8. PFPC - FIRE DEPARTMENT ASSESSMENT

8.1. Courtenay Fire Department

The Courtenay Fire Department provides various fire-related services from one fire hall located at 650 Cumberland Road. A total of 42 career and volunteer firefighters respond to both emergency and non emergency calls within the City of Courtenay and surrounding fire protection areas of the Comox Valley Regional District.

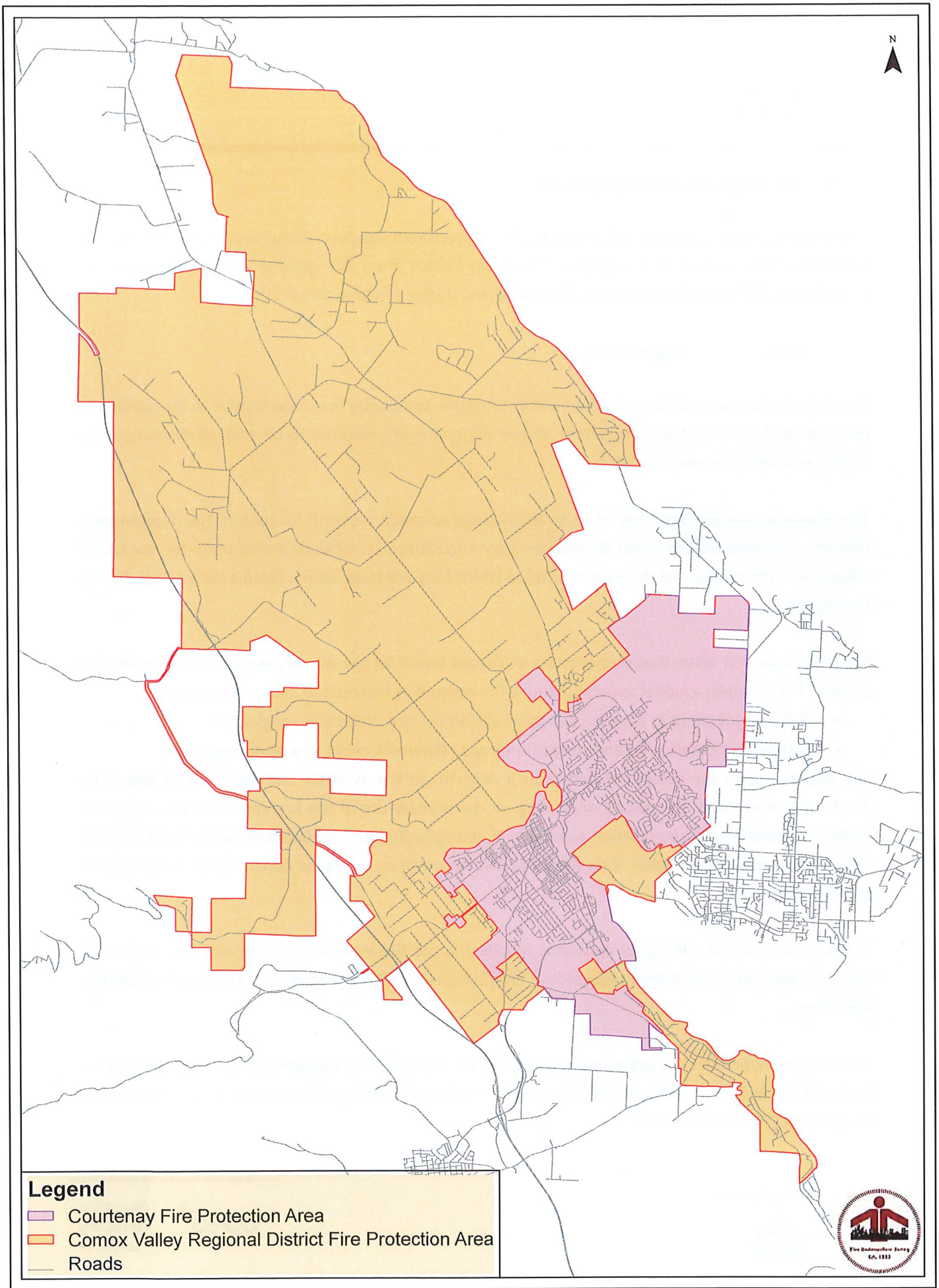
Of the 42 career and volunteer staff, six are career day time staff and 36 are paid on call volunteers. The six career day time staff positions include the Fire Chief, Deputy Fire Chief, Assistant Fire Chief/Training Officer, two Fire Prevention Officers and an Emergency Vehicle Technician/Fire Prevention Officer.

The fire protection areas of the Comox Valley Regional District are the Courtenay Fire Protection Area, Tsolum Farnham Fire Protection Area, and the Merville Fire Protection District.

The fire department currently operates six pieces of fire apparatus. The current in service fire apparatus of Courtenay Fire Department are as follows:

Unit #	Year	Vehicle Type	Pump (Igpm)	Tank Imp. Gallon	Manufacturer	Age in 2014
11	1995	Engine	1,050	500	Superior	19
12	2002	Ladder	1,700	500	Smeal	12
13	1988	Reserve Engine	1,050	500	Superior	26
14	2007	Mobile Water Supply	500	1,700	Commercial	7
15	2008	Engine	1,900	800	Fort Gary	6
71	1992	Rescue	0	0	Spartan	22

The City of Courtenay and the Courtenay Fire Department is part of the Comox Valley Fire and Rescue Services Agreement.



Courtenay

Figure 8.1-1 - City of Courtenay Fire Protection Area and Comox Valley Regional District Fire Protection Area

Scale = 1:26,000 0 500 1,000 2,000 3,000 Meters

Fire Underwriters Survey

8.2. Fire Department Grading Items

The sections below cover the 19 items of the Fire Department Grading. Forty percent of the Public Fire Protection Classification of the City of Courtenay comes from the grading of the Courtenay Fire Department. Information was provided and collected during a field survey in 2013.

8.2.1. Engine Service

Fire departments are evaluated for the number of engine companies in service relative to the overall fire potential and the area being protected. Engine apparatus are required to be adequately housed and staffed in order to receive full credit.

The engine service grading item refers to the amount of credit received for each of the department's engines. Recognition and credit for engines may be reduced or withheld based upon the measured reliability of the pumps and the apparatus upon which they are installed (ex. factors such as age, listing, testing, etc.).

Fire apparatus that serve dual purposes are evaluated based on the primary duty it serves on the fire ground. For example, a ladder apparatus with a fire pump may be credited in one of two ways.

- 100 percent credit as a ladder apparatus and 50 percent credit as an engine, or
- 100 percent credit as an engine apparatus and 50 percent credit as a ladder apparatus.

This depends upon the number of apparatus a department has available and where credit should be distributed properly in the grading depending on the primary use of the fire apparatus (this does not apply to Engine/Rescue combination apparatus. If an Engine/Rescue combination meets CAN/ULC-S515 for a triple combination engine, it receives 100 percent credit as an engine apparatus for fire insurance grading purposes).

The maximum acceptable age of apparatus specified in the fire insurance grading index is 20 years to receive maximum credit. Refer to Appendix D for Insurance Grading Recognition of Used and Rebuilt Fire Apparatus.

The benchmark number of Engine Companies that the Courtenay Fire Department can receive credit for based on the Basic Fire Flows of 3,500 Igpm is four engine companies. Values are cross referenced with the Table of Effective Response.

Additionally, credit can be received for one reserve Engine Company in this grading item. For fire insurance grading, a fire department should have one reserve engine for each eight engines in service. A fire department even with a single engine company should have a reserve engine.

The Total Credited Engine Companies calculated by summing the Primary Engine Company Credit and the Support Engine Company Credit. The calculation is as follows:

$$CEC_{Total} = ECC_{\text{Pr}\,imary} + ECC_{Support}$$

CEC_{Total}	=	Total Credited Engine Company
$ECC_{Primary}$	=	Primary Engine Company Credit (local to the Courtenay Fire Stations)
$ECC_{Support}$	=	Support Engine Company Credit (coming from other areas/halls)

Primary Engine Company Credit ($ECC_{Primary}$) is set by taking the sum of the number of in service engine apparatus in the hall and downgrading from 100 percent based on reliability factors (including but not limited to age, quality, listing and pump test results).

Support Engine Company Credit ($ECC_{Support}$) is set by taking the sum of the number of support engine apparatus and giving a specified percentage based on the aid being automatic or mutual. If aid is automatic a maximum of 90 percent of the engine company may be credited. If aid is mutual a maximum of 33 percent can be achieved from responding fire apparatus that are within 25 kilometres. To receive full credit a mutual aid contract must exist between fire departments providing mutual support.

Support Engine Company Credit was factored in to the grading of the Courtenay Fire Department. Fire apparatus from the Comox Fire Department, the Cumberland Fire Department, the Oyster River Fire Department, and the Union Bay Volunteer Fire Department were credited.

Table 8.2-1 Credited in Service Engine Summary

Unit #	Vehicle Type	Apparatus Credit	Engine Credit	Reserve Engine Credit
11	Engine	100% Engine Credit	1	0
12	Ladder	50% Engine Credit	0.5	0
13	Reserve Engine	40% Reserve Credit	0	0.4
14	Mobile Water Supply	0% Engine Credit	0	0
15	Engine	100% Engine Credit	1	0
Various	Engine(s)	33% Support Credit	0.33	0
Total Engine/Reserve Engine Credit Received:			2.83	0.4
Maximum Credit Receivable (BFF 3,500 lgpm):			4	1

The Courtenay Fire Department received credit for 2.83 Engines out of the maximum 4 engine companies that can be credited for the grading of the Courtenay Fire Department. Partial credit was received for the reserve engine apparatus. Credit was reduced due to the age of the reserve engine. Additional credit up to the maximum can be received if additional engine apparatus were acquired.

The Courtenay Fire Department received 180 points of credit out of the maximum possible [redacted] for this grading item.

Recommendation 8.2-1 Provide Additional Engine Apparatus

The engine service requirements for fire insurance grading have not been fully met with the Courtenay Fire Department's existing apparatus fleet. The Courtenay Fire Department may wish to improve its fire fighting capabilities by acquiring additional apparatus. Fire apparatus should be ULC listed, be of an appropriate age, have an adequate pumping capacity, and be proven reliable. Doing so may help to provide an adequate level of fire protection and potentially improve the fire insurance grade for the community.

The Courtenay Fire Department received credit for 2.83 Engine Company. Credit up to the maximum amount of 1.17 can still be awarded for this grading item.

Acquiring additional fire apparatus is a serious matter that requires careful consideration. There are many factors to consider and fire insurance grading is only one such factor.

Recommendation 8.2-2 Provide a Reserve Engine Apparatus

To ensure an adequate response when a fire department has its engine apparatus out for repair, a fire department should have a reserve engine apparatus equipped, maintained and ready for replacement purposes if its primary

engine is out of service. At a minimum one engine apparatus should be kept in reserve for each eight engine apparatus which would include a single engine apparatus having a replacement apparatus.

For the Courtenay Fire Department to receive maximum credit in this portion of the engine service grading item, a reserve engine of reasonable age would be required.

8.2.2. Ladder Service

Fire departments are evaluated for the number of ladder companies in service relative to the overall fire potential and the area being protected. Ladder apparatus are required to be adequately housed and staffed in order to receive full credit.

The ladder service grading item refers to the amount of credit received for each of the department's ladder apparatus. Recognition and credit for ladders may be reduced or withheld based upon the measured reliability of the apparatus upon which they are installed (ex. factors such as age, listing, testing, etc.).

Fire apparatus that may serve dual purposes are evaluated based on the primary duty it serves on the fire scene. As previously stated, a ladder apparatus with a fire pump may be credited in one of two ways.

- 100 percent ladder credit as a ladder apparatus and 50 percent credit as an engine, or
- 100 percent credit as an engine apparatus and 50 percent credit as a ladder apparatus.

This all depends upon the number of apparatus a department has available and where credit should be distributed properly in the grading depending on the primary use of the fire apparatus.

Response areas with five buildings that are 3 storeys or 10 m (35 ft) or more in height, or districts that have a Basic Fire Flow greater than 3,300 lgpm, or any combination of these criteria, should have a ladder company. The height of all buildings in the community, including those protected by automatic sprinklers, is considered when determining the number of needed ladder companies for fire insurance grading to receive maximum credit. Refer to Appendix E for Requirements for Aerial Apparatus.

The City of Courtenay has multiple buildings that were reviewed during the risk assessment that fit into the three storeys and taller rule requiring an elevated ladder company response. Several Required Fire Flows were greater than 3,300 lgpm. Structures within the City of Courtenay's limits that may require

additional ladder response (where an elevated master stream may be needed to effectively fight fires) include Required Fire Flows up to 4,800 lgpm.

The benchmark number of ladder companies that Courtenay Fire Department can receive credit for based on the Basic Fire Flow of 3,500 lgpm is one if there are five buildings that are 3 storeys or 10 m (35 ft) or more in height; five buildings which have a Required Fire Flow of 3,300 lgpm (15,000 LPM) or more; or a combination of these. Values are cross referenced with the Table of Effective Response.

The Total Credited Ladder Companies calculated by summing the Primary Ladder Company Credit and Support Ladder Company Credit. The calculation is as follows:

$$CLC_{Total} = LCC_{\Pr imary} + LCC_{Support}$$

CLC_{Total}	=	Total Credited Ladder Company
$LCC_{Primary}$	=	Primary Ladder Company Credit (local to the Courtenay Fire Stations)
$LCC_{Support}$	=	Support Ladder Company Credit (coming from other areas/halls)

Primary Ladder Company Credit ($LCC_{Primary}$) is set by taking the sum of the number of in service ladder apparatus in the hall and downgrading from 100 percent based on reliability factors (including but not limited to age, quality, listing and ladder test results). Credit for ladder apparatus may be given depending on the use of the apparatus.

Support Ladder Company Credit ($LCC_{Support}$) is set by taking the sum of the number of support ladder apparatus and giving a specified percentage based on the aid being automatic or mutual. If aid is automatic a maximum of 90 percent of the ladder company may be credited. If aid is mutual a maximum of 33 percent can be achieved from responding fire apparatus that are within 25 kilometres. To receive full credit a mutual aid contract must exist between fire departments providing mutual support.

Support Ladder Company Credit was not factored in to the grading of the Courtenay Fire Department.

Table 8.2-2 Credited in Service Ladder Summary

Unit #	Vehicle Type	Apparatus Credit	Ladder Credit	Reserve Ladder Credit
12	Ladder	100% Ladder Credit	1	0
		Total Ladder/Reserve Ladder Credit:	1	0
		Maximum Credit Receivable (3,500 lgpm):	1	1

The Courtenay Fire Department received near maximum credit within this grading item for the number of ladder apparatus required for fire insurance grading purposes. Additional credit up to the maximum can be received in this grading item if a reserve ladder was present.

The Courtenay Fire Department received 152 points of credit out of the maximum possible [redacted] for this grading item.

Recommendation 8.2-3 Provide a Reserve Ladder Apparatus

To ensure an adequate response when a fire department has its ladder apparatus out for repair, a fire department should have a reserve ladder apparatus equipped, maintained and ready for replacement purposes if its primary ladder is out of service. At a minimum one ladder apparatus should be kept in reserve for each five ladder apparatus which would include a single ladder apparatus having a replacement apparatus.

For Courtenay Fire Department to receive maximum credit in this portion of the ladder service grading item, a reserve ladder would be required.

8.2.3. Distribution of Companies

There are two sets of response distances to be considered within the fire insurance grading; one set being the benchmark response distance which the fire department is graded against (Table 7.2-1) and the second set being response distances used by the insurance industry when applying the Dwelling Protection Grade and Public Fire Protection Classification as indicated in the following table.

Table 8.2-3 Response Distance Standards when Applying DPG and PFPC

	Personal Lines - DPG Response distance by road (km)	Commercial Lines - PFPC Response distance by road (km)
Recommended	5	2.5
Maximum	8	5