



TOWN OF  
**COMOX**

## **Anderton Corridor Servicing Study**

### **Volume 2 Sanitary Sewer Plan**

**Town of Comox**

Presented to:

**Shelley Ashfield, P.Eng.**  
Municipal Engineer

**Town of Comox**  
1809 Beaufort Avenue  
Comox BC B9M 1R9



December 7, 2022

# TABLE OF CONTENTS

	<b>Page</b>
1. INTRODUCTION	1
1.1 Study Area	1
1.2 Scope of Analysis	3
1.3 Background Documents	3
2. BACKGROUND INFORMATION	4
3. ANDERTON CORRIDOR AREA	5
4. IMPLEMENTATION	8
5. FUNDING AND COST ESTIMATES	15
6. RECOMMENDATIONS	17
7. CORPORATE AUTHORIZATION	18
APPENDIX A - SUMMARY OF INFORMATION FROM BACKGROUND REPORTS	

## LIST OF FIGURES

Figure 1-1	Study Area	2
Figure 3-1	Potential Land Use	6
Figure 3-2	Servicing Overview	7
Figure 4-1	System Servicing	9
Figure 4-2	Phasing Plan	11

## LIST OF TABLES

Table 4.1 – Hudson Trunk Capacity Check	8
Table 4.2 – Interim System Capacity	13
Table 5.1 – Brooklyn PS Costs	16



# 1. INTRODUCTION

The Town of Comox is experiencing growth and there is a need to provide additional lands for development within the Town. The Anderton Corridor has been identified as an area that will be annexed into the Town of Comox as demand for new homes and development land occurs. There has already been an extension of the Town boundary to include the southernmost portions of the study area. Further extension of the Town boundary requires a servicing plan that identifies aspects of the future development in terms of the engineering and infrastructure necessary for future growth, the phasing of the growth, and an estimate of the costs attributable to the provision of the infrastructure.

Mr. Jim Dumont has been retained by the Town of Comox to study the servicing requirements of the Anderton Corridor.

The servicing study focused primarily on the aspect of stormwater management while providing a review of the water and sanitary sewer requirements in the study area. The study findings are reported in separate volumes.

## 1.1 Study Area

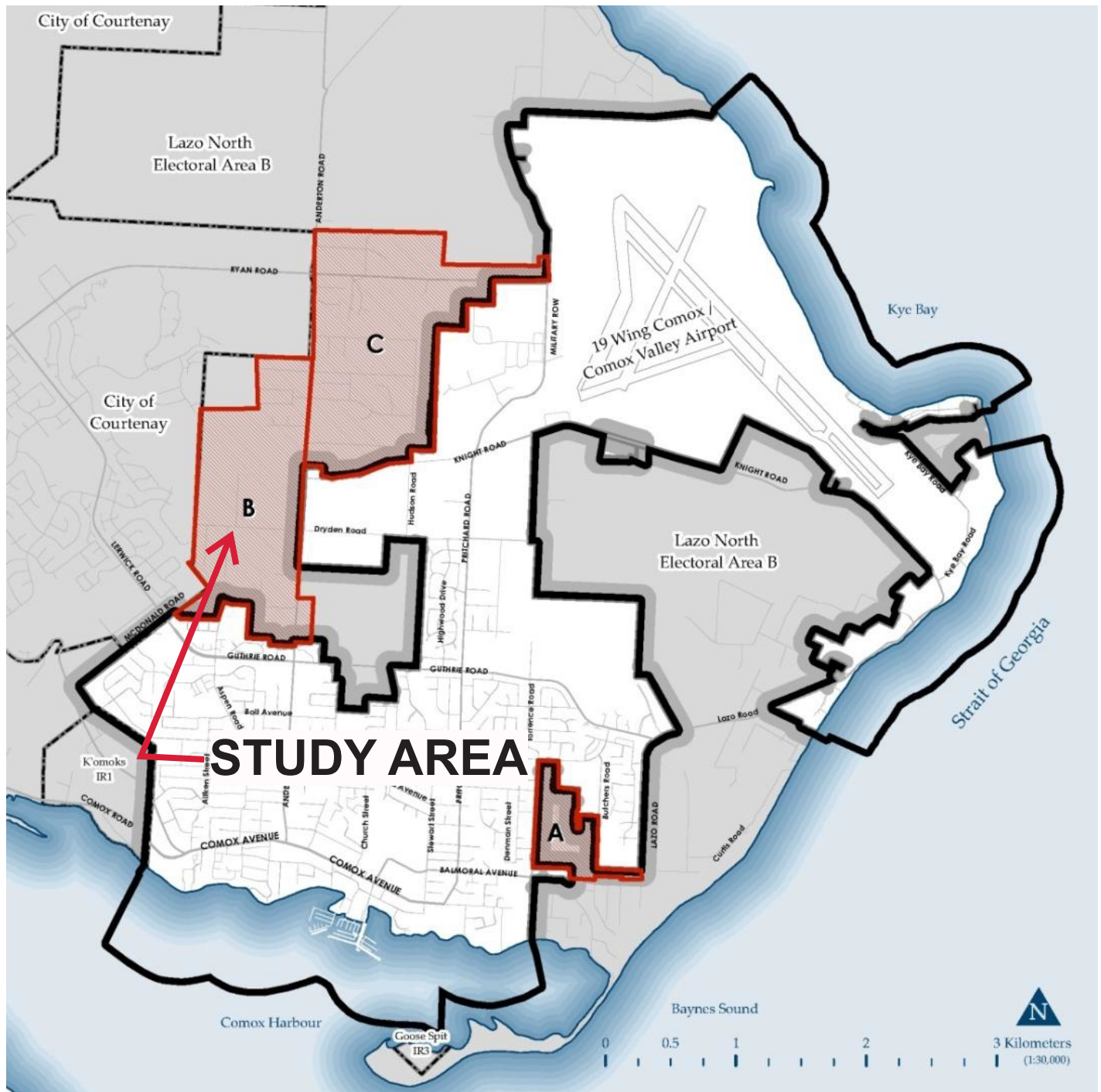
The Anderton Corridor which is shown on **Figure 1-1** is described as future annexation Area B in the Town of Comox Official Community Plan, Bylaw 1685 (OCP).

The future sewer system within the Anderton Corridor is interconnected with that in the Comox Valley Regional District (CVRD), the Town of Comox, and the City of Courtenay. The ownership, operation, planning, and upgrading of different components of the sewage system vary depending upon responsibility. The local collection system constructed as part of subdivision will belong to, and be operated by the Town of Comox. The transmission system from the developments to, and including the sewage treatment facility will continue to be the responsibility of the CVRD. This will affect the future scheduling and budgeting of the Town and the CVRD within the Anderton Corridor annexation area.

An overall sewer system model has been created by McElhanney Consulting Ltd. and has been used to assess the sewerage system within the CVRD. The overall model includes existing transmission mains and future development scenarios have been used in designing that transmission system. This model does not include components within the Town of Comox. McElhanney has also developed a model of the sewer system within the Town of Comox which does not contain information from outside the current boundaries of the Town, and does not include the Anderton Corridor study area.

Future planning of the sewer system and the basis for the future servicing scenarios should include the land uses as outlined within the current OCP.





Base Plan: Town Of Comox Official Community Plan, 12 May, 2011, Page 104,  
Figure 9 - Town of Comox Potential Boundary Expansion Areas



## 1.2 Scope of Analysis

The list of tasks to be completed as in creating the Sanitary Sewer component of the overall servicing study include:

1. Review the Town Sewer system report and the CVRD Sewer system reports.
2. Prepare a list of any outstanding questions and meet with MCSL to obtain the information as necessary.
3. Locate any transmission main upgrades required to service the Anderton Corridor and prepare a phasing plan for future system extensions for both the transmission and local collection system.
4. Prepare cost estimates for the system which will allow the Town to update the DCC Bylaw.
5. Document the findings of the study in a clear and concise report outlining the background information, findings of the analysis, opportunities and constraints for future development.
6. Presentation to Council of the findings of the study.

## 1.3 Background Documents

Background information for sanitary sewer was derived from several diverse sources that included:

- Town of Comox GIS,
- Town of Comox record documents;
- CVRD Mapping;
- Official Community Plans (OCP's);
- Comox Valley Regional District Sanitary Sewerage Master Plan, May 2011, McElhanney Consulting services Ltd.;
- Town of Comox 2013 Sanitary Model Update, February 7, 2014, McElhanney Consulting Services Ltd.; and
- Ministry of Transportation and Infrastructure Review of the CVRD's Proposed Hudson Trunk Gravity Sewer Alignment, June 19, 2016, McElhanney Consulting Services Ltd.
- Town of Comox Subdivision and Development Servicing Bylaw, 1261
- Planning information for the future from the Town of Comox

**As additional information becomes available the Anderton Corridor Servicing Plan can be updated.**



## 2. BACKGROUND INFORMATION

Several documents have been the source of the information used in preparing this report, including;

1. Comox Valley Regional District Sanitary Sewerage Master Plan, May 2011, McElhanney Consulting services Ltd.;
2. Town of Comox 2013 Sanitary Model Update, February 7, 2014, McElhanney Consulting Services Ltd.; and
3. Ministry of Transportation and Infrastructure Review of the CVRD's Proposed Hudson Trunk Gravity Sewer Alignment, June 19, 2016, McElhanney Consulting Services Ltd.

A summary of relevant information from each report is provided in **Appendix A**. It must be stated that the information derived from all these **sources is not consistent**. The standards, land uses, boundaries, and assumptions vary between documents. The different information will be noted and this report which present in a cohesive plan for the area that is consistent with the latest standards and planning of the Town of Comox.



### 3. ANDERTON CORRIDOR AREA

The potential land uses for the study area have been provided by the Town of Comox and are shown on **Figure 3-1**. The Town estimates that the ultimate housing density for the study area is approximately 38 units per ha net density (without ponds, roads, and park areas, averaged between single- and multi-family) with a total population of 8,910 persons. This represents a significant increase on the assumptions of a uniform 10 units of single-family development and 24 people per hectare within the study area that was used in the design of the Hudson Trunk.

The sanitary servicing for the Anderton Corridor Area can be described as falling into four areas shown on **Figure 3-2**:

1. The southern fringe that could contribute to the existing sewerage system within the Town, assuming that there is sufficient downstream system capacity;
2. The area contributing to the future Brooklyn Pump Station (PS),
3. The remainder that is designated to drain by gravity into the Hudson Trunk which excludes a small area in the extreme north east of the study area; and
4. External areas contributing sanitary flows from Crown Isle.

As the future detailed planning, rezoning, and subsequent subdivision design occurs the information in this report may be updated to represent a more accurate view of the study area. The preliminary information provided herein may be superseded for several reasons which may include:

- Accuracy of the topographic mapping, and
- Market conditions that result in different land use requirements.

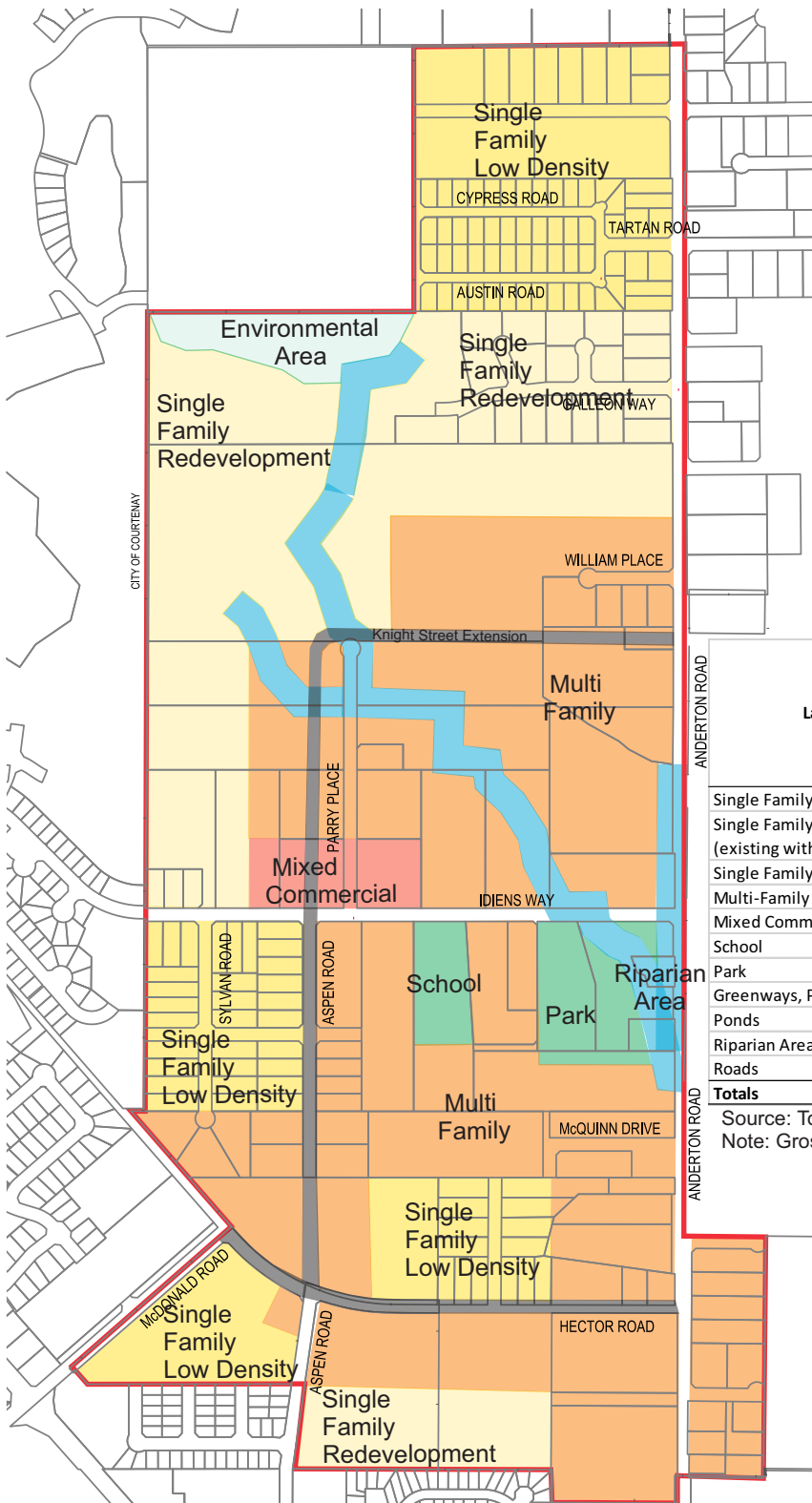
At this time, the Town has indicated that majority of the land is within “blanket” 9.0 m height limit for construction near the Comox Airport. Ongoing discussions between the Town of Comox, City of Courtenay and DND are occurring to clarify future requirements. Some creative designs may be required to achieve the target 38 uph density. Given the potential height restrictions, the mid-density areas may need to be expanded. Single-family would remain on Acacia Rd block, east of Aspen Rd and north of (extension) Knight Road, but “Single-Family Redevelopment” labelled lands may need higher density than SF.

During the design of the sewer collection system and as detailed topographic information is obtained, land use will be confirmed resulting in updated population estimates. Future designs should utilize the criteria established by the Town of Comox in the Subdivision and Development Servicing Bylaw 1261. In this study the total design discharges for the contributing areas were estimated by using the criteria which includes:

- Average Daily Dry Weather Flow of 360 Liters per capita per day (L/c/d),
- Peaking Factor estimated as  $(1+(14/(4+(P^{0.5})))$   
where P is the population in thousands, and
- Wet Weather Infiltration of 0.06 L/s/ha.







Land Use	Area		Density		Population		Totals	
	Gross (ha)	Net (ha)	Net	UPHa	People/ha	Units	People	
Single Family East of Anderton	4.5	4.5	38.0	20	68	135	304	
Single Family Low Density (existing with infill)	16.0	13.6		14	31	186	419	
Single Family Redevelopment	65.3	38.7		24	54	959	2,158	
Multi-Family	61.4	52.7		46	104	2,680	6,030	
Mixed Commercial - Residential	2.0	2.0						
School	2.0	2.0						
Park	2.0	2.0						
Greenways, Pocket Parks		4.1						
Ponds	7.5	7.5						
Riparian Areas		9.0						
Roads		24.6						
<b>Totals</b>	<b>160.7</b>	<b>160.7</b>	<b>38.0</b>			<b>3,960</b>	<b>8,910</b>	

Source: Town of Comox

Note: Gross development areas include parks riparian ways and parks.

Anderton Corridor Servicing Study  
Volume 2 Sanitary Sewer Plan  
Potential Land Use  
Figure 3 - 1







### Excluded From Hudson Trunk Contributing Area

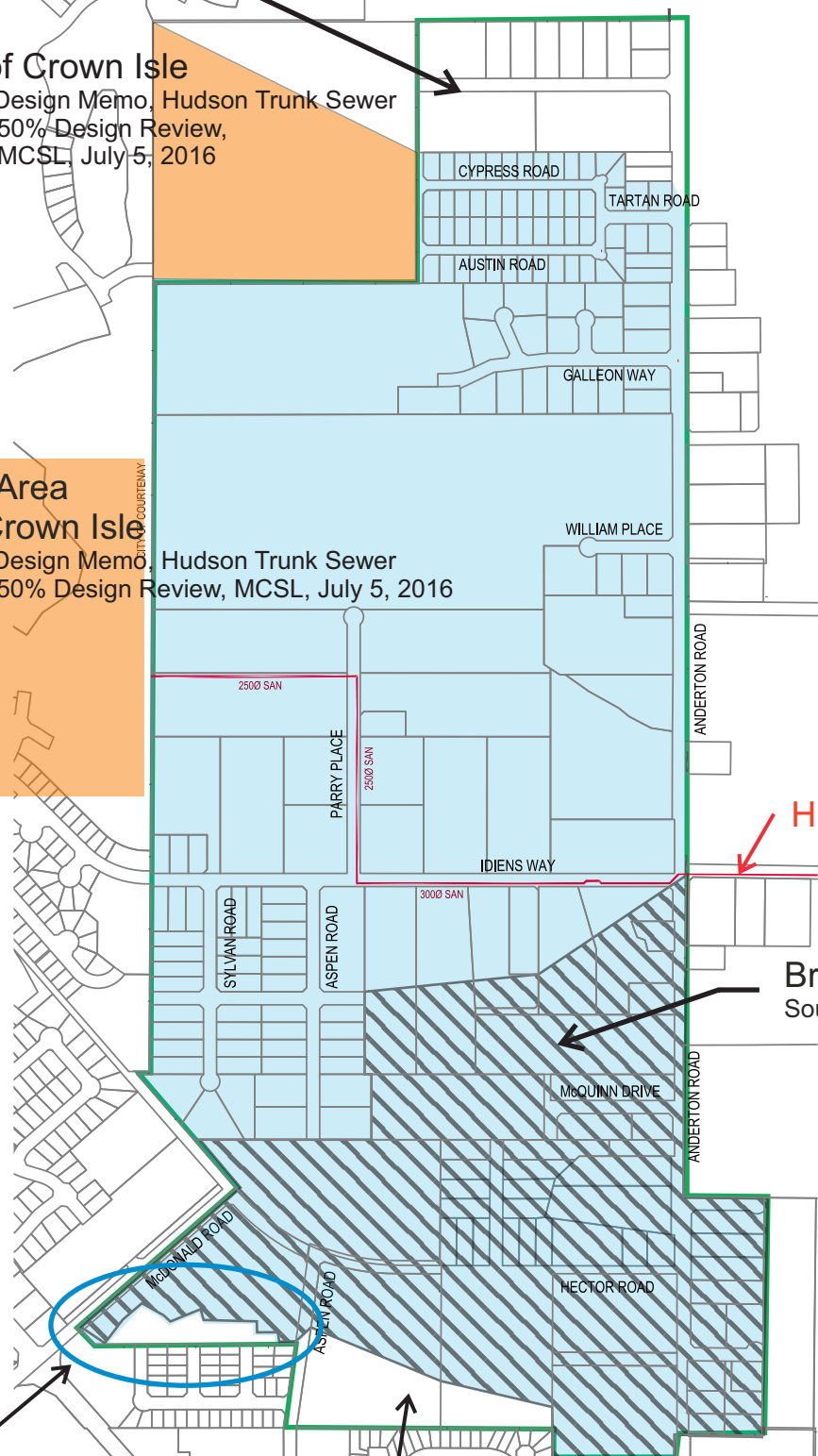
Source: Design Memo, Hudson Trunk Sewer 50% Design Review, MCSL, July 5, 2016

### Area of Crown Isle

Source: Design Memo, Hudson Trunk Sewer 50% Design Review, MCSL, July 5, 2016

### 58 ha Area from Crown Isle

Source: Design Memo, Hudson Trunk Sewer 50% Design Review, MCSL, July 5, 2016



Hudson Trunk

### Brooklyn PS Contributing Area

Source: Sanitary Sewer Model Update 2014, MCSL

Boundary Update Valley View Estates - MCSL 2021-07-20

Area which could Contribute to Town system - capacity must be verified



## 4. IMPLEMENTATION

A preliminary layout of the collection system which will deliver flow to the Hudson Trunk is shown on **Figure 4-1**.

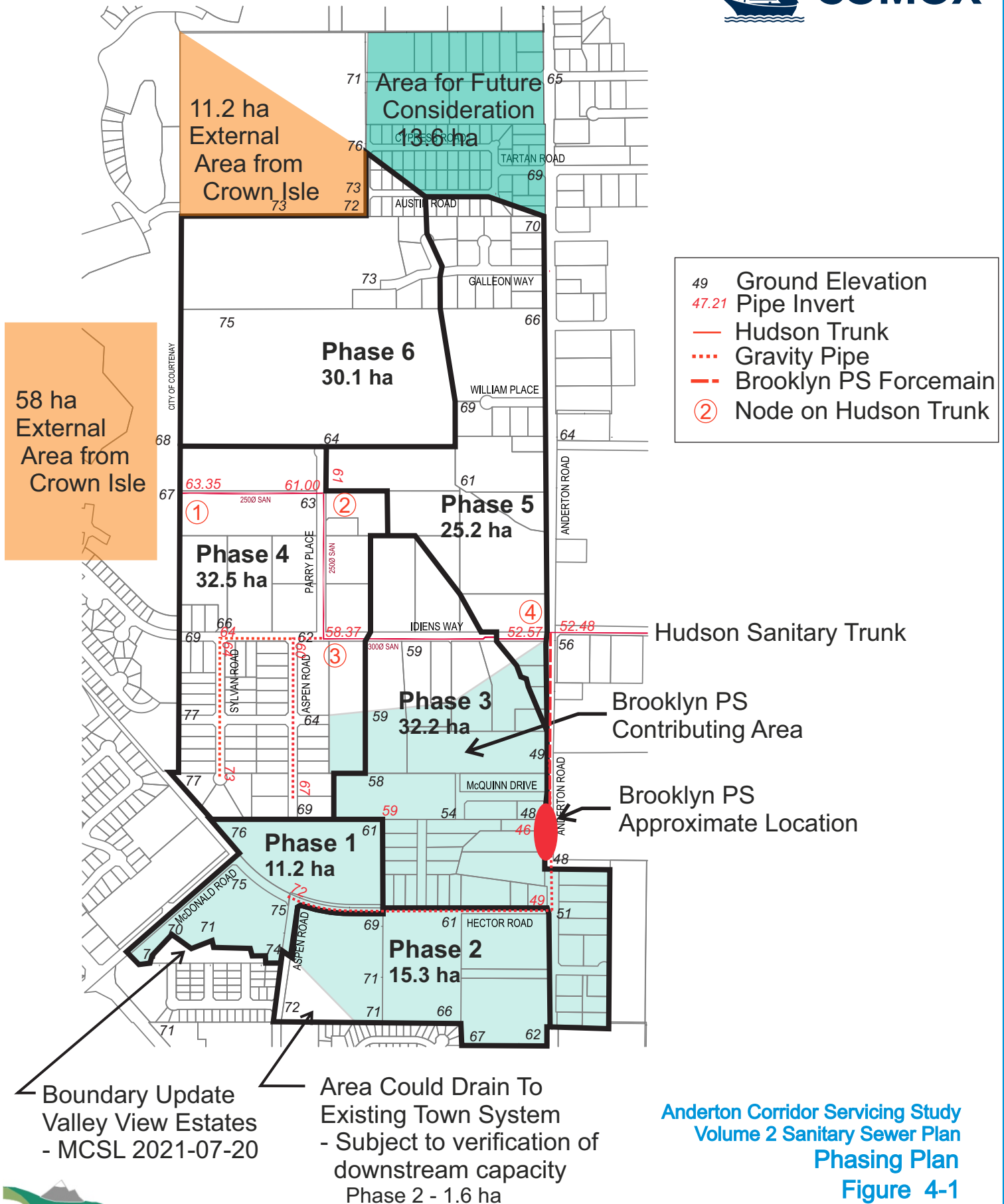
A small portion of the study area which includes Tartan Road has been excluded from the Hudson Trunk contributing area. At this time the area has not been included in the immediate servicing plan because there are no plans for the provision of sanitary sewer servicing to these properties. As this area nears development a downstream system for both the sanitary and the storm sewer system will be required. At that time the downstream routing of the sewer systems can be finalized.

As discussed in previous sections there have been a series of evolving assumptions used in estimating the design discharges for the Hudson Trunk. A check of the system design capacity has been made using the latest information available and the recommended criteria for the future collection system. The contributing areas shown will discharge to the identified nodes or to the pipe upstream of the identified node. This method of assigning contributing area best represents the contributions to the identified pipes and the design capacity required for each pipe segment. The results of the check are shown **Table 4.1**.

From	To	Description	Incremental		Cumulative		Peaking Factor	PDWF (L/s)	Infiltration (L/s)	PWWF (L/s)	Capacity (L/s)	% of Capacity
			Area (ha)	Population	Area (ha)	Population						
Node 1	Node 2	Crown Isle	58	1,392	58	1,392	3.70	21.5	3.5	25.0	50.5	49
Node 2		Crown Isle	11.2	269								
	Node 3	Area 2	40.4	1,900	109.6	3,561	3.38	50.1	6.6	56.7	42.7	133
Node 3	Node 4	Area 3	32.0	2,000	141.6	5,561	3.20	74.2	8.5	82.7	68.0	122
Node 4		Area 4	22.9	1,620								
	D/S	Brooklyn PS	47.5	3,100	212.0	10,281	2.94	126.1	12.7	138.8	110.6	125
	ADWF	360 L/c/day										
	Infiltration	0.06 L/s/ha										

As can be seen the capacity of the existing Hudson Trunk downstream from Node 2 is not sufficient to meet the requirements of the projected future developments in the study area plus the designated portions of Crown Isle. Additional capacity will be required to service the projected developments within the City of Courtenay and the Town of Comox.





Anderton Corridor Servicing Study  
Volume 2 Sanitary Sewer Plan  
Phasing Plan  
Figure 4-1



Design and implementation of the sewerage system within the study area will, by necessity, follow the staging of the stormwater sewer system. Two reasons for this include the need to implement stormwater management at the same time and the two pipe collection systems are likely to follow the same alignments.

A phasing plan for development of the sanitary sewerage system has been created with consideration being given to the following overall factors:

1. Development progression from the existing Town boundary.
2. The limited capacity of the existing Hudson trunk and the need to provide additional capacity in the future as development occurs.
3. The need to construct the Brooklyn Pumping Station which should be located at the topographic low point within it's contributing area, and
4. The need to construct the storm sewer servicing for the area where the sanitary and storm pipes will generally follow the same alignments,
5. The storm system will include stormwater ponds that will need to discharge into downstream systems and ultimately into Brooklyn Creek.

The existing capacity of the Hudson Trunk was evaluated using the areas and future populations for the study area in a progression of development from the existing Town boundary while not reducing the stated development within the City of Courtenay. A process of including the contributions logical extension of development for the Town has been identified where the capacity will be just sufficient for the developments within the study area.

The phasing for the sanitary sewer system can be described to include six phases plus two areas that will ultimately be from the City of Courtenay as shown on **Figure 4-2**.

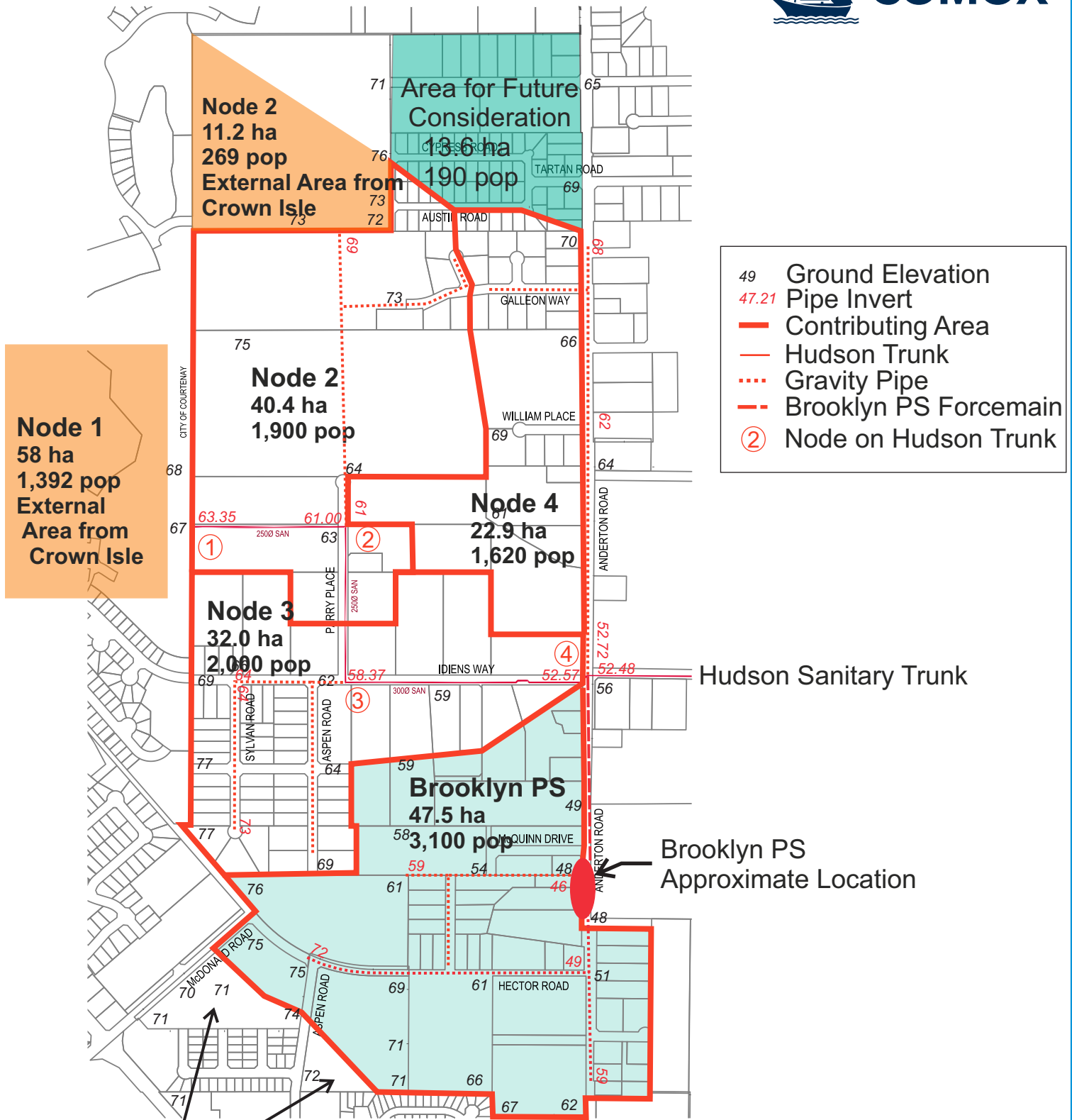
### **Phase 1**

An 11.2 ha area in the south west bisected by Hector Road and between McDonald Road and Aspen Road. While this area will ultimately be within the Brooklyn PS service area there may be capacity in the Aspen Road sewer provided it is serviced with a temporary lift station within the Phase 1 area.

### **Phase 2**

Phase 2 has an area of 15.3 ha and is comprised of four large parcels west of Anderton Road, south of Hector Road and west of Aspen Road. These lands will require a lift station and forcemain to carry sewage to the Hudson Trunk. The ultimate capacity of the Brooklyn PS would not be required for Phase 2, which indicates that staging the capacity of the Brooklyn PS may be an attractive, cost saving solution to construction and operations.





**Node 1**  
58 ha  
1,392 pop  
External Area from Crown Isle

**Node 2**  
11.2 ha  
269 pop  
External Area from Crown Isle

**Area for Future Consideration**  
13.6 ha  
190 pop

**Node 2**  
40.4 ha  
1,900 pop

**Node 4**  
22.9 ha  
1,620 pop

**Node 3**  
32.0 ha  
2,000 pop

**Brooklyn PS**  
47.5 ha  
3,100 pop

- 49 Ground Elevation
- 47.21 Pipe Invert
- Contributing Area
- Hudson Trunk
- ⋯ Gravity Pipe
- - - Brooklyn PS Forcemain
- ② Node on Hudson Trunk

Hudson Sanitary Trunk

Brooklyn PS Approximate Location

Areas Could Drain To Existing Town System  
- Subject to verification of downstream capacity  
Area 1 - 3.2 ha 77 pop  
Area 2 - 1.6 ha 23 pop



### Phase 3

The 32.2 ha Phase 3 includes the remainder of the Brooklyn PS catchment and has been extended north beyond Idiens Way to correspond to the phasing of the storm system.

### Phase 4

Phase 4 has an area of 32.5 ha, is bisected by Idiens Way and lies on the west side of the study area. Gravity sewers connecting to the Hudsons Trunk have recently been completed to series the area south of Idiens Way

### Phase 5

Phase 5, a 25.2 ha area lies immediately west of Anderton Road from approximately Idiens Way to the northern limit of the study area.

### Phase 6

The 30.1 ha of Phase 6 is bounded on the west by the City of Courtenay and the north by Crown Isle. This is anticipated to be the last portion of the study area which will undergo redevelopment and to be annexed by the Town of Comox.

As indicated previously the Hudson Trunk does not have sufficient capacity to service all of the study area plus the areas in the City of Courtenay. An analysis was undertaken to evaluate how much development and which phases can be accommodated before additional capacity will be required to be added to the Hudson Trunk. The contribution from the City of Courtenay and Crown Isle were given priority in the calculations but this may not necessarily be most practical solution. The Town, the City, and the CVRD should discuss and agree upon the staging of the Hudson Trunk upgrades.

The results of the analysis are summarized in **Table 4.2** indicate that the Hudson Trunk can support Phase 1, Phase 2, and the development within the Brooklyn PS contributing area. Development beyond the Brooklyn PS contributing area will required additional capacity be added to the Hudson Trunk.



Table 4.2 – Interim System Capacity												
From	To	Description	Incremental		Cumulative		Peaking Factor	PDWF (L/s)	Infiltration (L/s)	PWWF (L/s)	Capacity (L/s)	% of Capacity
			Area (ha)	Population	Area (ha)	Population						
Node 1	Node 2	Crown Isle	58	1,392	58	1,392	3.70	21.5	3.5	25.0	50.5	49
Node 2		Crown Isle	0	0								
	Node 3	Area 2	0	0	58	1,392	3.70	21.5	3.5	25.0	42.7	58
Node 3	Node 4	Area 3	0	0	58	1,392	3.70	21.5	3.5	25.0	68.0	37
Node 4		Area 4	22.9	1,620								
	D/S	Brooklyn PS	47.5	3,100	128.4	6,112	3.16	80.6	7.7	88.3	110.6	80
	ADWF	360 L/c/day										
	Infiltration	0.06 L/s/ha										

At the time development in the areas north and west of the Brooklyn PS catchment occurs an evaluation of the options to increase the trunk capacity will be required.

Consideration must also be given to the priority of access to the Hudson Trunk that are applied to developments within the Town Comox and the City of Courtenay. Ideally the needs of both municipalities will be balanced to provide access to the capacity of the Hudson Trunk.

The Brooklyn PS has a total tributary area of 47.5 ha and a projected population of 3,100. These values lead to the estimate of the capacity of the Brooklyn PS and the downstream forcemain of 47.2 L/s. Use of a 200 mm diameter ductile pipe will allow the design discharge with a flow velocity of 1.46 m/s and a head loss of 8.39 m over a length of 425 m.

A smaller pipe with a higher velocity will result in a greater pump pressure while reducing the time that the sewage is retained within the pipe. A shorter time in the pipe will reduce the production of anaerobic decomposition products while reducing the potential odor and downstream issues of corrosion and odors.

The sizing of the system can be reviewed during detailed design to optimize the operating costs and operating conditions. Given the size and design capacity of the PS it may be advantageous to stage the construction of the PS and forcemain. This would allow for lower initial construction and maintenance costs. Such a scheme would also allow for collection of DCC funds to pay for upgraded capacity in the future.





The other collection system pipes as shown follow the existing roads or anticipated road locations and would be of the minimum 200 mm diameter pipe size as specified in the Town's specifications.

During future development the design of all system components must include verification of discharges, pipe size, and inverts required to convey all flows from development under design and any other upstream developments.



## 5. FUNDING AND COST ESTIMATES

In the Town of Comox, development and sale of new neighbourhoods funds the construction of new infrastructure that taxpayers will own, operate, and maintain. As costs paid by developers are reflected in the price of housing, the cost of new development is ultimately borne by new homeowners. Where the infrastructure constructed by one developer will benefit other developer then a cost sharing mechanism is required. This cost sharing mechanism will be administered by the Town of Comox.

Establishing the funding mechanism must precede the determination of the development costs that become a Town of Comox administrative responsibility. The method of funding will determine the individual infrastructure components which will need to be tracked and administered by the Town. Therefore, discussion of, and establishment of a funding mechanism must occur prior to establishing the cost estimates of the infrastructure that will fall directly under the administrative responsibility of the Town.

New infrastructure eligible for cost sharing may be financed by one of three sources:

1. The Town can fund new infrastructure through Development Cost Charges (DCC) where developers can pay for new infrastructure directly and have all or part of the cost rebated through a reduction in DCC's; or
2. Utilize a Late Comers Agreement or Front-end Financing Agreement is where the first developer constructs the infrastructure and recovers costs that are in excess of their development need from future benefiting developers; or
3. Establish a Local Service Area to fund construction and operations through a parcel tax levee. The Local Service Area could also be used to fund future operation and maintenance costs.

The financial plan for the Anderton Corridor is based on a series of fundamental assumptions that progress the need to provide the Town of Comox with investment in municipal infrastructure for new developments while utilizing a process that is equitable to both the municipality and developers. The investment is balanced so that neither the taxpayer nor the developer is penalized, or providing subsidies to support the other. Inclusion of the Anderton Corridor into the DCC Cost recovery system for sewer infrastructure will necessitate an update to the current DCC Bylaw.

It is recommended that any future funding and cost sharing system be based on the "oversizing" concept, which has a significant impact on the assumptions in the financial report/analysis. This means that the "base" cost of all works is the responsibility of the adjacent developer and it is only the oversizing from base to trunk standards that are covered by funds from either the DCC program or other funding mechanism. An example would be for sanitary sewers minimum pipe system is considered base and the



construction cost associated with the development and any additional capacity would be the responsibility of a funding mechanism other than the DCC process.

Given the characteristics of the sanitary sewerage system and the preconstruction of the Hudson Trunk the only portions of the system that would qualify for cost sharing are the Brooklyn PS and the associated forcemain. All remaining portions of the collection system will be based upon the minimum pipe size and therefore not eligible to be included in the DCC process.

Another mechanism that can be utilized outside of the DCC process would occur if one developer were to advance the installation of infrastructure that could be used by other developers. In this case the first developer would “front end” construction of some portions where a downstream developer would receive a benefit. In this case the downstream developer would pay a share of the costs to the first developer for the ability to connect to the constructed systems. In this instance the Town may assist in the negotiations and in establishing the contracts between developers.

The option for funding future operation and maintenance would be to establish a Local Service Area for the Brooklyn PS and the forcemain discharging to the Hudson Trunk.

The estimated cost of the Brooklyn PS and forcemain included in **Table 5.1**:

Table 5.1 – Brooklyn PS Costs				
Item	Unit	Quantity	Rate	Cost
Pump station supply and install	Each	1	500,000	500,000
Forcemain – 200 mm ductile	Lm	425	900	382,500
Connect to Hudson Trunk	LS	1	5,000	5,000
subtotal				887,500
Land acquisition, Contingencies, Engineering, Administrative Costs, and Taxes are not included in the cost estimates shown above				

The next step in the planning and design process for the Brooklyn Pump Station will be to undertake a Functional Design that will include establishing the final contributing areas, populations, locations, alignments, staging for construction. More accurate cost estimates will be available for input into the planning and development processes of the town of Comox.

Selection of the funding mechanism will be required prior to substantial development within the study area.



## 6. RECOMMENDATIONS

The Town of Comox adopt the Sanitary Sewer Plan for the Anderton Corridor. The engineering and funding aspects of the Plan will be completed as part of future annexation, subdivision, and development of land within the area. The major components of the plan include:

1. Undertake a functional design of the Brooklyn PS while considering the possibility of staging capacity as development proceeds. This would provide additional time a accumulation of DCC funds for upgrades.
2. Provision of a funding mechanism to facilitate the construction of the required infrastructure



## 7. CORPORATE AUTHORIZATION

This document entitled:

### Anderton Corridor Servicing Study

### Volume 2 Sanitary Sewer Plan

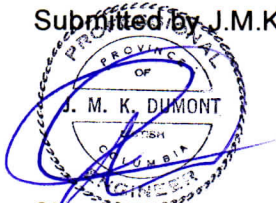
Client Name:

**Town of Comox**

This document is intended solely for the use of the Town of Comox, and for the purposes and within the limitations stated in the document. The material in this report reflects the best judgement of J.M.K. (Jim) Dumont, P.Eng. in the light of the information available at the time of preparation. Any use of, or reliance placed upon, the material contained in this report by third parties, or decisions based upon this report are the sole responsibility of those third parties. J.M.K. (Jim) Dumont, P.Eng. accepts no responsibility for damages suffered by any third parties as a result of decisions made, or actions taken, based upon information contained within this report. Duplication or distribution of this report or any portion hereof is forbidden and requires approval from the client and J.M.K. (Jim) Dumont, P.Eng.

I certify this to be a report prepared by: J.M.K. (Jim) Dumont, P.Eng.

Submitted by J.M.K. (Jim) Dumont, P.Eng.



Signature December 7, 2022

Professional Stamp

Permit to Practice 1003061



## **APPENDIX A**

### Summary of information from the background reports

1. Comox Valley Regional District Sanitary Sewerage Master Plan, May 2011, McElhanney Consulting services Ltd.;
2. Town of Comox 2013 Sanitary Model Update, February 7, 2014, McElhanney Consulting Services Ltd.; and
3. Ministry of Transportation and Infrastructure Review of the CVRD's Proposed Hudson Trunk Gravity Sewer Alignment, June 19, 2016, McElhanney Consulting Services Ltd.



## Comox Valley Regional District Sanitary Sewerage Master Plan

The CVRD Sanitary Sewerage Master Plan was undertaken to assist with long term planning of major sewerage system infrastructure. The study evaluated areas within the Comox Valley including the core area over which the existing Comox Valley Sewerage Commission has jurisdiction and the existing rural areas with the potential for land development projects. The Anderton Corridor is a small part of the overall CVRD service area examined within the Master Plan. The relationship of the Anderton Corridor within the overall sewerage area is shown on **Figure A-1**.

The Anderton Corridor Study Area is shown to be a part of a larger grouping of properties within the CVRD Master Plan identified as 2D Anderton Corridor including Ryan Road with an area of 387.0 ha and a projected future population of 2024 and is shown on **Figure A-2**. The Anderton Corridor Study Area is comprised of a total of 159 ha and if the future population were to be uniformly distributed across the area then the study area the CVRD assumes that the area would have a **future population of 832 persons**.

The Anderton Corridor area is located within the areas tributary to two pumping stations: the Jane Street Pumping Station, and the CFB Pumping Station. The CVRD report recommends infiltration rates (from the ground into the sanitary system) for future design based upon the age of infrastructure. The rates used in the CVRD study for the contributing areas to each pump station are 0.41 L/s/ha for the Jane Street PS and 1.00 L/s/ha for the CFB PS. These infiltration rates are significantly larger 0.06 L/s/ha as listed in the Appendix D, Section 2.1.4 of the Town's Subdivision and Development Servicing Bylaw 1261.

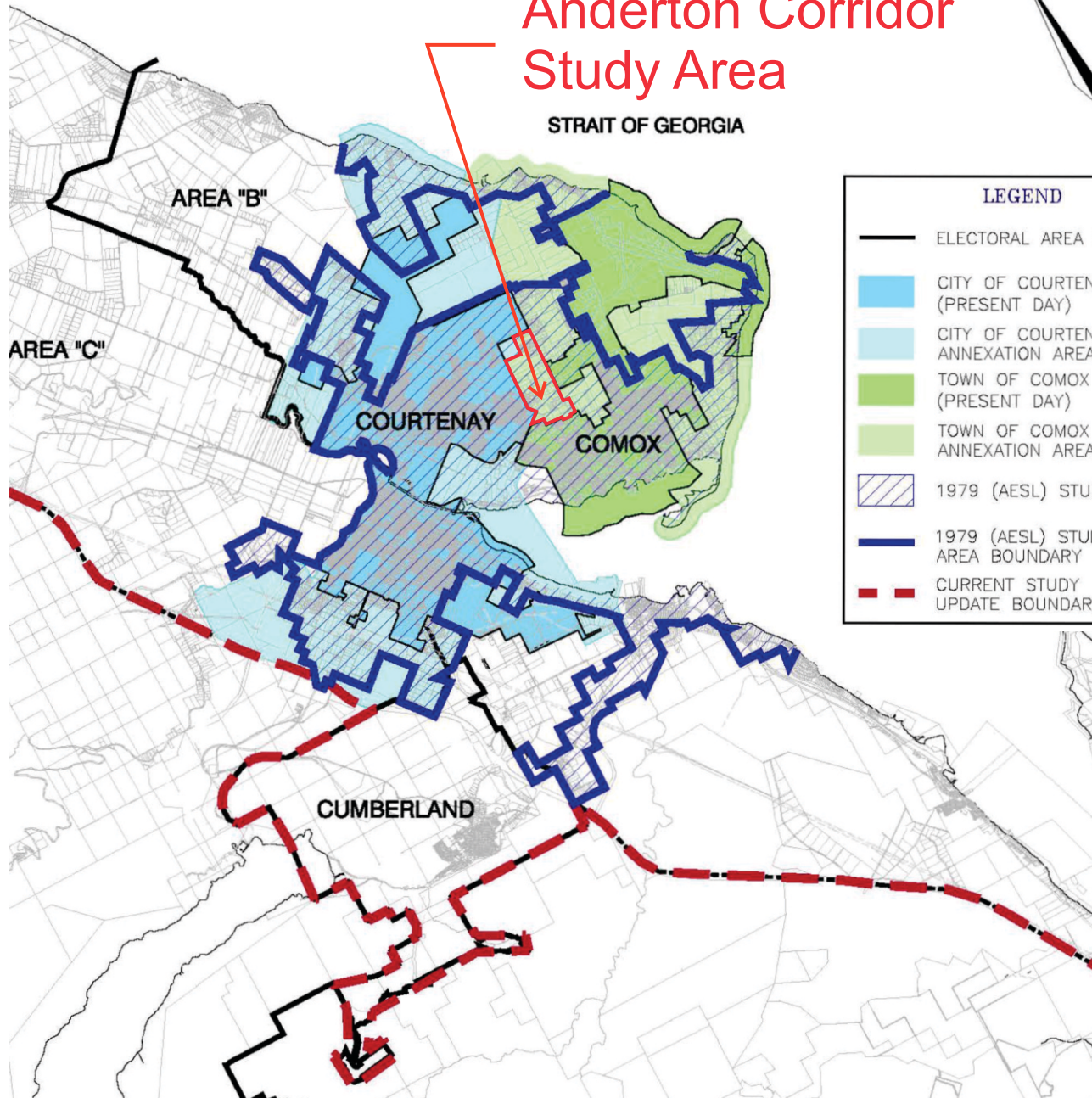
The Average Dry Weather flow rates attributed to Comox in the CVRD report are approximately 208 L/c/day which is much lower than the 360 L/c/day as listed in Appendix D, Section 2.2.1 of the Subdivision and Development Servicing Bylaw 1261.





## Anderton Corridor Study Area

STRAIT OF GEORGIA



LEGEND	
	ELECTORAL AREA BOUNDARY
	CITY OF COURTENAY (PRESENT DAY)
	CITY OF COURTENAY ANNEXATION AREA
	TOWN OF COMOX (PRESENT DAY)
	TOWN OF COMOX ANNEXATION AREA
	1979 (AESL) STUDY AREA
	1979 (AESL) STUDY AREA BOUNDARY
	CURRENT STUDY UPDATE BOUNDARY

Base Plan: drawing C-1, Comox Valley Regional District Sanitary Sewerage Master Plan, May 2011, McElhanney Consulting Services Ltd.

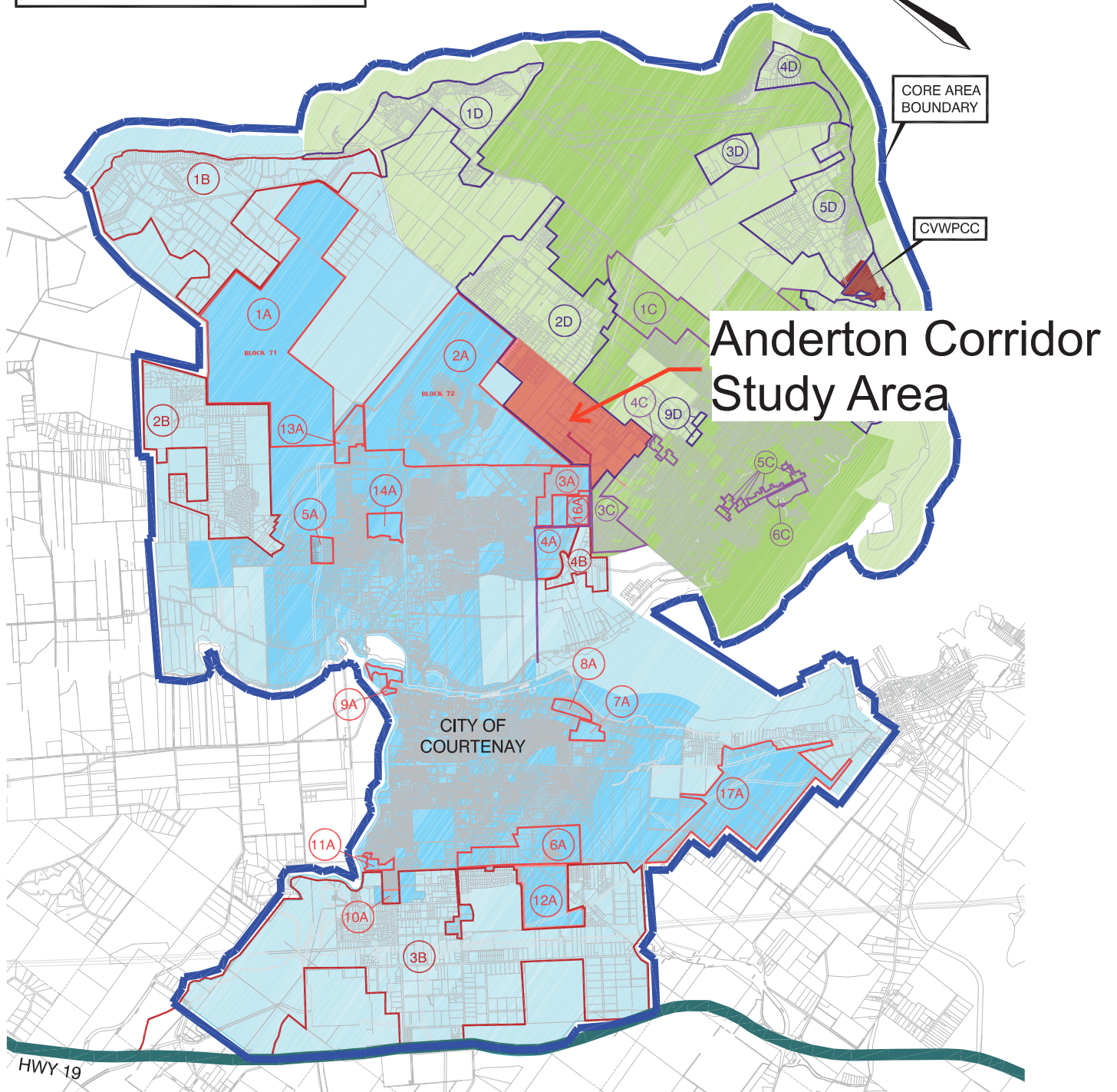
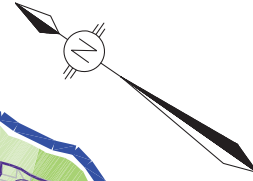






NOTE:  
NO EXISTING SANITARY SYSTEMS SHOWN,  
OTHER THAN REGIONAL DISTRICT COMPONENTS.

STRAIT OF GEORGIA



## Anderton Corridor Study Area

Base Plan: drawing S-8A, Comox Valley Regional District Sanitary  
Sewerage Master Plan, May 2011, McEhlanney Consulting  
Services Ltd.

**Anderton Corridor Servicing Study**  
**Volume 2 Sanitary Sewer Plan**  
**CVRD Core Area**  
**Figure A-2**



The Master Plan recommends a five-year cycle for the review and update of the Master Plan as development and infrastructure is constructed. The review process is intended to assure the CVRD that the most up to date information is available, no surprises occur, and that any necessary infrastructure is constructed or upgraded to accommodate ongoing needs within the CVRD. The Master Plan proposed an extension of sanitary sewer collection and treatment system which would accommodate future projected growth within the CVRD. The report contains recommendations for both the physical system and the design criteria used in the future.

The intent of the review process is appropriate however the use of different standards across the area than those used by the Town is not discussed in the Master Plan.

## Town of Comox 2013 Sanitary Model Update

The 2013 Update examined the sanitary sewerage collection and conveyance system while developing options to achieve future requirements and ongoing development within the Town of Comox. It also provided information regarding the Anderton Area in identifying the future servicing requirements which included the following scope items:

- Limiting detailed assessment to the contributing areas to the existing Town sewer system; and
- Identify impacts to the Town's system for future sewer servicing portions relating to the proposed Brooklyn Pump Station and options for using the Future Hudson Trunk within the Anderton Area as shown on **Figure A-3**.

The design criteria applied for the study listed the average dry weather flow is 240 L/c/day which is less than the 360 L/c/d stated in the Town's Subdivision and Development Servicing Bylaw 1261.

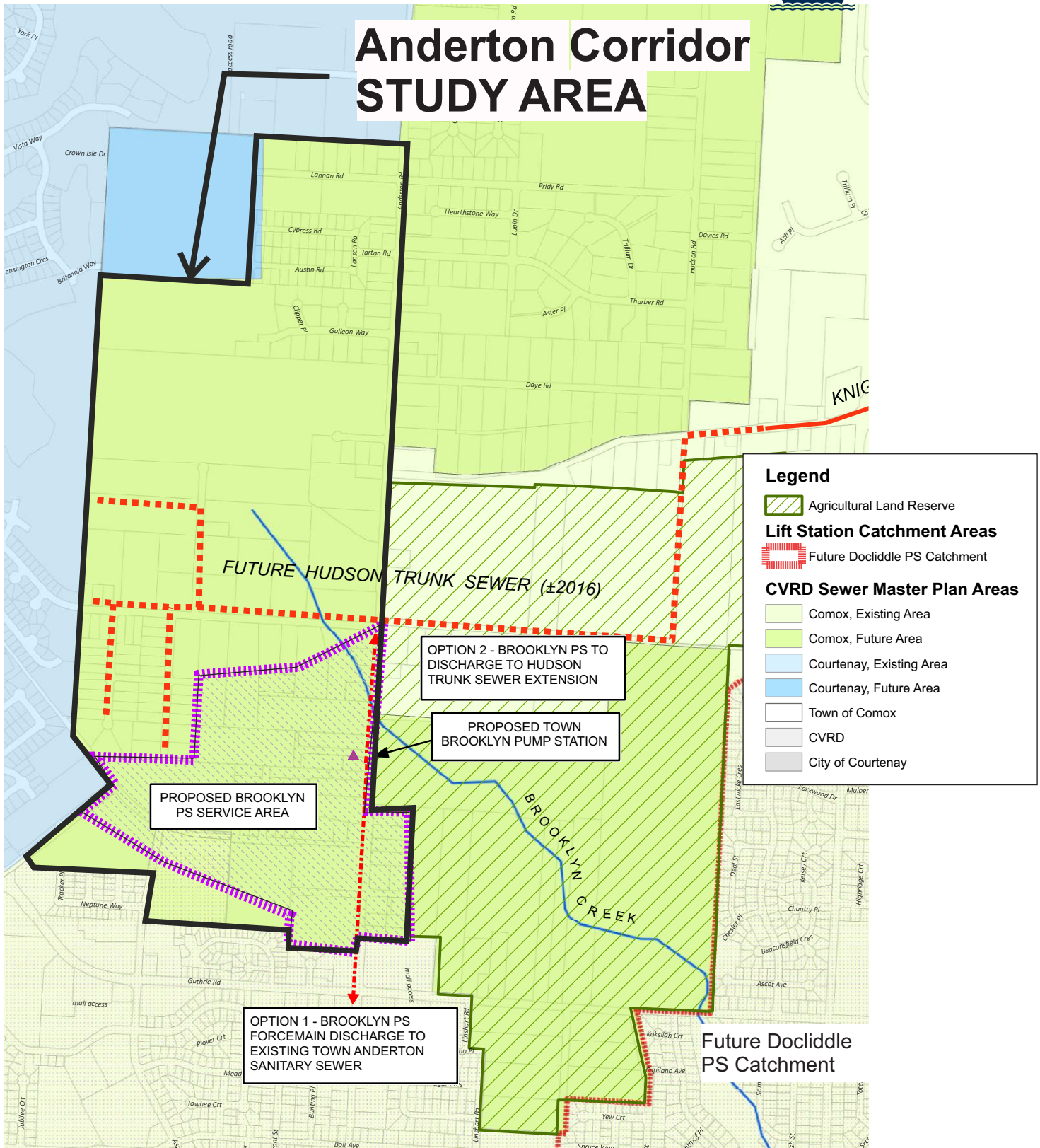
The Peaking Factor of 3.0 which was stated to be conservative was applied to the average dry weather flow contribution. This value is less than the peaking factor calculated by the method included in the Town's Subdivision and Development Servicing Bylaw 1261.

The inflow rates are not specifically listed for the area contributing the Jane St PS as two rates of either 0.07 L/s/ha or 0.356 L/s/ha as identified in the table included on Page 11 of the Update report. Both values are greater than the 0.06 L/s/ha value in the Town's Subdivision and Development Servicing Bylaw 1261.

The future Brooklyn Pump Station was identified on page 30 of the Update report as having a contributing area of approximately 45 ha and an estimated design wet weather inflow of 10 L/s and a design capacity of 15 L/s. This estimate would have used the inflow rate of 0.07 L/s/ha discussed in the previous paragraph.



# Anderton Corridor STUDY AREA



### Legend

- Agricultural Land Reserve
- Lift Station Catchment Areas**
- Future Docliddle PS Catchment
- CVRD Sewer Master Plan Areas**
- Comox, Existing Area
- Comox, Future Area
- Courtenay, Existing Area
- Courtenay, Future Area
- Town of Comox
- CVRD
- City of Courtenay

Base Plan: Fig - 6, Town of Comox 2013 Sanitary Model Update, February 7, 2014, McElhanney Consulting Services Ltd.





## Design Memo, Hudson Trunk – 50% Design Brief

The Design Memo, Hudson Trunk Gravity – 50% Design Brief, McElhanney Consulting Services Ltd., July 5, 2016 outlined the design basis for the proposed Hudson Trunk. The plan of the proposed system is shown on **Figure A-4**. Information shown includes the gravity pipe sections proposed for immediate construction and several possible future extensions. The future system components were provided at a planning level for location and comprised of gravity pipes, forcemain pipe, and the Brooklyn Creek PS. The design basis included the following assumptions:

- Ultimate development density of 10 residential units per ha;
- Future population density of 2.4 people per residential unit;
- All future development would be residential, without any commercial, institutional, or industrial land use;
- The dry weather flow of 350 L/capita/day (no Peaking Factor was listed), and
- Infiltration rate of 0.12 L/s/ha.

The residential and population densities are not consistent with the planning prepared by the Town.

The design parameters are not consistent with the values in the Town's Subdivision and Development Servicing Bylaw 1261.

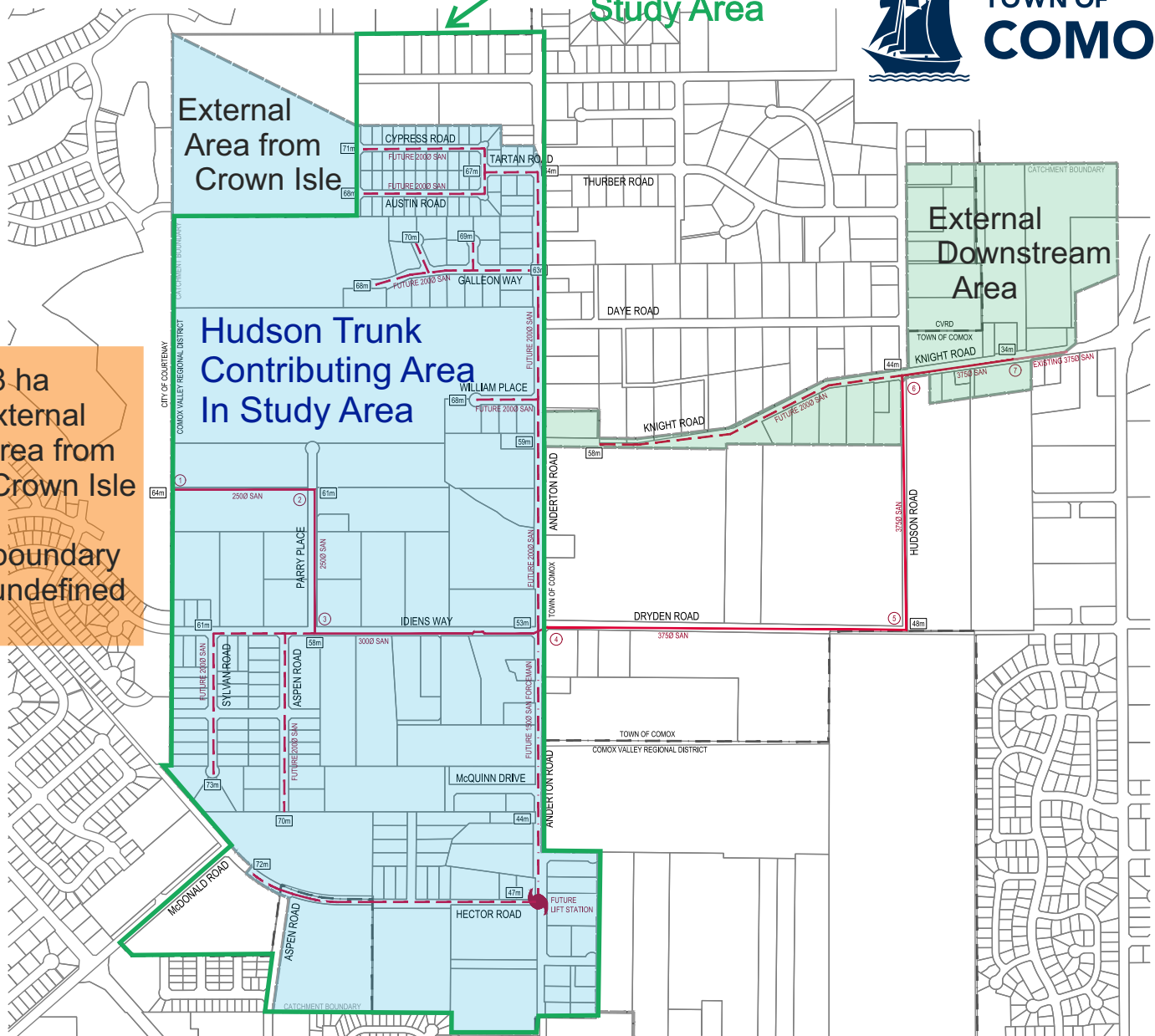
The key capacity provided includes a portion of the City of Courtenay which would contribute discharges from Crown Isle while excluding the very northern portion of the Anderton Corridor Study Area. Simplistically the contribution from the contributing area would be a discharge rate of 85 L/s.

The Brooklyn PS is not located at the topographic low point within its contributing area.



Anderton Corridor  
Study Area

58 ha  
External  
Area from  
Crown Isle  
- boundary  
undefined



Node	Contributing Area (ha)	Population
1	58.0	1,363
2	0.0	0
3	16.4	394
4	52.4	1,258
5	95.8	2,299
6	0.0	0
7	26.4	634

Based on 10 units per hectare  
Based on 2.4 people per unit

