,000	0	0
20873	Placeholder for Projects TBD	various locations in Surrey	Short Term (1 - 5 Yrs)	7,055,000	1,411,000	5,644,000	0	0

6. CAMPBELL HEIGHTS (North and South)

The Campbell Heights area is located southeast Surrey, generally between 186 Street and 196 Street, identified predominantly for light industry and other business uses. The lands are often referred to as two plan areas: North Campbell Heights is the area generally between 20 Avenue and 40 Avenue, whereas South Campbell Heights extends 20 Avenue to 12 Avenue.

Major servicing requirements for the north plan area have been constructed, including the following key components:

- Local feeder mains to provide water distribution and fire protection;
- New collector and arterial routes, and the widening of arterials to four or five lanes throughout the area;
- Pump station upgrades, siphons to the Metro Vancouver Cloverdale trunk sewer, and local gravity trunk sewers to provide sanitary sewer service; and
- Drainage infiltration systems, which are included in Drainage's City-Wide programs.

Development of north and south plan areas is complimentary to one another from transportation and water servicing perspectives with road networks being completed and watermains looped through the plan area. Drainage in the south plan area is facilitated by the Little Campbell River and associated tributaries, where most of the major drainage detention and infiltration being an on-site responsibility.

6.1 Campbell Heights Programs

Program 1017 – Transportation

Accessing Campbell Heights and providing key intra-regional connections is critical to the successful economic development of the area. The transportation servicing strategy includes typical collector road improvements to provide internal circulation as well as four major arterial road improvements (described below) to provide access to the rest of Surrey and the region.

16 Avenue
This arterial road is part of TransLink's Major Road Network ("MRN") and is a designated City truck route. It is a key intra-regional road that connects Provincial Highway 99, Highway 15, and Highway 13 in Township of Langley and the respective border crossings with the United States. As this road services more than just the growth of Campbell Heights, funding for improvements is identified as 25% from Campbell Heights, 25% from City Wide DCCs and 50% from TransLink's MRNB.

24 Avenue
This arterial road is the central east-west road for South Surrey as it connects Campbell Heights with Grandview Heights and Semiahmoo Peninsula. With a central location and transit supportive land uses, 24 Avenue is planned to accommodate future Frequent Transit Network service and potential high order transit service of Rapid Bus.

32 Avenue
This arterial road is also part of TransLink's MRN and a designated City truck route. It is a key intra-regional road that connects Provincial Highway 99 and Highway 15, as well as 200 Street in the Township of Langley. The widening of this corridor east of Highway 15 is nearing completion.

192 Street
This arterial road is the only north-south corridor through Campbell Heights and provides critical connections to Highway 10 and Cloverdale to the north. It also intersects with all three east west arterial roads in the area and is a City designated truck route.

Program 1645 – Sewer South Campbell Heights

The sewer servicing in South Campbell Heights is a substantial undertaking, as it requires local collection and conveyance north towards the Metro Vancouver sewers along 52 Avenue. In order to achieve this, a local sewer pump station would pump the entire area from 16 Avenue and 190 Street to 20 Avenue and 184 Street. This would then take advantage of the gravity and flow north to the existing siphon system at 40 Avenue which continues and north and discharges to Metro Vancouver's trunk interceptor system at 184 Street and 52 Avenue.

Sewer servicing for the south plan area includes:

- Low pressure sewer mains along 16 Avenue;
- Gravity trunk sewer mains along 16 Avenue;
- Sanitary sewer pump station located at 16 Avenue and 190 Street;
- Sanitary sewer forcemain from 190 Street to 184 Street; and
- Gravity trunk sewer and twin siphons along 184 Street north to 40 Avenue.

Table 6.1 – Area-Specific Cost Summary

No.	Program	Growth ($)	Non-Growth ($)	[1]External ($)	TransLink ($)	Total ($)
1017	Transportation	$79,720,000	$0	$5,735,000	$15,563,000	$101,018,000
1645	Sewer	$39,886,000	$0	$0	$0	$39,886,000

6.2 Campbell Heights Projects by Program

The following tables and figures identify the projects under the Campbell Heights programs for transportation, sanitary sewer and water. The tables provide the following information:

a) Project ID - the unique identifier of the project;
b) Project name - the specific name or generic name that depicts the type of work;
c) Project location - the geographic extent of the works;
d) Priority - the intended time frame for when the project is planned to proceed (subject to change); and
e) Costs – the high-level estimates in 2024 dollars (subject to change at the actual time of construction).

The costs are comprised of growth, non-growth, external and TransLink funding components.

Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations may not be shown on the maps.

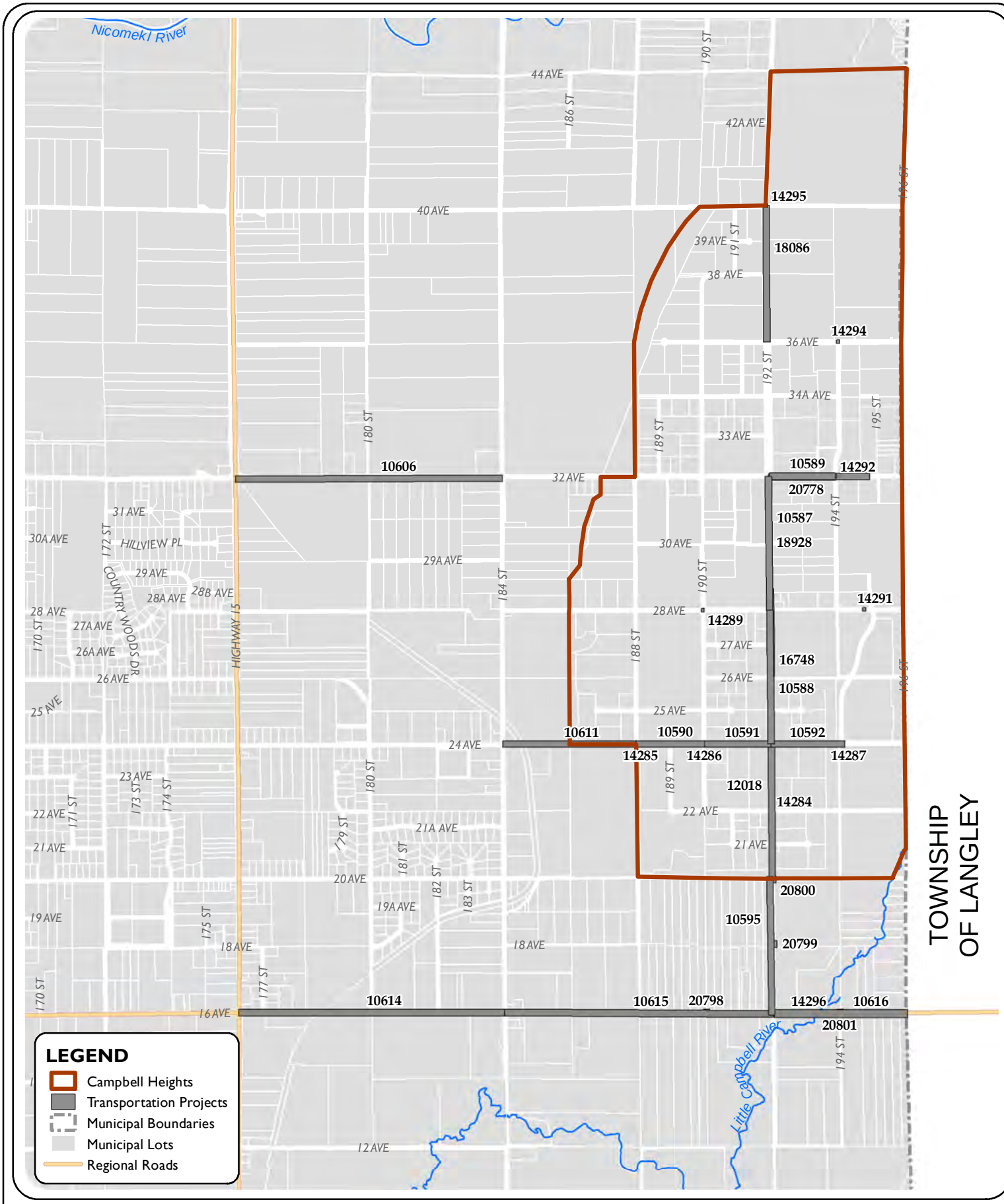

FIGURE 6.1 - Transportation
Campbell Heights (Program 1017)

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ROADS

Program 1017 - T - Campbell Heights

Program Totals	**89,095,000**	**-**	**-**	**69,700,000**	**-**	**5,735,000**	**13,660,000**

				Funding Source						
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Arterials**	**Growth Collectors**	**Growth Area Specific**	**Non Growth**	**External**	**Translink**
10587	Arterials - Widening	192 St: 028 Ave - 032 Ave	Long Term (6 - 10 Yrs)	8,000,000	0	0	8,000,000	0	0	0
10588	Arterials - Widening	192 St: 024 Ave - 028 Ave	Short Term (1 - 5 Yrs)	4,800,000	0	0	4,800,000	0	0	0
10589	Arterials - Widening	032 Ave: 194 St - 196 St	Long Term (6 - 10 Yrs)	4,000,000	0	0	4,000,000	0	0	0
10590	Arterials - Widening	024 Ave: 188 St - 190 St	Short Term (1 - 5 Yrs)	4,000,000	0	0	4,000,000	0	0	0
10591	Arterials - Widening	024 Ave: 190 St - 192 St	Short Term (1 - 5 Yrs)	3,200,000	0	0	3,200,000	0	0	0
10592	Arterials - Widening	024 Ave: 192 St - 194 St	Long Term (6 - 10 Yrs)	3,200,000	0	0	3,200,000	0	0	0
10595	Arterials - Widening	192 St: 016 Ave - 020 Ave	Short Term (1 - 5 Yrs)	6,468,000	0	0	6,468,000	0	0	0
10606	Arterials - Widening	032 Ave: 176 St - 184 St	Short Term (1 - 5 Yrs)	8,800,000	0	0	6,610,000	0	0	2,190,000
10611	Arterials - Widening	024 Ave: 184 St - 188 St	Short Term (1 - 5 Yrs)	4,000,000	0	0	4,000,000	0	0	0
10614	Arterials - Widening	016 Ave: 176 St - 184 St	Long Term (6 - 10 Yrs)	8,000,000	0	0	2,000,000	0	2,000,000	4,000,000
10615	Arterials - Widening	016 Ave: 184 St - 192 St	Short Term (1 - 5 Yrs)	8,000,000	0	0	2,000,000	0	2,000,000	4,000,000
10616	Arterials - Widening	016 Ave: 192 St - 196 St	Short Term (1 - 5 Yrs)	4,000,000	0	0	1,000,000	0	1,000,000	2,000,000
12018	Arterials - Widening	192 St: 020 Ave - 024 Ave	Short Term (1 - 5 Yrs)	4,800,000	0	0	4,800,000	0	0	0
14284	Signals - Traffic. New	022 Ave & 192 St	Short Term (1 - 5 Yrs)	381,000	0	0	381,000	0	0	0
14285	Signals - Traffic. New	024 Ave & 188 St	Short Term (1 - 5 Yrs)	381,000	0	0	381,000	0	0	0
14286	Signals - Traffic. New	024 Ave & 190 St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14287	Signals - Traffic. New	024 Ave & 194A St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14289	Signals - Traffic. New	028 Ave & 190 St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14291	Signals - Traffic. New	028 Ave & 194A St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14292	Signals - Traffic. New	032 Ave & 194A St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14294	Signals - Traffic. New	036 Ave & 194A St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14295	Signals - Traffic. New	040 Ave & 192 St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
14296	Crossings - Bridge. Widening	016 Ave & Campbell River	Long Term (6 - 10 Yrs)	2,940,000	0	0	735,000	0	735,000	1,470,000
16748	Cycling - MUP	192 St: 2900 Blk - 2600 Blk	Short Term (1 - 5 Yrs)	800,000	0	0	800,000	0	0	0
18086	Arterials - Widening	192 St: 036 Ave - 040 Ave	Long Term (6 - 10 Yrs)	4,800,000	0	0	4,800,000	0	0	0
18928	Signals - Traffic. New	030 Ave & 192 Street	Long Term (6 - 10 Yrs)	396,000	0	0	396,000	0	0	0
20778	Arterials - Widening	032 Ave: 192 St - 19400 blk	Short Term (1 - 5 Yrs)	3,600,000	0	0	3,600,000	0	0	0
20798	Signals - Traffic. New	016 Ave & 190 St	Long Term (6 - 10 Yrs)	550,000	0	0	550,000	0	0	0
20799	Signals - Traffic. New	018 Ave & 192 St	Short Term (1 - 5 Yrs)	381,000	0	0	381,000	0	0	0
20800	Signals - Traffic. New	020 Ave & 192 St	Short Term (1 - 5 Yrs)	381,000	0	0	381,000	0	0	0
20801	Signals - Traffic. New	016 Ave & 194 St	Long Term (6 - 10 Yrs)	550,000	0	0	550,000	0	0	0

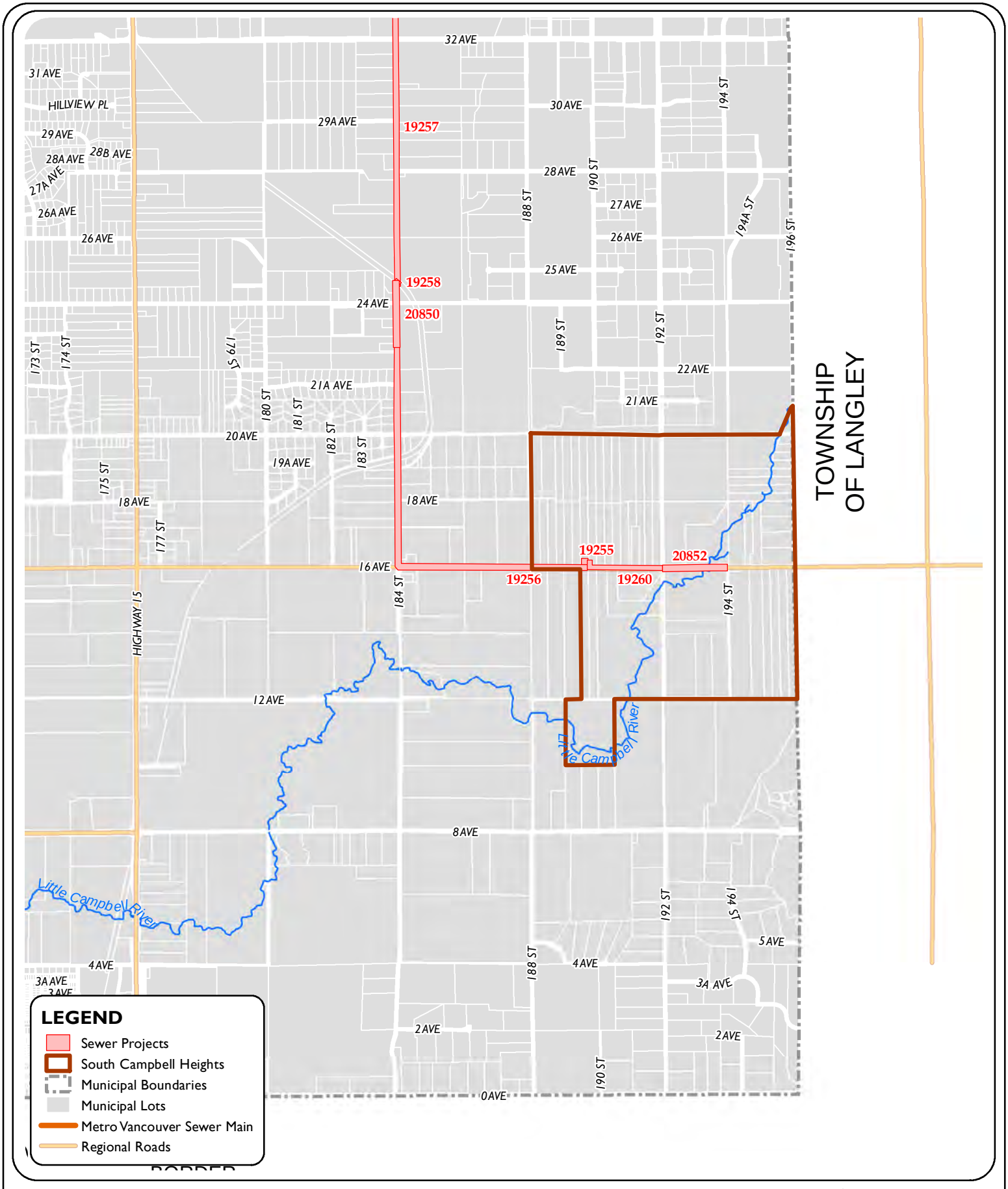

FIGURE 6.2 - Sewer
South Campbell Heights (Program 1645)

Date Printed: 2025-03-05 Cartographer: P210120

Source: G:\MAPPING\GIS\Maps\Recurring\CCP\10yrCCP_Plan\10yrServicingPlan2025\MXD Files\Figure11-1_SouthCampbellHeights-S.mxd

SEWER

Program 1645 - S - South Campbell Heights

Program Total	**39,886,000**	**39,886,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
19255	SCH: Pump Station and Land Cost (Stage 1)	188 St and 16 Ave	NCP Driven	10,500,000	10,500,000	0	0	0
19256	SCH: 2218m of 300mm diameter Forcemain (Stage 1)	16 Ave: 188 St to 184 St and 184 St: 16 Ave to 2277	NCP Driven	8,413,000	8,413,000	0	0	0
19257	SCH: 6200m of 250mm and 350mm diameter Twin Siphc	184 St: 24 Ave to 40 Ave	NCP Driven	17,764,000	17,764,000	0	0	0
19258	SCH: Odour Control Unit	184 St and 20 Ave	NCP Driven	1,000,000	1,000,000	0	0	0
19260	SCH: 515m of 375 mm diam sewer (Upsizing)	16 Ave: 192 St to 190 St	Upsizing Contribution	97,000	97,000	0	0	0
20850	SCH: 415m of 375mm diam Sewer	184 St: 22 Ave to 24 Ave	NCP Driven	1,942,000	1,942,000	0	0	0
20852	SCH: 405m of 200mm diam LPS Sewer (Upsizing)	16 Ave: 194 St to 192 St	Upsizing Contribution	170,000	170,000	0	0	0

7. HIGHWAY 99 CORRIDOR

The Highway 99 Corridor area encompasses approximately 195 hectares and generally lies along Highway 99 from 8 Avenue to 32 Avenue.

The City's OCP designates the Highway 99 Corridor for commercial and industrial development.

Major servicing requirements include:

- Feeder mains, pressure reducing values and local feeder mains to provide water distribution and fire protection;
- Intersection improvements, and the widening of collectors and arterials throughout the area;
- A new sanitary pump station and forcemain, and local gravity trunk sewers to provide sanitary sewer service; and
- Ditch relocations.

7.1 Highway 99 Corridor Programs

Program 1019 – Transportation

The original transportation analysis for Highway 99 identified key improvements to collector and arterial roads to provide critical circulation and connections to the area. Further transportation modelling and analysis has refined the transportation servicing needs with the major corridors are summarized below.

16 Avenue
This arterial road is part of TransLink's Major Road Network ("MRN") and is a designated City truck route. It is a key intra-regional road that connects with Provincial Highway 99, Highway 15, and Highway 13 in Township of Langley and the respective border crossings with the United States. Widening improvements and a new overpass across Highway 99 are already complete. As this road services more than just the growth of the Highway 99 area, funding for improvements is identified as 25% from Highway 99, 25% from City Wide DCCs (shown as External in Table 7.1 below), and 50% from TransLink's Major Road Network and Bikes ("MRNB") Capital Cost Sharing Program.

24 Avenue
This arterial road is the central east-west road for South Surrey and South Langley and connects Highway 99 with Grandview Heights and Semiahmoo Peninsula to the west and Brookswood to the east. Road widening and a new overpass across Highway 99 has already been completed and funded by the area. A future interchange is identified to be funded by the Province.

Croydon Drive/Oak Meadows Way
This road is the main corridor through the Highway 99 area. North of 24 Avenue it is classified as a standard collector road with corresponding upsizing frontage requirements, and completion of works without development frontage adjacent to Highway 99. South of 20 Avenue it is a modified collector standard with additional travel lanes to support goods movement traffic servicing the area. Between 20 Avenue and 24 Avenue it is an arterial as it provides key connection with 20 Avenue. Due to the many realignments required along the corridor, a number of roundabouts are planned to service the turning movements and maintain efficient operations.

20 Avenue

With continued growth in the Grandview Heights area, specifically from Sunnyside Heights, a new overpass of Highway 99 was identified as critical to connect Highway 99 and Grandview Heights with the Semiahmoo Peninsula. The overpass project was identified to provide significant benefit to servicing the Highway 99 area and funding is split 50% from Highway 99, and 50% from Citywide DCCs .

Program 1619 – Water

The Highway 99 area is predominantly located within the 142m and 105m pressure zones supplied by Grandview Pump Station and Grandview Reservoir, respectively. There are other smaller sections of this area that are within the 110m pressure zone supplied by the direct connection to Greater Vancouver Water District ("GVWD") feeder mains located at 24 Avenue/157 Street.

Water is distributed to this area through a set of mains ranging in diameter from 200mm to 350mm. Due to the location of this plan area, it is also important to ensure there is sufficient east-west water system connectivity across Highway 99. Currently there is an existing water main crossing Highway 99 at 16 Avenue (400/500mm) and at 24 Avenue (450mm) which can be used to maintain the east-west water connectivity within this plan area as well as to the surrounding water distribution system.

Program 1639 – Sewer

As the area first developed, an interim diversion to the Semiahmoo Pump Station was permitted to service the area, up to 40 litres per second capacity, until the Fergus pump station at 168 Street and 1400 block was built. The Fergus Pump Station has now been constructed, therefore the interim servicing approach to Semiahmoo Pump Station needs to be diverted back to Fergus Pump Station.

Wastewater generated from areas north of 2600 block will flow north on Croydon Drive to 156 Street, whereas areas north of 28 Avenue will flow north on Croydon Drive to 31 Avenue. Wastewater generated from areas south of 12 Avenue will be pumped to Fergus Pump Station.

Program 1669 – Drainage

The majority of the proposed drainage servicing requirements in the Highway 99 plan have been implemented, with the only remaining project being the Highway 99 ditch relocation from 16 Avenue to Fergus Creek. The intent of this project is to relocate the existing ditch along Highway 99, from 16 Avenue to the mainstem of Fergus Creek, off of the highway corridor. The drainage program value shown in Table 7.1 below represents the City's contribution towards this work, with the remaining costs for the work to be borne by the development community.

Table 7.1 – Highway 99 Corridor Cost Summary

No.	Program	Growth ($)	Non-Growth ($)	External ($)	TransLink ($)	Total ($)
1019	Transportation	38,115,000		-	3,760,000	41,875,000
1619	Water	$3,615,000	$0	$0	$0	$3,615,000
1639	Sanitary Sewer	$2,837,000	$0	$0	$0	$2,837,000
1669	Drainage	$217,000	$0	$0	$0	$217,000
Total		**$44,784,000**	-	-	**$ 3,760,000**	**$48,544,000**

7.2 Highway 99 Corridor Projects by Program

The following tables and figures identify the projects under the Highway 99 Corridor programs for transportation, sanitary sewer, water and drainage. The tables provide the following information:

a) Project ID - the unique identifier of the project;
b) Project name - the specific name or generic name that depicts the type of work;
c) Project location - the geographic extent of the works;
d) Priority - the intended time frame for when the project is planned to proceed (subject to change); and
e) Costs – the high-level estimates in 2024 dollars (subject to change at the actual time of construction).

The costs are comprised of growth, non-growth, external and TransLink funding components.

Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations may not be shown on the maps.

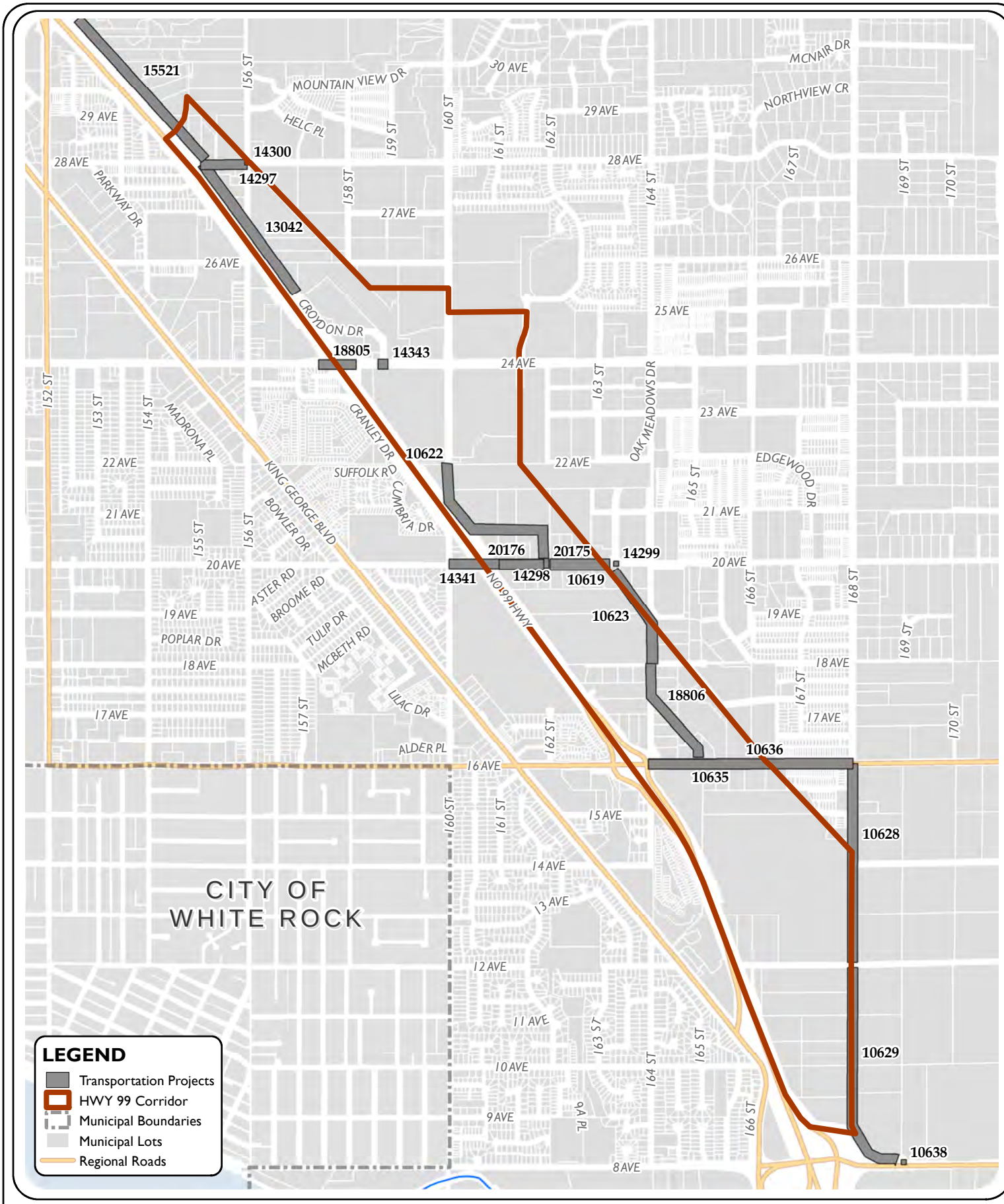

FIGURE 7.1 - Transportation
Highway 99 Corridor (Program 1019)

Date Printed: 2024-12-16 Cartographer: P205803

Source: G:\MAPPING\GIS\Maps\Recurring\CCP\10yrCCP_Plan\10yrServicingPlan2025\MXD Files\Figure7-1_Hwy99Corridor-T.mxd

ROADS

Program 1019 - T - Highway 99 Corridor

Program Totals			**41,876,000**	**4,080,000**	**-**	**34,035,000**	**-**	**-**	**3,760,000**

				Funding Source						
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Arterials**	**Growth Collectors**	**Growth Area Specific**	**Non Growth**	**External**	**Translink**
10619	Arterials - Widening	020 Ave: 16200 blk - Oak Meadows Dr	Short Term (1 - 5 Yrs)	3,750,000	0	0	3,750,000	0	0	0
10622	Collectors - Widening	Croydon Dr: 020 Ave - 2200 Blk - Area Specific	Short Term (1 - 5 Yrs)	2,258,000	0	0	2,258,000	0	0	0
10623	Collectors - Road Upsizing	164 St: 018 Ave - 020 Ave	Long Term (6 - 10 Yrs)	1,919,000	0	0	1,919,000	0	0	0
10628	Arterials - Improvements	168 St: 15A Ave - 17A Ave	Short Term (1 - 5 Yrs)	3,328,000	0	0	3,328,000	0	0	0
10629	Arterials - Improvements	168 St: 008 Ave - 012 Ave	Long Term (6 - 10 Yrs)	3,328,000	0	0	3,328,000	0	0	0
10638	Signals - Traffic. New	008 Ave & 168 St	Long Term (6 - 10 Yrs)	381,000	0	0	381,000	0	0	0
13042	Collectors - Widening	Croydon Dr: 2500 Blk - 28 Ave	Long Term (6 - 10 Yrs)	952,000	0	0	952,000	0	0	0
14297	Collectors - Road Upsizing	028 Ave: Croydon Dr - 156 St (South Side)	Long Term (6 - 10 Yrs)	439,000	0	0	439,000	0	0	0
14298	Intersections - Roundabout	020 Ave & Croydon Dr	Short Term (1 - 5 Yrs)	655,000	0	0	655,000	0	0	0
14299	Intersections - Roundabout	020 Ave & 164 St	Short Term (1 - 5 Yrs)	478,000	0	0	478,000	0	0	0
14300	Signals - Traffic. New	028 Ave & 156 St	Long Term (6 - 10 Yrs)	426,000	0	0	426,000	0	0	0
14341	Crossings - Bridge. New	020 Ave & Hwy 99 - Overpass Area Specific	Short Term (1 - 5 Yrs)	7,207,000	0	0	7,207,000	0	0	0
14343	Intersections - Improvements. Arterials	024 Ave & Croydon Dr	Long Term (6 - 10 Yrs)	1,703,000	0	0	1,703,000	0	0	0
15521	Collectors - Widening	Croydon Dr: 028 Ave - 031 Ave	Long Term (6 - 10 Yrs)	1,916,000	0	0	1,916,000	0	0	0
18805	Interchanges - Improvements	024 Ave & Hwy 99	Long Term (6 - 10 Yrs)	1,814,000	0	0	1,814,000	0	0	0
18806	Collectors - Road Upsizing	164 St: 016 Ave - 018 Ave	Long Term (6 - 10 Yrs)	1,996,000	0	0	1,996,000	0	0	0
20175	Intersections - Temp Signal	020 Ave & Croydon Dr	Short Term (1 - 5 Yrs)	285,000	0	0	285,000	0	0	0
20176	Arterials - Widening	020 Ave: 161 St - 16200 Blk	Short Term (1 - 5 Yrs)	1,200,000	0	0	1,200,000	0	0	0
20911	Arterials - Widening	016 Ave: 152 St - 170 St (CW Portion)	Short Term (1 - 5 Yrs)	7,841,000	4,080,000	0	0	0	0	3,760,000

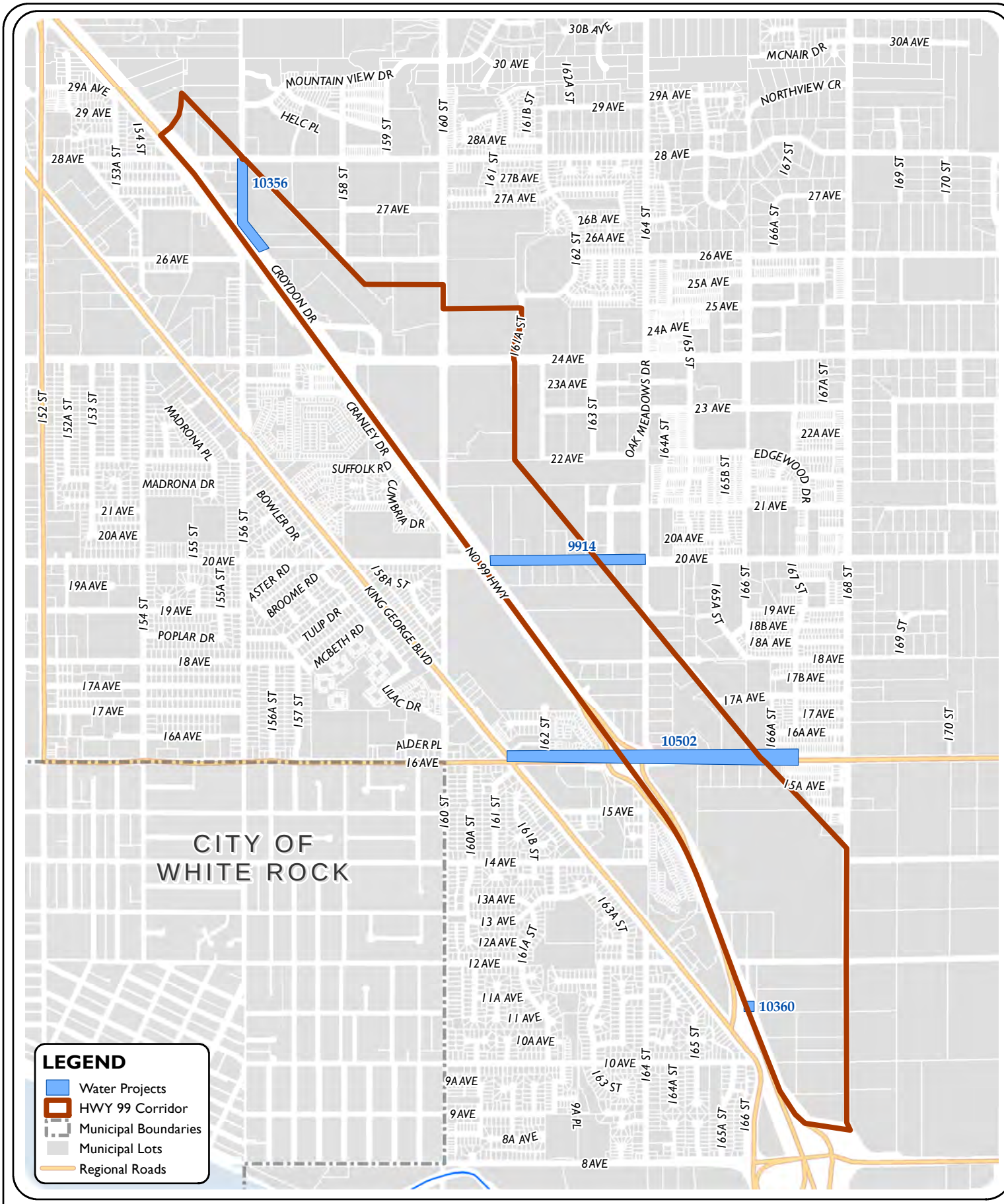

FIGURE 7.2 - Water
Highway 99 Corridor (Program 1619)

0 0.5 1 KM

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WATER

Program 1619 - W - Hwy 99

Program Total	**3,615,000**	**3,615,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
9914	430m of 300mm diameter	020 Ave: Lot 16184 - 164 St	NCP Driven	838,000	838,000	0	0	0
10356	300m of 350mm diameter	Croydon Dr: 028 Ave - lot 2630	NCP Driven	585,000	585,000	0	0	0
10360	Hwy 99 watermain crossing	011 Ave / Hwy 99	NCP Driven	472,000	472,000	0	0	0
10502	1,000m of 300mm diameter	016 Ave: King George Blvd - 167 St	NCP Driven	1,720,000	1,720,000	0	0	0

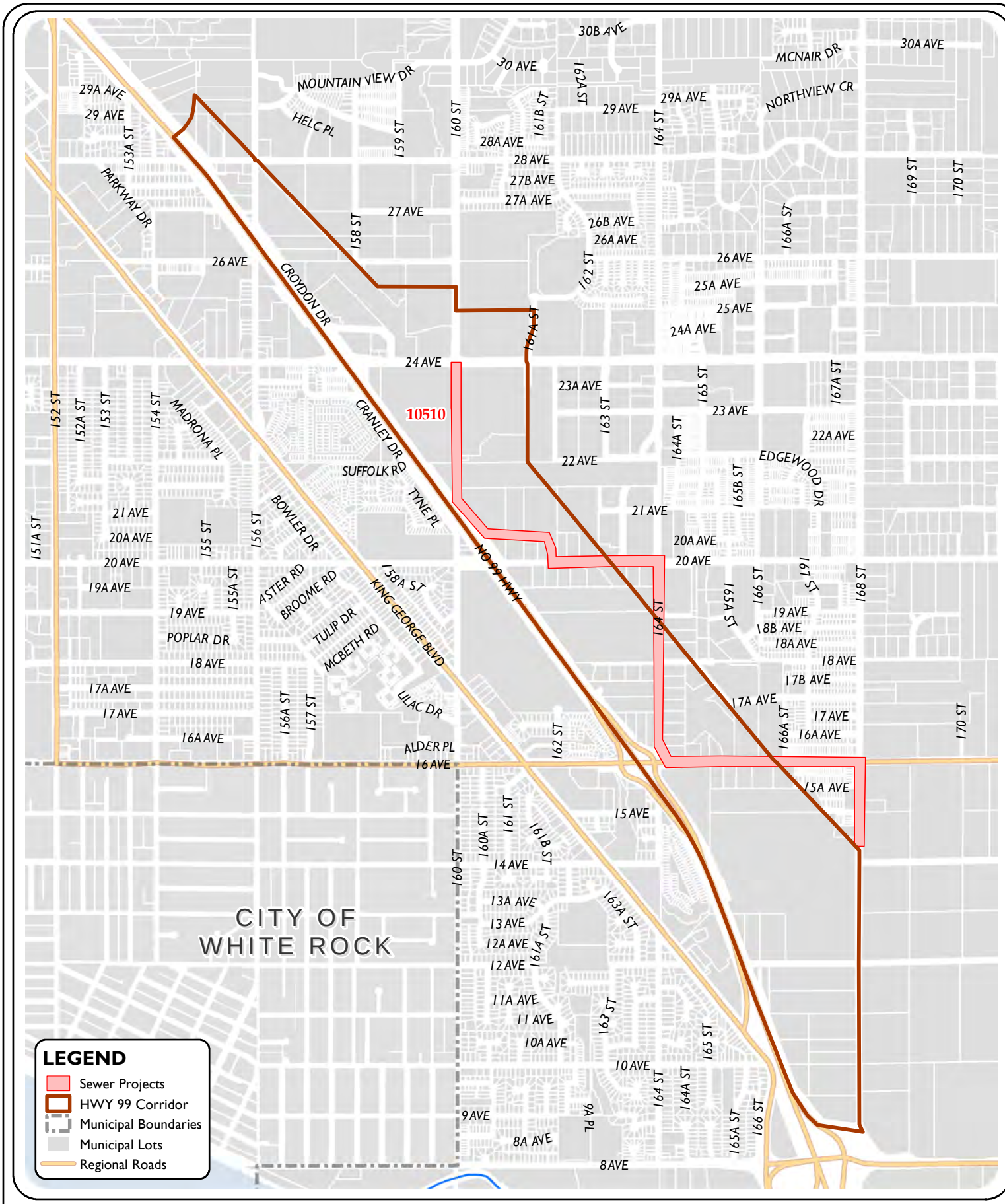

FIGURE 7.3 - Sewer
Highway 99 Corridor (Program 1639)

0 0.5 1 KM

SCALE: 1:20,000

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Source: G:\MAPPING\GIS\Maps\Recurring\CCP\10yrCCP_Plan\10yrServicingPlan2025\MXD Files\Figure7-3_Hwy99Corridor-S.mxd

SEWER

Program 1639 - S - Hwy 99

Program Total	**2,837,000**	**2,837,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
10510	DCCFE Fergus Pump Station & Forcemain (partial cost)	168 Street/1400 blk	Long Term (6 - 10 Yrs)	2,837,000	2,837,000	0	0	0

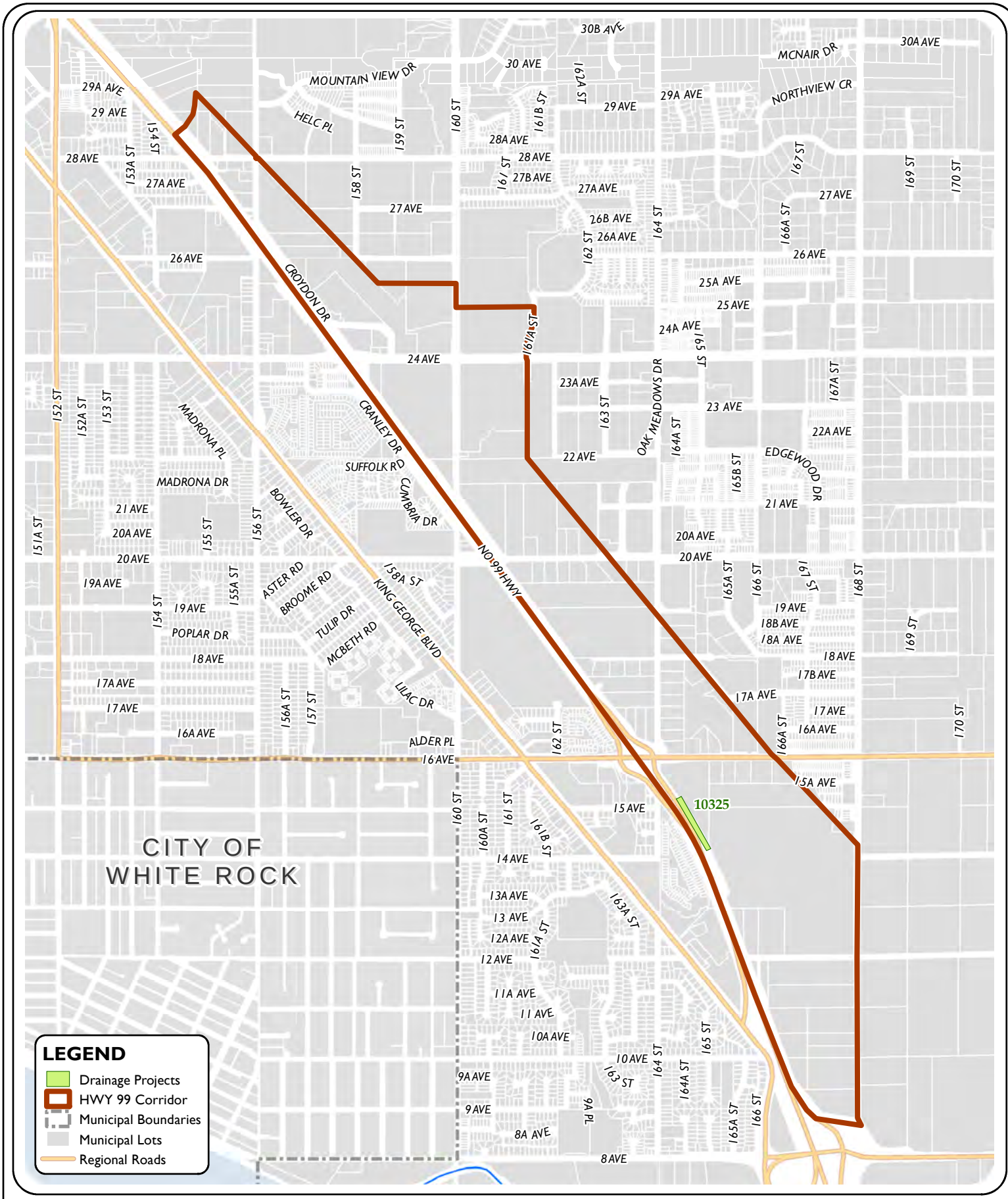

FIGURE 7.4 - Drainage
Highway 99 Corridor (Program 1669)

Date Printed: 2024-12-16 Cartographer: P205803

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DRAINAGE

Program 1669 - D - Hwy 99

Program Total	**217,000**	**217,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
10325	Highway 99 Ditch Relocation to Fergus Crk (Contribution	016 Ave / 164 St	NCP Driven	217,000	217,000	0	0	0

8. ANNIEDALE-TYNEHEAD

The Anniedale-Tynehead NCP area encompasses approximately 415 hectares and generally lies south of Highway 1 and north of the Agricultural Land Reserve located from 168 Street to Harvie Road.

The NCP designates the area for a variety of land uses including commercial, light industrial, business park, institutional and a range of residential housing densities.

Major servicing requirements include:

- Four new sanitary sewer pump stations, three low pressure systems and a network of gravity trunk sewers and forcemains;
- Two new water supply sources, and a network of distribution and feeder mains;
- Community detention and water quality ponds, along with trunk storm sewers; and
- Highway 15 and Golden Ears Way overpasses, intersection roundabouts, traffic signals, road widening and upgrades throughout the area.

An NCP update is scheduled for 2025. It is anticipated that the scope of projects and DCC rates will be adjusted in the next 10-Year Servicing Plan, following the NCP update.

8.1 Anniedale-Tynehead Programs

Program 1021 – Transportation

A comprehensive transportation analysis for Anniedale-Tynehead was conducted to assess the servicing needs for the area, where a significant increase in population and employment is planned. The analysis of the background regional traffic was necessary as three major roads, Highway 1, Highway 15 & Golden Ears Way (96 Avenue), pass through the plan area. The evaluation identified key road widening, new arterial improvements, and overpasses required to service the area described below.

Highway 15/96 Avenue/Golden Ears Way Overpass
Highway 15, under provincial jurisdiction, and 96 Avenue/Golden Ears Way, as part of TransLink's Major Road Network (MRN) is designated City truck routes, and therefore are critical transportation corridors. The traffic analysis identified the need to provide grade separation of 96 Avenue/Golden Ears Way to adequately service the area. As this road services more than just expected growth, the overpass will be part of the capital cost sharing program. evenly split between Anniedale-Tynehead and TransLink's Major Road Network and Bikes ("MRNB"). The future interchange ramps to Highway 15 are to be delivered with the overpass and funded by the Province.

88 Avenue
88 Avenue is part of TransLink's MRN, and is designated a City truck route, west of Highway 15. Although it does not run through Anniedale-Tynehead, improvements are required to properly service the area with new north-south arterial connections. As 88 Avenue services more than just the plan area's future growth, funding will be split as 40% from Anniedale-Tynehead, 10% from the South Port Kells area, and 50% from TransLink's MRNB Capital Cost Sharing Program.

180 Street
This is the main corridor through the Anniedale-Tynehead area. The transportation analysis identified the need to provide a new connection to extend the road to 88 Avenue to service the area due to limited access permitted to Highway 15.

184 Street
This is the main corridor to connect West Clayton with the Anniedale-Tynehead area. A new connection between 80 Avenue and 88 Avenue is required to complete this connection. As this road services more than just the growth of the Anniedale-Tynehead funding for improvements is identified as 50% from Anniedale-Tynehead, 50% from West Clayton.

192 Street Widening & Overpass of Highway 1
192 Street is an alternate corridor to connect Anniedale-Tynehead with Clayton and Highway 1. and therefore, it is critical to servicing growth in the area. The project will extend north of 88 Avenue, across Highway 1, connecting Port Kells to North Clayton. As the road widening services more than just growth, funding for improvements will be split as 50% from Anniedale-Tynehead, and 25 % from future South Port Kells and North Clayton area.

92 Avenue and 90 Avenue
92 Avenue is the only east-west arterial road that solely services the area and is 100% funded from the plan area. 90 Avenue provides connections to 192 Street and partially services the South Port Kells area with 30% of funding identified as future City Wide DCC.

168 Street
This is the main north-south corridor through the Anniedale-Tynehead area. As this road services more than just the growth of the Anniedale Tynehead funding for improvements is identified as 50% from Anniedale-Tynehead, 50% from Fleetwood Town Centre.

Anniedale Road and Ridgeline Drive
These two new collector roads are critical for servicing the area, connecting Anniedale with Tynehead without requiring the use of regional routes.

Program 1621 – Water

The majority of the NCP area is currently serviced by private wells, with a small portion of the area being serviced by small diameter City water mains which connect to the existing 525mm City feeder main on 96 Avenue. This feeder main is supplied by a Greater Vancouver Water District ("GVWD") direct connection at 95 Avenue/164 Street. It should be noted that the existing 525mm water main on 96 Avenue has no capacity to provide service to the Anniedale-Tynehead area.

A new GVWD reservoir in Meagan Anne MacDougall Park (9008 Fleetwood Way) will be constructed to support overall growth within North Surrey, including Anniedale-Tynehead. Additionally, new feeder mains and PRVs within the NCP area are needed to support the overall servicing strategy to Anniedale-Tynehead.

Program 1641 – Sewer

This NCP will be serviced four pump stations: 172 Street pump station at 170 Street and 92 Avenue, 176 Street pump station at 90 Ave, 184 Street pump station at 90 Ave and Anniedale pump station at south of Highway 1 near 187 Street. These stations pump to Highway 1 and 103 Avenue where it discharges to a gravity trunk that flows to Metro Vancouver's North Surrey Interceptor at 104 Avenue and 173 Street. Odour Control Facilities will also be provided.

These four pump stations utilize a network of semi-shared forcemains until Highway 1 at which point all sewage flows through a gravity trunk sewer to north towards the North Surrey Interceptor near 104 Avenue and 176 Street. The works include an odour control facility near the tie in with the North Surrey Interceptor, and all pump stations will utilize chemical dosing to help manage odour.

Program 1676 – Drainage

The drainage servicing plan consists of both offsite and onsite measures that include the implementation of various trunk sewers, ditch improvement works, stormwater detention ponds, and water quality ponds. The stormwater detention ponds will mitigate peak flows and downstream flooding during major rain events. The water quality ponds act to provide adequate base flows to natural watercourses to support fish life while mitigating erosion and maintaining or enhancing water quality for aquatic purposes and downstream users.

Table 8.1 – Anniedale-Tynehead Cost Summary

No.	Program	Growth ($)	Non-Growth ($)	External ($)	TransLink ($)	Total ($)
1021	Transportation	124,448,000	-	$ 98,223,000	$ 47,491,000	$270,312,000
1621	Water	$22,076,000	$0	$0	$0	$22,076,000
1641	Sewer	$37,828,000	$0	$0	$0	$37,828,000
1676	Drainage	$33,347,000	$0	$0	$0	$33,347,000
Total		**$217,699,000**	-	**$ 98,223,000**	**$ 47,491,000**	**$363,563,000**

(1) City Wide DCC and Provincial contributions for Transportation are shown as External funding in the Anniedale-Tynehead Area-Specific Program.

8.2 Anniedale-Tynehead Projects by Program

The following tables and figures identify the projects under the Anniedale-Tynehead programs for transportation, sanitary sewer, water and drainage. The tables provide the following information:

a) Project ID - the unique identifier of the project;
b) Project name - the specific name or generic name that depicts the type of work;
c) Project location - the geographic extent of the works;
d) Priority - the intended time frame for when the project is planned to proceed (subject to change); and
e) Costs – the high-level estimates in 2024 dollars (subject to change at the actual time of construction).

The costs are comprised of growth, non-growth, external, and TransLink funding components.

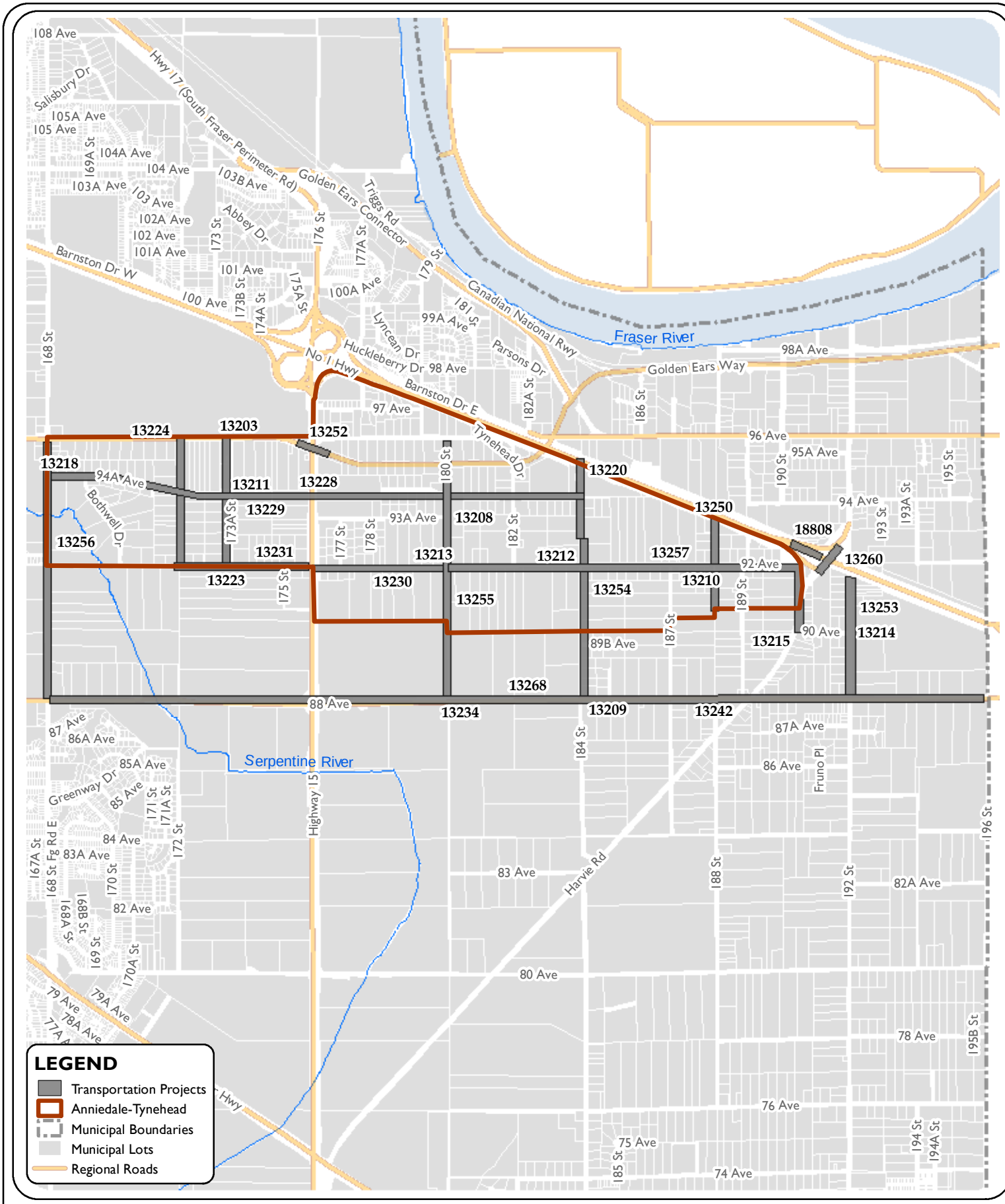

FIGURE 8.1 - Transportation
Anniedale-Tynehead (Program 1021)

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ROADS

Program 1021 - T - Anniedale-Tynehead

Program Totals	**270,312,000**	**-**	**-**	**124,598,000**	**-**	**98,223,000**	**47,491,000**

				Funding Source						
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Arterials**	**Growth Collectors**	**Growth Area Specific**	**Non Growth**	**External**	**Translink**
13203	Signals - Traffic. New	096 Ave & 173A St	Long Term (6 - 10 Yrs)	500,000	0	0	500,000	0	0	0
13208	Signals - Traffic. New	"Ridgeline Dr" (093A Ave) & 180 St	Long Term (6 - 10 Yrs)	500,000	0	0	500,000	0	0	0
13209	Signals - Traffic. New	088 Ave & 184 St	Long Term (6 - 10 Yrs)	500,000	0	0	250,000	0	250,000	0
13210	Signals - Traffic. New	092 Ave & 188 St	Long Term (6 - 10 Yrs)	500,000	0	0	500,000	0	0	0
13211	Signals - Traffic.New	"Ridgeline Dr" (094A Ave) & 173A St	Long Term (6 - 10 Yrs)	500,000	0	0	500,000	0	0	0
13212	Signals - Traffic. New	092 Ave & 184 St	Long Term (6 - 10 Yrs)	500,000	0	0	500,000	0	0	0
13213	Signals - Traffic. New	092 Ave & 180 St	Long Term (6 - 10 Yrs)	500,000	0	0	500,000	0	0	0
13215	Signals - Traffic. New	090 Ave & Harvie Rd	Long Term (6 - 10 Yrs)	500,000	0	0	350,000	0	150,000	0
13218	Signals - Traffic. New	"Ridgeline Dr" (094A Ave) & 168 St	Long Term (6 - 10 Yrs)	500,000	0	0	250,000	0	250,000	0
13220	Collectors - Road Upsizing	184 St: 092 Ave - Anniedale Rd	Long Term (6 - 10 Yrs)	1,080,000	0	0	1,080,000	0	0	0
13223	Collectors - Road Upsizing	173A St: Anniedale Rd - 096 Ave	Long Term (6 - 10 Yrs)	1,500,000	0	0	1,500,000	0	0	0
13224	Collectors - Road Upsizing	172 St: 092 - 096 Ave	Long Term (6 - 10 Yrs)	1,520,000	0	0	1,520,000	0	0	0
13228	Crossings - Overpass. New	"Ridgeline Dr" (094A Ave) & Hwy 15	Long Term (6 - 10 Yrs)	25,000,000	0	0	25,000,000	0	0	0
13229	Collectors - Road Upsizing	"Ridgeline Dr": 168 St - 184 St (Section A-A)	Long Term (6 - 10 Yrs)	4,600,000	0	0	4,600,000	0	0	0
13230	Collectors - Road Upsizing	092 Ave: 176 - 180 St	Long Term (6 - 10 Yrs)	1,600,000	0	0	1,600,000	0	0	0
13231	Collectors - Road Upsizing	092 Ave: 172 St - 176 St (Section C-C)	Long Term (6 - 10 Yrs)	1,600,000	0	0	1,600,000	0	0	0
13234	Signals - Traffic. New	088 Ave & 180 St	Long Term (6 - 10 Yrs)	500,000	0	0	200,000	0	300,000	0
13242	Signals - Traffic. New	088 Ave & 188 St	Long Term (6 - 10 Yrs)	500,000	0	0	200,000	0	300,000	0
13250	Collectors - Road Upsizing	188 St: 090A Ave - 092 Ave	Long Term (6 - 10 Yrs)	540,000	0	0	540,000	0	0	0
13252	Crossings - Overpass. New	Hwy 15 & Golden Ears Way & 96 Ave	Long Term (6 - 10 Yrs)	50,955,000	0	0	0	0	40,764,000	10,191,000
13253	Arterials - Widening	192 St: 080 Ave - 092 Ave	Long Term (6 - 10 Yrs)	22,912,000	0	0	11,456,000	0	11,456,000	0
13254	Arterials - Widening	184 St: 083 Ave - 092 Ave	Long Term (6 - 10 Yrs)	23,888,000	0	0	11,944,000	0	11,944,000	0
13255	Arterials - Widening	180 St: 092 Ave - 096 Ave	Long Term (6 - 10 Yrs)	15,112,000	0	0	15,112,000	0	0	0
13256	Arterials - Widening	168 St: 088 - 096 Ave	Long Term (6 - 10 Yrs)	15,112,000	0	0	7,556,000	0	7,556,000	0
13257	Arterials - Road Upsizing	092 Ave: 180 St - Harvie Rd & 90 Ave	Long Term (6 - 10 Yrs)	5,000,000	0	0	5,000,000	0	0	0
13260	Crossings - Overpass. New	Hwy 1 & 192 St	Long Term (6 - 10 Yrs)	20,000,000	0	0	10,000,000	0	0	10,000,000
13268	Arterials - Widening	088 Ave: 168 St - 192 St	Long Term (6 - 10 Yrs)	54,600,000	0	0	21,840,000	0	5,460,000	27,300,000
18808	Interchanges - Ramps	Hwy 1 & 192 St	Long Term (6 - 10 Yrs)	19,793,000	0	0	0	0	19,793,000	0

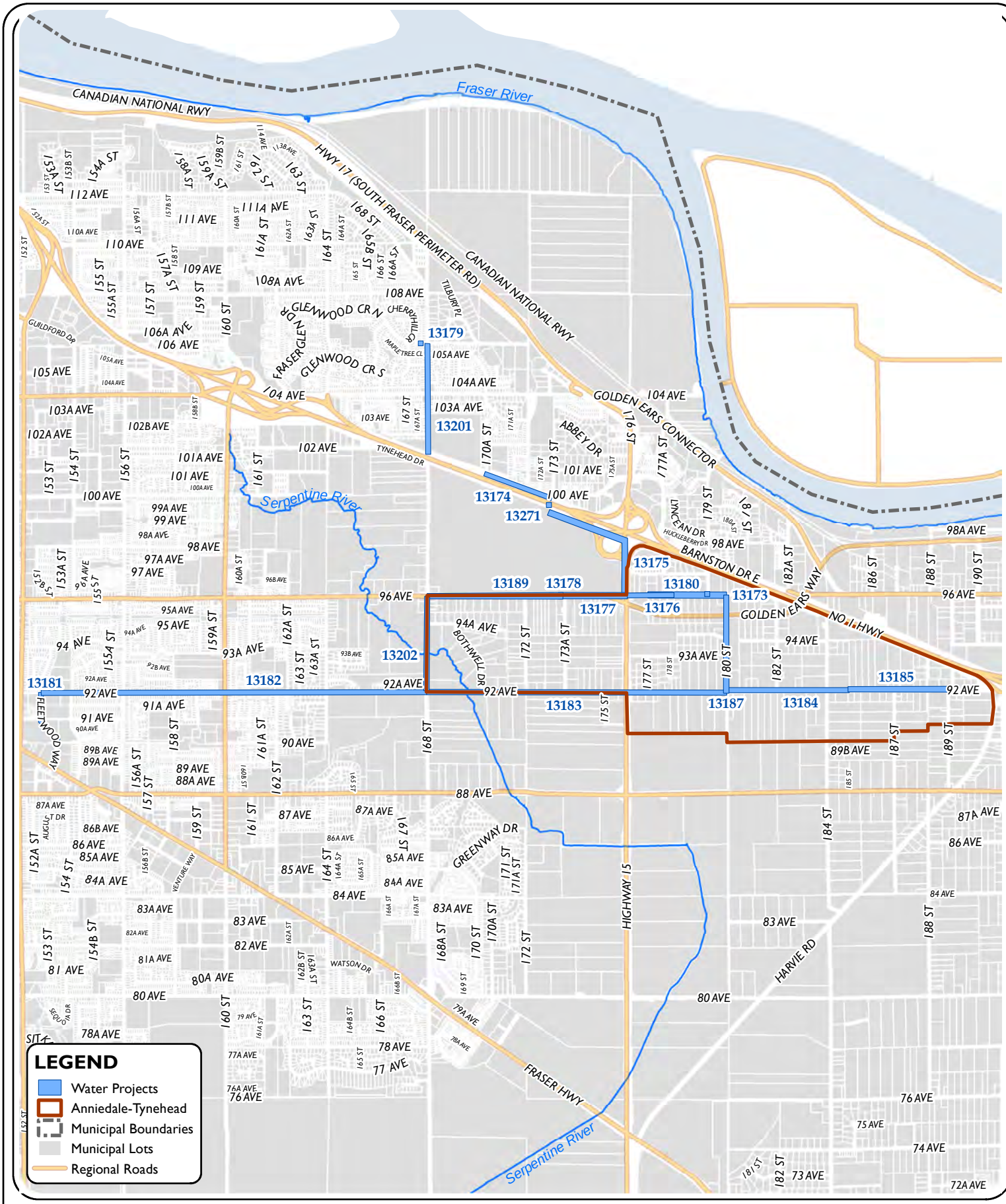

FIGURE 8.2 - Water
Anniedale-Tynehead (Program 1621)

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WATER

Program 1621 - W - Anniedale-Tynehead

Program Total	**22,076,000**	**22,076,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
13138	Upsizing 9,345m of 300mm diameter	Various Locations	NCP Driven	3,387,000	3,387,000	0	0	0
13145	Upsizing 1,595m of 300mm diameter	Various Locations	NCP Driven	218,000	218,000	0	0	0
13173	440m of 300mm diameter (DCCFE)	096 Ave: 177 - 180 St	NCP Driven	326,000	326,000	0	0	0
13174	600m of 450mm diameter (DCCFE)	Hwy 1: 170A- 173 St	NCP Driven	901,000	901,000	0	0	0
13175	1,060 of 450mm diameter (DCCFE)	South of Hwy 1: 173 -176 St; 176 St: South of Hwy 1 - 96	NCP Driven	901,000	901,000	0	0	0
13176	350m of 450mm diameter (DCCFE)	096 Ave: Hwy 15 - 178 St	NCP Driven	298,000	298,000	0	0	0
13177	505m of 300mm diameter (DCCFE)	096 Ave: Hwy 15 - 173A St	NCP Driven	374,000	374,000	0	0	0
13178	PRV station (DCCFE)	096 Ave/173A St	NCP Driven	115,000	115,000	0	0	0
13179	80m of 450mm diameter (DCCFE)	Cherry Hill Cr/Cherry Hill Ct - 168 St/106 Ave	NCP Driven	102,000	102,000	0	0	0
13180	PRV station (DCCFE)	096 Ave/179 St	NCP Driven	115,000	115,000	0	0	0
13181	550m of 750mm diameter (DCCFE)	153 St: 90 - 92 Ave	NCP Driven	935,000	935,000	0	0	0
13182	3,000m of 750mm diameter (DCCFE)	092 Ave: 153 - 168 St	NCP Driven	5,100,000	5,100,000	0	0	0
13183	2,405 of 750mm diameter (DCCFE)	092 Ave: 168 - 180 St	NCP Driven	4,087,000	4,087,000	0	0	0
13184	955m of 600mm diameter (DCCFE)	092 Ave: 180 - 185 St	NCP Driven	1,261,000	1,261,000	0	0	0
13185	780m of 450mm diameter (DCCFE)	092 Ave: 185 - 189 St	NCP Driven	663,000	663,000	0	0	0
13187	770m of 350mm diameter (DCCFE)	180 St: 96 - 92 Ave	NCP Driven	593,000	593,000	0	0	0
13189	1,095m of 300mm diameter (DCCFE)	096 Ave: 173A - 168 St	NCP Driven	814,000	814,000	0	0	0
13201	1,060m of 450mm diameter (DCCFE)	168 St: 106 Ave - Hwy 1	NCP Driven	901,000	901,000	0	0	0
13202	760m of 350mm diameter (DCCFE)	168 St: 96 - 92 Ave	NCP Driven	585,000	585,000	0	0	0
13271	Hwy 1 Crossing (DCCFE)	Hwy 1 / 173 St	NCP Driven	400,000	400,000	0	0	0

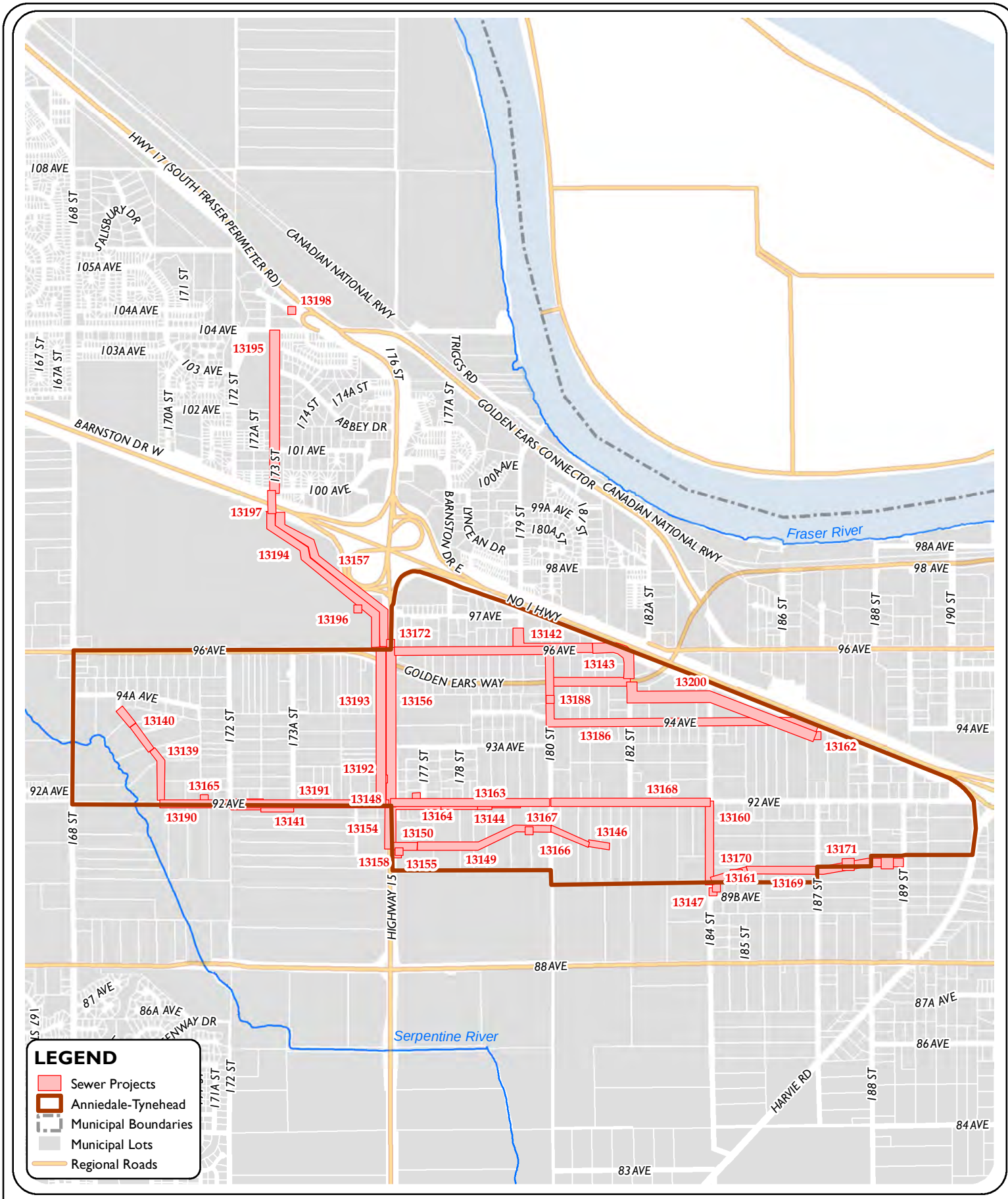

FIGURE 8.3 - Sewer
Anniedale-Tynehead (Program 1641)

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SEWER

Program 1641 - S - Anniedale-Tynehead

Program Total	**37,828,000**	**37,828,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
13139	AT (Ph1): 435m of 375mm diameter Upsizing	Tynehead 375mm diameter upsizing	Upsizing Contribution	125,000	125,000	0	0	0
13140	AT (Ph1): 160m of 300mm diameter Upsizing	Tynehead 300mm diameter upsizing	Upsizing Contribution	26,000	26,000	0	0	0
13141	AT (Ph1): 270m of 250mm diameter Upsizing	Tynehead 250mm diameter upsizing	Upsizing Contribution	21,000	21,000	0	0	0
13142	AT (Ph2): 1,135m of 250mm diameter local main Upsizin	Anniedale A/B1/B4	Upsizing Contribution	87,000	87,000	0	0	0
13143	AT (Ph2): 350m of 300mm diameter local main Upsizing	Anniedale A/B1/B4	Upsizing Contribution	57,000	57,000	0	0	0
13144	AT (Ph2): 75m of 375mm diameter local main Upsizing	Anniedale A1/B1/B4	Upsizing Contribution	22,000	22,000	0	0	0
13146	AT (Ph3): 100m of 300mm diameter local main Upsizing	Anniedale B3	Upsizing Contribution	16,000	16,000	0	0	0
13147	AT (Ph4): Anniedale B2 pump station	184 St / 089 Ave	NCP Driven	5,276,000	5,276,000	0	0	0
13148	AT (Ph2): 390m of 375mm diam Anniedale B4 Trunk -2 U	092 Ave: 177 - 176 St	Upsizing Contribution	112,000	112,000	0	0	0
13149	AT (Ph2): 690m of 300mm diam Anniedale B3 Trunk -2 U	091 Ave: 180 - 178 St	Upsizing Contribution	113,000	113,000	0	0	0
13150	AT (Ph2): 135m of 375mm diam Anniedale B3 Trunk -3 U	090A Ave: 178 - 176 St	Upsizing Contribution	39,000	39,000	0	0	0
13154	DCCFE: AT (Ph2) 200m of 400mm diam Anniedale B4 For	Hwy 15: 091 -092 Ave	NCP Driven	305,000	305,000	0	0	0
13155	AT (Ph2): Anniedale B4 FM odour control	Hwy 15 / 091 Ave	NCP Driven	72,000	72,000	0	0	0
13156	DCCFE: AT (Ph2) 980m of 500mm diameter Forcemain T	Hwy 15: 092 - 096 Ave	NCP Driven	1,604,000	1,604,000	0	0	0
13157	DCCFE: AT (Ph2) 1150m of 650mm dia South Port Kells F	Hwy 15: 096 Ave - S. of Hwy 1; S. of Hwy 1: Hwy 15 - 173	NCP Driven	2,171,000	2,171,000	0	0	0
13158	AT (Ph2): Anniedale B4 Pump Station	176 St / 091 Ave	NCP Driven	4,197,000	4,197,000	0	0	0
13160	AT (Ph4): 400m of 250mm diam Anniedale B2 Forcemain	184 St: 090 -092 Ave	NCP Driven	365,000	365,000	0	0	0
13161	AT (Ph4): Anniedale B2 FM odour control	090 Ave / 184 St	NCP Driven	72,000	72,000	0	0	0
13162	AT (Ph2): Anniedale Pump Station	South of Hwy 1 / 187 St	NCP Driven	4,317,000	4,317,000	0	0	0
13163	AT (Ph2): 265m of 375mm diam Anniedale B4 Trunk -1 U	092 Ave: 178 - 177 St	Upsizing Contribution	76,000	76,000	0	0	0
13164	AT (Ph4): 850m of 250mm diameter Anniedale B forcem	092 Ave: 180 to 176 St	NCP Driven	775,000	775,000	0	0	0
13165	AT (Ph1): Tynehead Pump Station DCCFE	092 Ave / 172 St	NCP Driven	3,769,000	3,769,000	0	0	0
13166	AT (Ph3): 220m of 300mm diam Anniedale B3 Trunk -1 U	091 Ave: 180 - 181 St	Upsizing Contribution	36,000	36,000	0	0	0
13167	AT (Ph3): Anniedale B3 Trunk ROW	091 Ave / 179 St	NCP Driven	270,000	270,000	0	0	0
13168	AT (Ph4): 920m of 250mm diam Anniedale B2 forcemain	092 Ave: 184 - 180 St	NCP Driven	838,000	838,000	0	0	0
13169	AT (Ph4): 890m of 525mm diam Anniedale B2 Trunk-1 Up	090A Ave: 189 - 186 St	Upsizing Contribution	986,000	986,000	0	0	0
13170	AT (Ph4): 190m of 600 diam Anniedale B2 Trunk -2 Upsiz	090 Ave: 186 - 184 St	Upsizing Contribution	229,000	229,000	0	0	0
13171	AT (Ph4): Anniedale B2 Trunk ROW	089 Ave / 185 St; 90A Ave / 188 St; 91 Ave / 188A St	NCP Driven	282,000	282,000	0	0	0
13172	AT (Ph2): Hwy 15 crossing	Hwy 15 / 097 Ave	NCP Driven	240,000	240,000	0	0	0
13186	AT (Ph2): 2140m of 400mm diameter Annidale A Forcem	South of Hwy 1: 182 - 187 St and 096 Ave: 182 St - Hwy 1	NCP Driven	2,492,000	2,492,000	0	0	0
13188	AT (Ph2): Anniedale A forcemain odour control	096 Ave / 182 St	NCP Driven	72,000	72,000	0	0	0
13190	AT (Ph1) 355m of 375mm diam Tynehead Trunk Upsizing	092 Ave: 171 - 172 St	Upsizing Contribution	98,000	98,000	0	0	0
13191	DCCFE: AT (Ph1) 835m of 400mm diam Tynehead Forcen	092 Ave: 176 - 172 St	NCP Driven	1,071,000	1,071,000	0	0	0
13192	AT (Ph1): Tynehead Forcemain Odour Control DCCFE	Hwy 15 / 092A Ave	NCP Driven	68,000	68,000	0	0	0
13193	DCCFE: AT (Ph1) 980m of 400mm diameter Forcemain	Hwy 15: 096 - 092 Ave	NCP Driven	1,383,000	1,383,000	0	0	0
13194	DCCFE: AT (Ph1) 1150m of 400mm diam South Port Kells	S. of Hwy 1: 176 - 173 St and Hwy 15: 096 Ave - S. of Hwy	NCP Driven	1,622,000	1,622,000	0	0	0
13195	DCCFE: AT (Ph1) 800m of 600mm dia S. Port Kells Trunk	173 St: Hwy 1 - 104 Ave	NCP Driven	1,649,000	1,649,000	0	0	0
13196	AT (Ph1): Tynehead Trunk ROW	097 Ave / 175A St	NCP Driven	108,000	108,000	0	0	0
13197	DCCFE: AT (Ph1) Hwy 1 crossing Twin Forcemain	Hwy 1 / 173 St	NCP Driven	682,000	682,000	0	0	0
13198	AT (Ph1): South Port Kells Odour Control with Land (DCC	17337 104A Ave	NCP Driven	1,797,000	1,797,000	0	0	0
13200	AT (Ph2): 1000m of 375mm diameter Upsizing	South of Hwy 1: 182 - 187 St	Upsizing Contribution	288,000	288,000	0	0	0

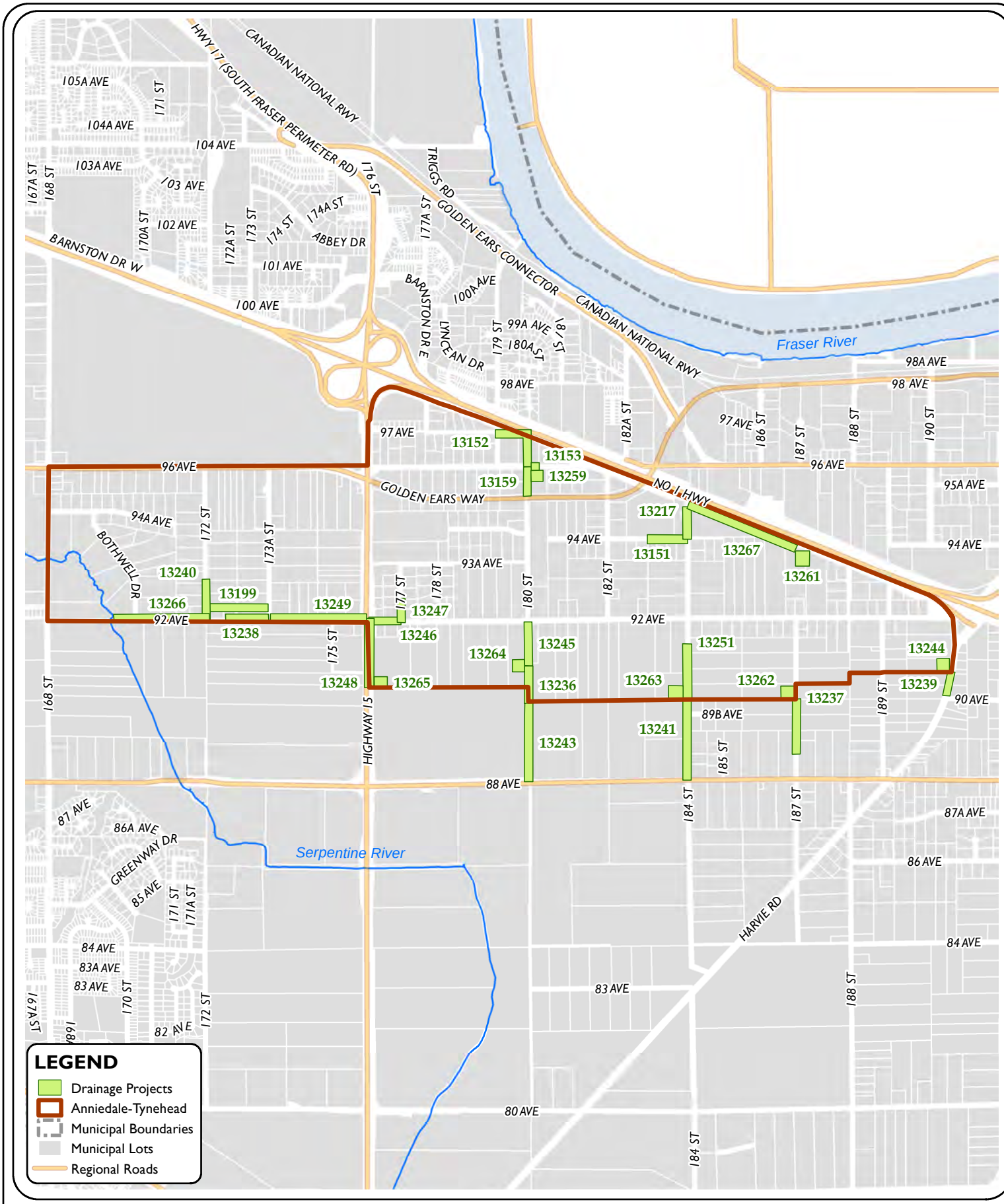

FIGURE 8.4 - Drainage
Anniedale-Tynehead (Program 1676)

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DRAINAGE

Program 1676 - D - Anniedale-Tynehead

Program Total	**33,347,000**	**33,347,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
13151	200m of 1050mm diameter	094 Ave: 183 - 184 St Anniedale NCP	NCP Driven	467,000	467,000	0	0	0
13152	250m of 900mm diameter	097 Ave: 179 - 180 St; 180 St: 97 - 96 Ave Anniedale NCP	NCP Driven	439,000	439,000	0	0	0
13153	65m of 1050mm diameter	096 Ave / 180 St Anniedale NCP	NCP Driven	160,000	160,000	0	0	0
13159	160m of 1050mm diameter	180 St: 96 Ave - Golden Ears Way. Anniedale NCP	NCP Driven	381,000	381,000	0	0	0
13199	Storm Trunk east of 172 St	east of 172 St and north of 92 Ave	NCP Driven	325,000	325,000	0	0	0
13217	150m of 1050mm diameter	184 St: 94 - 95 Ave Anniedale NCP	NCP Driven	360,000	360,000	0	0	0
13236	270m of 525mm diameter	180 St: 91 - 90 Ave Anniedale NCP	NCP Driven	344,000	344,000	0	0	0
13237	250m of ditch improvement	187 St: 89 - 90 Ave. Anniedale NCP	NCP Driven	74,000	74,000	0	0	0
13238	200m of ditch improvement	092 Ave: 173 - 173A St Anniedale NCP	NCP Driven	65,000	65,000	0	0	0
13239	100m of ditch improvement	Harvie Rd: 91 -90 Ave Anniedale NCP	NCP Driven	49,000	49,000	0	0	0
13240	Storm Trunk on 172 St	172 St: 93 - 92 Ave Anniedale NCP	NCP Driven	291,000	291,000	0	0	0
13241	400m of ditch improvement	184 St: 90 - 88 Ave Anniedale NCP	NCP Driven	97,000	97,000	0	0	0
13243	400m of ditch improvement & ROW	180 St: 90 - 88 Ave Anniedale NCP	NCP Driven	629,000	629,000	0	0	0
13244	Anniedale 6 detention pond	191 St / 91 Ave	NCP Driven	4,094,000	4,094,000	0	0	0
13245	150m of 450mm diameter	180 St: 91 - 92 Ave Anniedale NCP	NCP Driven	190,000	190,000	0	0	0
13246	150m of 750mm diameter	092 Ave: 176 - 177 St Anniedale NCP	NCP Driven	291,000	291,000	0	0	0
13247	170m of 600mm diameter	177 St: 93 - 92 Ave Anniedale NCP	NCP Driven	288,000	288,000	0	0	0
13248	350m of 900mm diameter	176 St: 90A - 92 Ave Anniedale NCP	NCP Driven	980,000	980,000	0	0	0
13249	350m of ditch improvement	092 Ave: 173A - 176 St Anniedale NCP	NCP Driven	88,000	88,000	0	0	0
13251	290m of 900mm diameter	184 St: 91A - 90 Ave Anniedale NCP	NCP Driven	597,000	597,000	0	0	0
13259	Anniedale 7 detention pond	096 Ave / 180 St Anniedale NCP	NCP Driven	6,086,000	6,086,000	0	0	0
13261	Anniedale 8 water quality pond	187 St / 93 Ave	NCP Driven	2,779,000	2,779,000	0	0	0
13262	Anniedale 5 water quality pond	090 Ave / 187 St	NCP Driven	1,816,000	1,816,000	0	0	0
13263	Anniedale 4 water quality pond	184 St / 90 Ave	NCP Driven	2,114,000	2,114,000	0	0	0
13264	Anniedale 3 water quality pond	180 St / 91 Ave	NCP Driven	2,186,000	2,186,000	0	0	0
13265	Anniedale 2 water quality pond	90A Ave / Hwy 15	NCP Driven	3,708,000	3,708,000	0	0	0
13266	92 Ave Drainage Infrastructure (west of 172 St)	Along 92 Ave, between Serpentine River and 172 St	NCP Driven	2,516,000	2,516,000	0	0	0
13267	1050m of 1050mm diameter	South of Hwy 1: 184 - 187 St Anniedale NCP	NCP Driven	1,933,000	1,933,000	0	0	0

9. REDWOOD HEIGHTS

The Redwood Heights NCP area encompasses approximately 201 hectares and is bounded by the ALR to the north and east, 20 Avenue and the existing Redwood Estates to the south and 176 Street (Highway 15) to the west.

The NCP designates the area for a variety of land uses including commercial and mixed-uses, institutional, parks and natural areas, and a range of multi-family and single-family housing densities.

The Redwood Heights NCP is a relatively undeveloped area with little to no utility infrastructure networks currently in place. The NCP will increase development intensity and population and will require significant improvements to the utility infrastructure including water, sanitary, and drainage systems.

Major servicing requirements include:

- Trunk sanitary sewers along with a new sanitary pump station and forcemain (Grandview Heights East pump station);
- Establishment of three separate pressure zones through a series of feeder mains and pressure reducing stations;
- Community detention ponds and trunk storm sewers, which are included in City Wide programs;
- Intersection roundabouts, traffic signals, road widening and new roads throughout the area. These projects are included in Transportation's City Wide programs as summarized below.

9.1 Redwood Heights Programs

Program 1623 – Water

The majority of Redwood Heights NCP area lies within the 142m and 105m pressure zones and is supplied by Grandview Pump Station and Grandview Reservoir, located at 1666 - 24 Avenue. A small portion of this NCP, the area north of 29A Avenue, is located within the 80m pressure zone. Water will be supplied to this area through a series of pressure reducing valve stations.

New high pressure (142m) and low pressure (105m) feeder mains along 24 Avenue, between the Grandview Pump Station and Reservoir to the boundary of the NCP area, are required. To determine the appropriate feeder main sizes, the future population and demand of Redwood Heights as well as other Grandview Heights NCP areas are considered.

Under this NCP, it is determined that the Redwood Heights NCP will fund the "base" feeder main size required to service Redwood Heights population and demand, while the upsizing costs of these feeder mains will be attributed to the other Grandview Heights NCP areas distributed proportionally based on their projected water demand.

Program 1642 – Sewer

Sewerage flow will be collected by a proposed trunk on the north east boundary of the NCP and gravitate to the East Grandview Heights Pump Station located in the vicinity of 17400 Block and 32 Avenue. From the station, the flow will be pumped to 170 Street and 2900 block where it will discharge to the Grandview Height Interceptor that will be extended from 2934 - 165B Street. This will eventually flow to Metro Vancouver's Rosemary Height Pressure Sewer at 152 Street and Croydon Drive.

There is sufficient DCCs generated within the NCP plan to service transportation and drainage projects with City Wide DCC rates. A specific area servicing plan was developed for this area to address the shortfall related to Water and Sewer projects in Redwood Heights.

Table 9.1 – Redwood Heights Cost Summary

No.	Program	Growth ($)	Non-Growth ($)	Total ($)
1623	Water	$20,216,000	$0	$20,216,000
1642	Sewer	$19,788,000	$0	$19,788,000
Total		**$40,004,000**	**$0**	**$40,004,000**

9.2 Redwood Heights Projects by Program

The following tables and figures identify the projects under the Redwood Heights programs for sanitary sewer and water. The tables provide the following information:

a. Project ID - the unique identifier of the project;
b. Project name - the specific name or generic name that depicts the type of work;
c. Project location - the geographic extent of the works;
d. Priority - the intended time frame for when the project is planned to proceed (subject to change); and
e. Costs – the high-level estimates in 2024 dollars (subject to change at the actual time of construction).

The Redwood Heights program costs are comprised entirely of growth funding.
Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations throughout Surrey may not be shown on the maps.

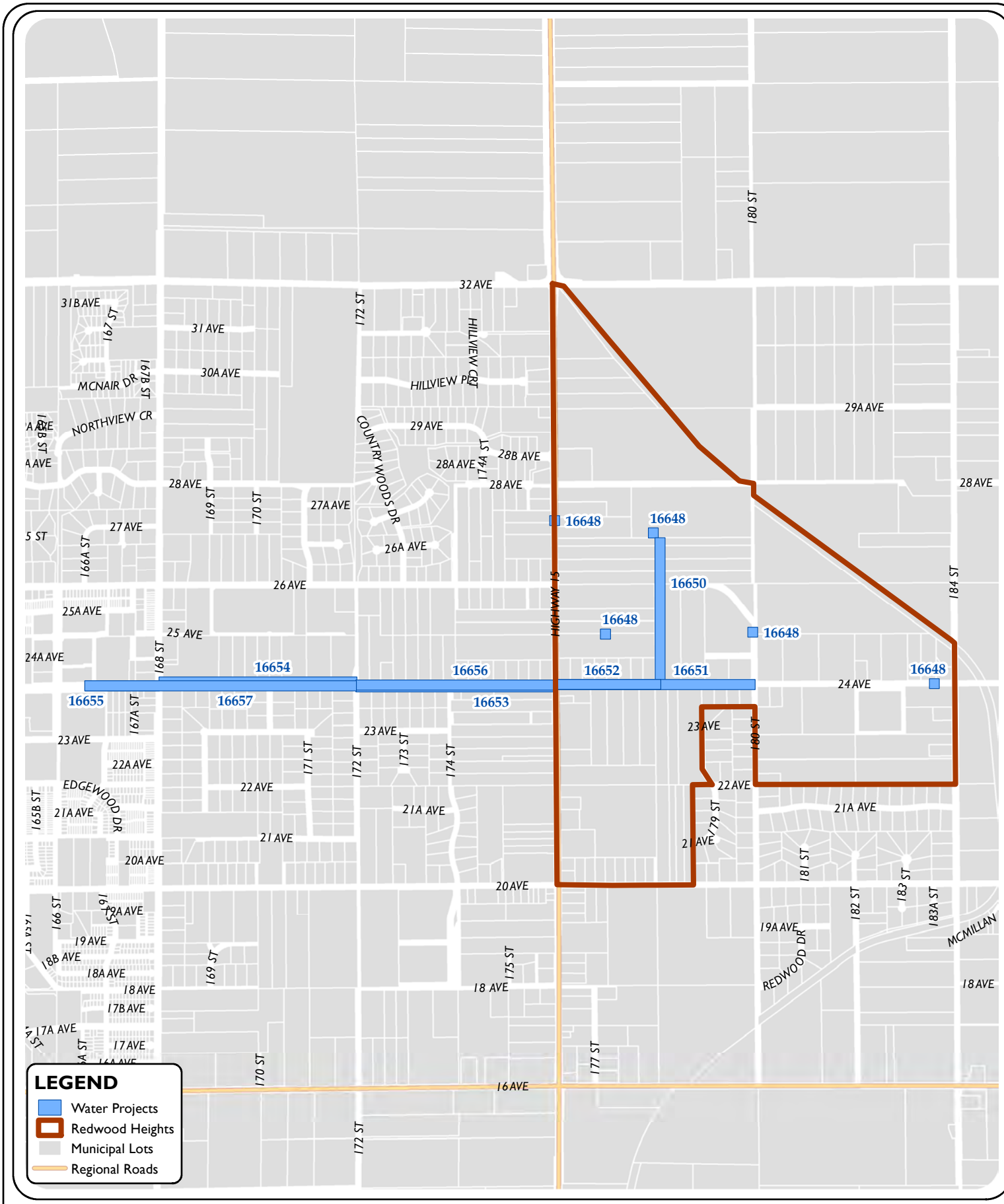

FIGURE 9.1 - Water
Redwood Heights (Program 1623)

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WATER

Program 1623 - W - Redwood Heights

Program Total	**20,216,000**	**20,216,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
16646	Redwood Heights - Upsizing Contribution - 110m Pressur	Various Locations	NCP Driven	3,726,000	3,726,000	0	0	0
16647	Redwood Heights - Upsizing Contribution - 142m Pressur	Various Locations	NCP Driven	2,465,000	2,465,000	0	0	0
16648	Redwood Heights - PRV's (2 Locations)	Various Locations	NCP Driven	1,155,000	1,155,000	0	0	0
16649	Redwood Heights - Highway 15 Crossing (3 Locations)	Various Locations	NCP Driven	2,167,000	2,167,000	0	0	0
16650	Upsizing 550m of 350mm diameter - Low Pressure	178 St: 24 - 27 Ave	NCP Driven	887,000	887,000	0	0	0
16651	800m of 600mm diameter - Low Pressure	024 Ave: 176 - 180 St	NCP Driven	1,530,000	1,530,000	0	0	0
16652	400m of 450mm diameter - High Pressure	024 Ave: 176 - 178 St	NCP Driven	630,000	630,000	0	0	0
16653	800m of 450mm diameter - High Pressure	024 Ave: 172 - 176 St	NCP Driven	1,350,000	1,350,000	0	0	0
16654	800m of 600mm diameter - High Pressure	024 Ave: 168 - 172 St	NCP Driven	1,350,000	1,350,000	0	0	0
16655	350m of 750mm diameter - High Pressure	024 Ave: Lot 16666 - 168 St	NCP Driven	591,000	591,000	0	0	0
16656	400m of 750mm diam. & 400mm of 600mm diam. - Low	024 Ave: 172 - 176 St	NCP Driven	1,800,000	1,800,000	0	0	0
16657	1200m of 750mm diameter - Low Pressure	024 Ave: Lot 16666 - 172 St	NCP Driven	2,565,000	2,565,000	0	0	0

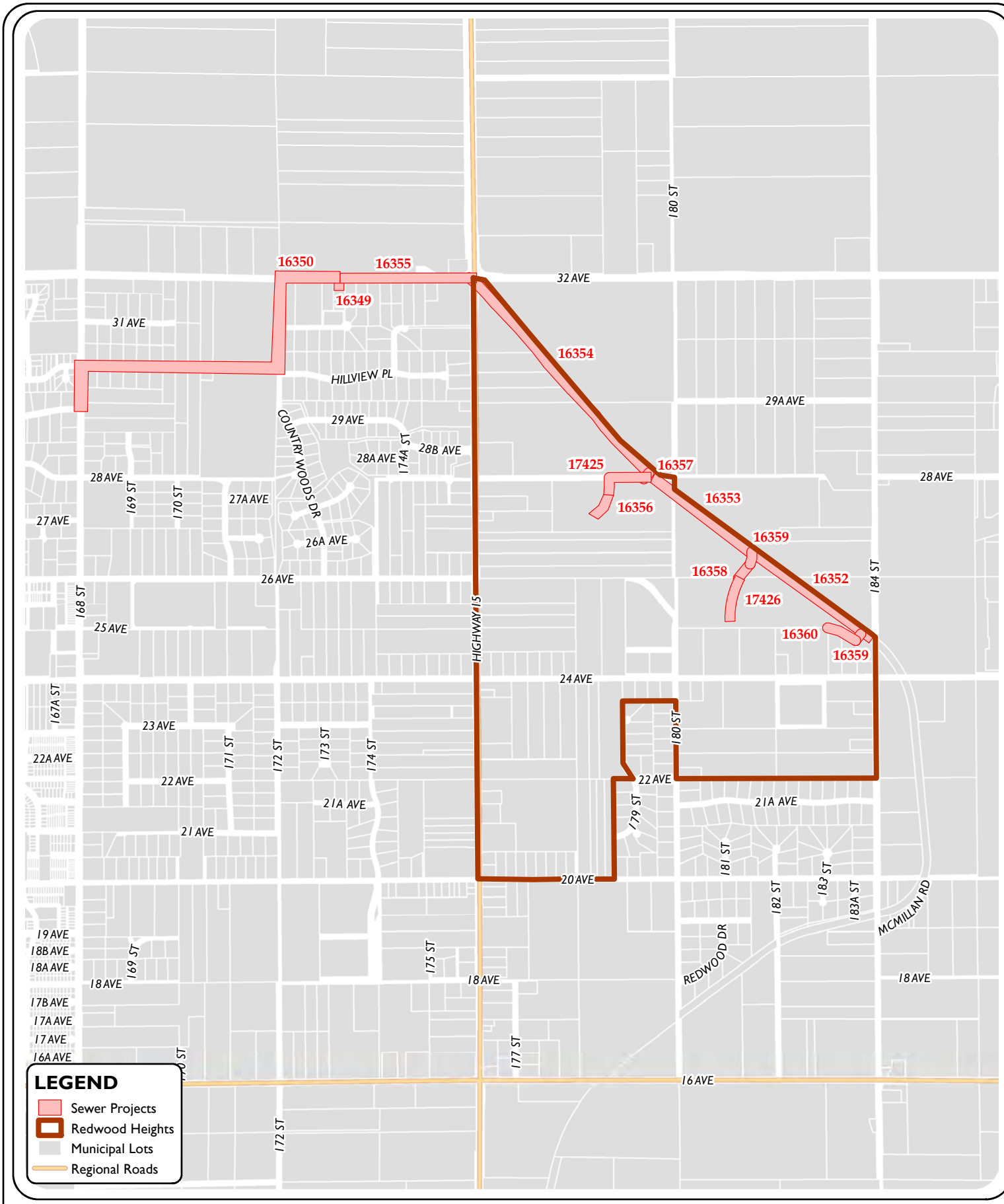

FIGURE 9.2 - Sewer
Redwood Heights (Program 1642)

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SEWER

Program 1642 - S - Redwood Heights

Program Total	**19,788,000**	**19,788,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
13493	Odour Facility for GH East PS (Redwood Heights)	16484 29A Ave	NCP Driven	736,000	736,000	0	0	0
16349	Redwood Heights NCP: Grandview Heights East PS (to be	17325 32 Ave	NCP Driven	5,365,000	5,365,000	0	0	0
16350	Redwood Heights NCP: 1080m of 500mm diam FM (to be	17190 32 Ave to Grandview East PS	NCP Driven	1,721,000	1,721,000	0	0	0
16352	547m of 300 mm diameter trunk main Redwood Heights	2499 184 St ROW	NCP Driven	1,091,000	1,091,000	0	0	0
16353	530m of 375mm diameter trunk main Redwood Heights	ROW in Redwood Heights	NCP Driven	1,100,000	1,100,000	0	0	0
16354	1058m of 450mm diameter trunk main Redwood Height	180 St/28 Ave to 176 St/32 Ave (through ROW)	NCP Driven	7,028,000	7,028,000	0	0	0
16355	550m of 600mm diameter trunk main Redwood Heights	32 Ave: Highway 15 to 17325	NCP Driven	1,100,000	1,100,000	0	0	0
16356	88m of 250mm diameter main Upsizing costs Redwood H	Catchment S3 in Redwood Heights	Upsizing Contribution	6,000	6,000	0	0	0
16357	25m of 375mm diameter main Redwood Heights	Catchment S3 in Redwood Heights (180 St/28 Ave)	NCP Driven	509,000	509,000	0	0	0
16358	74m of 250mm diameter main Redwood Heights	Catchment S4 in Redwood heights	NCP Driven	143,000	143,000	0	0	0
16359	86m of 300mm diameter main Redwood Heights	Catchments S4 and S5 in Redwood Heights	NCP Driven	414,000	414,000	0	0	0
16360	123m of 300mm diameter main Upsizing costs Redwood	Catchment S5 in Redwood Heights	Upsizing Contribution	17,000	17,000	0	0	0
17425	229m of 300mm diameter sewer in Redwood Heights	Catchment S3 in Redwood Heights	NCP Driven	548,000	548,000	0	0	0
17426	181m of 250mm diameter main Upsizing costs Redwood	Catchment S4 in Redwood Heights	Upsizing Contribution	10,000	10,000	0	0	0

10. DARTS HILL

The Darts Hill NCP area encompasses approximately 130 hectares and is generally bounded by 20 Avenue to the north, 16 Avenue to the south, 168 Street to the west, and Redwood Park to the east.

The NCP designates the area for a variety of land uses including commercial and mixed-uses, institutional, parks and natural areas, and a range of multi-family and single-family housing densities.

The Darts Hill NCP is a relatively undeveloped area with little to no utility infrastructure networks currently in place. The NCP will increase development intensity and population and will require significant improvements to the utility infrastructure including water, sanitary, and drainage systems. There are sufficient City-wide DCCs generated within the NCP plan to service transportation, water and sanitary sewer projects. A specific area servicing plan was developed for this area to address the shortfall related to three community detention ponds and construction of trunk storm sewer systems.

10.1 Darts Hill Programs

Program 1693 – Drainage

The drainage servicing plan consists of both offsite and onsite measures:

- Storm trunk sewer systems to collect and convey runoff from the various lots proposed within the neighbourhood;
- Detention ponds to control post-development flows to established rates for the 2-year and 5-year events;
- Low flow diversion structures designed to maintain flows up to 2-year predevelopment peak flow to the Class A and B watercourses where appropriate;
- On-lot detention systems to control post-development flows to established targets for the 2-year and 5-year events for areas that are unable to drain to the detention ponds;
- Safe conveyance of 100-year post-development flows through the storm sewer system, detention ponds and downstream watercourses; and
- Low impact development (LID) measures located throughout the development to promote stormwater infiltration where feasible, in order to meet runoff volume targets.

Table 10.1 – Darts Hill Cost Summary

No.	Program	Growth ($)	Non-Growth ($)	Total ($)
1677	Drainage	$30,964,000	0	$30,964,000
Total		**$30,964,000**	**0**	**$30,964,000**

10.2 Darts Hill Projects by Program

The following tables and figures identify the projects under the Darts Hill programs for sanitary sewer, water and drainage. The tables provide the following information:

a. Project ID - the unique identifier of the project;
b. Project name - the specific name or generic name that depicts the type of work;
c. Project location - the geographic extent of the works;
d. Priority - the intended time frame for when the project is planned to proceed (subject to change); and
e. Costs – the high-level estimates in 2024 dollars (subject to change at the actual time of construction).

The Darts Hill program costs are comprised entirely of growth funding.
Each program table is accompanied by a figure (map) that shows the location and extent of the projects. Projects that are general in nature or in various locations throughout Surrey may not be shown on the maps.

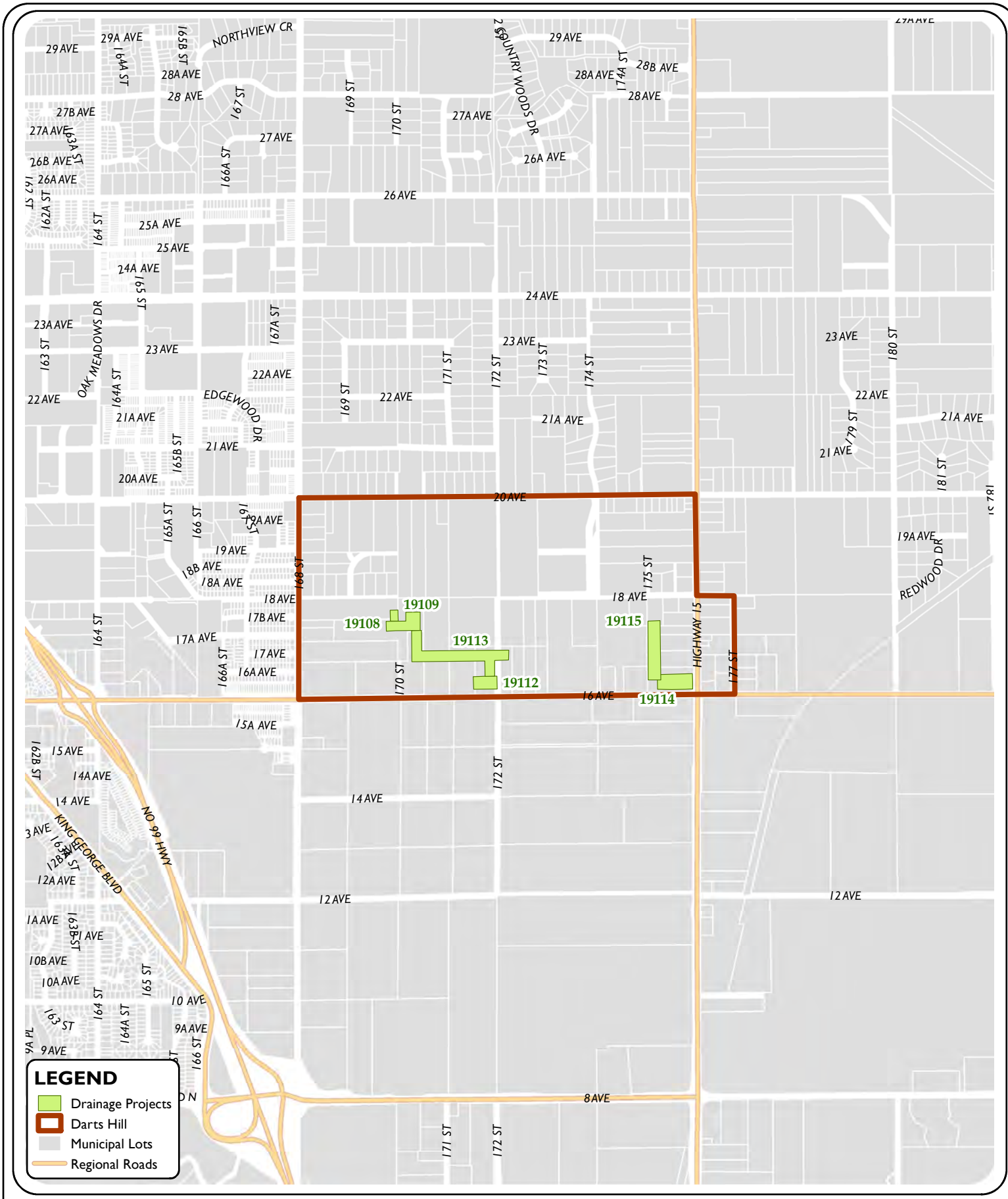

FIGURE 10.1 - Drainage Darts Hill (Program 1693)

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DRAINAGE

Program 1693 - D - Darts Hill

Program Total	**30,964,000**	**30,964,000**	**-**	**-**	**-**

					Breakdown by Funding Source			
Project ID	**Project Name**	**Project Location**	**Priority**	**Total**	**Growth Component**	**Non-Growth Component**	**External Funding**	**Translink Funding**
19108	Darts Hill NCP Darts Hill Garden Park Pond - Phase 1 (Poi	NE corner of Darts Hill Garden Park	NCP Driven	11,813,000	11,813,000	0	0	0
19109	Darts Hill NCP Darts Hill Garden Park Pond - Phase 2 (Tru	Catchment C3 in Darts Hill NCP	NCP Driven	89,000	89,000	0	0	0
19112	Darts Hill NCP 172 St & 16 Ave Pond - Phase 1 (Pond)	NW corner of 172 St & 16 Ave	NCP Driven	8,014,000	8,014,000	0	0	0
19113	Darts Hill NCP 172 St & 16 Ave Pond - Phase 2 (Trunk)	Catchment C4 in Darts Hill NCP	NCP Driven	1,043,000	1,043,000	0	0	0
19114	Darts Hill NCP Highway 15 & 16 Ave Pond - Phase 1 (Pon	NW corner of Highway 15 & 16 Ave	NCP Driven	9,599,000	9,599,000	0	0	0
19115	Darts Hill NCP Highway 15 & 16 Ave Pond - Phase 2 (Trur	Catchment C7 in Darts Hill NCP	NCP Driven	406,000	406,000	0	0	0