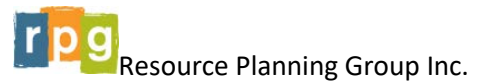




Operational Space Needs Review Part 2
PUBLIC WORKS & PARKS OPERATIONS
PHASED REDEVELOPMENT OPTIONS

2020 February 04th





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Introduction

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INTRODUCTION

The City of Nanaimo worked with consultants to determine the feasibility of consolidating current operations for Public Works, Engineering, Parks Operations, and Facilities at 2020 Labieux Road. The results of that process can be found in *Operational Space Needs Review Public Works & Operations – Redevelopment Options*, 2019 July 11th. Costs calculated for redevelopment were on the order of \$98 million.

PROJECT PURPOSE

It was decided that a phased approach is necessary to move forward. It was also important to isolate phases in a way that would allow operations to continue for several years independent of other phases.

This project looks at options for phasing including:

- Prioritizing redevelopment components
- Devising a phasing plan including interim space use and staging
- Relative costs of phased, modelled options

Preferred Scenario

This is the scenario from which phased options will be developed:



PARTICIPANTS

The following people are thanked for their contributions to the Operational Space Needs Review:

City of Nanaimo – Project Steering Committee

Bill Sims	Director, Engineering & Public Works
Poul Rosen	Senior Manager, Engineering
John Elliot	Senior Manager, Public Works
Art Groot	Manager, Facility Planning & Operations
Al Britton	Manager, Parks Operations
Jason Evans	Manager, Fleet Public Works
Jane Rushton	Manager, Purchasing
David Thompson	Manager, Sanitation, Recycling, PW Admin
David Myles	Manager, Roads & Traffic Services
Charlotte D	Parks
Jodie Wilson	Senior Engineering Clerk

Resource Planning Group

Mark Mehrer	Senior Principal
Nancy Vo	Planner

BTY Group

Eldon Lau	Partner Cost Consultant
Joseph Chan	Cost Consultant

Phasing Options

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PHASING OPTIONS

This section is organized under:

- Existing Context
- Three-Phase Option
- Prior Phasing Concept

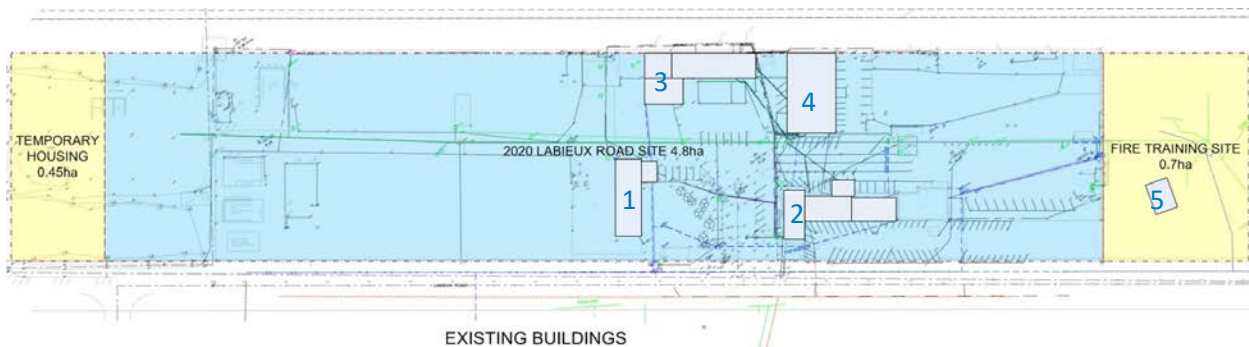
EXISTING CONTEXT

The starting point for the redevelopment is the following areas being made available to the City of Nanaimo comprising the existing 4.8 ha site and adjacent 0.45 ha and 0.7 ha sites:



Existing Buildings

Redevelopment needs to occur while maintaining operations, and a scenario with the least disruption is sought. These buildings are currently on site and will be operational during construction:



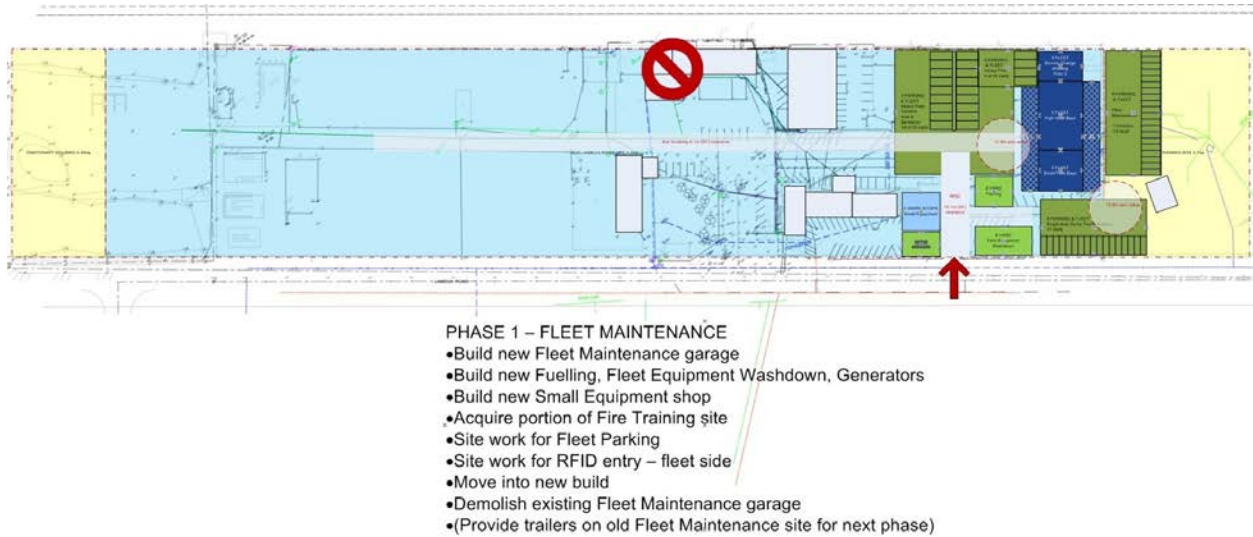
- 1 Purchasing Stores
- 2 Administration & Crew
- 3 Fleet Maintenance
- 4 Shops & EOC (Truck Barn)
- 5 Fire Training Tower

THREE-PHASE OPTION

This three-phase option was developed in discussion with the Project Steering Committee after reaction to a first draft of a three-phase option. It was decided that the Fleet Maintenance garage was a higher priority project due to seismic issues in the current garage.

Phase 1

Construct the Fleet Maintenance garage and supporting functions, such as small equipment shop, fuelling station, and fleet equipment washdown, generators. Demolish existing fleet building.



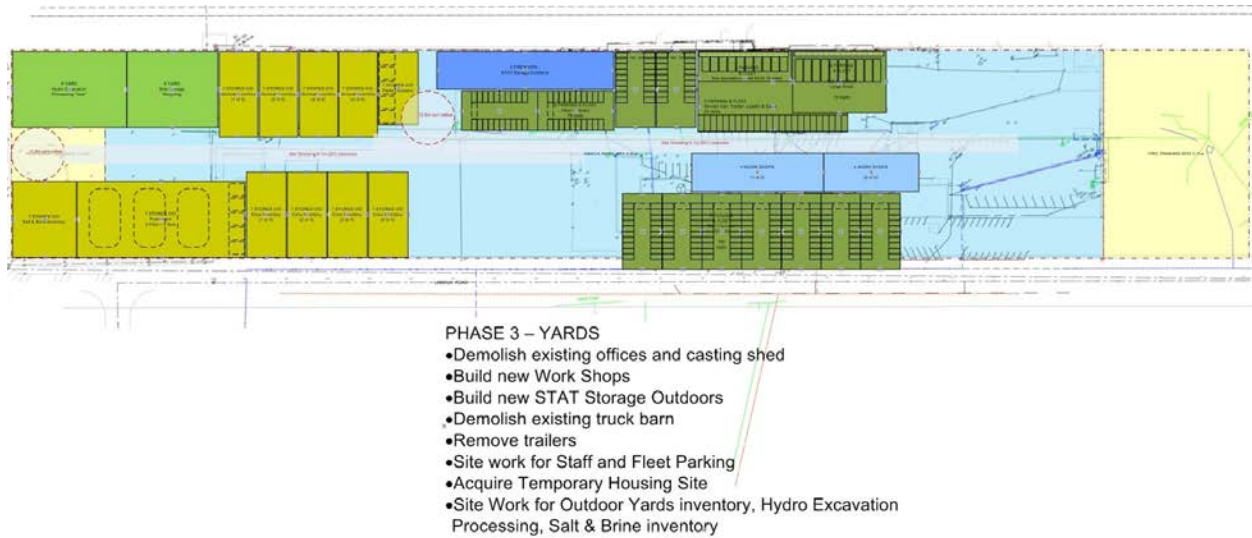
Phase 2

Relocate Purchasing and demolish existing building. Construct new Offices, Front of House, Crew Support, and Stores. Demolish existing fire training tower and develop staff and fleet parking.



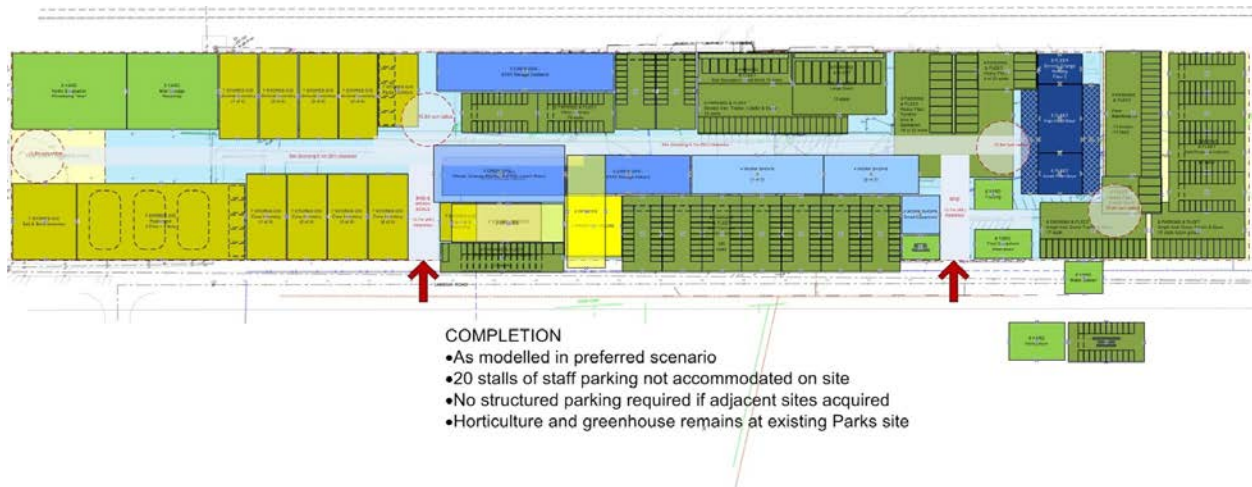
Phase 3

This is a site clean-up phase, which includes demolition of the existing maintenance garage and workshops. Construction of new workshops and STAT storage outdoors follow demolition.



Completion

It appears that the preferred scenario can be achieved without structured parking if the adjacent fire training site is acquired and 20 stalls of staff parking are not accommodated or accommodated off-site. It was also suggested to maintain greenhouses and horticulture supplies at the current Parks site, closer to the serviced areas.



PRIOR PHASING CONCEPT

The scenario shown on the previous pages is in reaction to a prior phasing scenario which has Phase 1 and 2 reversed. The new phasing was suggested for two reasons:

- Fleet Maintenance building has seismic safety issues
- No demolition required to initiate the project

Three Phases or More

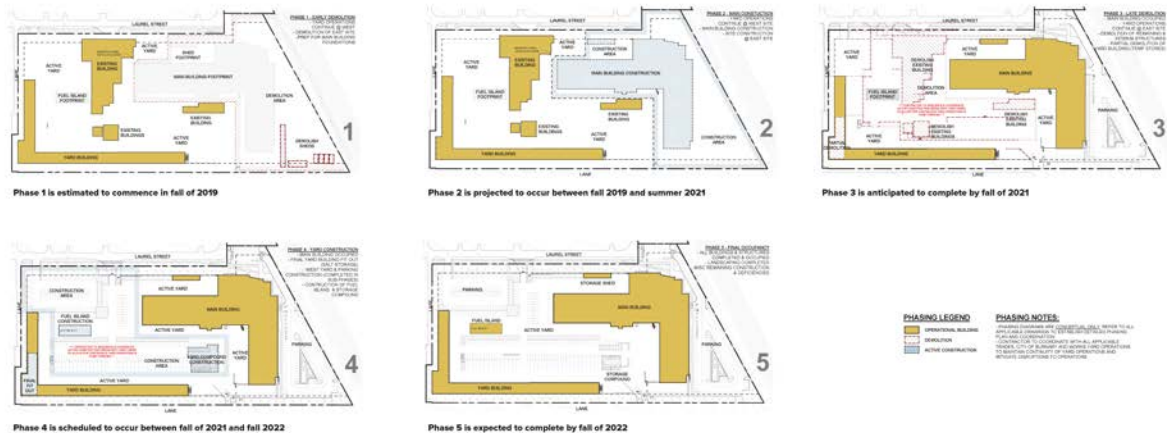
One of the precedent studies referenced in the first part of this project was from the City of Burnaby for their Laurel Street Works Yard redevelopment. New information has recently been made public, showing phasing. Burnaby plans to redevelop over two phases with five sub-phases as shown below:

LAUREL STREET WORKS YARD PROJECT UPDATE

Phase 2 Timeline

Phase 2 of the Laurel Street Works Yard project is scheduled to commence this fall and complete in the fall of 2022.

The Phase 2 construction works will be undertaken in five sub-phases as follows:



Other Considerations

The City of Oshawa recently redeveloped their operations work yard for a total budget under \$30 million. This was achievable because the City was able to purchase a pre-existing warehouse and office building in an industrially zoned area. The site was already paved, there was more than adequate space to grow into, and the costs were basically tenant improvements along with purchase of the buildings, furnishings, and site. What kind of opportunities can the City of Nanaimo tap into?

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Phased Costs

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PHASED COSTS

This section is organized under:

- Three-Phase Cost Calculations
- Detailed Report by BTY

A prior cost report showing completion in a single phase is included in the Appendices for reference.

THREE-PHASE COST CALCULATIONS

For this scenario, the Project Cost is \$27.1 million in phase 1, \$37.7 million in phase 2, and \$38.8 million in phase 3 excluding furnishings, fittings and equipment, financing costs, taxes, and escalation. The total cost when completed is \$103.6 million.

	Item	Phase 1 - Fleet Maintenance	Phase 2 - Offices, Crew, Stores	Phase 3 - Workshops, Yards	Total
A	Land Cost (Excluded)				0
B	Construction	22,034,600	30,438,800	31,631,700	84,105,100
C	Infrastructure / Off-site Works	260,000	560,000	180,000	1,000,000
D	Professional Fees	2,644,200	3,652,700	3,795,800	10,092,700
E	Connection Fees & Permits	661,000	913,200	949,000	2,523,200
F	Management & Overhead	1,542,400	2,130,700	2,214,200	5,887,400
G	Furnishing, Fittings & Equipment (Excluded)	0	0	0	0
H	Financing Costs (Excluded)	0	0	0	0
I	Goods & Services Tax	0	0	0	0
	Sub-Total Project Cost	27,142,200	37,695,400	38,770,700	\$103,608,400
J	Escalation (Excluded)	0	0	0	0
	Total Project Cost (Jan 2020 Dollars)	27,142,200	37,695,400	38,770,700	\$103,608,400

Please note that, where zero dollar values are stated, BTY has excluded these costs and the values should be carried in a separate budget (if applicable).

DETAILED REPORT BY BTY

The entire report (with the exception of appended design information) is included in the following pages for reference and ongoing decision making.



COST MANAGEMENT REPORT

*City of Nanaimo – Operations
Yard Redevelopment
Class D Estimate*

REPORT NUMBER 2.1

FEBRUARY 4, 2020

PREPARED FOR:

Resource Planning Group

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APPENDICES:

APPENDIX I	Cost Plan	3 pages
APPENDIX II	Design Information	7 pages

Prepared By	Reviewed By	Date
Joseph Chan	Eldon Lau	2/4/2020

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1.0 Introduction

1.1 Instructions Received

This report has been prepared by BTY Group ("BTY") at the request of Resource Planning Group (the "Client").

Resource Planning Group has appointed BTY to provide an Order of Magnitude estimate developed for the Public Works & Parks Operations project in Nanaimo, B.C. (the "Project"). The Project will be delivered using a Stipulated Price Contract construction model and, therefore, BTY strongly recommends that estimates are prepared at each of the key design milestones.

Information related to the Project for the purposes of this report was received by BTY on January 7, 2020. Please refer to Section 14.0 for a list of information received in producing this report.

1.2 Report Reliance

This report has been prepared in accordance with the scope of our Fee Proposal, dated July 4, 2018, which was prepared in response to the email, dated June 29, 2019, and is subject to the terms of that appointment. This report is for the sole and confidential use and reliance of the Client. BTY Group, its Directors, staff or agents do not make any representation or warranty as to the factual accuracy of the information provided to us on behalf of the Client or other third-party consultants or agents. BTY Group will not be liable for the result of any information not received which, if produced, could have materially changed the opinions or conclusions stated in this report. This report shall not be reproduced or distributed to any party without the express permission of BTY Group.

Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the report as a whole. The contents do not provide legal, insurance or tax advice or opinion. Opinions in this report do not advocate for any party and if called upon to give oral or written testimony it will be given on the same assumption.

1.3 Contacts

Should you have any queries regarding the content of this report, please do not hesitate to contact either of the following:

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Senior Cost Consultant
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Partner
Tel: 604-734-3126
Email: eldonlau@bty.com

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Report Number 2.1 | February 4, 2020



2.0 Executive Summary

2.1 Report Purpose

The purpose of this report is to provide a realistic estimate of the Project cost based on the information available at the time of writing.

The opinion expressed in this report has been prepared without the benefit of detailed architectural, mechanical, electrical or processing system drawings and should, therefore, be considered an Order of Magnitude (Class D) estimate. Based on the documents reviewed, our estimate should be correct within a range of approximately +/- 20% to 25%.

In order to provide an accurate cost estimate for the Project, BTY Group strongly recommends that a professional Quantity Surveying organization, such as BTY Group, be retained to provide a detailed analysis of any design information produced on behalf of the Client during the remaining stages of design.

2.2 Project Background and Description

The project involves the redevelopment of the existing city's and park's operation buildings and yards. The new construction includes the following components:

1. Buildings & Structure – Administrative and Operations
2. Outdoor Yards & Site Development
3. Offsite Infrastructure

The site will be kept operational during construction and the works is to be carried out in 3 phases as follows:

Phase 1 – Fleet Maintenance Garage

Phase 2 – Offices, Crew, Stores

Phase 3 – Workshops, Yards

Additional cost items are also included in Section 7.0 of this report.

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3.0 Development Cost Summary

The current estimated cost of the project may be summarized as follows:

	Item	Phase 1 - Fleet Maintenance	Phase 2 - Offices, Crew, Stores	Phase 3 - Workshops, Yards	Total
A	Land Cost (Excluded)				0
B	Construction	22,034,600	30,438,800	31,631,700	84,105,100
C	Infrastructure / Off-site Works	260,000	560,000	180,000	1,000,000
D	Professional Fees	2,644,200	3,652,700	3,795,800	10,092,700
E	Connection Fees & Permits	661,000	913,200	949,000	2,523,200
F	Management & Overhead	1,542,400	2,130,700	2,214,200	5,887,400
G	Furnishing, Fittings & Equipment (Excluded)	0	0	0	0
H	Financing Costs (Excluded)	0	0	0	0
I	Goods & Services Tax	0	0	0	0
	Sub-Total Project Cost	27,142,200	37,695,400	38,770,700	\$103,608,400
J	Escalation (Excluded)	0	0	0	0
	Total Project Cost (Jan 2020 Dollars)	27,142,200	37,695,400	38,770,700	\$103,608,400

Please note that, where zero dollar values are stated, BTY has excluded these costs and the values should be carried in a separate budget (if applicable).

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4.0 Basis & Assumptions

The construction estimate is based on the following list of assumptions:

1. Foundations will consist of strip and pad footings with concrete foundation walls
2. No under slab insulation to storage buildings
3. Exterior metal cladding will be commercial grade products
4. No ceiling finishes to the exposed structure in operations and storage buildings
5. No heating to storage building
6. Total site area includes the Temporary Housing site and Fire Training site
7. Site development of the existing fire training grounds is included in Phase 1, except demolition of the existing Fire Training Tower which will be included in Phase 2
8. Provision of new parking space 200 m² in the vicinity of the existing fire training tower will be done in Phase 2
9. Horticulture to roof is no longer required
10. No above grade parking is needed
11. 575 m² of temporary accommodation by trailers is included (based on the area of the existing Purchasing & Stores Building)
12. Please refer to Appendix II for complete list of assumptions

Please note that BTY is not qualified to act as design consultant. The assumptions in our estimate should be reviewed and corrected by the design team.

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5.0 Exclusions

The construction estimate includes all direct and indirect construction costs derived from the drawings and other information provided by the Consultants, with the exception of the following:

1. Land costs
2. Legal fees and agreement costs / conditions
3. Temporary facilities for user groups during construction
4. Site remediation with fuel tanks brought above grade (separate price item)
5. CNG in fleet maintenance and slow-fill for fleet (separate price item)
6. EV charging stations (separate price item)
7. Compressed air system equipment
8. Geothermal system
9. Vehicle washing equipment
10. Operational equipment
11. Loose furnishings and equipment
12. Solar PV
13. Unforeseen ground conditions and associated extras
14. Environmental remediation outside building footprint
15. Decanting & moving
16. Erratic market conditions, such as lack of bidders, proprietary specifications
17. Cost escalation past Jan 2020

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Project Cost Summary

The estimated project capital cost may be summarized as follows:

	Phase 1 - Fleet Maintenance Garage	Phase 2 - Offices, Crew, Stores	Phase 3 - Workshops, Yards	Total
A. LAND COST (Excluded)	\$0	\$0	\$0	\$0
A1 Land	0	0	0	0
A2 Legal Fees	0	0	0	0
B. CONSTRUCTION	\$22,034,600	\$30,438,800	\$31,631,700	\$84,105,100
B1 Demolition / Site Preparation	1,268,000	772,500	2,433,800	4,474,300
B2 Buildings & Structures	11,145,800	25,490,200	11,885,700	48,521,700
B3 Outdoor Yards & Site Development	7,617,800	1,409,100	14,436,200	23,463,100
B4 Phasing Allowance for keeping the existing Works Yard in operation during construction	2,003,000	2,767,000	2,876,000	7,646,000
C. INFRASTRUCTURE / OFF SITE WORKS	\$260,000	\$560,000	\$180,000	\$1,000,000
C1 Roadwork and utilities outside the property lines - Cash Allowance	260,000	560,000	180,000	1,000,000
D. PROFESSIONAL FEES 12%	\$2,644,200	\$3,652,700	\$3,795,800	\$10,092,700
D1 Programming				
D2 Architectural				
D3 Structural				
D4 Mechanical				
D5 Electrical				
D6 Quantity Surveying				
D7 Acoustic				
D8 Equipment Consultant				
D9 Code Consultant				
D10 Other Consultants and Disbursements				
E. CONNECTION FEES & PERMITS	\$661,000	\$913,200	\$949,000	\$2,523,200
E1 Rezoning Cost				0
E2 DCC & Building Permits 3%	661,000	913,200	949,000	2,523,200
F. MANAGEMENT & OVERHEAD 7%	\$1,542,400	\$2,130,700	\$2,214,200	\$5,887,400
F1 Project Management Fee				0
F2 Owners Planning and Administrative Cost				0
F3 Project Insurance				0
F4 Project Commissioning, Move-In				0
G. FURNISHINGS, FITTINGS & EQUIPMENT (Excluded)	\$0	\$0	\$0	\$0
H. FINANCING COSTS (Excluded)	\$0	\$0	\$0	\$0
I. GOODS & SERVICES TAX (Excluded)	\$0	\$0	\$0	\$0
SUB-TOTAL PROJECT COST	\$27,142,200	\$37,695,400	\$38,770,700	\$103,608,400
J. ESCALATION (Excluded)	\$0	\$0	\$0	\$0
TOTAL PROJECT COST (January 2020 Dollars)	\$27,142,200	\$37,695,400	\$38,770,700	\$103,608,400

Please note that, where zero dollar values are stated, BTY has excluded these costs and the values should be carried in a separate budget (if applicable).

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7.0 Additional Cost Items

The following items are not included in base estimate as below:

Items		Amt (\$)
SP1	Site Remediation with Fuel Tanks Brought Above Grade	\$500,400
SP2	CNG in Fleet Maintenance and Slow-fill for Fleet (Fortis will install, operate and maintain the filling station. 10-year contract based on \$0.7*0.75/L depends on consumption)	\$0
SP3	EV Charging Stations (Large Truck)	\$1,602,300
SP4	Replacement of the existing Fire Training Grounds, including a training tower similar to the existing layout	\$4,878,400

Note: The above figures are inclusive of construction and soft costs.

8.0 Areas

The gross floor area of the buildings and yards as indicated in the program documents are summarized as follows:

Location	Total
Building Area	
Phase 1	
Fleet maintenance	2,570 m ²
Small Equipment Workshops	325 m ²
Phase 2	
Offices including Front of House	2,771 m ²
Crew Operations (excluding STAT Storage Outdoor)	2,811 m ²
Stores Indoor	571 m ²
Phase 3	
Work Shops (excluding Small Equipment Workshop in Phase 1)	1,999 m ²
Crew Operations (STAT Storage Outdoor)	1,556 m ²
Total Building Area	12,603 m²
Yard Area	
Stores Outdoor	11,305 m ²
Works Yard	5,233 m ²
Parking & Fleet Equipment	26,668 m ²
Site Circulation and Entry	5,640 m ²
Total Outdoor Yard Area	48,846 m²
(Phase 1 - 15,046 m², Phase 2 - 2,417 m², Phase 3 - 31,383 m²)	

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9.0 Taxes

The estimate includes the Provincial Sales Tax (P.S.T.) where applicable.

The estimate excludes the Goods & Services Tax (G.S.T.).

10.0 Project Schedule & Escalation

No cost escalation allowance has been included in the estimate. BTY strongly recommends that the client establish a separate budget to cover the escalation cost from the date of this estimate to the mid-point of construction for the project. Our current projected escalation rates are shown below.

Current BTY Group Forecast	2020	2021
	4% - 6%	3% - 4%

11.0 Pricing

The estimate has been priced at current rates taking into account the size, location and nature of the project. The unit rates utilized are considered competitive for a project of this type, bid under a stipulated lump-sum form of tender in an open market, with a minimum of five (5) bids, supported by the requisite number of sub-contractors.

The estimate allows for labour, material, equipment and other input costs at current rates and levels of productivity. It does not take into account extraordinary market conditions, where bidders may be few and may include in their tenders disproportionate contingencies and profit margins.

12.0 Risk Mitigation

BTY Group recommends that the Owner, Project Manager and Design Team carefully review this document, including exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to BTY Group within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that BTY Group design and propose a cost management framework for implementation. This framework would require that a series of further estimates be undertaken at key design stage milestones and a final update estimate be produced which is representative of the completed tender documents, project delivery model and schedule. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. BTY Group is unable to reconcile bid results to any estimate not produced from bid documents including all addenda.

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13.0 Contingencies

13.1 Design Contingency

No design contingency has been included in the estimate to cover modifications to the program, drawings and specifications during the design.

13.2 Construction Contingency

No contingency has been included in the estimate for changes occurring during the construction period of the project. This amount may be expended due to site conditions or if there are modifications to the drawings and specifications.

14.0 Documents Reviewed

The list below confirms the information that we have reviewed in order to prepare our opinion contained within this report:

Description	Date
Reports	
Operational Space Needs Review Part 2 - Phased Redevelopment Options	January 7, 2020
Drawings	
Drawings for the Phased Redevelopment Options	January 7, 2020
Previous Reports (For reference)	
Working Paper #2: Operational Review & Space Needs	April 18, 2019
Working Paper #3: Redevelopment Options	June 18, 2019
RPG Notes	July 4, 2019

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COST MANAGEMENT REPORT

City of Nanaimo – Operations Yard Redevelopment

APPENDICES

APPENDIX I	Cost Plan	5 pages
APPENDIX II	Design Information	7 pages

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APPENDIX I

Cost Plan

5 PAGES

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City of Nanaimo - Operations Yard Redevelopment
Program Estimate #2.1

February 04, 2020

Description	Quantity	Unit	Rate	Amount
B1 Demolition / Site Preparation				
<u>Phase 1 - Fleet Maintenance Garage</u>				
Allowance for demolition of the existing Fleet Maintenance garage and other site buildings / structures	1	sum	188,000.00	188,000
Allowance for removal of the existing paving and capping off the existing utilities	1	sum	338,000.00	338,000
Allowance for site preparation including stripping of top soil, and general site regrade	18,800	m2	22.50	423,000
Allowance for removal of asbestos and contaminated soils	1	sum	319,000.00	319,000
<u>Phase 2 - Offices, Crew, Stores</u>				
Allowance for demolition of the existing Purchasing Stores building and other site buildings / structures	1	sum	132,000.00	132,000
Allowance for removal of the existing paving and capping off the existing utilities	1	sum	135,000.00	135,000
Allowance for site preparation including stripping of top soil, and general site regrade	6,600	m2	22.50	148,500
Allowance for removal of asbestos and contaminated soils	1	sum	112,000.00	112,000
Allowance for demolition of the existing fire drill tower structure in the Fire Training site	1	sum	245,000.00	245,000

City of Nanaimo - Operations Yard Redevelopment
Program Estimate #2.1

February 04, 2020

Description	Quantity	Unit	Rate	Amount
B1 Demolition / Site Preparation				
<u>Phase 3 - Wokshops, Yards</u>				
Allowance for demolition of the existing Administration Offices, casting shed, truck barn and other site buildings / structures	1	sum	458,000.00	458,000
Remove trailers	1	sum	50,000.00	50,000
Allowance for removal of the existing paving and capping off the existing utilities	1	sum	603,000.00	603,000
Allowance for site preparation including stripping of top soil, and general site regrade	33,500	m2	22.50	753,800
Allowance for removal of asbestos and contaminated soils	1	sum	569,000.00	569,000
<u>Total Demolition / Site Preparation</u>				<u>\$4,474,300</u>

City of Nanaimo - Operations Yard Redevelopment
Program Estimate #2.1

February 04, 2020

Description	Quantity	Unit	Rate	Amount
B2 Buildings & Structures				
<u>Phase 1 - Fleet Maintenance Garage</u>				
Indoor Building - Fleet Maintenance Garage and Small Equipment Shop				
Industrial buildings - steel frame pre-engineering structure with energy efficient envelope design (single storey, metal cladding, double high spaces, metal roofing, minimum windows) and standard interior finishes	2,895	m2	3,850.00	11,145,800
<u>Phase 2 - Offices, Crew, Stores</u>				
Indoor Building - Offices & Front of House, Commercial building - steel frame structure with energy efficient envelope design (2 storeys, panel cladding, membrane roofing, curtain walling) and high-end interior finishes	2,771	m2	4,500.00	12,469,500
Indoor Building - Crew Support, and Stores Indoor (excluding STAT Storage Outdoor)				
Industrial buildings - steel frame pre-engineering structure with energy efficient envelope design (single storey, metal cladding, metal roofing, minimum windows) and standard interior finishes	3,382	m2	3,850.00	13,020,700
<u>Phase 3 - Workshops, Yards</u>				
Indoor Building - Work Shops				
Industrial buildings - steel frame pre-engineering structure with energy efficient envelope design (single storey, metal cladding, double high spaces, metal roofing, minimum windows) and standard interior finishes	1,999	m2	3,850.00	7,696,200
Crew Operations - STAT Storage Outdoors	1,197	m2	3,500.00	4,189,500
<u>Total Buildings & Structures</u>				<u>\$48,521,700</u>

City of Nanaimo - Operations Yard Redevelopment
Program Estimate #2.1

February 04, 2020

Description	Quantity	Unit	Rate	Amount
B3 Outdoor Yards & Site Development				
<u>Phase 1 - Fleet Maintenance Garage</u>				
Fleet Equipment Washdown and Generators	1	Sum	250,000.00	250,000
New Fuelling	See Separate Price SP1			
Allowance for miscellaneous site development c/o Staff /Fleet Parking and driveway Extra for RFID Entrance - fleet side Miscellaneous structure including equipment pits, canopies, fencing & gates, etc. Retaining walls Street furniture Hard & soft landscaping On-site lighting and services	15,046	m2	441	6,635,300
Provide trailers on old Fleet Maintenance site for next phase, including base preparation and building services	575	m2	1,100.00	632,500
Modify remaining site layout to maintain a 9.1m wide site crossing	1	sum	100,000.00	100,000
<u>Phase 2 - Offices, Crew, Stores</u>				
Allowance for miscellaneous site development c/o Staff /Fleet Parking and driveway Extra for RFID Entrance - inventory side Weigh scale Miscellaneous structure including canopies, fencing & gates, etc. Retaining walls Street furniture Hard & soft landscaping On-site lighting and services	2,417	m2	583	1,409,100

City of Nanaimo - Operations Yard Redevelopment
Program Estimate #2.1

February 04, 2020

Description	Quantity	Unit	Rate	Amount
B3 Outdoor Yards & Site Development				
<u>Phase 3 - Wokshops, Yards</u>				
Allowance for miscellaneous site development c/o Staff /Fleet Parking and driveway Outdoor Yards inventory, Hydro Excavation Processing, Salt & Brine inventory areas Miscellaneous structure including canopies, fencing & gates, etc. Retaining walls Street furniture Hard & soft landscaping On-site lighting and services	31,383	m2	460	14,436,200

<u>Total Outdoor Yards & Site Development</u>	<u>\$23,463,100</u>
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Appendices

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APPENDIX A – PREFERRED SCENARIO

The following information was extracted from *Operational Space Needs Review Public Works & Operations – Redevelopment Options*, 2019 July 11th. The preferred scenario is the basis for developing phased options

ORGANIZATIONAL CONCEPTS

From the options modelled independently by two groups, and a preferred scenario that developed after discussions, organizational concepts for redevelopment were extracted as follows:

- Concept 1 – Offices, Crew, Stores Central
- Concept 2 – Inventory on West Side
- Concept 3 – Fleet and Shops on East Side
- Concept 4 – Double-load Circulation
- Concept 5 – Offices and Staff Support Above Ground Level
- Concept 6 – Phasing
- Concept 7 – Reduce Parking to 80%

PREFERRED SCENARIO

The preferred scenario takes into consideration the above concepts, as well as constraints of the existing site, visible on a satellite plan. Placement was fine-tuned to allow continued operations during redevelopment.

Site Context

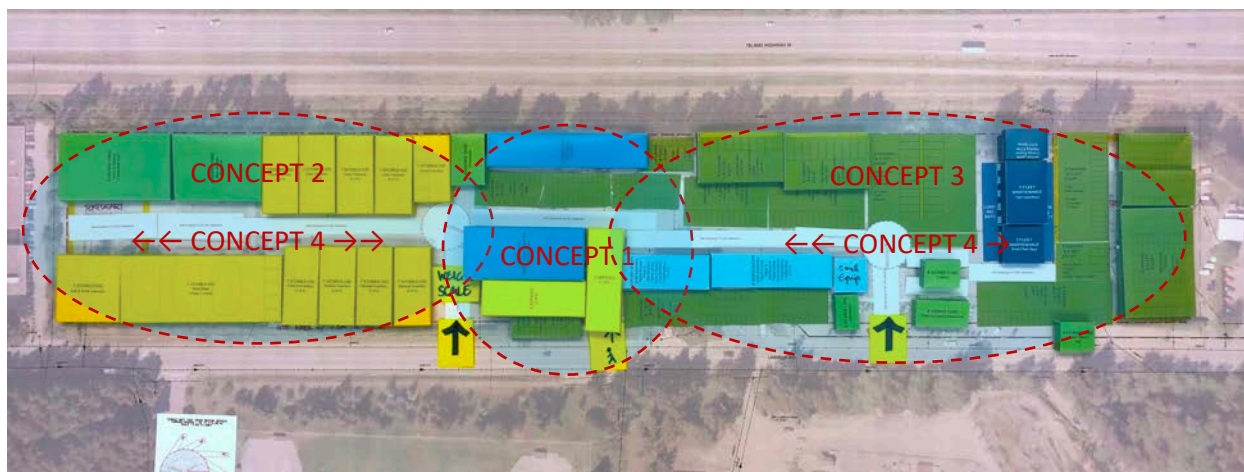
6.0ha available for modelling, including site setback of 7.5 metres all around.

6.0ha = 4.7ha existing + 0.5ha temporary housing + 0.8 ha fire training



Preferred Scenario Annotated

The concepts described on the previous page are captured in this version of redevelopment.



Concept 1 – Offices, Crew, Stores Central – centrally located on the site for ease of monitoring and control of access

Concept 2 – Inventory on West Side – consolidated and located on west side of site; truck access point next to Shipping & Receiving with weigh scale; road base, salt & brine, miscellaneous storage at the farthest end of site with larger circulation for turning allowances; stores and crew inventory closer to middle of site

Concept 3 – Fleet and Shops on East Side – consolidated and located on east side of site; fleet access point next to fuelling and washdown stations; fleet maintenance allows for through access of large equipment; workshops adjacent to main building

Concept 4 – Double-load Circulation – as per existing 9.1 m width allows for two-way traffic

Concept 5 – Offices and Staff Support Above Ground Level – functions that do not require ground level access should be stacked above on second or third floors to free-up valuable ground level space; see diagrams on the following pages

Concept 6 – Phasing – if redevelopment occurs in-place, the first phase is construction of the main office/crew/stores building, as well as fleet maintenance shop; the second phase is demolition of existing buildings and construction of workshops, fuelling, and site reorganization.

Concept 7 – Reduce Parking to 80% - comparable to other yards; possible structured parking in much longer-term future

APPENDIX B – PRIOR COST CALCULATIONS

The following cost management report was developed by BTY for the entire redevelopment of the preferred scenario as a single phase and is attached on the following pages.

- *City of Nanaimo – Operations Yard Redevelopment Class D Estimate 2019, July 08th*

Appendix II of the report is excluded as the content is repeated from the main body of this document.



COST MANAGEMENT REPORT

*City of Nanaimo – Operations
Yard Redevelopment
Class D Estimate*

REPORT NUMBER 1.0

JULY 8, 2019

PREPARED FOR:

Resource Planning Group

2288 Manitoba St., Vancouver, BC, V5Y 4B5
T 604 734 3126

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Report Number 1.0 | July 8, 2019



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APPENDICES:

APPENDIX I	Cost Plan	3 pages
APPENDIX II	Design Information	4 pages

Prepared By	Reviewed By	Date
Jacky Yim	Eldon Lau	7/8/2019

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Yards Class D Estimate#1.0 - Jul 08 19 - EL.docx

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Report Number 1.0 | July 8, 2019



1.0 Introduction

1.1 Instructions Received

This report has been prepared by BTY Group ("BTY") at the request of Resource Planning Group (the "Client").

Resource Planning Group has appointed BTY to provide an Order of Magnitude estimate developed for the Public Works & Parks Operations project in Nanaimo, B.C. (the "Project"). The Project will be delivered using a Stipulated Price Contract construction model and, therefore, BTY strongly recommends that estimates are prepared at each of the key design milestones.

Information related to the Project for the purposes of this report was received by BTY on August 27, 2019. Please refer to Section 14.0 for a list of information received in producing this report.

1.2 Report Reliance

This report has been prepared in accordance with the scope of our Fee Proposal, dated July 4, 2018, which was prepared in response to the email, dated June 29, 2019, and is subject to the terms of that appointment. This report is for the sole and confidential use and reliance of the Client. BTY Group, its Directors, staff or agents do not make any representation or warranty as to the factual accuracy of the information provided to us on behalf of the Client or other third-party consultants or agents. BTY Group will not be liable for the result of any information not received which, if produced, could have materially changed the opinions or conclusions stated in this report. This report shall not be reproduced or distributed to any party without the express permission of BTY Group.

Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the report as a whole. The contents do not provide legal, insurance or tax advice or opinion. Opinions in this report do not advocate for any party and if called upon to give oral or written testimony it will be given on the same assumption.

1.3 Contacts

Should you have any queries regarding the content of this report, please do not hesitate to contact either of the following:

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Senior Cost Consultant
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Partner
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Report Number 1.0 | July 8, 2019



2.0 Executive Summary

2.1 Report Purpose

The purpose of this report is to provide a realistic estimate of the Project cost based on the information available at the time of writing.

The opinion expressed in this report has been prepared without the benefit of detailed architectural, mechanical, electrical or processing system drawings and should, therefore, be considered an Order of Magnitude (Class D) estimate. Based on the documents reviewed, our estimate should be correct within a range of approximately +/- 20% to 25%.

In order to provide an accurate cost estimate for the Project, BTY Group strongly recommends that a professional Quantity Surveying organization, such as BTY Group, be retained to provide a detailed analysis of any design information produced on behalf of the Client during the remaining stages of design.

2.2 Project Background and Description

The project involves the redevelopment of the existing city's and park's operation buildings and yards. The new construction includes the following components:

1. Buildings & Structure – Administrative and Operations
2. Outdoor Yards & Site Development
3. Offsite Infrastructure

Additional cost items are also included in Section 7.0 of this report.

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Executive Summary (Cont'd)

3.0 Development Cost Summary

The current estimated cost of the project may be summarized as follows:

	Item	Estimated Costs (\$)
A	Land Cost (Excluded)	0
B	Construction	79,748,000
C	Infrastructure / Off-site Works	1,000,000
D	Professional Fees	9,569,800
E	Connection Fees & Permits	2,392,400
F	Management & Overhead	5,582,400
G	Furnishing, Fittings & Equipment (Excluded)	0
H	Financing Costs (Excluded)	0
I	Goods & Services Tax	0
	Sub-Total Project Cost	\$98,292,600
J	Escalation (Excluded)	0
	Total Project Cost (July 2019 Dollars)	\$98,292,600

Please note that, where zero dollar values are stated, BTY has excluded these costs and the values should be carried in a separate budget (if applicable).

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Report Number 1.0 | July 8, 2019



4.0 Basis & Assumptions

The construction estimate is based on the following list of assumptions:

1. Foundations will consist of strip and pad footings with concrete foundation walls
2. No under slab insulation to Storage Buildings
3. Exterior metal cladding will be commercial grade products
4. No ceiling finishes to the exposed structure in Operations and Storage Buildings
5. No heating to Storage Building
6. Total yard area is 43,206 m², which includes 2,257 m² above grade parking
7. Please refer to Appendix II for complete list of assumptions

Please note that BTY is not qualified to act as design consultant. The assumptions in our estimate should be reviewed and corrected by the design team.

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Report Number 1.0 | July 8, 2019



5.0 Exclusions

The construction estimate includes all direct and indirect construction costs derived from the drawings and other information provided by the Consultants, with the exception of the following:

1. Land costs
2. Legal fees and agreement costs / conditions
3. Temporary facilities for user groups during construction
4. Removal of hazardous materials from the existing site and buildings (if any)
5. Site remediation with fuel tanks brought above grade (separate price item)
6. CNG in fleet maintenance and slo-fill for fleet (separate price item)
7. EV charging stations (separate price item)
8. Replacement of the existing fire training grounds (separate price item)
9. Compressed air system equipment
10. Geothermal system
11. Vehicle washing equipment
12. Operational equipment
13. Loose furnishings and equipment
14. Solar PV
15. Unforeseen ground conditions and associated extras
16. Environmental remediation outside building footprint
17. Decanting & moving
18. Erratic market conditions, such as lack of bidders, proprietary specifications
19. Cost escalation past July 2019

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Report Number 1.0 | July 8, 2019



6.0 Project Cost Summary

The estimated project capital cost may be summarized as follows:

	Preferred Concept
A. LAND COST (Excluded)	\$0
A1 Land	0
A2 Legal Fees	0
B. CONSTRUCTION	\$79,748,000
B1 Demolition / Site Preparation	4,366,900
B2 Buildings & Structures	58,620,100
B3 Outdoor Yards & Site Development	12,761,000
B4 Phasing Allowance for keeping the existing Works Yard in operation during construction	4,000,000
C. INFRASTRUCTURE / OFF SITE WORKS	\$1,000,000
C1 Roadwork and utilities outside the property lines - Cash Allowance	1,000,000
D. PROFESSIONAL FEES 12%	\$9,569,800
D1 Programming	
D2 Architectural	
D3 Structural	
D4 Mechanical	
D5 Electrical	
D6 Quantity Surveying	
D7 Acoustic	
D8 Equipment Consultant	
D9 Code Consultant	
D10 Other Consultants and Disbursements	
E. CONNECTION FEES & PERMITS	\$2,392,400
E1 Rezoning Cost	0
E2 DCC & Building Permits 3%	2,392,400
F. MANAGEMENT & OVERHEAD 7%	\$5,582,400
F1 Project Management Fee	
F2 Owners Planning and Administrative Cost	
F3 Project Insurance	
F4 Project Commissioning, Move-In	
G. FURNISHINGS, FITTINGS & EQUIPMENT (Excluded)	\$0
H. FINANCING COSTS (Excluded)	\$0
I. GOODS & SERVICES TAX (Excluded)	\$0
SUB-TOTAL PROJECT COST	\$98,292,600
J. ESCALATION (Excluded)	\$0
TOTAL PROJECT COST (2019 Dollars)	\$98,292,600

Please note that, where zero dollar values are stated, BTY has excluded these costs and the values should be carried in a separate budget (if applicable).

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Report Number 1.0 | July 8, 2019



7.0 Additional Cost Items

The following items are not include in base estimate as below:

Items		Amt (\$)
SP1	Site Remediation with Fuel Tanks Brought Above Grade	\$500,400
SP2	CNG in Fleet Maintenance and Slo-fill for Fleet (Fortis will install, operate and maintain the filling station. 10-year contract based on \$0.7*0.75/L depends on consumption)	\$0
SP3	EV Charging Stations (Large Truck)	\$1,602,300
SP4	Replacement of Fire Training Grounds	\$4,878,400

8.0 Areas

The gross floor area of the buildings and years as indicated in the program documents are summarized as follows:

Location	Total
Operations and Workshops	9,832 m ²
Indoor Building - Offices	2,771 m ²
Outdoor Building - Parkade	2,257 m ²
Total Building Area	14,860 m²
Total Outdoor Year Area excludng Parkde (2,257 m²)	40,949 m²

9.0 Taxes

The estimate includes the Provincial Sales Tax (P.S.T.) where applicable.

The estimate excludes the Goods & Services Tax (G.S.T.).

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Report Number 1.0 | July 8, 2019



10.0 Project Schedule & Escalation

No cost escalation allowance has been included in the estimate. BTY strongly recommends that the client establish a separate budget to cover the escalation cost from the date of this estimate to the mid-point of construction for the project. Our current projected escalation rates are shown below.

Current BTY Group Forecast	2019	2020	2021
	6% - 8%	4% - 6%	3% - 4%

11.0 Pricing

The estimate has been priced at current rates taking into account the size, location and nature of the project. The unit rates utilized are considered competitive for a project of this type, bid under a stipulated lump-sum form of tender in an open market, with a minimum of five (5) bids, supported by the requisite number of sub-contractors.

The estimate allows for labour, material, equipment and other input costs at current rates and levels of productivity. It does not take into account extraordinary market conditions, where bidders may be few and may include in their tenders disproportionate contingencies and profit margins.

12.0 Risk Mitigation

BTY Group recommends that the Owner, Project Manager and Design Team carefully review this document, including exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to BTY Group within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that BTY Group design and propose a cost management framework for implementation. This framework would require that a series of further estimates be undertaken at key design stage milestones and a final update estimate be produced which is representative of the completed tender documents, project delivery model and schedule. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. BTY Group is unable to reconcile bid results to any estimate not produced from bid documents including all addenda.

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Report Number 1.0 | July 8, 2019



13.0 Contingencies

13.1 Design Contingency

No design contingency has been included in the estimate to cover modifications to the program, drawings and specifications during the design.

13.2 Construction Contingency

No contingency has been included in the estimate for changes occurring during the construction period of the project. This amount may be expended due to site conditions or if there are modifications to the drawings and specifications.

14.0 Documents Reviewed

The list below confirms the information that we have reviewed in order to prepare our opinion contained within this report:

Description		Date
Reports		
	Working Paper #2: Operational Review & Space Needs	April 18, 2019
	Working Paper #3: Redevelopment Options	June 18, 2019
	RPG Notes	July 4, 2019

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APPENDIX I

Cost Plan

3 PAGES

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City of Nanaimo - Operations Yard Redevelopment
Program Estimate #1.0

July 08, 2019

Description	Quantity	Unit	Rate	Amount
B1 Demolition / Site Preparation				
Existing Site - 4.7ha				
Allowance for demolition of the existing buildings / structures	1	sum	450,000.00	450,000
Allowance for removal of the existing paving and capping off the existing utilities	1	sum	853,000.00	853,000
Allowance for site preparation including stripping of top soil, and general site regrade	47,400	m2	22.50	1,066,500
Adjacent Sites - 0.8ha & 0.5ha				
Allowance for demolition of the existing buildings / structures	1	sum	250,000.00	250,000
Allowance for removal of the existing paving and capping off the existing utilities	1	sum	325,000.00	325,000
Allowance for site preparation including stripping of top soil, and general site regrade	12,800	m2	33.00	422,400
Environmental Costs				
Allowance for removal of asbestos and contaminated soils	1	sum	1,000,000.00	1,000,000

Total Demolition / Site Preparation	\$4,366,900
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A1-1

City of Nanaimo - Operations Yard Redevelopment
Program Estimate #1.0

July 08, 2019

Description	Quantity	Unit	Rate	Amount
B2 Buildings & Structures				
Indoor Building - Crews, Shops, Stores, Crew Operations and Workshops				
Industrial buildings - steel frame pre-engineering structure with energy efficient envelope design (single storey, metal cladding, double high spaces, metal roofing, minimum windows) and standard interior finishes	9,832	m2	3,850.00	37,853,200
Indoor Building - Offices				
Commercial building - steel frame structure with energy efficient envelope design (2 storeys, panel cladding, membrane roofing, curtain walling) and high-end interior finishes	2,771	m2	4,500.00	12,469,500
Outdoor Building - Parkade				
Above grade parkade for staff parking - concrete frame multi-storey building - total 49 stalls	2,257	m2	3,600.00	8,125,200
Extra over for Horticulture to roof	492	m2	350.00	172,200

Total Buildings & Structures	\$58,620,100
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A1-2

City of Nanaimo - Operations Yard Redevelopment
Program Estimate #1.0

July 08, 2019

Description	Quantity	Unit	Rate	Amount
B4 Phasing Allowance for keeping the existing Works Yard in operation during construction				
Outdoor Yards - Store Outdoor, Works Yard, Parking & Fleet Equipment				
Allowance for outdoor yards including heavy duty hard paving, outdoor lighting, misc. pits and curbs, barriers, misc. metal structure, canopies, fencing & gates (total 43,026 m2, excluding the above grade parking of 2,257 m2)	40,949	m2	275.00	11,261,000
Allowance for site development	1	sum	1,500,000	1,500,000
Retaining walls				
Street furniture				
Driveways				
Hard & soft landscaping				
On-site utilities				

Total Phasing Allowance for keeping the existing Works Yard in operation	\$12,761,000
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A1-3



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APPENDIX C – SPACE SUMMARY

The following space tables were extracted from the previous document for context.

COMPONENT SUMMARY TABLES

The following tables show working space requirements by components, grouped under:

- Offices
- Crew, Shops, Stores
- Yards

Component	Net Area m2	xGross'g Factor	Component Gross Area m2
OFFICES			
1 Front of House	501		801
Entry & Security	94	1.60	151
Dispatch	98	1.60	157
Meeting Rooms & DOC Support	185	1.60	297
Outdoor Assembly /Muster Area	123	1.60	196
2 Offices	1,232		1,970
Office Shared Support	296	1.60	473
Engineering & Public Works	368	1.60	588
Purchasing	65	1.60	104
Parks & Facilities Operations	216	1.60	345
Engineering @ SARC	287	1.60	460
	1,732	1.60	2,771

Component Summary Tables

continued

Component	Net Area m2	xGross'g Factor	Component Gross Area m2
CREW, SHOPS, STORES			
3 Crew Operations	2,954		4,367
Foreman & Supervisor Offices	334	1.60	534
Change Room & Lockers	485	1.60	775
Bull Pen /Lunch Room	262	1.60	418
STAT Storage Indoors	677	1.60	1,084
STAT Storage Outdoor	1,197	1.30	1,556
4 Work Shops	1,936		2,324
Small Equipment	270	1.20	325
Signs & Lines Shop	502	1.20	602
Water & Maintenance Shop	365	1.20	438
Parks Utilities Shop	232	1.20	279
Parks Carpentry Shop	204	1.20	245
Transportation Shop *new*	93	1.20	111
Shop Loading Bays	270	1.20	324
5 Fleet Maintenance	2,089		2,570
Front Service Counter	100	1.60	160
Change Room & Lockers	59	1.60	94
High-head Bays	586	1.20	703
Small Fleet Bay *new*	348	1.20	418
Service Centre Stores	129	1.20	155
Welding /Fabrication Bay	109	1.20	130
Oil & Flammables	56	1.20	67
Fleet Loading Bays	703	1.20	843
6 Stores Indoor	383		571
Stores Service	46	1.60	74
Indoor Inventory	244	1.60	391
Secured, Unheated Inventory	92	1.15	106
	7,362	1.34	9,832

Component Summary Tables

Continued

Component	Net Area m2	Grossing Factor	x Component Gross Area m2
YARDS			
7 Stores Outdoor	7,536		11,305
Stores Shipping & Receiving	246	1.50	370
Stores General Inventory	2,029	1.50	3,043
Crew Inventory	2,100	1.50	3,150
Road Base Inventory	1,968	1.50	2,952
Parks Inventory	445	1.50	668
Salt & Brine Inventory	748	1.50	1,122
8 Works Yard	3,876		5,233
Fleet Equipment Washdown	281	1.35	379
Fuelling	197	1.35	266
Water Station *new*	207	1.35	279
Generators	159	1.35	214
Hydro Excavation Processing *new	1,484	1.35	2,004
Misc Storage, Recycling	1,184	1.35	1,599
Horticulture	364	1.35	492
9 Parking & Fleet Equipment	19,754		26,668
Staff Personal Vehicles	8,388	1.35	11,324
Visitors & Special Stalls	438	1.35	591
Fleet Vehicles	2,660	1.35	3,591
Heavy Fleet Equipment	5,719	1.35	7,721
Fleet Maintenance Stalls	1,232	1.35	1,663
Salt Spreaders & Plow Blades	1,317	1.35	1,778
10 Parks & Facilities	-		-
11 Satellite Module	1,172		1,581
Emergency Satellite Module*new	803	1.35	1,084
Recycling Transfer Station *new*	369	1.35	497
	32,338	1.38	44,787

STRATEGIES FOR ACCOMMODATION

The modelled preferred scenario is based on the following strategies to consolidate components on one site at 2020 Labieux Road.

	Net Area m ²	x Grossing	Component
INDOOR BUILDING			
OFFICES	1,732		2,771
1 Front of House	501	1.60	801
2 Offices	1,232	1.60	1,970
CREW, SHOPS, STORES	7,362		9,832
3 Crew Operations	2,954	1.48	4,367
4 Work Shops	1,936	1.20	2,324
5 Fleet Maintenance	2,089	1.23	2,570
6 Stores Indoor	383	1.49	571
SUBTOTAL INDOOR m ²	9,094	1.39	12,603
OUTDOOR			
YARDS	31,166		43,206
7 Stores Outdoor	7,536	1.50	11,305
8 Works Yard	3,876	1.35	5,233
9 Parking & Fleet Equipment	19,754	1.35	26,668
SUBTOTAL OUTDOOR m ²	31,166	1.39	43,206
TOTAL COMPONENT AREA	40,260		55,809
Site Circulation 474m x 10m & Entry		1.10	5,640
TOTAL SITE AREA CALCULATED		1.53	61,449
vs			
TOTAL SITE AREA AVAILABLE			47,400
<u>Strategies to fit:</u>			
Move Offices Above Ground	1,232		1,970
Move Horticulture to Roof	364		492
Move Staff Stalls Above Grade	-	0 Stalls	-
TOTAL COMPONENT on GROUND			53,347
TOTAL SITE AREA PROGRAMMED		1.53	59,570
AREA REMAINING (FUTURE-PROOF)			(12,170)
ADDITIONAL SITE AREA(S)			
ADD SITE: Fire Hall No. 2			7,800
ADD SITE: Reclaim Temporary Housing Site			5,000
AREA REMAINING (FUTURE-PROOF)			630

Satellite Modules totalling 1,581 m² are not included in this table.

APPENDIX D – ANOTHER PRECEDENT

This information was extracted from another project when RPG was involved to plan a work yards in the Region of Durham, Ontario.

CITY OF OSHAWA

Population (2016)	159,458
City Area – km ²	145.7
Site Area – ha	4.6

199 Wentworth Street East



Security Gate RFID

from Oshawa COD Project Status Report 13

Redevelopment – Retrofit of Acquired Buildings and Site

- Completion in 2015, \$25 million + \$2 million for salt shed
- 2 years from acquisition to completion

- Redevelopment at acquired site, office and maintenance buildings, with no disruption to then existing operations at Ritson Depot
- 3,700 m² (40,000 ft²) Admin and Crew building
- 4,000 m² (43,000 ft²) Warehouse and Fleet building

Mandates

- Operations
- Sanitation
- Building Services
- Parks
- EOC (Emergency Operations Centre)
- Municipal Law Enforcement

Crew Staff

- 200+ permanent crew staff
- 50/50 spit between city and contract staff

Gender Distribution

- ~15% Female Crew (based on locker count)

Crew Workflow

- Crew enter through corridor to crew change rooms
- Muster in large, high-head space, also adjacent to lunch room
- STAT stores adjacent to muster area
- Inventory parts and supplies managed by NAPA
- Security Gate – RFID

Winter Control

- Winter Control – three to four stations with live camera views on large screens
- After hours locked, concrete storage boxes in yard

Parking

- Staff Parking – ??? stalls are provided outside security zone
- Fleet & Equipment Parking – inside a heated garage
- Fleet & Equipment Parking – outside under cover

Road Base, Salt & Brine

- Road base, gravel, soils – at satellite?
- Salt shed with drive through loading, capacity 3,000 tonnes
- Brine tanks – 3 inside salt shed, pump outside
- Weigh scales

Fuelling

- Gas and diesel pumps inside yard, 4 pump stands (8 pumps)
- Tanks above ground, double-walled

Fleet Maintenance Shop

- 4 high-head garage bays, plus 2 extra high-head bays in separate building
- Support includes workbenches, welding, parts, offices
- Workshop bay
- Washdown bay

Neighbours

- Residential interspersed with Industrial to the north and west
- Industrial neighbours to the south and east

Partnerships

- NAPA Auto Parts contract to run Stores
- Staff are half contracts



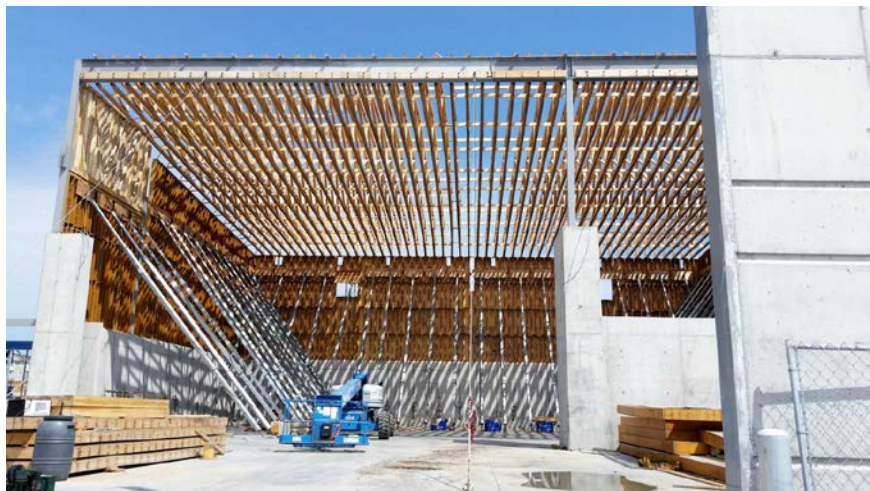
Fleet Maintenance Building

from Oshawa COD Project Status Report 13



Fleet Services Pre-occupancy

from Oshawa COD Project Status Report 13



Salt Shed Under Construction

from Oshawa COD Project Status Report 13