

## TOWN OF COMOX

### BYLAW 1784

#### A BYLAW TO ESTABLISH A REVITALIZATION TAX EXEMPTION PROGRAM

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**Please note:** This is a consolidated bylaw prepared for Convenience only and is not a certified copy.

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Consolidated to include the following bylaws:

<b>Bylaw</b>	<b>Adopted</b>	<b>Name</b>	<b>Purpose</b>
1793	Dec 17, 2014	Comox Downtown Revitalization Tax Exemption Amendment Bylaw No. 1793	To include acoustical guidelines for residential developments within Downtown
1810	June 17, 2015	Comox Downtown Revitalization Tax Exemption Amendment Bylaw No. 1810	To amend Bylaw 1784 by adding certain definitions and extend Revitalization Tax Exemption Program
1841	June 1, 2016	Comox Downtown Revitalization Tax Exemption Amendment Bylaw No. 1841	Extension of the Downtown Vitalization Program
1857	June 7, 2017	Comox Downtown Revitalization Tax Exemption Amendment Bylaw No. 1857	Extension of the Downtown Vitalization Program
1883	June 6, 2018	Comox Downtown Revitalization Tax Exemption Amendment Bylaw 1883	To amend Bylaw 1784 by adding certain definitions and extend Downtown Vitalization Program
1914	July 3, 2019	Comox Downtown Revitalization Tax Exemption Amendment Bylaw 1914	Extension of the Downtown Vitalization Program
1946	June 17, 2020	Comox Downtown Revitalization Tax Exemption Amendment Bylaw 1946".	Extension of the Downtown Vitalization Program

Amendment Stamps, denoting an amending bylaw number and date of adoption, have been inserted into this consolidated bylaw for convenience purposes only, written typically in the following format and generally positioned following the change in the bylaw	
<b>(Add #1847 Jun 7/17)</b>	for addition of text or figures to the bylaw
<b>(Rep #1847 Jun 7/17)</b>	for replacement of text or figures in the bylaw
<b>(Del #1847 Jun 7/17)</b>	marking a location or approximate location where text or figures have been deleted from the bylaw
Some amendments may involve multiple actions (addition, deletion or replacement of portions of the bylaw). Refer to the amending bylaw for more detailed tracking of changes.	

**WHEREAS** Council may, by bylaw, establish a revitalization tax exemption program;

**AND WHEREAS** Council wishes to establish a revitalization tax exemption program for residential revitalization in the Comox Downtown lands as shown on the map attached hereto as Schedule “A”;

**AND WHEREAS** Council’s objectives in enacting this revitalization tax exemption program are to increase the Town’s economic, social and environmental vitality by:

- (a) retaining and supporting existing businesses;
- (b) attracting new community investments in the form of multi-family residential development;
- (c) concentrating residential development within established areas with full municipal services; and
- (d) encouraging high quality residential development suitable for citizens “aging in place”;

**AND WHEREAS** Council believes the revitalization tax exemption program accomplishes the above objectives as follows:

- (a) the program encourages new residential development that meets certain standards by relating the tax exemption amounts and the quality of development (For example, Built Green Silver equivalent and adaptable developments will receive more and longer term exemptions than conventionally-built developments),
- (b) the program encourages new commercial development that is supported by appropriate residential density within walking distance, by providing tax exemptions for residential component only of developments
- (c) the program encourages high density residential development in mature, fully serviced downtown areas
- (d) the program encourages low environmental impact projects and landscape and amenity features to enhance community pride;

**AND WHEREAS** Council has considered this Bylaw in conjunction with the objectives and policies set out in section 163(3.1)(c) of the *Community Charter* in the Town of Comox Financial Plan Bylaw, 2014;

**AND WHEREAS** the *Community Charter* provides that a revitalization tax exemption program bylaw may only be adopted after notice of the proposed bylaw has been given in accordance with Section 227 of the *Community Charter* and Council has given this notice;

**AND WHEREAS** the *Community Charter* provides that a revitalization tax exemption program bylaw may only be adopted after Council has considered the bylaw in conjunction with the objectives and policies of its financial plan under Section 165(3.1), and Council has considered this bylaw in that regard;

**NOW THEREFORE**, in open meeting assembled, Council of the Town of Comox **ENACTS AS FOLLOWS:**

1. This bylaw may be cited for all purposes as “Comox Downtown Revitalization Tax Exemption Bylaw No. 1784”.
2. In this bylaw:

*(Add, # 1793, Dec 17/14)* “Acoustical Standards” means the provision of noise control measures in accordance with the methodology contained in the October 30, 2014 Town of Comox Acoustical Standards for Residential Developments report, prepared by Wakefield Acoustics, as Schedule “D”, attached to and forming part of this Bylaw.

“Adaptability Requirements” means all the standards contained in Section 5.18 [Special Needs Housing Standards – Adaptable Housing] of the Zoning Bylaw;

“Administrator” means the person appointed to the position of Chief Administrative Officer by the Council;

“Agreement” means a revitalization tax exemption agreement between the Owner of a Parcel and the Town, in the format attached to, and forming part of, this Bylaw as Schedule “B”;

"Assessed Value" means the BC Assessment Authority's assessed value of improvements only on a Parcel;

*(Add, # 1810, Jun 17/15)*

“Basement” means that portion of a building situated between the top of any floor and the top of the floor next above it, having no more than 0.6 metres of its height above grade and a height from floor to ceiling of 2.1 metres or more.

“Building Coverage” means a portion of the Parcel covered by all buildings, structures, and projections thereof, expressed as a percentage of the Parcel area, but does not include:

- (a) underground structures;
- (b) uncovered sprinkles;
- (c) parking areas, loading areas and driveways, including those contained within a building or part thereof;
- (d) awnings, sunshades, canopies, pilasters, cornices, eaves, gutters, leaders, sills, steps and ornamental features; and
- (e) fences, retaining walls, patios and landscape materials.

"Building Official" has the same meaning as in the Comox Building Bylaw No. 1472, as amended from time to time;

**(Rep, # 1883, Jun 6/18)**

"BUILT GREEN Silver or Alternative" means that, at the time of applying for an Occupancy Permit in respect of residential units in a Project, the residential units are constructed in accordance with, and meet or exceed the performance requirements of BUILT GREEN Silver owned by the Built Green Society of Canada in effect at that time or Step 3 as referenced in the British Columbia Building Code, and further, before applying for an Occupancy Permit in respect of residential units in a Project, the owner has provided to the Town written confirmation from a professional acceptable to the Town that each residential unit in the Project meets or exceeds the BUILT GREEN Silver in effect at that time or Step 3 as referenced in the British Columbia Building Code.

**(Add, # 1810, Jun 17/15)**

"Cellar" means that portion of a building situated between the top of any floor and the top of the floor next above it, having no more than 0.6 metres of its height above grade and a height from floor to ceiling of less than 2.1 metres.

"Council" means the Council of the Town;

"Occupancy Permit" means permission or authorization in writing from the Building Official to occupy a building for its intended purpose.

"Owner" means an owner as defined in the *Community Charter* and who is also an owner of a Parcel;

"Parcel" means a legal parcel within the Revitalization Area upon which an Owner proposes a Project;

"Project" means a revitalization project on a Parcel involving the construction of a new improvement;

"Rate" means the rate of property value tax imposed by the Town on improvements on the Parcel in that year pursuant to section 197 (1) of the *Community Charter*;

"Revitalization Area" means that area designated and shown on Schedule "A";

**(Add, # 1810, Jun 17/15)**

"Storey" means that portion of a building situated between the top of any floor and the top of the floor next above it, and if there is no floor above it, that portion between the top of the floor and the ceiling above; does not include a cellar or basement. A storey

shall have a gross floor area of not less than 75% of the gross floor area of a storey immediately below.

“Tax Exemption” means a revitalization tax exemption pursuant to a Tax Exemption Certificate;

“Tax Exemption Certificate” means a revitalization tax exemption certificate issued by the Town pursuant to this Bylaw and pursuant to the provisions of section 226 of the *Community Charter*, in the form attached as Schedule “C” hereto;

"Town" means the Town of Comox;

“Treasurer” means the Town’s Director of Finance or his/her designate, who is hereby designated as the municipal officer for the purposes of section 226 (12) of the *Community Charter*;

**(Add, # 1810, Jun 17/15)**

“Underground parking” means a parking space located within the basement of a principal building or within a building or part thereof, the roof of which is underground and below grade.

“Zoning Bylaw” means the Town of Comox Zoning Bylaw 1377, as amended from time to time.

3. There is hereby established a revitalization tax exemption program under section 226 of the *Community Charter* for the issuance of Tax Exemption Certificates for the Parcels.
4. This bylaw does not apply to a Parcel unless:
  - (a) the Parcel is located in one of the areas shown on Schedule “A”, and
  - (b) the Owner of the Parcel has entered into an Agreement with the Town substantially in the form of and with the content of the Agreement attached as Schedule “B”.
5. The terms and conditions upon which a Tax Exemption Certificate may be issued are as set out in this Bylaw, in the Agreement and in the Tax Exemption Certificate.
6. **(Rep, # 1883, Jun 6/18)**  
The amount of the annual Tax Exemption for a Parcel with a qualifying Project under this Bylaw is:
  - (a) In respect of a Project that is 3 storeys in height, meets the criteria in section 8 and does not meet BUILT GREEN Silver or Alternative: equal to the amount of 50% of the

Assessed Value of the residential improvements on the Parcel multiplied by the Rate, and this Tax Exemption is for a maximum term of 3 years;

- (b) In respect of a Project that is 3 storeys in height, meets the criteria in section 8 and meets BUILT GREEN Silver or Alternative: equal to the amount of 50% of the Assessed Value of the residential improvements on the Parcel multiplied by the Rate, and this Tax Exemption is for a maximum term of 6 years;
- (c) In respect of a Project that is 4 storeys in height or more, meets the criteria in section 8 and does not meet BUILT GREEN Silver or Alternative: equal to the amount of 100% of the Assessed Value of the residential improvements on the Parcel multiplied by the Rate, and this Tax Exemption is for a maximum term of 5 years; and
- (d) In respect of a Project that is 4 storeys in height or more, meets the criteria in section 8 and meets BUILT GREEN Silver or Alternative: equal to the amount of 100% of the Assessed Value of the residential improvements on the Parcel multiplied by the Rate, and this Tax Exemption is for a maximum term of 8 years..

7. The Tax Exemption does not apply to:

- (a) municipal taxes imposed on the assessed value of land or commercial improvements;
- (b) taxes, charges or levied for local area services, specified areas, local improvement districts, or business improvement areas;
- (c) municipal fees; or
- (d) taxes imposed by a regional district, board of school trustees or other authority;

and for certainty, the Tax Exemption applies only to municipal taxes on improvements imposed under section 197 (1) of the *Community Charter*.

8. *(Rep, # 1810, Jun 17/15)*

In order for a Project to be considered by Council for an Agreement the Project must, at a minimum:

- (a) Consist of the construction of a new residential use or mixed-use building (at least part of which must be residential use) and be at least 3 storeys in height;
- (b) Meet Building Coverage of at least 50% of the Parcel; does not apply to Projects where only underground parking is provided.
- (c) Contain at least 50% of the gross floor area as dwelling unit use (as those terms are defined in the Zoning Bylaw);

- (d) At least 50% of the residential units meet the Adaptability Requirements;
  - (e) *(Add # 1793, Dec 17/14)* All residential units meet or exceed the Acoustical Standards based on the following:
    - (i) hard surface landscaping, and
    - (ii) a +1 dBA noise amplification factor
  - (f) Meet or exceed all applicable development regulations and bylaws, including but not limited to the Town's Development Permit Areas #1 (Downtown Comox), #2 (Ground Oriented Infill) and #3 (General Multi-Family) requirements, as contained in the Comox Official Community Plan Bylaw 1685, as amended from time to time;
  - (g) *(Rep, # 1883, Jun 6/18)* Except for roads as specified in section 8(h), where the Parcel shares a boundary with a road, if the width of the road is narrower than 20.0 metres, provide additional road dedication from the area of the Parcel to satisfy the requirement of a minimum 20.0 metre road dedication (for clarity, Parcels on both sides of a road will contribute to the required dedication, so road dedication under this section should measure 10.0 metres from the middle of the applicable road); and
  - (h) Where the Parcel shares a boundary with section of Comox Avenue between Stewart Street and Ellis Street and/ or Port Augusta Street, if the width of the road is narrower than 18.3 metres, provide additional road dedication from the area of the Parcel to satisfy the requirement of a minimum 18.3 metre road dedication (for clarity, Parcels on both sides of this portion of Comox Avenue and/or on Port Augusta Street will contribute to the required dedication, so road dedication under this section should measure 9.15 metres from the middle of the applicable road).
9. The maximum term of a Tax Exemption depends on when the Tax Exemption Certificate for the Parcel is issued by Council pursuant to this Bylaw and the applicable Agreement.
10. *(Rep, # 1810, Jun 17/15) (Rep, # 1841, Jun 1/16) (Rep, # 1857, Jun 7/17) (Rep, # 1883, Jun 6/18) (Rep, # 1914, Jul 3/19) (Rep, # 1946, Jun 17/20)*
- After October 31, 2025 no further Tax Exemption Certificates will be issued under this bylaw.
11. A Tax Exemption shall apply to a Parcel only after the following conditions are met:
- (a) the Owner has satisfied all the provisions of this Bylaw;
  - (b) the Owner has entered into a valid Agreement with the Town;
  - (c) all the residential units in the Project have received an Occupancy Permit;



- (d) the Owner has satisfied all terms and conditions as set out in the Agreement; and
- (e) a Tax Exemption Certificate has been issued for the Parcel, or for the strata units subdivided from the Parcel, as the case may be.

12. *(Rep, # 1810, Jun 17/15) (Rep, # 1841, Jun 1/16) (Rep, # 1857, Jun 7/17) (Rep, # 1883, Jun 6/18) (Rep, # 1914, Jul 3/19) (Rep, # 1946, Jun 17/20)*

Each Agreement shall require that an Owner of a Project meet the following construction requirements:

- (a) The completed application for the rezoning or development permit for the Project, if required for the Project, must be submitted no later than July 1st, 2021.
- (b) Project construction must commence on or before the one-year anniversary of the earlier of the date of adoption of the rezoning bylaw, or development permit issuance for the Project; and
- (c) An occupancy permit for the Project and the Tax Exemption Certificate for the Project must be issued on the earliest of the fourth anniversary of the development approval, or before October 31, 2025.

An Agreement may include any additional terms and conditions deemed necessary by the Treasurer, in his or her sole discretion, acting reasonably.

13. If an Owner wishes Council to consider entering into an Agreement with the Owner, the Owner must apply to the Town Administrator in writing and must submit the following with the application:

- (a) a certificate that all taxes assessed and rates, charges and fees imposed on the Parcel have been paid, and, where taxes, rates or assessments are payable by instalments, that all instalments owing at the date of application have been paid;
- (b) a completed written application in a form prescribed by the Administrator and available in the office of the Town Administrator; and
- (c) a description of the Project.

14. A Tax Exemption Certificate is subject to the following conditions:

- (a) the property taxes in respect of the Parcel must not go into arrears or become delinquent.

15. A Tax Exemption Certificate may be canceled by Council:
  - (a) on the request of the Owner; or
  - (b) if any of the conditions specified in the Tax Exemption Certificate are not met.
16. If, in the time between the execution of the Agreement and issuance of the Tax Exemption Certificate, the Owner deposits a strata plan in the Land Title Office under the *Strata Property Act* that subdivides the Project, then the Town will issue a Tax Exemption Certificate for each strata lot.
17. If, after a Tax Exemption Certificate has been issued, a strata plan is deposited in the Land Title Office under the *Strata Property Act* that subdivides the Project, then the Town will issue a Tax Exemption Certificate for each strata lot for the following calendar year.
18. A Tax Exemption Certificate cancellation does not apply to taxation in the calendar year unless the Tax Exemption Certificate is canceled on or before October 31 in the preceding year.
19. Despite section 18, if for any reason whatsoever the Tax Exemption Certificate is canceled, the Owner of the Parcel for which the Tax Exemption Certificate was issued will remit to the Town an amount equal to the value of the exemption received after the date of the cancellation of the Tax Exemption Certificate.
20. The Treasurer shall notify the Owner as soon as practicable after a Tax Exemption Certificate is canceled.

READ A FIRST TIME THIS THE 21<sup>st</sup> DAY OF MAY , 2014  
 READ A SECOND TIME THIS THE 21<sup>st</sup> DAY OF MAY , 2014  
 READ A THIRD TIME THIS THE 21<sup>st</sup> DAY OF MAY , 2014  
 NOTICE of this bylaw has been given in accordance with Section 227 of the *Community Charter*  
 on the 5<sup>th</sup> and 10<sup>th</sup> days of June, 2014  
 FINALLY PASSED AND ADOPTED on the 18<sup>th</sup> DAY OF JUNE , 2014

"Paul Ives"  
 Paul Ives, Mayor

"Richard Kanigan"  
 Richard Kanigan, Corporate Officer

I HEREBY CERTIFY that this is a true copy of "Comox Financial Plan Bylaw Amendment 1784"  
 Shelly Russwurm,  
 Deputy Corporate Administrator

Schedule "A"  
REVITALIZATION AREA



## Schedule "B"

### REVITALIZATION TAX EXEMPTION AGREEMENT

THIS AGREEMENT dated for reference the \_\_\_\_ day of \_\_\_\_\_, 20\_\_

BETWEEN:

\_\_\_\_\_  
(the "Owner")

AND

TOWN OF COMOX  
1809 Beaufort Avenue  
Comox, BC  
V9M 1R9

(the "Town")

GIVEN THAT:

- A. The Owner is the registered owner in fee simple of that parcel of land in the Town of Comox [*insert civic address*] and legally described as [*insert legal description*] (the "Parcel");
- B. Council of the Town has established a revitalization tax exemption program pursuant to the Downtown Revitalization Tax Exemption Bylaw No. 1784 (the "Bylaw") to encourage the construction of residential development within downtown Comox; and
- C. The Owner proposes to construct [*describe development*] on the Parcel (the "Project")
- D. The Owner submitted to the Town a complete application for tax exemption under the Bylaw which indicates that the Project will meet the criteria for a tax exemption under the Bylaw;
- E. This Agreement establishes the terms and conditions that must be met by the Owner in order to be issued a Tax Exemption Certificate;

THIS AGREEMENT WITNESSES that in consideration of the mutual covenants and agreements contained in this Agreement (the receipt and sufficiency of which consideration the Town and the Owner hereby expressly acknowledge), the Town and Owner covenant and agree with each other as follows:

1. Definition - In this Agreement the following words have the following meanings:
  - (a) "Agreement" means this Agreement;
  - (b) "Bylaw" means, Downtown Revitalization Tax Exemption Bylaw No. 1784; and
  - (c) any terms not defined in this Agreement but defined in the Bylaw have the meaning given in the Bylaw.
2. Term - This Agreement shall commence on the date of its full execution by both parties and shall terminate when and if the Tax Exemption Certificate is issued.
3. Tax Exemption Certificate - If the Owner meets all of the following conditions, the Town will issue a Tax Exemption Certificate, in the form generally attached as a schedule to the Bylaw, for a Tax Exemption in respect of the Parcel:
  - (a) Application - if rezoning or a development permit for the Project is required, the Owner will have submitted a completed application for such rezoning or development permit no later than \_\_\_\_\_, 20\_\_;
  - (b) Commence Construction - the Owner must commence construction of the Project on or before \_\_\_\_\_, 20\_\_;
  - (c) Construction - the Owner must have constructed the Project with its state of completion as evidenced by a final building inspection and all residential units in the Project must have received an Occupancy Permit issued by the Building Official;
  - (d) Standard of Completion - the Project must be completed in accordance with the BC Building Code, building permits, and applicable bylaws and agreements with the Town;
  - (e) No Other Improvements - there must be no construction on the Parcel other than the Project;
  - (f) Compliance with Bylaw - the Parcel must be developed in accordance with all applicable criteria set out in the Bylaw;
  - (g) No Government Orders - the construction of the Project must not have been a response to an order of the Town or an order of another public authority;
  - (h) No Change in Zoning - the Owner must not have applied to the Town during the term of this Agreement to change the zoning of the Parcel to some use other than the proposed use stated in the application;

- (i) Payment of Taxes - all property taxes, rates, fees and other charges levied by the Town, including penalties and interest, on the Parcel and on other land owned by the Owner within the Town, must be paid;
  - (j) Compliance with Laws and Covenants - the Owner must have, during the term of this Agreement, used and occupied the Parcel in compliance with all enactments, regulations and orders of any authority having jurisdiction and, without limiting the generality of the foregoing, all federal, provincial, or municipal laws, statutes, bylaws, licenses, permits or approvals, including all the rules, regulations, policies, guidelines, criteria or the like made under any such laws and shall have complied with all land use covenants and land-use agreements and charges registered against title to the Parcel;
  - (k) Change in Ownership - the Owner must not have sold, assigned or otherwise transferred all or a portion of his or her equitable or legal interest in the Parcel during the term of this Agreement unless the transferee took an assignment of this Agreement, in a form satisfactory to the Town, and agreed to be bound by it. The Owner may not otherwise assign this Agreement and the benefit of it; and
  - (l) Additional Site-Specific terms - *[list any additional terms here]*
4. **(Rep, # 1883, Jun 6/18)** Term of Tax Exemption Certificate - Provided the requirements of this Agreement and of the Bylaw are met, the Tax Exemption Certificate shall be for:
- (a) the years \_\_\_\_ to \_\_\_\_ inclusive, if the Project meets BUILT GREEN Silver or Alternative, or
  - (b) the years \_\_\_\_ to \_\_\_\_ inclusive, if the Project does not meet BUILT GREEN Silver or Alternative.
5. Strata Subdivision - If, during the term of this Agreement, the Owner deposits a strata plan in the Land Title Office under the *Strata Property Act*, that subdivides the Project, then any issuance of a Tax Exemption Certificate under this Agreement will be issued in respect of each strata lot subdivided from the Parcel.
6. Entire Agreement - This Agreement constitutes the entire agreement between the Owner and the Town with regard to the subject matter hereof and supersedes all prior agreements, understandings, negotiations, and discussions, whether oral or written, of the Town with the Owner.
7. Further Assurances - The Owner shall, on the request of the Town, execute and deliver or cause to be executed and delivered, all such further agreements, documents, instruments, deeds, and assurances, and do and perform or cause to be done and performed, all such

acts and things as may be, in the opinion of the Town, necessary to give full effect to the intent of this Agreement.

8. No Town Representations - It is mutually understood, agreed and declared by and between the parties at the Town has made no representations, covenants, warranties, guarantees, promises, or agreements (oral or otherwise), express or implied, with the Owner other than those expressly contained in this Agreement.
9. Notices - All notices to be given under this Agreement must be in writing and may be delivered by hand or mailed by prepaid ExpressPost mail to the address for the party at the top of this Agreement . Any notice delivered by hand is deemed to be given and received on the day it is sent. Any notice mailed is deemed to be given and received on the 4<sup>th</sup> day after it is posted (unless there is a mail strike, slow down or other labor dispute which might affect delivery, in which case the notice will be effective only if actually delivered). Notices must be addressed to the addresses on page 1 or to such other address as may from time to time be advised by either party in writing. Notices to the Town must be addressed to the attention of the "Chief Administrative Officer".
10. Powers Preserved - Nothing contained in or implied by this Agreement prejudices or affects the rights and powers of the Town in the exercise of its functions under any enactment or at common law, all of which may be fully and effectively exercised in relation to the Project and the Parcel. This Agreement does not relieve the Owner from complying with any enactment, including in relation to the use or subdivision of the Parcel, and without limitation, does not confer directly or indirectly any exemption or right of set-off from development cost charges, connection charges, application fees, user fees or other rates, levies or charges payable under any bylaw of the Town.
11. Relationship - Nothing in this Agreement is to be interpreted as creating an agency, partnership or joint venture between the Town and the Owner.
12. Time - Time is of the essence in this Agreement.
13. Remedies not Exclusive - No reference to or exercise of any specific right or remedy by the Town prejudices or precludes the Town for any other remedy, whether allowed at law or in equity or expressly provided for herein.
14. Headings - The headings appearing in this Agreement have been inserted for reference and as a matter of convenience and in no way define, limit or enlarge the scope or meaning of this Agreement or any provision of it.
15. Waiver - An alleged waiver of any breach of this Agreement is effective only if it is an express waiver in writing of the breach in respect of which the waiver is asserted. A waiver

of a breach of this Agreement does not operate as a waiver of any other breach of this Agreement.

16. Interpretation - Wherever the singular or masculine or neuter is used in this Agreement, the same will be construed as meaning the plural, the feminine or body corporate where the context or the parties so require.
17. Severance - If any section, subsection, clause or phrase of this Agreement is held to be invalid for any reason by a court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remainder of the Agreement.
18. Enurement - This Agreement enures to the benefit of and is binding upon the parties and their respective successors and in the case of the Owner, its permitted assigns.
19. Statutory References - A reference in this Agreement to a statute includes regulations made pursuant to it and includes all amendments and replacements to them from time to time.
20. Modifications - No amendment or modification of any of the terms or provisions of this Agreement will be of any force or effect unless the amendment or modification is in writing and duly executed by the Town and the Owner.
21. Governing Law - This Agreement will be governed by and interpreted in accordance with the laws of British Columbia.
22. Joint and Several Liability - In circumstances where two or more persons comprise the Owner, those persons shall be jointly and severally liable for performance of the obligations of the Owner under this Agreement.
23. Expense of the Owner - The expense of performing the obligations and covenants of the Owner contained in this Agreement, and of all matters incidental to them, is solely that of the Owner.
24. Owner's Representations and Warranties - The Owner represents and warrants to the Town that:
  - (a) If the Owner is a corporation, all necessary corporate actions and proceedings have been taken by the Owner to authorize its entry into and performance of this Agreement;
  - (b) If the Owner is a corporation, the Owner has the corporate capacity and authority to enter into and perform this Agreement;



(c) Upon execution and delivery on behalf of the Owner, this Agreement constitutes a valid and binding contractual obligation of the Owner; and

(d) Neither the execution and delivery, nor the performance, of this Agreement shall breach any other agreement or obligation, or cause the Owner to be in default of any other agreement or obligation, respecting to the Parcel.

As evidence of their agreement to be bound by the terms of this Agreement, the parties have executed this Agreement on the dates written below.

DATED the \_\_\_ day of \_\_\_\_\_ 20\_\_

Executed by the TOWN OF COMOX  
by its authorized signatories:

\_\_\_\_\_  
Mayor:

\_\_\_\_\_  
Corporate Officer:

DATED the \_\_\_ day of \_\_\_\_\_ 20\_\_

Executed by the [*insert owner name*]  
by its authorized signatories:

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

## Schedule "C"

### REVITALIZATION TAX EXEMPTION CERTIFICATE

TOWN OF COMOX

#### Revitalization Tax Exemption Certificate

This Tax Exemption Certificate is issued in accordance with:

- A. Comox Downtown Revitalization Tax Exemption Bylaw No. 1784 (the "Bylaw");
- B. The revitalization tax exemption program (the "Program") established by the Bylaw; and
- C. The Revitalization Tax Exemption Agreement dated for reference the \_\_\_ day of \_\_\_, 20\_\_ (the "Agreement") entered into between the Town of Comox (the "Town") and [insert owner name] (the "Owner") in respect of that parcel and improvements within the Town, legally described as:

Parcel Identifier: \_\_\_\_\_

Legal Description: \_\_\_\_\_

Property Tax Roll Number(s): \_\_\_\_\_

Civic Address: \_\_\_\_\_

(the "Parcel")

This Certificate certifies that the Parcel is subject to a revitalization tax exemption equal to the following improvement portion's of the assessed value of the Parcel:

\_\_\_% of the assessed value of the residential improvements multiplied by the municipal rate of tax in effect for Class 1-Residential, for each of the taxation years 20\_\_ to 20\_\_ inclusive.

The Tax Exemption above is provided under the following conditions:

1. The Owner does not breach any term, condition or provision of, and performs all obligations set out in, the Agreement and the Bylaw;
2. The Owner, or a successor in title to the Owner, has not allowed the property taxes for the Parcel to go into arrears or to become delinquent;
3. The Owner must not apply to the Town during the term of the tax exemption to change the zoning of the Parcel to use other than the use of which the tax exemption was granted.
4. During the term of the tax exemption the residential unit(s) on the Parcel must be continuously used for and only as dwelling units, as that term is defined in the Town of Comox Zoning Bylaw 1377, as amended from time to time.
5. If the residential unit(s) is destroyed or demolished or otherwise removed, the tax

exemption for improvements under the Bylaw shall cease until either the residential unit(s) is repaired and again fully capable of occupancy, and in no case will the term of this Certificate be extended.

6. The Owner must during the term of the tax exemption use and occupy the Parcel in compliance with all enactments, regulations, and orders of any authority having jurisdiction and, without limiting the generality of the foregoing, all federal, provincial, or municipal laws, statutes, bylaws, licences, permits or approvals, including all the rules, regulations, policies, guidelines, criteria or the like made under any such laws and shall remain in compliance with all land use covenants and land use agreements and charges registered against title of the Parcel.
7. All property taxes, rates, fees and other charges levied by the Town, including penalties and interest, on the Parcel (minus taxes exempted under the Bylaw) and on other land owned by the Owner within the Town must be paid during the term of the tax exemption.
8. Site-Specific Conditions – *[copy from Agreement, if any]*.

This Certificate may be canceled by the Council of the Town of Comox:

- (a) on the request of the Owner, or
- (b) if any of the conditions in this Certificate are not met.

If this Certificate is cancelled by Owner's request, that Owner of the Parcel must pay to the Town within 30 days of cancellation a recapture amount equal to the pro-rated amount, based on the date of cancellation, of taxes that were exempted or that will be exempted that year under the Certificate.

If a Certificate is cancelled by Council pursuant to section 2(2) of this Certificate, the then-current Owner of the Parcel must pay to the Town an amount equal to the amount of taxes that were exempted or that will be exempted that calendar year under the Certificate.

If a recapture the amount is not paid within 30 days, any amount unpaid will bear interest at a rate of 1.0% per month compounded annually.

For clarity, under no circumstances will the Owner be entitled under the Program to any cash credit, any carry forward tax exemption credit or any refund for any property taxes paid.

DATED the \_\_\_\_ day of \_\_\_\_\_, 20\_\_

**TOWN OF COMOX**

by its authorized signatory:

\_\_\_\_\_  
Director Finance

*(Add, # 1793, Dec 17/14)*

**SCHEDULE "D"**



**WakefieldAcoustics**  
CONSULTING ACOUSTICAL ENGINEERS

**TOWN OF COMOX**

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**ACOUSTICAL STANDARDS  
FOR RESIDENTIAL DEVELOPMENTS**

**Prepared For:**

**Town of Comox  
Planning Department**



October 30, 2014

File No: 14-1971-1

**Document Revision Log**

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# 1.0 INTRODUCTION

## 1.1 Purpose of Acoustical Standards

### 1.1.1 Arterial/Collector Road Traffic Noise

These acoustical standards are intended to inform residential developers of the Town of Comox's sound insulation standards for residences that will be located along arterial or collector roads. These requirements are based on guidelines developed by the National Research Council (NRC) of Canada and published by the Canada Mortgage and Housing Corporation (CMHC) in their 1986 document "Road and Rail Noise: Effects on Housing". The purpose of the original CMHC document was similar to that of the current acoustical standards, that is to provide a methodology by which developers (or their consultants) may estimate the traffic noise exposures at building facades and be guided in the selection of appropriate façade elements (windows, doors) so that their residential interiors will comply with the thresholds for acceptable traffic noise levels established in the CMHC document.

The noise metric that was utilized in the CMHC document and will be utilized in these acoustical standards is the 24-hour Equivalent Sound Level or  $L_{eq}(24)$ . The  $L_{eq}(24)$  is that "steady noise level", which, if it persisted for the full 24-hour period, would result in residents receiving the same overall sound energy exposure as would the actual "time-varying noise level" in their community. The unit in which the  $L_{eq}(24)$  is expressed is the A-weighted decibel, or dBA.

The CMHC document established the following thresholds (Table 1) for acceptable noise levels in various residential interior spaces, with the intention of avoiding significant interference by noise with essential human activities, primarily speech communications and sleep.

**Table 1; CMHC Interior Noise Exposure Thresholds Expressed in terms of  $L_{eq}(24)$**

Interior Space	CMHC's Maximum Acceptable Noise Levels, $L_{eq}(24)$ dBA
Bedrooms	35
Living, dining, recreation rooms	40
Kitchens, bathrooms, hallways, utility rooms	45

The CMHC document indicates that new residences as typically constructed in Canada and "complying with Residential Standards, should provide an acceptable indoor environment", i.e., complying with Table 1, "up to an outdoor noise level of 55 dBA". Therefore, where outdoor noise levels do not exceed  $L_{eq}(24)$  55 dBA, no special noise control measures are required.



## 1.1.2 Seaplane Noise Exposures

Given the small volumes of seaplane traffic (currently four scheduled Harbour Air flights per day), the daily average noise exposures, i.e., the  $L_{eq}(24)$ 's, created at waterfront, or near waterfront, residences by seaplane traffic within Comox Harbour will be well below the CMHC guidelines described in Section 1.1.1. However, seaplane take offs create very high noise levels for brief periods of time several times per day (maximum noise levels of 90 to 100 dBA have been measured in Victoria's Outer Harbour at a distance of approximately 150 m during Harbour Air take-offs). The Town may then want to consider requiring the upgrading of the facades of new residences to be located near the Harbour Air take off area in Comox.

## 1.2 Outlines of Procedures

### 1.2.1 Traffic Noise Estimation

The procedure by which developers can estimate future road traffic noise exposures at their planned residential buildings and identify the noise reduction requirements predicated by these noise exposures is as follows:

- Collect traffic information about the road (generally an arterial or a collector) or roads (in case of a corner development) on which the development will be located,
- Use this traffic information in conjunction with the site plan and road alignment to predict the basic  $L_{eq}(24)$  that is expected to exist at the residential facades(s). This is done with the aid of two look-up tables,
- Apply adjustments to the basic  $L_{eq}(24)$  to account for the specific posted speed, heavy vehicle mix and grade of the roadway(s),
- If the development is multi-story and the ground surface between the roadway and the residences is predominantly "soft", apply noise level adjustments to account for the greater elevation of the upper floor residential units (or rooms within residential units),
- Using the adjusted  $L_{eq}(24)$  at façades which face the roadway, and, if relevant, at facades which are perpendicular to the roadway, select the appropriate sound insulation-enhancing measure(s) from a table.

### 1.2.2 Seaplane Take-off Noise

The Comox Valley seaplane flight path diagram (see Appendix A) shows that seaplanes normally start their take-off runs from a point just off the western tip of the breakwater approximately in line with Willow Way and head south. The start of the take-off run is then from 250 to 400 m from the nearest existing waterfront residential properties. Maximum take-off noise levels at the south-facing facades of these houses are estimated to range from 79 to 94 dBA. With windows opened slightly, interior levels would typically be between 64 and 79 dBA. Such noise levels are capable of interfering with speech communications, and certainly with sleep if they were to occur during sleeping hours. The earliest take-off time during the summer season is 8:20 AM with the earliest arrival at 7:10 AM (Note, seaplane landing noise levels are typically 20 dBA lower than take-off levels and hence have little potential for creating disturbance).

## 2.0 ESTIMATION OF ROAD TRAFFIC NOISE LEVELS

### 2.1 Parameters Affecting Road Traffic Noise Levels

The average noise levels created by a traffic flow, as expressed in terms of the  $L_{eq}(24)$ , are dependent on the following parameters:

- Average Daily Traffic Volume (AADT), in vehicles per day (vpd),
- Setback distance from centre of road to residential façade(s),
- Nature of intervening ground - predominantly acoustical soft (grass, fields, woods) or predominantly hard (pavement, hard-packed earth or gravel, water),
- Average vehicle speed (use posted speed unless actual running speed data is available),
- Heavy vehicle mix (percentage heavy trucks and buses),
- Presence of stop and go traffic (proximity to stop signs or stoplights),
- Average grade of road(s) past the development,
- Orientation of façade to road (parallel or perpendicular),
- Elevation of noise receptors above the ground (floor level).

The following sections describe the steps in the traffic noise estimation procedure. A Work Sheet is provided (following Tables 2 and 3) for use in the noise estimation procedure. Note that separate Work Sheets will need to be used for facades with various setbacks, orientations and floor levels.

### 2.2 Estimation of Road Traffic $L_{eq}(24)$ s at Residential Façades

Tables 2 and 3 provide the basic  $L_{eq}(24)$ s created at various setback distances by traffic flows with various AADT's but all having the following traffic and roadway parameters:

- Posted speed 50 kmph,
- Heavy vehicle mix of 1.5 % or less,
- Average road grade of 1% or less.

The  $L_{eq}(24)$ s that will be created at the facades of particular residential developments located on roadways with particular traffic and locational conditions may be estimated through the following steps:

#### Step 1 – Establish Basic $L_{eq}(24)$

- Decide if ground between roadway and residential façade is predominantly (more than 50%) hard or soft.
- Establish the roadway's AADT (from 2011 Boulevard Comox Transportation study or other sources) and adjust this upwards from the 2011 values to 10 years after project completion. If local growth rate unknown, assume 1.6% per year as indicated in the Town of Comox OCP.

- Establish the setback distance(s) of the facades from the centreline of the roadway(s). If road curves or is not parallel to the façade, use the average setback distance along the length of the building.
- Enter the AADT and setback distance into either Table 2 or 3 as appropriate and select the basic  $L_{eq}(24)$ . If intervening ground is highly variable or 50% hard/50% soft, use the average of the  $L_{eq}(24)$  value obtained from Tables 2 and 3.

## Step 2 – Adjustment for Posted or Average Running Speed

The following adjustments should be made if the roadway's posted speed, or average running speed (should this be known) is not 50 kmph:

- 40 kmph – subtract 1 dBA,
- 60 kmph – add 2 dBA,
- 70 kmph – add 3 dBA.

## Step 3 - Adjustment for Heavy Vehicle Mix

The following adjustments should be applied to the basic  $L_{eq}(24)$  to reflect the effects of greater heavy vehicles mixes (%HV's), i.e., trucks with more than two axles, and buses:

- If % HV's is greater than 1.5% but less than 4%, add 1 dBA,
- If % HV's is greater than 4% but less than 7%, add 2 dBA,
- If % HV's is greater than 7% but less than 10%, add 3 dBA,
- If % HV's is greater than 10% but less than 15%, add 4 dBA.

## Step 4 - Adjustment for Stop and Go Traffic

If the residential building is located within 150 m of an intersection having stoplights or stop signs, the following adjustments should be made to the basic  $L_{eq}(24)$ :

- Building within 60 m of stoplight/signs – add 2 dBA,
- Building within 60 to 150 of stoplights/signs – add 1 dBA.

## Step 5 - Adjustment for Road Gradient

The following adjustment should be made if the average grade of the road past the development is 2% or greater:

- Grade between 2% and 4% - add 1 dBA,
- Grade between 5% and 10% - add 2 dBA,
- Grade greater than 10% - add 3 dBA.

## Step 6 - Adjustment for Façade Orientation

Residential facades which are essentially parallel to the road provide approximately a 180 degree exposure to traffic noise. Facades which are essentially perpendicular to the road are self-shielded from the view towards, and potentially the traffic noise from, roughly half the length of the road (i.e., they have approximately a 90 degree exposure). The average noise levels at such perpendicular facades may then be approximately 3 dBA<sup>1</sup> lower than those at road-facing facades of the same setback distance. The following adjustment should be applied to the predicted noise levels at such facades:

- For perpendicular facades with no other building of comparable or greater size nearby which would reflect traffic noise towards the facade in question - subtract 3 dBA,
- For perpendicular facades having another building of comparable or greater size nearby that would reflect traffic noise towards the façade in question, but would not itself provide noise shielding for the façade in question - subtract 1 dBA

## Step 7- Adjustment for Receptor Elevation (Floor Level)

If the development is more than one storey high and is located 20 m or more from the road centreline, and if the ground between the roadway and the building is acoustically soft, apply the following adjustments to the basic  $L_{eq}(24)$  at the second, third and fourth floors:

- Second floor – add 1 dBA,
- Third floor – add 2 dBA,
- Fourth floor – add 1 dBA if setback is 19 to 27 m, 2 dBA if setback is 28 to 35 dBA, 3 dBA if setback is 36 to 45 m, and 4 dBA if setback is 46 to 225 m.

## Step 8- Combine all Adjustments

Combine (sum) all the individual adjustments made to the basic  $L_{eq}(24)$  in Steps 2 through 7 to obtain the Total Adjustment.

## Step 9- Obtain Adjusted $L_{eq}(24)$

Add the Total Adjustment obtained in Step 8 to the Basic  $L_{eq}(24)$  established in Step 1 to obtain the “Adjusted  $L_{eq}(24)$ ” at the subject façade.

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<sup>1</sup> The difference in noise levels between fully exposed and half-exposed facades is given by  $10 \log (180 \text{ degrees}/90 \text{ degrees}) = 10 \log (2) = 3 \text{ dBA}$ .

## Acoustical Standards for Residential Developments

**Table 2; Basic 24-Hour Average Traffic Noise Levels, Leq(24)s, as Function of Setback Distance. (Posted Speed 50 kmph, ≤1.5% HV's, ≤ 1% Grade, Ground Floor Receptor Location, Predominantly Soft Ground)**

AADT	Setback Distance from Residential Façade to Centre of Roadway (m)													
	≤11	11 to 14	15 to 18	19 to 22	23 to 27	28 to 35	36 to 45	46 to 57	58 to 72	73 to 90	91 to 112	113 to 142	143 to 180	181 to 225
400	48	47	46	44	43	41	39	37	35	33	31	29	27	25
500	49	48	47	45	44	42	40	38	36	34	32	30	28	26
630	50	49	48	46	45	43	41	39	37	35	33	31	29	27
800	50	50	49	47	46	44	42	40	38	36	34	32	30	28
1,000	52	51	50	48	47	45	43	41	39	37	35	33	31	29
1,250	53	52	51	49	48	46	44	42	40	38	36	34	32	30
1,600	54	53	52	50	49	47	45	43	41	39	37	35	33	31
2,000	55	54	53	51	50	48	46	44	42	40	38	36	34	32
2,500	56	55	54	52	51	49	47	45	43	41	39	37	35	33
3,150	57	56	55	53	52	50	48	46	44	42	40	38	36	34
4,000	58	57	56	54	53	51	49	47	45	43	41	39	37	35
5,000	59	58	57	55	54	52	50	48	46	44	42	40	38	36
6,300	60	59	58	56	55	53	51	49	47	45	43	41	39	37
8,000	61	60	59	57	56	54	52	50	48	46	44	42	40	38
10,000	62	61	60	58	57	55	53	51	49	47	45	43	41	39
12,500	63	62	61	59	58	56	54	52	50	48	46	44	42	40
16,000	64	63	62	60	59	57	55	53	51	49	47	45	43	41
20,000	65	64	63	61	60	58	56	54	52	50	48	46	44	42
25,000	66	65	64	62	61	59	57	55	53	51	49	47	45	43
31,500	67	66	65	63	62	60	58	56	54	52	50	48	46	44
40,000	68	67	66	64	63	61	59	57	55	53	51	49	47	45
50,000	69	68	67	65	64	62	60	58	56	54	52	50	48	46



## Acoustical Standards for Residential Developments

**Table 3; Basic 24-Hour Average Traffic Noise Levels, Leq(24)s, as Function of Setback Distance.(Posted Speed 50 kmph, ≤1.5% HV's, ≤ 1% Grade, Ground Floor Receptor Location, Predominantly Hard Ground).**

AADT	Setback Distance from Residential Façade to Centre of Roadway (m)													
	≤11	11 to 14	15 to 18	19 to 22	23 to 27	28 to 35	36 to 45	46 to 57	58 to 72	73 to 90	91 to 112	113 to 142	143 to 180	181 to 225
400	48	47	46	45	44	43	42	41	40	39	38	37	36	35
500	49	48	47	46	45	44	43	42	41	40	39	38	37	36
630	50	49	48	47	46	45	44	43	42	41	40	39	38	37
800	50	50	49	48	47	46	45	44	43	42	41	40	39	38
1,000	52	51	50	49	48	47	46	45	44	43	42	41	40	39
1,250	53	52	51	50	49	48	47	46	45	44	43	42	41	40
1,600	54	53	52	51	50	49	48	47	46	45	44	43	42	41
2,000	55	54	53	52	51	50	49	48	47	46	45	44	43	42
2,500	56	55	54	53	52	51	50	49	48	47	46	45	44	43
3,150	57	56	55	54	53	52	51	50	49	48	47	46	45	44
4,000	58	57	56	55	54	53	52	51	50	49	48	47	46	45
5,000	59	58	57	56	55	54	53	52	51	50	49	48	47	46
6,300	60	59	58	57	56	55	54	53	52	51	50	49	48	47
8,000	61	60	59	58	57	56	55	54	53	52	51	50	49	48
10,000	62	61	60	59	58	57	56	55	54	53	52	51	50	49
12,500	63	62	61	60	59	58	57	56	55	54	53	52	51	50
16,000	64	63	62	61	60	59	58	57	56	55	54	53	52	51
20,000	65	64	63	62	61	60	59	58	57	56	55	54	53	52
25,000	66	65	64	63	62	61	60	59	58	57	56	55	54	53
31,500	67	66	65	64	63	62	61	60	59	58	57	56	55	54
40,000	68	67	66	65	64	63	62	61	60	59	58	57	56	55
50,000	69	68	67	66	65	64	63	62	61	60	59	58	57	56

Worksheet No. \_\_\_\_; Arterial/Collector Road Traffic Noise Exposure Estimation

Arterial/Collector Road Traffic Noise Estimation WORK SHEET				
Step	Traffic/Roadway Parameter			L <sub>eq</sub> (24) and Adjustments (dBA)
1	Basic L <sub>eq</sub> (24) for: <ul style="list-style-type: none"> <li>• 50 kmph,</li> <li>• ≤ 1.5% HV's,</li> <li>• ≤ 1% Grade</li> </ul>	AADT (10 years post project)		Table 2 or 3
		Setback Distance from Road Centreline (m)		
		Intervening Ground (Mostly Soft or Mostly Hard)		
2	Posted or Average Running Speed (kmph)			
3	Heavy Vehicle Mix (%)			
4	Stop & Go Traffic (distance to Stoplights/signs) (m)			
5	Average Road Grade (%)			
6	Façade orientation Perpendicular to Road	No large building nearby that will reflect noise back towards façade		
		Large building nearby that will reflect sound back to façade		
7	If Intervening ground predominantly "soft"; apply correction for Receptor Elevation (Floor Level)		Ground	
			Second	
			Third	
			Fourth	
8	<b>Total Adjustment = Lines 2 + 3 + 4 + 5 + 6 + 7</b>			
9	<b>Adjusted L<sub>eq</sub>(24) at Subject Façade = Line 1 + Line 8</b>			

## 2.3 Situations Involving More Than One Roadway

In some situations, traffic on more than one roadway may contribute to the total noise exposures at a site of proposed residential development. This would most commonly occur where the residential property in question is located at or near the intersection of two roadways, but it could also occur where two roads (e.g. a minor frontage road and an arterial) which roughly parallel one another, pass by a planned residential site. In such situations a separate noise exposure calculation (worksheet) will need to be completed for the traffic on each roadway and the two resulting noise exposures combined. In the case of two parallel roads this will be straight forward as each building façade will be exposed in essentially the same way to noise from both roads, that is, a given facades will typically be either parallel to, or perpendicular to, both roads. In the case of a residential property at an intersection, building facades will tend to parallel to one road and perpendicular to the other. As such, the self-shielding effects described in Step 6 above will need to be accounted for in assessing traffic noise exposures at the perpendicular facades.

The combined noise exposures from two roadways at a given building façade may be determined with the aid of Table 4 as follows:

- Compute the difference between the  $L_{eq}(24)$ 's calculated for the two roadways. For example,  $L_{eq}(24)$  56 dBA minus  $L_{eq}(24)$  51 dBA = 5 dBA.
- If the difference is 10 dBA or less, enter Table 4 at this value (e.g., 5 dBA).
- Select the corresponding adjustment value from Table 4, (e.g., 1 dBA for this example).
- Obtain the total noise level by adding the adjustment value to the higher of the two roadway noise levels. In this example we would add 1 dBA to the higher level of 56 dBA to obtain a total of 57 dBA.
- Proceed to Table 6 in Section 4.0 to identify any necessary noise control measures.

**Table 4; Obtaining the Total Noise Exposure at a Façade due to Two Different Roadways**

<b>Difference between Two Roadway Noise Levels (dBA)</b>	0 – 1	2 - 4	5 - 9	10 or more
<b>Adjustment to be added to Higher Noise Level</b>	3	2	1	0



## 2.4 Amplification of Noise in Commercial Core Area

When roadways are lined on both sides with largely contiguous buildings, particularly multiple storey buildings, and particularly when the distance between buildings is small (i.e., a two-lane roadway plus sidewalks), then a certain amount of traffic noise amplification will occur due to the reflection of sound from building facades on both sides of the road. However, because the reflected sound must always travel farther to reach a given receiver (e.g. on an upper floor of a multi-storey residence) than the sound which arrives directly from traffic or other sources, such amplification effects tend not to be large. The amount of sound amplification that will occur in a specific streetscape situation will depend on many factors including the width of road, the setback of buildings from road, the continuity of building facades, the average height of buildings, and the nature of the building facades – smooth or rough/faceted surfaces – the presences of vegetation etc. It is then difficult to quantify these effects and they would be best established through measurement. However, it may be assumed that for most core area situations in Comox (such as along Comox Avenue) these effects may be expected to be, at most, between 1 and 2 dBA.

## 3.0 SEAPLANE NOISE LEVEL ESTIMATION

Based on measurements made in Victoria’s middle and outer harbours, seaplane take-offs will briefly create maximum noise levels of 79 to 94 dBA at waterfront residential properties in Comox Harbour with setback distance of between 250 and 400 m. Table 5 below provides the approximate ranges of maximum seaplane take-off noise levels conservatively projected at various setback distances from the start of take-off near the western tip of the breakwater.

**Table 5; Maximum Seaplane Take-off Noise Levels as a Function of Distance**

Setback Distance from start of Seaplane Take-off Run near Western Tip of Breakwater (m)	Range of Maximum Noise levels created during Seaplane Take-offs (dBA)
250	84 – 94
300	82.5 – 92.5
350	81 – 91
400	79 – 89
500	77 – 87
600	75 – 85
700	73.5 – 83.5
800	72 – 82
900	70.5 – 80.5
1000	69.5 – 79.5
1500	65 – 75

## 4.0 NOISE CONTROL MEASURES

### 4.1 Façade Improvements Required where Road Traffic Noise Exposures are Predicted to Exceed $L_{eq}(24)$ 55 dBA

Where the traffic noise prediction procedure provided in Sections 2.2 and 2.3 has indicated that noise exposures at residential facades from road traffic (ten years after project completion) will not exceed  $L_{eq}(24)$  55 dBA, no special noise control measures are required. Where levels are predicted to exceed 55 dBA, some additional noise control measures will need to be taken. These measures are listed in Table 6 below.

Note that the requirements for “alternative means of ventilation”, as specified in Table 6, will be considered to have been met if residences comply with the updated ventilation requirements contained in the December 2014, BC Building Code.

### 4.2 Fences/Walls as Traffic Noise Control Devices

While solid timber fences and concrete or masonry walls (i.e. noise barriers) can, in appropriate situations, be effective in reducing traffic noise exposures at residences, the Town of Comox does not support their use for this purpose in residential settings adjacent to collector and arterial roads within Comox. The reasons for Town’s position are as follows:

- Noise barriers of heights compatible with a residential setting (i.e. 2 m or less) are generally not effective in shielding more than the ground floor level of residential buildings from traffic noise.
- Barriers along residential streets/roads will typically require gates to permit pedestrian access and gaps for driveways, side streets etc., thereby decreasing their effectiveness.
- Such noise barriers tend to detract from the visual aesthetics of the streetscape as well as block sight lines between the residences and the street/sidewalk – a potential security concern.

### 4.3 Façade Improvement Considerations when Maximum Seaplane Noise Levels Exceed 80 dBA

The threshold for the potential onset of sleep disturbance by individual intermittent noise events such as aircraft movements has been established by the World Health Organization as a maximum noise level of 45 dBA indoors. This would then typically correspond to outdoor noise levels in the 60 to 65 dBA range. As seen from Table 5, such levels would be created by seaplane take-offs at distances beyond 1500 m and, in fact, such levels are often created by light vehicle pass-bys on a residential streets. The WHO threshold, while very protective, is then not considered practical in this context.

A threshold of 65 dBA indoors (80 to 85 dBA outdoors) is considered more appropriate given the number of such events which occur in Comox Harbour. Studies of the probability of sleep disturbance (arousal or behavioural awakening) by noise events have shown (K.D. Kryter, *The Effects of Noise on Man*, Academic Press 1985, Page 446) that the likelihood of arousal in the home (as opposed to a lab situation) from a noise event with an maximum level of 65 dBA and a duration of 10 seconds is approximately 10%. An indoor noise level of 65 dBA also corresponds fairly well with the onset of significant speech interference.

Therefore, based on the predicted seaplane noise level ranges of Table 5, the Town may wish to consider requiring noise control measures for residences within 700 m (average take-off level of approximately 80 dBA outdoors) of the seaplane take-off zone. These would generally involve the provision of alternative means of ventilation so that windows facing the water could be kept closed. However, given the current low volume of seaplane movements in Comox Harbour (two take-offs per day), such measures should be considered optional, at least until such time as volumes increase significantly.

**Table 6; Residential Façade and Other Improvements Required when Traffic  $L_{eq}(24) >55$  dBA**

Traffic Noise Exposure, $L_{eq}(24)$	Room Type(s)	Required Façade Improvements
$\leq 55$ dBA	All	<ul style="list-style-type: none"> <li>None</li> </ul>
$>55 \leq 60$ dBA	Bedrooms	<ul style="list-style-type: none"> <li>Windows <math>\geq</math> STC 30 - fixed or tightly-sealed operable standard double-glazed,</li> <li>Exterior doors, solid wood or insulated steel with airtight weather-stripping,</li> <li>Glazed doors treated same as windows,</li> <li>Alternative means of ventilation.</li> </ul>
	Living, dining and recreation rooms	<ul style="list-style-type: none"> <li>Same as bedrooms</li> </ul>
	Kitchen, bathrooms, hallways, utility rooms	<ul style="list-style-type: none"> <li>None</li> </ul>
$>60 \leq 65$ dBA	Bedrooms	<ul style="list-style-type: none"> <li>Windows STC <math>\geq 33</math>; - fixed or tightly sealed operable; (6 mm/13 mm air/3 mm, or 3 mm/25 mm/ 3mm),</li> <li>Otherwise same as bedroom for <math>L_{eq}(24)</math> 55 to 60 dBA</li> </ul>
	Living, dining and recreation rooms	<ul style="list-style-type: none"> <li>Same as bedrooms for <math>L_{eq}(24)</math> 55 to 60 dBA</li> </ul>
	Kitchen, bathrooms, hallways, utility rooms	<ul style="list-style-type: none"> <li>Same as bedrooms for <math>L_{eq}(24)</math> 55 to 60 dBA</li> </ul>
$>65 \leq 70$ dBA	Bedrooms	<ul style="list-style-type: none"> <li>Windows <math>\geq</math> STC 35; (3 mm/37 mm air/3mm, 6 mm/25 mm air/3 mm, or 9 mm/13 mm/6 mm).</li> <li>Doors not appropriate unless a vestibule is created.</li> <li>Alternative means of ventilation.</li> </ul>
	Living, dining and recreation rooms	<ul style="list-style-type: none"> <li>Same as bedrooms for <math>L_{eq}(24)</math> 60 to 65 dBA</li> </ul>
	Kitchen, bathrooms, hallways, utility rooms	<ul style="list-style-type: none"> <li>Same as bedrooms for <math>L_{eq}(24)</math> 55 to 60 dBA</li> </ul>
$>70 \leq 75$ dBA	Bedrooms	<ul style="list-style-type: none"> <li>Windows <math>\geq</math> STC 40; (9 mm/37 mm air/6 mm, or standard double-glazed plus 3 mm storm window (25 to 50 mm air gap), Alternative ventilation.</li> <li>Doors not appropriate unless a vestibule is created.</li> </ul>
	Living, dining and recreation rooms	<ul style="list-style-type: none"> <li>Same as bedrooms for <math>L_{eq}(24)</math> 65 to 70 dBA,</li> <li>Doors not appropriate unless a vestibule is created.</li> </ul>
	Kitchen, bathrooms, hallways, utility rooms	<ul style="list-style-type: none"> <li>Same as bedrooms for <math>L_{eq}(24)</math> 60 to 65 dBA</li> </ul>

## Appendix A

