SCHOOL DISTRICT No. 69 (QUALICUM)

REGULAR BOARD MEETING AGENDA

TUESDAY, NOVEMBER 23, 2021
6:00 PM
VIA ZOOM

Join Zoom Meeting
https://sd69-bc-ca.zoom.us/j/64794344669?pwd=Zlp2Z3N1UGtVQWhVaFRZUEU3Y0VsQT09
Meeting ID: 647 9434 4669
Passcode: 961900

1. CALL TO ORDER AND INTRODUCTIONS

2. ACKNOWLEDGEMENT OF TRADITIONAL TERRITORY

3. ADOPTION OF THE AGENDA

Recommendation:
THAT the Board of Education of School District No. 69 (Qualicum) adopt the agenda as presented (*or, as amended*).

4. APPROVAL OF THE CONSENT AGENDA

a.	Approval of Regular Board Meeting Minutes: October 26, 2021	**p 1-10**
b.	Ratification of In Camera Board Meeting Minutes: October 26, 2021	**p 11**
c.	Receipt of Ministry News Releases	
	• Student teaming up with BC Lions to end racism in schools	**p 12-13**
d.	Receipt of Reports from Trustee Representatives	
	• Oceanside Health & Wellness Network – Trustee Young	**p 14**
	• OBLT Early Years Table – Trustee Young	**p 15**
e.	Receipt of Status of Action Items – November 2021	**p 16**

Recommendation:
THAT the Board of Education of School District No. 69 (Qualicum) approve the consent agenda items of the Regular Board Meeting of November 23, 2021, as presented (or, *as amended*).

5. DELEGATIONS/PRESENTATIONS (10 MINUTES EACH)

6. BUSINESS ARISING FROM THE MINUTES

a.	**Vaccine Mandate**	***(Eve Flynn)***	
b.	**Feasibility of WIFI Free Schools**	***(Peter Jory)***	**p 17-48**

7. MOUNT ARROWSMITH TEACHERS' ASSOCIATION

8. CANADIAN UNION OF PUBLIC EMPLOYEES (LOCAL 3570)

9. DISTRICT PARENTS ADVISORY COUNCIL

10. PUBLIC QUESTIONS AND COMMENTS (WRITTEN)

11. ACTION ITEMS

12. INFORMATION ITEMS

a. Superintendent's Report *(Peter Jory)*

b. Educational Programs Update *(Gillian Wilson/Rudy Terpstra)*

13. EDUCATION COMMITTEE OF THE WHOLE REPORT *(Trustee Godfrey)* **p 49-52**

14. POLICY COMMITTEE OF THE WHOLE REPORT *(Trustee Young)*

a. Board Policy 703: Fees and Subsidies **p 53-55**
(previously numbered 7010: Student Fees and Band Instruments)

Recommendation:
THAT the Board of Education of School District 69 (Qualicum) approve first reading to adopt Board Policy 703: *Fees and Subsidies* at its Regular Board Meeting of November 23, 2021.

b. Board Policy 704: Student Catchment Areas/Cross Boundary Transfer/ District Bus Transportation **p 56-59**
Recommendation:
THAT the Board of Education of School District 69 (Qualicum) approve first reading to adopt Board Policy 704: *Student Catchment Areas/Cross Boundary Transfer/District Bus Transportation* at its Regular Board Meeting of November 23, 2021.

c. Board Policy 700: Safe, Caring and Inclusive School Communities **p 60-72**
Recommendation:
THAT the Board of Education of School District 69 (Qualicum) approve second reading to adopt Board Policy 700: *Safe, Caring and Inclusive School Communities* at its Regular Board Meeting of November 23, 2021.

d. Board Policy 701: Student Discipline **p 73-76**
Recommendation:
THAT the Board of Education of School District 69 (Qualicum) approve second reading to adopt Board Policy 701: *Student Discipline* at its Regular Board Meeting of November 23, 2021.

e. Board Policy 601: Employee Conflict of Interest **p 77-80**
Recommendation:
THAT the Board of Education of School District 69 (Qualicum) approve third and final reading to adopt Board Policy 601: *Employee Conflict of Interest* at its Regular Board Meeting of November 23, 2021.

f. Board Policy 604: Workplace Bullying and Harassment **p 81-95**

Recommendation:

THAT the Board of Education of School District 69 (Qualicum) approve third and final reading to adopt Board Policy 604: *Workplace Bullying and Harassment* at its Regular Board Meeting of November 23, 2021.

g. Board Policy 710: Resolution of Student and Parent Complaints **p 96-104**

Recommendation:

THAT the Board of Education of School District 69 (Qualicum) approve third and final reading to adopt Board Policy 710: *Resolution of Student and Parent Complaints* at its Regular Board Meeting of November 23, 2021.

15. FINANCE & OPERATIONS COMMITTEE OF THE WHOLE REPORT *(Chair Flynn)* **p 105-106**

Chair Flynn

a. Statement of Financial Information (SOFI) Report **p 107-160**

Recommendation:

THAT the Board of Education of School District No. 69 (Qualicum) receive the Statement of Financial Information (SOFI) Report for the year ended June 30, 2021.

16. REPORTS FROM REPRESENTATIVES TO OUTSIDE ORGANIZATIONS

17. TRUSTEE ITEMS

a. French Language Advisory Committee *(Trustee Young)*

b. BCPSEA Symposium Highlights *(Trustee Kurland)*

c. Oceanside Community Track Renewal Project *(Trustee Young)* **p 161-162**

Recommendation:

THAT the Board of Education of School District No. 69 (Qualicum) include Sarah Russick as a member of the Oceanside Community Track Steering Committee

18. NEW OR UNFINISHED BUSINESS

19. BOARD CORRESPONDENCE AND MEDIA

a. **Board Letter to Municipalities re Potential Build of Structures** *(Chair Flynn)* **p 163-165**

20. PUBLIC QUESTION PERIOD

21. ADJOURNMENT

School District No. 69 (Qualicum)

REGULAR BOARD MEETING MINUTES

TUESDAY, OCTOBER 26, 2021
6:00 PM
FORUM – PCTC and ZOOM

ATTENDEES

Trustees

Eve Flynn	Chairperson
Julie Austin	Vice-Chairperson
Laura Godfrey	Trustee
Barry Kurland	Trustee (via ZOOM)
Elaine Young	Trustee

Administration

Peter Jory	Superintendent of Schools
Gillian Wilson	Associate Superintendent of Schools
Ron Amos	Secretary Treasurer
Rudy Terpstra	Director of Instruction
Chris Dempster	General Manager of Operations

Education Partners
Mount Arrowsmith Teachers' Association (MATA)
Canadian Union of Public Employees (CUPE) Local 3570
District Parents Advisory Council (DPAC)

1. CALL TO ORDER

Chair Flynn called the meeting to order at 6:03 p.m.

2. ACKNOWLEDGEMENT OF TRADITIONAL TERRITORY

Chair Flynn acknowledged that the Board was meeting on the unceded traditional territory of the Coast Salish people and thanked the Qualicum and Snaw-Naw-As First Nations for allowing the board to live, work and play on their shared territory.

3. ADOPTION OF THE AGENDA

Trustee Young added two items under Reports from Outside Organizations

21-90R
Moved: Trustee Young *Seconded:* Trustee Godfrey
THAT the Board of Education of School District No. 69 (Qualicum) adopt the agenda as amended.
CARRIED UNANIMOUSLY

4. APPROVAL OF THE CONSENT AGENDA

a. Approval of Regular Board Meeting Minutes – September 28, 2021
b. Ratification of In Camera Board Meeting Minutes: September 28, 2021
c. Receipt of Ministry News Releases
- Expanded health, safety measures for K-12 students
- Nominations open to honour excellence in BC education
- New resources help EASE Anxiety in grade 8-12 students

d. Receipt of Reports from Trustee Representatives
- Early Years Table – Trustee Young
- Oceanside Community Track – Trustee Young

e. Receipt of Status of Action Items – October 2021

21-91R
Moved: Trustee Godfrey *Seconded:* Trustee Austin
THAT the Board of Education of School District No. 69 (Qualicum) approve the consent agenda items of the Regular Board Meeting of October 26, 2021, as presented.
CARRIED UNANIMOUSLY

5. DELEGATIONS/PRESENTATIONS

6. BUSINESS ARISING FROM THE MINUTES

a. REVISED Local School Calendar

Superintendent Jory spoke to his briefing note outlining the need to identify another date for the Ministry designated District Planning Day due to the Federal Government making September 30th a National Day of Truth & Reconciliation. Through consideration of the existing calendar and in consultation with the Mount Arrowsmith Teachers' Association, February 7th has been selected as the new potential date for the Ministry designated day.

21-92R
Moved: Trustee Godfrey *Seconded:* Trustee Young
THAT the Board of Education of School District No. 69 (Qualicum) approve the Revised District Instructional Calendars for 2021-2022 as presented.
CARRIED UNANIMOUSLY

7. MOUNT ARROWSMITH TEACHERS' ASSOCIATION (MATA)

Matt Woods, President, commented on the following:
- BCTF recently completed a random sample survey of 6000 BC Teachers and highlighted some of the responses that pertain to SD69.
- Acknowledgement of the work being done in the district to support teachers in their practice of teaching students from a trauma-informed lens.
- The 32 Provincial Specialist Associations that exist in BC which support teachers in all areas of their teaching.
- The October 22nd Provincial Professional Development Day during which teachers were engaged in a variety of activities to share ideas and develop knowledge on a number of topics of interest to them.
- Acknowledgement to the Board of Education for their continued support of parent choice with regard to the Foundation Skills Assessment (FSA) and to the District

for committing to organize a parent forum on the topic of FSA's where both the BC Teachers Federation and the District's views on FSA's will be shared and discussed.

- While concerns were expressed regarding in-person teacher/parent interviews, protocols which were put in place seem to have been effective. However, many teachers still felt unsupported and disrespected since parents were given a choice as to whether to participate in person or not while teachers were not although they had similar concerns as some parents regarding in-person interviews.
- The considerations of using existing classroom space for seamless day care and a request from MATA that further expansion of the program only be considered after consultation with the people involved in the district's pilot program.
- Expression of his personal gratitude and appreciation for all Canadian Armed Forces personnel who have or are serving our country.

8. CANADIAN UNION OF PUBLIC EMPLOYEES (CUPE) LOCAL 3570

Ewen Rycroft, Vice-President, commented on the following:

- Expression of condolences on behalf of CUPE on the recent passing of Gerhard Kottsieper, who was a past groundskeeper with the district.
- Appreciation to everyone involved in the planning and presentation of sessions for support staff for the October 22nd Professional Development Day. Sessions were offered via ZOOM and in person at Ballenas Secondary.
- There is a high degree of anxiety amongst staff, parents and students regarding safety protocols. The union reiterated its request to have additional daytime custodians in schools and requested that trustees and parents write to the local MLA's to let them know how important and successful daytime custodians were in reducing illness last year and to urge the provincial government to provide funding for extra daytime custodians.

9. DISTRICT PARENT ADVISORY COUNCIL (DPAC)

Chair Flynn introduced Angel Delange, the newly elected DPAC President.

Karri Kitazaki, DPAC Vice President, commented on the following:

- DPAC has adopted a new Constitution with collaboration of DPAC volunteers which will be provided to the Board and posted under the Parents tab on the district's website
- A new DPAC executive team has been elected for the 2021/2022 school year. DPAC thanks Andrea Button, Past President, for her years of dedication to parent advisory councils and engaging, empowering and supporting parents/guardians for the success of all learners
- Appreciation to Associate Superintendent Wilson and the district for offering to organize the FSA Information session. It has been determined that it would be timelier to schedule the session in September or October of 2022.
- DPAC is excited to offer and be part of any opportunities to educate parents and they look forward to continuing to work with the Board and district staff to advocate for parents/guardians while building the SD69 community.

Chair Flynn expressed appreciation on behalf of the Board to Andrea Button for her years of service to the students and parents in the district as the DPAC President.

10. PUBLIC QUESTIONS AND COMMENTS (RELATED TO AGENDA ITEMS)

None

11. ACTION ITEMS

None

12. INFORMATION ITEMS

a. Consideration of Provincial Vaccine Mandate

Chair Flynn advised that the Board wishes to take the time to consult with its union and community stakeholders before making a decision regarding a vaccine mandate. A number of the considerations of a vaccine mandate will be held in-camera as they would involve personnel issues. She reinforced the success the district has had so far in keeping staff and students safe. She thanked the staff, students and parents for working together to keep transmission to an absolute minimum.

b. Superintendent's Report

Superintendent Jory reported on the following:

- Local conversations have been about conferencing, pro-d, extra-curricular sports, weather bomb, and of course, Halloween. Provincially, conversations have been about the Framework for Enhancing Student learning (FESL), Equity, and what Boards will do (or not do) with the vaccine mandate decision.
- He has been enjoying the fall school planning conversations with the district principal and vice-principal teams and these meetings are filling him with confidence about the quality of the district's learning environments, how thoughtful and student-centered the district's school leaders are, and the deep level of understanding amongst the district's educators of how children learn and what they need to be healthy and regulated. Some more learning data has emerged from those conversations and principals are sharing that their teachers are talking about which numeracy assessment they might like to try in their classrooms, about maybe bringing back the district-wide write, and why did the district stop doing the DART, because that was really helpful.
- After spending two months talking about EdPlan Insight, on Associate Superintendent Wilson's prompting, the district will be securing an account this month, and will be making it available to principals and teachers so they do not have to create their own "learning heatmaps" on which to present data.
- On November 3rd, School District No. 69 will be kicking off the Equity Scan. Thirty-five staff and stakeholders will be meeting with Ministry Secondee, Joe Heslip, and working through a series of exploratory conversations regarding the climate and practices of our school district, and how we can best support our Indigenous learners. There is value to the information that will be collected and how that can inform the district's next steps in regard to policy development, operations, budget, messaging, and most significantly, the district's learning as an organization.
- Thank you to everybody in this District, those who work directly with students, and all those who support that work, thank you for doing such a great job. Providing a first-class education system to the students of our province is tough work at the best of times, and the extension of our COVID scenario has dealt a real blow to everyone who hoped we would be free of it and on to more joyful times. However, everyone has carried on, kept their empathy, and been professional, and things are going very well.

c. Educational Programs Update

Associate Superintendent Wilson, then commented on the following district initiatives and events:

- The district will be participating in the Early Development Index (EDI) again this year with Kindergarten teachers. Denise Spencer-Dahl, new member of the Teaching & Learning Team will be assisting them with the process. There was some concern during the last EDI wave as there were more vulnerabilities identified. Staff will be curious about the impact on the young learners coming into Kindergarten this year, knowing some of them have not been attending organized preschools or play areas.
- The International Program has made a strong comeback this year with 150 FTE International students attending in the district this year. The homestay coordinator is working closely with the homestay families and continuing to recruit for homestays.
- Acknowledgement of MATA president comments regarding trauma-informed practice and good to have the reminder that it is not always just about the children in the system but also the adults.
- The 2nd session with Lisa Bosio on Universal Design for Learning is scheduled for Thursday, November 4th. It is hoped that 45-55 educators will be participating, depending on the availability of TTOC's.

d**. Class Size Report: October 15, 2021 Snapshot**

Associate Superintendent Wilson reviewed the class size report as presented in the agenda package, noting that there are classes outside the limits. Principals will be moving into remedy discussions with the teachers of those classes, noting that the numbers do fluctuate at the secondary level. The individual teachers can apply for remedy in the form of professional development, preparation time or resources/equipment for the classroom.

Trustees expressed some concerns at the number of students in some of the courses and that all the classes identified were at Ballenas Secondary.

Director of Instruction Terpstra explained the process for organization of classes and conversations with teachers, noting that more grade 10 students have come into the Ballenas catchment so there has been an effort to provide them with the classes they need and want. The principal will consult with the classroom teacher before the end of October and support them with any resources they need as a result of the higher number of students in a class. Student numbers also fluctuate and some of the classes noted might already be right-sized by the end of October.

Associate Superintendent Wilson added that there are a number of schools currently undertaking class and school reviews and the class size consultation falls into that category. Staff work with counsellors and the learning support team to discuss how that particular class composition is working, what additional supports might be needed.

13. EDUCATION COMMITTEE OF THE WHOLE REPORT

Trustee Godfrey referred to the report as provided in the agenda package. Some highlights were a presentation by Don Bold, who gave a snapshot of the Career Education program, being introduced to the Indigenous Learning Support teacher, and the clay hearts created by Springwood Elementary School students to acknowledgement the National Day of Truth & Reconciliation.

14. POLICY COMMITTEE OF THE WHOLE REPORT

a. Board Policy 700: Safe, Compassionate and Inclusive School Communities

21-93R
Moved: Trustee Young *Seconded:* Trustee Godfrey
THAT the Board of Education of School District 69 (Qualicum) approve first reading to adopt Board Policy 700: *Safe Compassionate and Inclusive School Communities* at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

b. Board Policy 701: Student Discipline

21-94R
Moved: Trustee Young *Seconded:* Trustee Godfrey
THAT the Board of Education of School District 69 (Qualicum) approve first reading to adopt Board Policy 701: *Student Discipline* at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

c. Board Policy 601: Employee Conflict of Interest

21-95R
Moved: Trustee Young *Seconded:* Trustee Austin
THAT the Board of Education of School District 69 (Qualicum) approve second reading to adopt Board Policy 601: *Employee Conflict of Interest* at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

d. Board Policy 604: Bullying and Harassment

21-96R
Moved: Trustee Young *Seconded:* Trustee Kurland
THAT the Board of Education of School District 69 (Qualicum) approve second reading to adopt Board Policy 604: *Bullying and Harassment* at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

e. Board Policy 710: Resolution of Student and Parent Complaints

21-97R
Moved: Trustee Young *Seconded:* Trustee Austin
THAT the Board of Education of School District 69 (Qualicum) approve second reading to adopt Board Policy 710: *Resolution of Student and Parent Complaints* at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

f. Board Policy 303: Enhancing Student Learning

21-98R
Moved: Trustee Young *Seconded:* Trustee Godfrey
THAT the Board of Education of School District 69 (Qualicum) approve third and final reading to adopt Board Policy 303: *Enhancing Student Learning* at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

g. Board Policy 305: Public Interest Disclosure
Trustee Young noted this policy was mandated by the Ministry of Education which provides a safe, legally protected way to report serious or systemic wrongdoing i.e. whistle blower policy.

21-99R
Moved: Trustee Young *Seconded:* Trustee Godfrey
THAT the Board of Education of School District 69 (Qualicum) approve third and final reading to adopt Board Policy 305: *Public Interest Disclosure* and its attendant Administrative Procedures at its Regular Board Meeting of October 26, 2021.
CARRIED UNANIMOUSLY

15. FINANCE & OPERATIONS COMMITTEE OF THE WHOLE REPORT

a. Facilities Review Outline
Superintendent Jory referred to his briefing note as provided in the agenda package. He noted that, although the actual motion for a review dates back to December 2018, the briefing note captures more recent conversations held during Committee of the Whole meetings and a board retreat. He reviewed the series of topics to be discussed as well as the importance of engaging stakeholders through a number of venues i.e. town halls, focus groups, panel discussions and surveys. Communications will be shared in November regarding potential dates for the public meeting which are anticipated to begin the second week of January and continue through February or beyond if needed. He noted that while these sessions could identify areas of concern that require more immediate Board decisions, the majority of outcomes will be addressed through the lifespan of the resulting long-term facilities plan. Staff could capture any decisions that would be part of the budget discussions.

b. Community Schools Working Group
Chair Flynn referred to the briefing note of June 22, 2021 which included a recommendation for the Board to establish a small working group to review the extent to which community school practices are already in place in School District 69, and which opportunities, if any, there are to enhance community engagement through a “community schools” approach.

Superintendent Jory added that staff would need to determine the members of the working group who would then agree on a scope and work forward from that point.

Trustees suggested accessing expertise within the community as well as in surrounding districts and there was a request that one or two members of the

community who have experience in community schools be invited to serve on the working group.

21-100R
Moved: Trustee Flynn *Seconded:* Trustee Austin
THAT the Board of Education of School District 69 (Qualicum) direct senior staff to undertake Step 1: Community Schools Working Group as described in the previous Superintendent's report to the Board dated June 22, 2021.
CARRIED UNANIMOUSLY

16. REPORTS FROM REPRESENTATIVES TO OUTSIDE ORGANIZATIONS

a. Oceanside Health & Wellness Network

Trustee Young referred to her report provided in the agenda package and highlighted some of the upcoming on-line presentations being offered through the Fall Learning Series which are free and open to the public. Of note was a virtual screening of *The Great Disconnect* scheduled for Friday, October 29th at 10:00 a.m. which will be followed by a question period.

b. BSS Track Fundraiser

Trustee Young noted that a Bottle Drive will be held on Saturday, November 6th in the Ballenas Secondary School parking lot to raise funds for the Oceanside Community Track renewal.

17. TRUSTEE ITEMS

a. West Coast Climate Action Network (WE-CAN) Membership

Trustee Austin referred to her motion and encouraged trustees as an organization to join voices with WE-CAN as they continue to educate and bring action about climate action.

Trustees discussed the recommendation and received assurances that there was no cost to becoming a member and the CATForce would monitor WE-CAN information and initiatives and provide reports back to the Board.

21-101R
Moved: Trustee Austin *Seconded:* Trustee Young
THAT the Board of Education of School District 69 (Qualicum) become members of the West Coast Climate Action Network (WE-CAN).
CARRIED UNANIMOUSLY

b. Climate Action Task Force (CATForce) Update

Trustee Austin referred to the report provided in the agenda package and noted some of the links to additional information on topics that were discussed.

She then noted the following three recommendations coming from the task force for board consideration:

- *That the Cell Tower discussion be moved to the School District Health & Safety Committee*
- *That discussion of 'dead zones' and 'wired technology' be moved to the District's Information Technology Committee*
- *That the concept of a pilot project for School District 69 for a 'WIFI free school(s)' be considered and discussed at the Education Committee of the*

Whole (this may also become part of the facilities and/or strategic planning review)

Trustees discussed the three recommendation and reached consensus that the best place to begin would be for the Superintendent to provide the Board with a briefing note on the topic of WIFI free schools, what would be feasible and what the associated costs might be, after which the Board could determine whether it was interested in pursuing the WIFI free school (or schools) concept.

c. Board Letter to Municipalities re Potential Build of Structures

Trustees Austin spoke to the rationale for writing a letter to the local municipalities to request that the Board be informed of pending proposals that would impact the district's learning community.

During trustee deliberations of the motion, it was noted that while the district does receive notice of potential projects in the vicinity of schools, it is often not enough time for the board to give the proposals fulsome consideration in order to provide input from the district's perspective.

21-102R

Moved: Trustee Austin *Seconded:* Trustee Kurland

THAT the Board of Education of School District 69 (Qualicum) write a letter to the governing bodies of the Town of Qualicum Beach, the City of Parksville and the Regional District of Nanaimo requesting direct advanced notice of proposals they are considering that may affect a school or our school community. These projects may be initiatives of the municipality or RDN or may be proposals under consideration from an outside entity. i.e.: cell towers, community development plans, road and transportation systems.

CARRIED UNANIMOUSLY

d. Report on VISTA Fall Conference held October 2, 2021

Chair Flynn provided an overview of the keynotes presentations and topics discussed at the Vancouver Island School Trustees Association fall conference and business meeting held on Saturday, October 2, 2021. Topics included Truth & Reconciliation presented by Dr. John Chenoweth, BCSTA Director, and COVID Protocols, presented by Drs. Sandra Allison and Shannon Waters.

e. Report on BC School Trustees Association Meetings

- **Board Chair Meeting, October 14, 2021**
  Topics discussed at this meeting included student assessment as a mechanism for supporting equity and Truth & Reconciliation, as well as board policies, finances and advocacy. Of particular interest was a presentation by Debbie Jefferies of the First Nations Education Steering Committee (FNESC). She spoke on the role of data in supporting equity for First Nations students and wholehearted supports the foundation skills assessment in providing useful data.
- **Joint Partner Liaison Meeting, October 15, 2021**
  This was a joint meeting of Board Chairs, Superintendents and Secretary Treasurers hosted by the Ministry of Education. Topics presented/discussed included government priorities and collaboration opportunities, Truth & Reconciliation in BC public schools, Framework for Enhancing Student Learning, equity in education, the Anti-Racism Action Plan and the vaccine mandate.

- **BCSTA Provincial Council, October 23, 2021**
  This meeting was held virtually via ZOOM. Three emergent motions were discussed and approved by the assembly. The three motions considered the provincial teacher shortage, declaration of national opiate death crisis and increased funding for the Annual Facilities Grant. One motion was entertained as a late motion from the floor regarding the COVID 19 Health Authority Notification Processes in Schools which was defeated.

18. NEW OR UNFINISHED BUSINESS

None

19. BOARD CORRESPONDENCE AND MEDIA

a. Letter to Minister of Education re Funding of Electric Buses

20. PUBLIC QUESTION PERIOD

Trustees and Senior Staff responded to comments/questions on the following topics:

- Whether the district had a policy of replanting trees to replace those that may be removed for some reason. The district does not have a policy; it works within the regulations of forestry and the needs of architects. Interested parties that wish to plant a tree on a district site could contact the Manager of Operations.

  Information will be provided at the next Finance & Operations Committee of the Whole Meeting as to what types of initiatives come into play and reasons for removing trees, i.e. if deemed unsafe.

2**1. ADJOURNMENT**

Trustee Godfrey moved to adjourn the meeting at 7:45 p.m.

CHAIRPERSON SECRETARY TREASURER

SCHOOL DISTRICT No. 69 (QUALICUM)

IN-CAMERA MEETING

SECTION 72 REPORT
OCTOBER 26, 2021
Via ZOOM

ZOOM PARTICIPANTS:

Trustees

Eve Flynn	Chairperson
Julie Austin	Vice Chairperson
Elaine Young	Trustee
Laura Godfrey	Trustee
Barry Kurland	Trustee

Administration

Peter Jory	Superintendent of Schools
Ron Amos	Secretary Treasurer
Gillian Wilson	Associate Superintendent
Brenda Paul	Director of Human Resources

The Board of Education discussed the following topics:

- Personnel
- Labour Relations
- Legal

The Board of Education approved motions regarding the following topic(s):

- Personnel

_____ _____

Chairperson Secretary Treasurer

BRITISH COLUMBIA

NEWS RELEASE

For Immediate Release
2021EDUC0085-002151
Nov. 12, 2021

Ministry of Education
BC Lions Football Club

Students teaming up with BC Lions to end racism in schools

VANCOUVER – Students and staff are invited to team up with the Ministry of Education and the BC Lions Football Club to celebrate diversity and be part of the solution to end racism in schools.

"Schools must be safe and welcoming places for all students, families and staff," said Jennifer Whiteside, Minister of Education. "We are pleased to partner with the BC Lions and welcome another resource in schools to stamp out racism, and to be active participants in the global efforts to end systemic racism."

BC Lions players will deliver student presentations between February and May 2022 aimed at grades 6 to 10. The presentations will explore and engage students on anti-racism, diversity, equity and inclusion, sharing personal experiences and facilitating conversations in at least 20 schools. The workshops will be held in-person or virtually depending on public health orders. Student participants will be selected by school leadership.

"Every student deserves a level playing field, to feel connected and a sense of belonging in our schools," said Rick LeLacheur, president, BC Lions. "Many BC Lions players have witnessed or felt discriminated against, and they are compelled to bring their experiences and their credibility to schools to help students find their voices to stand up against racism when they see it and to encourage diversity in all school communities."

The Ministry of Education is contributing $115,000 this year and has confirmed a partnership with the BC Lions for the next three years, on a series of anti-racism workshops in BC schools.

The BC Lions will report to the ministry with student survey results and lessons learned by the end of the 2021-22 school year.

"It's an unfortunate truth that anyone from sports superstars to students can be the targets of race-based discrimination and it is completely unacceptable," said Rachna Singh, Parliamentary Secretary for Anti-Racism Initiatives. "We are cheering on students, staff, the BC Lions and all partners who are ready and willing to stand up against hate, discrimination and racism in our schools and in our neighbourhoods."

The Ministry of Education continues to build on its anti-racism action plan. The first steps brought rightsholders and education stakeholders together for anti-racism roundtables in July 2020 and July 2021.

The ministry has expanded its Expect Respect and a Safe Education (Erase) strategy to include resources and information for students and parents. Training has also been included in the strategy for school districts to specifically address racism in schools. The minister's youth

dialogue series will soon be established with anti-racism as its first topic of focus.

Quick Facts:

- All of B.C.'s 60 school districts and independent schools have safe school co-ordinators and codes of conduct or policies that align with the B.C. Human Rights Code.
    - These codes and policies are designed to ensure schools remain free of discrimination against a person based on race, colour, ancestry, place of origin, religion, marital status, family status, physical or mental disability, sex, sexual orientation, gender identity or expression, or age of that person or class of persons.
- B.C.'s Erase strategy addresses anti-bullying, racism, discrimination and other harmful behaviours, and includes an anonymous online reporting tool.

Learn More:

About the Erase strategy. Students, families, staff and teachers can access resources through the Erase website to help them build safer school communities:
https://www2.gov.bc.ca/gov/content/erase

About the BC Lions team up against racism program:
https://www.bclions.com/team-up-to-end-racism/

Contacts:

Ministry of Education
Media line
250 356-5963

Matt Baker
Manager, Communications and Content
BC Lions Football Club
778 873-7605

SD69 QUALICUM

Board and Trustee Representative Committee Report

Trustee Representative: R. Elaine Young
Committee Name: Oceanside Health and Wellness Network
Meeting Location: Zoom
Meeting Time: October 29/November 5 Learning Series Reports

Fall Learning Series

This month and next, I will report on the Learning Series rather than on the Circle of Partners' Meetings. Circle of Partners is currently starting a long-term planning process. Much of the information from the Learning Series discussions will be used in our planning.

This series is open to all. Please register or learn more at www.rdn.bc.ca/oceanside-health-and-wellness-network

- October 29th - Keynote Event – We watched the Great Disconnect and had time to hear from the creator Tamer Soliman. The goal of this movie is to get community talking about the importance of social connectedness. We used break out rooms to discuss questions arising from the video. What leads to our disconnection, what could bring us together? Then we brought our notes to the whole group and then these notes will go into a OHWN newsletter. The link to the video is and I would strongly recommend everyone watch it.
- November 5th Dr. Sandra Allison, Medical Health Officer on Social Prescribing. This is a model of (health) care where "every door is the right door." Having community health hubs where people can use preventative and proactive interventions to improve all health outcomes. In breakout room discussions, groups seemed to agree that creating community hubs where professionals, clubs, organizations and volunteers could encourage and develop community connections. A safe place for everyone to discuss any issues that are emerging.

Next Presentations

- November 29th – OSAG (Oceanside Seniors Action Group) Beyond the Bubble: Reconnecting Oceanside – The focus of this presentation is to share lessons learned from individuals and organizations on connecting older adults during COVID 19. Hosted by Jenn Hopewell, RDN Parks and Recreation Coordinator
- November 24th - Child Youth Wellness Action Group Zoom presentation – Weathering the Storm Together on zoom – Hosted by Sharon Welch, Caron Byrne and Rosalinda Bose
- November 26th – Repeat of the Child Youth Wellness Action Group presentation to an in-person group. The event will be held at the Bayside from 10-12

SD69 QUALICUM

Board and Trustee Representative Committee Report

Trustee Representative: R. Elaine Young
Committee Name: Early Years Table
Meeting Location: Zoom
Meeting Time: Noon November 4, 2021

Mission Statement:
The Early Years Coalition focuses on encouraging healthy relationships with families, with each other, and with community as it relates to the importance of early learning and successful development for young children.
Our Vision:
Thriving children, families and community
Our Goals:
1. *Community Collaboration and Engagement*
2. *Decrease SD69 EDI Reported Vulnerabilities*

Indigenous Acknowledgment:
- Reading from "The Joint Indian Reserve Commission and District 69."

First 2000 Days:
- Child and Youth Wellness Group of OHWN – Introduced a resource https://www2.gov.bc.ca/assets/gov/education/early-learning/teach/earlylearning/elf-a-guide-for-families.pdf
- Learning Series continues (See OHWN report in this Board Package)
- Brain Game is being revamped and will be shared at our next meeting.

Childcare/ELCCO update
- Into the Woods Daycare has broken ground in Qualicum

Oceanside Building Learning Together (OBLT) Updates
- Spooktacular evaluated – Great event – some small adjustments suggested for next year.
- Storybook Village Coalition partners will be decorating windows in the buildings for the holiday season.

Updates from Coalition Partners:
- OBLT – all programs running
- ACRA – Coombs Candy Walk had over 2,000 attendees this year. A big success!!
- Parent Support BC – Some virtual and some in person workshops. Partnering with Van.Island Multi-cultural Society to offer parenting for new Canadians. VI Crisis Society is offering https://www.vicrisis.ca/cope/ to Grades 5-7 (on positive communication)
- PacificCare – many requests for ECE's – this is holding up the process of increasing daycare spaces.
- RDN – Winter Recreation Guide out on November 26. Active Pass extended to Grade5 and 6.
- Uy'sqwalawun Daycare – New Centre being put to tender. Will bring photos and information to next meeting.
- VIRL – no in person meetings as space at Qualicum and Bowser is limited.
- Island Health – Information about the role of nutrition in supporting mental health.

Next Meeting – December 2

SCHOOL DISTRICT 69 (QUALICUM)

STATUS OF ACTION ITEMS

Action Item	Responsibility	Status	Proposed Deadline
Letters to Municipalities (October 26, 2021) **THAT the Board of Education of School District 69 (Qualicum) write a letter to the governing bodies of the Town of Qualicum Beach, the City of Parksville and the Regional District of Nanaimo requesting direct advanced notice of proposals they are considering that may affect a school or our school community. These projects may be initiatives of the municipality or RDN or may be proposals under consideration from an outside entity. i.e.: cell towers, community development plans, road and transportation systems**	Board Chair	Letters sent to each of the three municipalities/regional district	Completed
West Coast Climate Action Network (October 26, 2021) **THAT** the Board of Education of School District 69 (Qualicum) become members of the West Coast Climate Action Network (WE-CAN	CATForce	Application has been submitted by Trustee Austin and awaiting confirmation from WE-CAN	Completed
Community Schools Working Group (October 26, 2021) **THAT** the Board of Education of School District 69 (Qualicum) direct senior staff to undertake Step 1: Community Schools Working Group as described in the previous Superintendent's report to the Board dated June 22, 2021	Senior Staff	Consideration being given as to the structure of the working group	
Use of Common Space for Artwork - March 10, 2020 **THAT** the Board of Education of School District 69 (Qualicum) ask staff to work with Parksville Civic and Technology Centre partners to develop a plan and process to allow the display of wall art from SD69 students, VIU students and community members in the communal areas of the building; and, **THAT** this process may serve as a vehicle for installation art, be it temporary or permanent.	Senior Staff	Deferred due to COVID	TBD
Climate Action Symposium - December 17, 2019 **THAT** the Board of Education of School District 69 (Qualicum) support a task force initiative to host a Climate Action Symposium in the spring of 2020	Climate Action Task Force Members	Will depend on status of pandemic in 2021-2022	TBD

Briefing Note

Date: November 23, 2021

To: Board of Education

From: Peter Jory, Superintendent of Schools

RE: Feasibility of a WIFI free school in School District 69 (Qualicum)

Background:
At the October public Board meeting, staff were asked to provide information on the potential feasibility of WIFI free school in School District 69 (Qualicum). This request followed presentations received in the October Climate Action Task Force and October Public Meeting of the Board of Education that focused on health concerns related to 5G towers and WIFI access points. This briefing note will provide some very brief perspectives on hard-wiring a school, alignment with the BCEd Plan and our renewed curriculum, as well as the potential health impacts to staff and students, impact on catchments and enrollment, followed by a recommendation to the Board of Education.

Hard Wiring
In order to have computer Internet access in every classroom, current wiring would likely have to be replaced or upgraded. Staff estimates the cost of hard wiring a ten-classroom school with multiple Cat 6 drops in each room, along with a full set of drops in a room designated as a computer lab, would range between 50 and 70 thousand dollars, not including millwork or other structural features, or two to three times the cost of wiring for WIFI hubs alone. Costs for rewiring could be somewhat reduced if the work were done in conjunction with other significant renovations. If sufficient Cat 5 wiring were already present and in working order, upgrading materials on a more selective basis could reduce costs further. However, all of our currently closed school sites would requires significant work to provide reliable service to staff and students, and hard-wiring would make that work more expensive.

Alignment with the BCEd Plan and Curriculum
The BC Curriculum is founded on the concepts of personalization and instant access to information as a means to prepare students for a rapidly changing world, and access to portable devices such as laptops, tablets, and smart phones have been touted as a cornerstone strategy to facilitate curricular student learning in our province. Districts have moved away from desktop pods and labs because this model was not meeting the needs of their learners. Though it would be possible to design a WIFI free environment that still followed the BC Curriculum, inherent pedagogical barriers would be difficult to mitigate or defend, and ultimately disadvantage those who are enrolled. Note that the use of technology as means for inclusion relies on the invisible nature of the support, a quality which would be lost in the return to a desktop only model. Therefore, the creation of a program of this nature would most likely lead to regressive educational practices, and cause or exacerbate equity issues for students due to the lack of access to current working and learning technology.

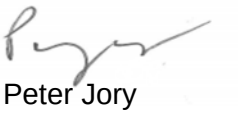
Evidence of Health Impacts
Despite the compelling aspects of the recent presentations, further examination of this topic shows this perspective to be an outlier in the scientific community. You will find papers by Foster (2019) and Karipidis et. al. (2021) attached to this briefing note that express positions counter to those of the presenters. These papers essentially state that, while it is possible to find research that suggests harm by exposure to 5G and WIFI, such studies are often speculative and lacking in procedural robustness. Conversely, research on this same topic that does subscribe to higher standards of methodology overwhelmingly suggests that there are few, if any, findings that are able to connect WIFI to negative health outcomes in a meaningful way, especially at the lower levels that staff and students are exposed to in our schools. WIFI in School District 69 (Qualicum) schools produces radio frequency levels that are well below standards set through Government of Canada regulations.

Pressures on Catchments and Enrollment
Creating a program of choice with the requirement of no WIFI would require its own site, as it would not be possible to share building space with a program that is using active WIFI access points. This would mean either reopening a closed site, which would initiate other renovation and renewal costs, or redrawing school catchments to create space in a building that is currently active. Reopening a closed building typically costs several hundred thousand dollars, though that number would vary significantly depending on the age, size, and condition of the building, as well as the number of classrooms requiring attention. Creating space in a current site and displacing its current occupants would impact students and parents to the degree that it may be politically prohibitive. Each option would require revisions to staffing plans and busing routes to reflect the changes made to catchment boundaries.

Recommendation
The creation of a WIFI free school would present a number of political and financial pressures that make this endeavor challenging from a practical business perspective. As the lead educator in School District 69 (Qualicum) and an advocate of the BC Curriculum, I am troubled by what such a program would mean in regard to learning and would not be in favour of it for that reason alone. Furthermore, there are no WIFI free schools known to be operating in BC at this time, making it unlikely that there would be sufficient interest to justify the creation of a such a program and its potential costs and disruptions.

My recommendation is that the concept of a WIFI free school be rejected by the School District 69 (Qualicum) Board of Education, and not be included in any further conversations at the Board table or upcoming Facilities Review.

Respectfully submitted,



Peter Jory
Superintendent of Schools/CEO

References
Foster, K. R. (2019). IS WI-FI A HEALTH THREAT IN SCHOOLS? Sorting fact from fiction. *Education Next*, *19*(3), 28-37.

Karipidis, K., Mate, R., Urban, D., Tinker, R., & Wood, A. (2021). 5G mobile networks and health—a state-of-the-science review of the research into low-level RF fields above 6 GHz. *Journal of Exposure Science & Environmental Epidemiology*, 1-21.

IS WI-FI A HEALTH THREAT IN SCHOOLS? Sorting fact from fiction

Author: Kenneth R. Foster
Date: Summer 2019

From: Education Next(Vol. 19, Issue 3)
Publisher: Hoover Institution Press

Document Type: Article
Length: 4,211 words

SINCE THE EARLY 2000S, when wireless connectivity and the Internet evolved into everyday technologies, they have come to pervade our home and work lives, revolutionizing the way we share and access information. Wi-Fi circuits, which connect a device to a wireless network and the Internet, are incorporated into billions of devices, ranging from bathroom scales and "smart" electric outlets to equipment that streams movies and music. Wi-Fi is installed on our smartphones and laptops, at home and in the workplace, in cafes and airports, and of course, in schools everywhere.

Digital learning and wireless connectivity have become so entrenched in schools that many educators now consider highspeed Internet access a requirement for effective teaching. The federal government, via the Federal Communications Commission, subsidizes wireless connectivity and other technology in schools through its E-rate program. Advocates aspire to equip every student in America with wireless access, and the organization EducationSuperHighway estimates that as of 2017, 88 percent of schools had robust Wi-Fi capability in their classrooms, up from 25 percent just four years earlier (see Figure 1). Some school districts are providing Wi-Fi access to places like football fields and school buses to help students without reliable Internet access at home complete and submit assignments.

But schools are finding that a substantial number of people have health concerns about the radio frequency, or RF, signals emitted by Wi-Fi devices, even as exposure levels are far below government safety limits. Objectors have banded together to protest what they consider to be the health hazards of wireless technologies, including Wi-Fi in schools. The 2018 documentary Generation Zapped chronicled the efforts of key players in this campaign, who blame RF exposures from low-level sources such as Wi-Fi for a host of detrimental health effects, from headaches and hearing loss to Alzheimer's and brain cancer. Some scientists and physicians support their views (even though they might not agree on just what those adverse health effects might be), and the issue has been taken up by alternative-medicine proponents such as the physician Joseph Mercola (better known for his anti-vaccine advocacy).

While digital culture has brought great benefits, it has certainly had negative consequences as well--such as loss of privacy, disruptive hacking, and harms to children from misuse of cell phones. But need we worry about the health risks of environmental exposure to radio frequency energy? The evidence we have accumulated so far would suggest not. National health agencies have credibly concluded that no adverse health effects have been demonstrated at radio frequency exposures that fall within established safety guidelines--and the exposures from Wi-Fi fall well below those limits.

Yet a substantial number of people do worry about exposure to RF energy in the environment. In 2017, noted risk expert Peter Wiedemann, then at the University of Wollongong in Australia, reported on a survey of 2,454 people in six European countries about their concerns over electromagnetic-field exposure. The investigators found that 40 percent of the respondents had some concerns, with 12 percent describing themselves as "enduringly concerned"--that is, frequently thinking and talking about electromagnetic-field exposure. Most of their worries were related to radio frequency sources. Cell towers, Wi-Fi, wireless-enabled electric utility meters, and other sources of "involuntary" exposure were noted as particularly troubling. Numerous

websites serve as echo chambers for these apprehensions, offering alarming interpretations of scientific developments. Some of the sites sell RF-shielding garments or provide templates of letters for concerned individuals to send to political leaders.

The Science behind RF Energy

With any potentially hazardous agent, the dose makes the poison. At high exposure levels, radio frequency energy can indeed be hazardous, producing burns or other thermal damage, but these exposures are typically incurred only in occupational settings near high-powered RF transmitters, or sometimes in medical procedures gone awry. Two fundamental questions about any health risk are: what kinds of adverse effects may possibly occur under given exposure levels, and how much exposure do people actually receive in the real world?

The very word "radiation" is scary to many people, who may associate it with overexposure to x-rays, or the cancers induced by massive exposures during the 1986 Chernobyl nuclear accident. But, technically speaking, radiation is simply energy moving through space. Thus, even light from a flashlight is a form of radiation. Radio frequency energy transmitted from an antenna is also a form of radiation, but unlike x-rays and other forms of potentially dangerous radiation, RF energy is non-ionizing: that is, the photons that carry the signal do not have enough energy to disrupt molecules in the body to form free radicals, which can damage cells and tissues. RF energy has nothing in common with ionizing radiation in terms of potential health effects. The term electromagnetic field, or EMF, refers to electromagnetic energy in general, regardless of frequency. In health discussions, the term is used broadly to refer to any part of the electromagnetic spectrum, most typically to power-line fields (at 50 or 60 hertz) or radio frequency fields.

"Wi-Fi" does not refer to any specific physical agent, but rather is a trademarked name for devices that conform to a set of engineering standards that enable them to communicate through wireless links. Currently, Wi-Fi devices transmit in two bands of the radio frequency spectrum, near 2.45 and 5 gigahertz, but additional frequency bands will be used in the future. The lower frequency range is part of the industrial, scientific, and medical band that has long been used by household microwave ovens, diathermy and other medical equipment, industrial heaters, and many other devices. Wi-Fi operates in the microwave part of the spectrum (300 megahertz to 300 gigahertz). Nearly the entire microwave region of the spectrum is used for something--cell phones, broadcast applications, radar, industrial heating equipment, and, since the late 1990s, a vast number of low-powered communications devices, of which Wi-Fi is only one of several classes.

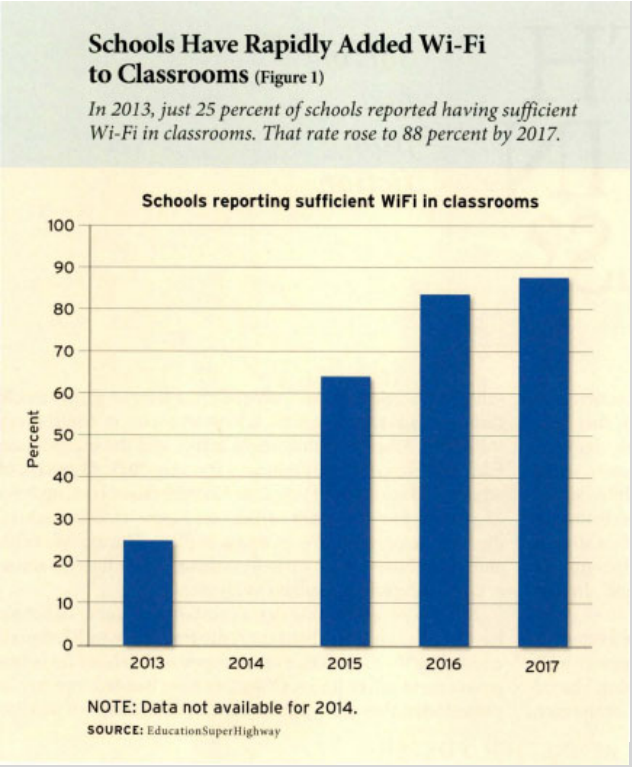
A Wi-Fi network (technically called a wireless local-area network) is configured around sets of low-powered RF transmitters. Access points, which in schools are typically mounted high on walls or above ceiling tiles, allow Wi-Fi-enabled devices (called clients) to connect to the network and access the Internet. In a school, these devices would include laptops, tablet computers, and often printers and audiovisual equipment in classrooms.

Wi-Fi devices transmit streams of brief radio frequency pulses at somewhat lower peak power levels than those used by cell phones, and at a very low-duty cycle (fraction of time spent transmitting). Only one device can transmit at a time on a Wi-Fi network. If the network is operating at full capacity (an unusual situation, even in a classroom of students accessing the network), the total amount of RF energy transmitted on the network might be roughly comparable to that from a single cell phone in use in the room or to the small amounts of microwave energy that typically leak from the front door of a kitchen microwave oven while in use. These signals come, in turn, from every device that is connected to the network, most of which are located at some distance from any given individual in the room.

Individuals who are in the vicinity of a Wi-Fi network are exposed to radio frequency signals in two ways: from the typically weak signals in the network and also from the generally stronger but more intermittent signals coming from RF transmitters (such as Wi-Fi, Bluetooth, and cell phone antennas) in the user's own device. Any wireless device that is legally sold in the United States must be authorized by the Federal Communications Commission, which requires appropriate testing by manufacturers to document compliance with the commission's safety limits. Those regulatory thresholds are far below any demonstrably hazardous exposure level that could cause excessive heating of tissue, which cannot happen with low-powered Wi-Fi equipment.

Exposure in Schools

Numerous surveys have examined levels of exposure to the population from environmental sources of radio frequency energy. While these levels vary greatly, the largest exposure an individual generally incurs is from use of a cell phone. Below that level are signals from cell phones operated in the person's vicinity. Still lower, on average, are signals from many other sources in the environment: cell towers, broadcast and communications transmitters outside the home, and microwave ovens, wireless baby monitors, cordless phones, Wi-Fi, and other RF-emitting devices within the home. The cumulative exposure from all sources in ordinary environments is invariably a tiny fraction of established safety limits. Those limits are designed to provide adequate protection against all established hazards from radio frequency energy over any duration of exposure.



Two studies illustrate the exposure levels involved. In 2017, Lena Hedendahl and colleagues in Sweden fitted 18 teachers in seven schools with instruments that recorded exposure from multiple RF sources many times a day for entire school days. The average RF exposures to the teachers from Wi-Fi in school were comparable to that from sources outside the school (chiefly, for those schools, "downlink" signals from nearby cellular base station antennas, which are the yard-long antennas seen today on many rooftops) and considerably below "uplink" signals from cell phones in the teachers' vicinity. All exposure levels were a tiny fraction of U.S. and European safety limits.

Wi-Fi Is a Small Fraction of Total Radio Frequency Exposure (Figure 2)
Researchers found that Wi-Fi made up an average of only 4 percent of a sample of European children's total exposure to radio frequency signals. Moreover, the average total exposure across all frequency bands was roughly 0.001 percent of the safety limits put forth by the European Commission, which are similar to U.S. limits.

Breakdown of average radio frequency exposure

Broadcast TV and radio	23%
Signals from nerby cell phones	11%
Wi-Fi	4%
Signals from cellular base stations	62%

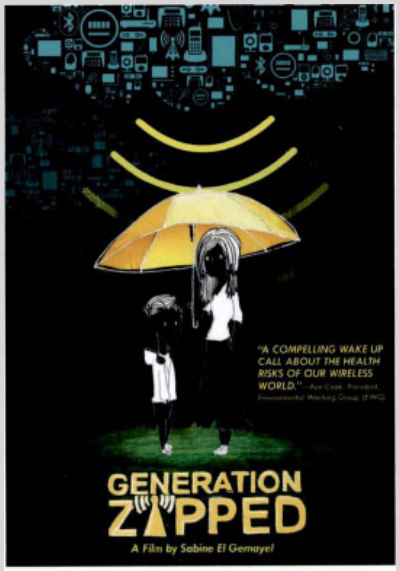
NOTE: Researchers surveyed radio frequency exposures to 529 children ages 8-18 years in five countries (Denmark, the Netherlands, Slovenia, Switzerland, and Spain) over a three-day period.
SOURCE: Based on Birks et al., 2018

Note: Table made from pie chart.

More recently, a large multinational group of investigators led by Elisabeth Cardis of the University of Barcelona surveyed radio frequency exposures to 529 children ages 8 to 18 living in five countries (Denmark, the Netherlands, Slovenia, Switzerland, and Spain). The investigators fitted the kids with personal RF dosimeters that recorded their exposures from a variety of sources in and out of school for up to three days. Consistent with other studies, Wi-Fi amounted to only a small fraction of the children's total RF exposure (see Figure 2). RF exposures in the schools, the study found, were generally comparable to or lower than those in other environments: 95 percent of the children had Wi-Fi at home, and three quarters of them used cell phones, with more than one third of the students accessing the Internet via cell phones for more than 30 minutes a day.

The overall conclusion from these and other surveys is that exposures to radio frequency signals from Wi-Fi are far below accepted safety limits, and generally lower than exposures from other RF sources in the environment. And while our environment is awash with radio frequency energy, Wi-Fi is only a small part of the total picture.

Spurred in part by public concerns, many studies on radio frequency exposure--nearly 4,000 to date--have been done over the past half century. From the beginning, a large share of these studies used radio frequency energy in the industrial, scientific, and medical band in which Wi-Fi operates (see Figure 3), in part to address occupational health concerns from the use of high-powered microwave sources. More recently, starting in the mid-1990s, many additional studies have investigated RF exposures at cell phone frequencies (typically, 800-1950 megahertz). A small but growing number of studies have considered RF exposures from Wi-Fi signals.



The 2018 documentary Generation Zapped *chronicled the campaigns of activists who warn about what they claim are dangers of Wi-Fi exposure.*

The studies vary widely in quality and approach. A comparatively few studies have used standard protocols and exacting quality standards, as a drug or chemical company would in assessing the safety of a product. Such rigorous studies are expensive undertakings because they require large numbers of subjects, exacting methodology, and sophisticated engineering to produce well-defined RF exposures.

The great majority of these studies, though, are not standard risk-assessment investigations. A large share of them are smaller, often exploratory studies that vary greatly in quality, in the endpoint they investigate, and in their relevance to health. Many are one-of-a-kind studies, not replicated even in the investigators' own labs, and many have used RF exposures well above safety limits, where heating of the sample may have produced effects. A large proportion have serious methodological problems, such as inadequate assessment of exposure levels or a lack of appropriate controls, both of which prevent reliable interpretation of the results.

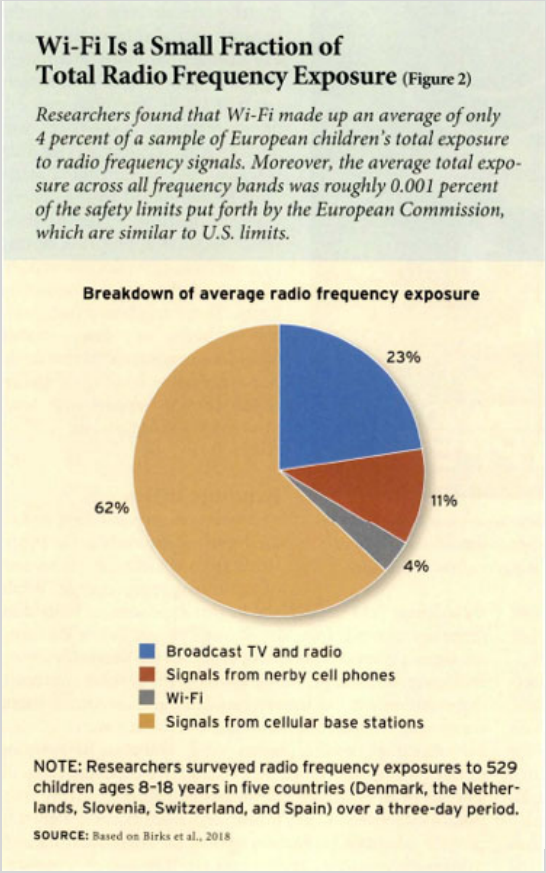
While many of the studies--particularly the better-designed ones--reported no statistically significant effects of exposure apart from those caused by heating, many others have reported impacts of some sort that the authors did not consider to be thermal in origin. This vast literature shows clearly that excessive exposure is dangerous because of heating, but it also contains a wealth of often contradictory reports of small effects with no clear health significance. There have been too many fishing expeditions in this field.

In reviews of this literature, health agencies have generally applied a systematic approach, using panels of professional scientists and engineers to examine all relevant studies according to defined protocols. These reviews aim to be comprehensive, acknowledging but giving little weight to studies with obvious methodological deficiencies. In addition, the panels look for consistencies in the evidence across studies, and are reluctant to draw conclusions from one-off exploratory studies in the absence of other supporting evidence for specific conclusions. Anti-Wi-Fi campaigners, for their part, seem inclined to cherry-pick the literature and compile lists of studies that support their views, regardless of methodological quality.

High-quality reviews by health agencies run to the hundreds of pages of highly technical discussion. They have consistently failed to find convincing evidence for health hazards of radio frequency exposure that falls below internationally accepted limits. But they also point to gaps in knowledge and call for more research.

In France, for example, the Agency for Food, Environmental and Occupational Health & Safety has extensively reviewed the issue of radio frequency exposure and health. In its most recent review, 16 independent experts worked for three years, holding multiple meetings and public consultations. The final report, issued in 2013, concluded that "no available data makes it

possible to propose new exposure limit values for the general population," but it listed a number of questions needing further study.



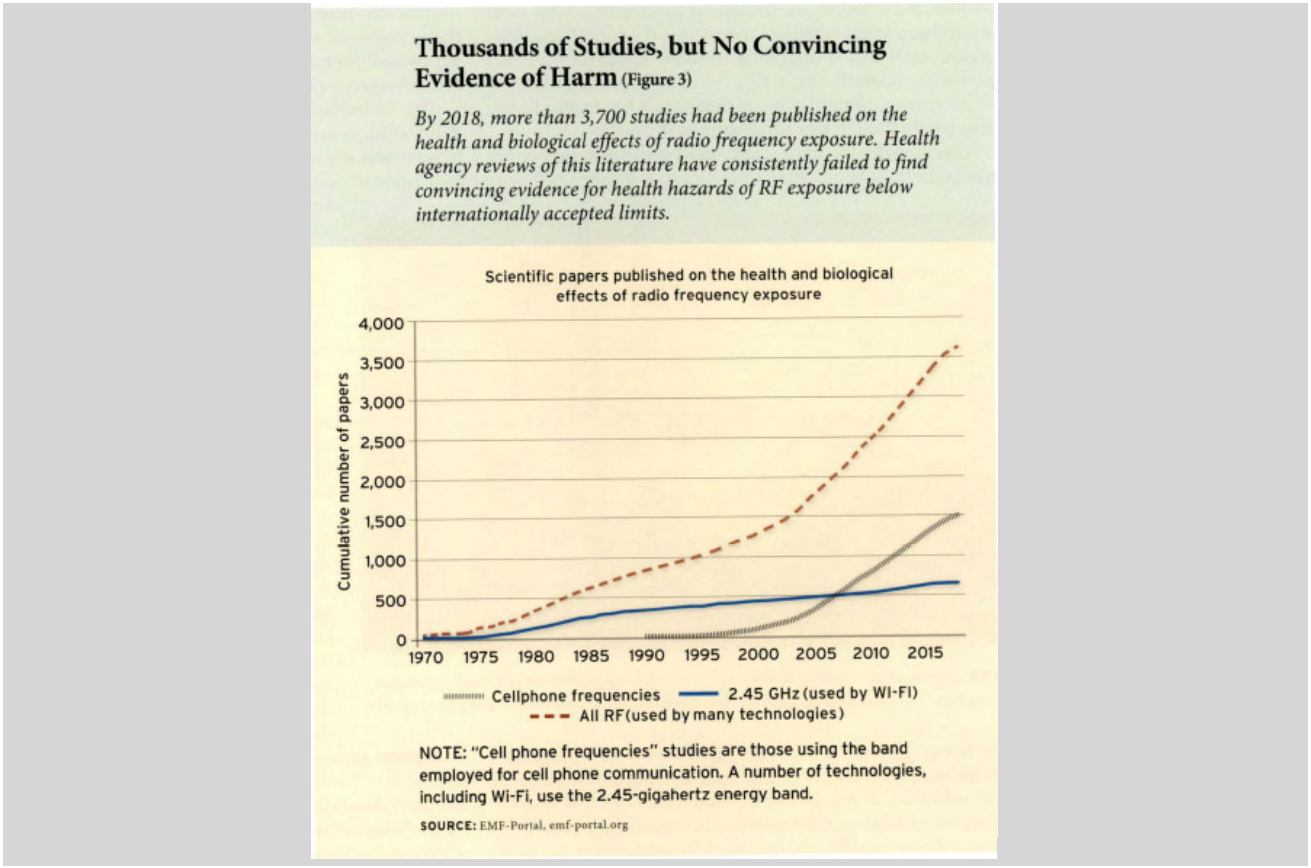
In 2016, the same French agency issued an opinion on RF exposures to children age six and under who (the review pointed out) are exposed to such signals from a number of sources, including remote-controlled toys, walkie-talkies, and cell phones. The opinion considered evidence on nine different health-related endpoints, ranging from behavior and cognitive effects to toxicity to various body systems. The committee found that the available data for seven of these endpoints were insufficient to establish effects (either beneficial or adverse) from RF exposure. The committee found "limited evidence" for effects of cell phone use on cognitive function and general well-being, adding that "these effects may however be linked to the use of the mobile telephones rather than to the frequencies they emit." The opinion mentions Wi-Fi only once, in passing.

Claims of Harm

In contrast to the cautious but generally reassuring findings of health agencies, those who oppose Wi-Fi argue that radio frequency exposures are hazardous to human health, even at exposure levels far below international limits. Their basic argument, which is appealing to many laypersons but not persuasive scientifically, is that the many reported bioeffects of RF energy mean that Wi-Fi fields must have some health effect, even though we cannot discern it clearly.

Undoubtedly the most widely cited document supporting this position is the BioInitiative Report, a nearly 1,500-page review of research on the biological effects of electromagnetic fields over wide ranges of exposure, compiled by a group of self-selected authors. Unlike the health agencies that sponsor the critical reviews, the reports editors made little attempt to assess the methodological quality of the studies they discussed or evaluate the consistency of findings of different studies with similar endpoints. The report shows strong confirmation bias--paying more attention to studies reporting biological effects than to other, possibly stronger, studies finding no effects.

In a concluding chapter, the editors proposed a "precautionary action level" for radio frequency exposure that is a tiny fraction of existing international limits--less than one millionth of the current limits set by the Federal Communications Commission. The limit recommended by the report, if applied consistently, would effectively rule out any application of RF energy transmitted where people are present--not only Wi-Fi but also cell phones, broadcast television and radio, radar, and even emergency police communications.



The BioInitiative Report has been widely criticized by health agencies and other expert groups for its lack of balance. Nevertheless, it is often cited by those who campaign against the installation of cell phone towers, electric utility meters, power lines, and other electrical infrastructure. Its alarmist perspective is echoed in a number of statements by self-selected groups, such as the 2017 "Reykjavik Appeal," which arose from a conference on "children, screen time, and wireless radiation" and urged schools to forbid cell phone use and to install hard-wired connections instead of Wi-Fi.

Two health issues dominate current arguments by Wi-Fi opponents. One is that Wi-Fi exposures might lead to cancer. This derives from a 2013 study by the International Agency for Research on Cancer (IARC), a component of the World Health Organization that conducts highly regarded reviews of suspected human carcinogens. The study concluded that there was "limited evidence" from human or animal studies for carcinogenic effects of RF radiation, and it classified RF electromagnetic fields as "possibly carcinogenic" to humans. In the agency's specialized terminology, this designation indicates that the available evidence was sufficient to raise suspicions, but insufficient for the working group to conclude that a causal relationship "probably" or actually does exist. (The agency's strongest classification is "carcinogenic to humans," followed by "probably carcinogenic"; "possibly carcinogenic"; "not classifiable as carcinogenic"; and "probably not carcinogenic")

While the agency's "possibly carcinogenic" classification for radio frequency energy has drawn wide attention, it has been frequently misunderstood by the public. "IARC is an international agency for cancer research, not a public health agency," noted Peter Wiedemann in a 2014 paper. "Therefore, the categorizations made regarding human carcinogens were not supposed to be interpreted as public health messages, as they have been used recently." As a group of senior scientists associated with the panel wrote in their 2015 review, European Code Against Cancer, "radiofrequency electromagnetic fields are not an established cause of cancer and are therefore not addressed in the recommendations to reduce cancer risk."

In short, IARC's "possible" classification for RF fields does not tell us about the actual health risks, if any, from RF exposures, nor is it a recommendation for public policy. It points to the need for more research, which should focus on stronger sources of RF exposure than Wi-Fi.

The second health issue raised by those opposed to RF exposure is "electromagnetic hypersensitivity," a syndrome marked by non-specific symptoms such as headache, sleep problems, and anxiety, which many people attribute to low-level radio frequency fields. There is no doubt that many of these individuals have serious health problems; their symptoms are genuine. However, many well-controlled studies have failed to link electromagnetic-field exposure of any kind to these symptoms. In blinded and controlled tests, electromagnetically "sensitive" individuals typically report symptoms when they think they are exposed to electromagnetic-field energy, not necessarily when they demonstrably are exposed. According to the World Health Organization, the condition "has no clear diagnostic criteria and there is no basis to link" electromagnetic hypersensitivity symptoms to electromagnetic-field exposure. The agency said electromagnetic hypersensitivity "is not a medical diagnosis, nor is it clear that it represents a single medical problem."

Power lines, electric utility meters, cell phone towers, and other electrical infrastructure have met the same opposition that has confronted school-based Wi-Fi networks.

The Environmental Health Trust, an advocacy group concerned about the health effects of radio frequency fields, has published a list of dozens of actions taken by governments, health authorities, and schools around the world intended "to reduce radiofrequency radiation exposures."

The list, though, is a mixed bag that includes policies that are not principally aimed at reducing radio frequency exposure. It cites a statement by the Canadian Paediatric Society, for example, that aims to promote physical activity in children. The statement encourages less sedentary time and screen time but says nothing about RF exposure. And policies on the list aimed to limit use of wireless communications in schools have a variety of goals. In 2018, when the French legislature banned the use of cell phones and tablets in schools by children age 15 and under, the aim was indeed to "protect children and adolescents," according to Jean-Michel Blanquer, minister of education--but not from RF exposure. "We know today that there is a phenomenon of screen addiction, the phenomenon of bad mobile-phone use," Blanquer told a French news channel. (Since nearly every French student has a cell phone, one wonders how French teachers will manage to enforce the ban.)

France has also banned the marketing of child-friendly cell phones to children under six, and using wireless devices in daycare centers and nurseries for children under three. The country allows Wi-Fi to be used in primary schools, but requires that Wi-Fi networks be deactivated except when they are used for educational activities.

The Environmental Health Trust lists a number of schools around the world, including some in the United States, that have removed Wi-Fi and reverted to hard-wired Ethernet connections for Internet access. (The inventory includes some Waldorf and Montessori schools for young children, which would seem to have little to lose by forgoing Wi-Fi in any event.) The list contains a miscellany of other actions, such as an order by the mayor of a small Italian town to shut off Wi-Fi in the community's two schools because of health concerns. "Who knows?" the mayor said to the daily newspaper La Stampa. "In 20 years, some people might thank us for it." But the action was opposed by some parents and other town leaders. "What's the point?" a former mayor said, observing that there was already Wi-Fi in several other places around town, including the library, where children spent a lot of time.

The town's order, as well as most of the other actions in the Environmental Health Trust's list, are precautionary, that is, predicated on the notion of "better safe than sorry" rather than on any identified hazards of wireless communications.

Trying to produce a "radiation free" environment would be highly disruptive for schools; achieving it would also be impossible, given the ubiquity of wireless technology.

An influential 2000 commentary by the European Commission, the governing body of the European Union, defined how the "precautionary principle" should be used. The commission indicated that the principle should only be invoked after a health hazard is identified, after "as complete as possible" an analysis of the relevant scientific evidence is conducted, and after the probable costs and benefits of precautionary policies is assessed. It noted that a wide range of "precautionary" policies could be adopted, from simply keeping track of scientific developments to outright bans on a technology. There is little sign that officials conducted that kind of analysis before instituting the measures listed by the Environmental Health Trust. They may well have been political accommodations to a concerned public rather than carefully considered health measures.

The precautionary principle has little standing in U.S. and Canadian law. Health agencies in the two countries generally refrain from offering health advice unless substantial scientific evidence supports it. For example, in October 2017, Health Canada advised, in response to a petition from a parents' group in Peel, Ontario, that:

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It is Health Canada's position, based on the latest scientific
evidence, that exposure to low-level RF energy including that from
Wi-Fi technology, is not dangerous to the public if the recommended
exposure limits in Safety Code 6 [Canadian RF exposure limits, which
are generally similar to U.S. limits] are respected. Accordingly, no
additional precautionary measures are required, since RF energy
exposure levels from Wi-Fi are typically well below Canadian and
international safety limits. Internationally, while a few jurisdictions
(cities, provinces or countries) have applied more restrictive limits
for RF field exposures from certain wireless devices/apparatus (whether
it be Wi-Fi or cell towers), scientific evidence does not support the
need for such restrictive limits.
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On its website, the Peel District School Board described its consultations with "trusted medical experts" and measurements by a consultant that showed that radio frequency exposures from Wi-Fi in its classrooms were far below Canadian limits. This approach makes sense; school officials are not capable of adjudicating complex scientific issues, nor should they be asked to.

Inevitably, some schools will have to address concerns of staff or parents of children with perceived electromagnetic hypersensitivity. Following recommendations of the World Health Organization, individuals reporting electromagnetic hypersensitivity should be referred to health professionals for assistance without the assumption that their symptoms are directly caused by electromagnetic-field exposure. Schools should be wary of requests to provide "radiation free" environments. Given the many sources of exposure that "hypersensitive" individuals cite as causes of their symptoms--compact LED and fluorescent light bulbs, electric light dimmers, Wi-Fi devices, cell phones, cell towers outside the building--trying to produce a "radiation free" environment could be highly disruptive to schools; achieving it would also be impossible, if "radiation free" means a total lack of RF signals in the environment. And, in the absence of a demonstrated link between exposure to electromagnetic fields and the symptoms that some individuals experience, there is no way to identify an exposure level that is low enough not to "cause" symptoms.

The Internet and wireless communications do present risks that schools need to manage. It would not do, for example, for Johnny to be touching up his Facebook page (or worse) during class or sending inappropriate photos to his classmates. Wireless networks and wireless-connected devices are susceptible to hacking and other cybercrimes with potentially significant impact to schools. Schools need to adopt appropriate policies for safe use of cell phones and the Internet by children--not because of unproven radiation hazards but to avoid the harms that these otherwise highly useful technologies can pose. If health agencies eventually conclude that radio frequency signals from Wi-Fi are hazardous in some way, schools can revise their policies accordingly. In light of half a century of research on the biological effects of radio frequency energy, such a conclusion seems unlikely.

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REVIEW

5G mobile networks and health—a state-of-the-science review of the research into low-level RF fields above 6 GHz

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Abstract

The increased use of radiofrequency (RF) fields above 6 GHz, particularly for the 5 G mobile phone network, has given rise to public concern about any possible adverse effects to human health. Public exposure to RF fields from 5 G and other sources is below the human exposure limits specified by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). This state-of-the science review examined the research into the biological and health effects of RF fields above 6 GHz at exposure levels below the ICNIRP occupational limits. The review included 107 experimental studies that investigated various bioeffects including genotoxicity, cell proliferation, gene expression, cell signalling, membrane function and other effects. Reported bioeffects were generally not independently replicated and the majority of the studies employed low quality methods of exposure assessment and control. Effects due to heating from high RF energy deposition cannot be excluded from many of the results. The review also included 31 epidemiological studies that investigated exposure to radar, which uses RF fields above 6 GHz similar to 5 G. The epidemiological studies showed little evidence of health effects including cancer at different sites, effects on reproduction and other diseases. This review showed no confirmed evidence that low-level RF fields above 6 GHz such as those used by the 5 G network are hazardous to human health. Future experimental studies should improve the experimental design with particular attention to dosimetry and temperature control. Future epidemiological studies should continue to monitor long-term health effects in the population related to wireless telecommunications.

Keywords Radiation · Disease · Epidemiology · Health studies

Introduction

There are continually emerging technologies that use radiofrequency (RF) electromagnetic fields particularly in telecommunications. Most telecommunication sources currently operate at frequencies below 6 GHz, including radio and TV broadcasting and wireless sources such as local area networks and mobile telephony. With the increasing demand for higher data rates, better quality of service and lower latency to users, future wireless telecommunication sources are planned to operate at frequencies above 6 GHz and into the 'millimetre wave' range (30–300 GHz) [1]. Frequencies above 6 GHz have been in use for many years in various applications such as radar, microwave links, airport security screening and in medicine for therapeutic applications. However, the planned use of millimetre waves by future wireless telecommunications, particularly the 5th generation (5 G) of mobile networks, has given rise to public concern about any possible adverse effects to human health.

The interaction mechanisms of RF fields with the human body have been extensively described and tissue heating is the main effect for RF fields above 100 kHz (e.g. HPA; SCENHIR) [2, 3]. RF fields become less penetrating into body tissue with increasing frequency and for frequencies above 6 GHz the depth of penetration is relatively short with surface heating being the predominant effect [4].

International exposure guidelines for RF fields have been developed on the basis of current scientific knowledge to ensure that RF exposure is not harmful to human health [5, 6]. The guidelines developed by the International Commission on Non-Ionizing Radiation Protection

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(ICNIRP) in particular form the basis for regulations in the majority of countries worldwide [7]. In the frequency range above 6 GHz and up to 300 GHz the ICNIRP guidelines prevent excessive heating at the surface of the skin and in the eye.

Although not as extensively studied as RF fields at lower frequencies, a number of studies have investigated the effects of RF fields at frequencies above 6 GHz. Previous reviews have reported studies investigating frequencies above 6 GHz that show effects although many of the reported effects occurred at levels greater than the ICNIRP guidelines [1, 8]. Given the public concern over the planned roll-out of 5 G using millimetre waves, it is important to determine whether there are any related adverse health consequences at levels encountered in the environment. The aim of this paper is to present a state-of-the-science review of the bioeffects research into RF fields above 6 GHz at low levels of exposure (exposure below the occupational limits of the ICNIRP guidelines). A meta-analysis of in vitro and in vivo studies, providing quantitative effect estimates for each study, is presented separately in a companion paper [9].

Methods

The state-of-the-science review included a comprehensive search of all available literature and examined the extent, range and nature of evidence into the bioeffects of RF fields above 6 GHz, at levels below the ICNIRP occupational limits. The review consisted of biomedical studies on low-level RF electromagnetic fields from 6 GHz to 300 GHz published at any starting date up to December 2019. Studies were initially found by searching the databases PubMed, EMF-Portal, Google Scholar, Embase and Web of Science using the search terms "millimeter wave", "millimetre wave", "gigahertz", "GHz" and "radar". We further searched major reviews published by health authorities on RF and health [2, 3, 10, 11]. Finally, we searched the reference list of all the studies included. Studies were only included if the full paper was available in English.

Although over 300 studies were considered, this review was limited to experimental studies (in vitro, in vivo, human) where the stated RF exposure level was at or below the occupational whole-body limits specified by the ICNIRP (2020) guidelines: power density (PD) reference level of 50 W/m^2 or specific absorption rate (SAR) basic restriction of 0.4 W/kg. Since the PD occupational limits for local exposure are more relevant to in vitro studies, and since these limits are higher, we have included those studies with PD up to 100–200 W/m^2, depending on frequency. The review included studies below the ICNIRP general public limits that are lower than the occupational limits.

The review also included epidemiological studies (cohort, case-control, cross-sectional) investigating exposure to radar but excluded studies where the stated radar frequencies were below 6 GHz. Epidemiological studies on radar were included as they represent occupational exposure below the ICNIRP guidelines. Case reports or case series were excluded. Studies investigating therapeutical outcomes were also excluded unless they reported specific bio-effects.

The state-of-the-science review appraised the quality of the included studies, but unlike a systematic review it did not exclude any studies based on quality. The review also identified gaps in knowledge for future investigation and research. The reporting of results in this paper is narrative with tabular accompaniment showing study characteristics. In this paper, the acronym "MMWs" (or millimetre waves) is used to denote RF fields above 6 GHz.

Results

The review included 107 experimental studies (91 in vitro, 15 in vivo, and 1 human) that investigated various bioeffects, including genotoxicity, cell proliferation, gene expression, cell signalling, membrane function and other effects. The exposure characteristics and biological system investigated in experimental studies for the various bioeffects are shown in Tables 1–6. The results of the meta-analysis of the in vitro and in vivo studies are presented separately in Wood et al. [9].

Genotoxicity

Studies have examined the effects of exposing whole human or mouse blood samples or lymphocytes and leucocytes to low-level MMWs to determine possible genotoxicity. Some of the genotoxicity studies have looked at the possible effects of MMWs on chromosome aberrations [12–14]. At exposure levels below the ICNIRP limits, the results have been inconsistent, with either a statistically significant increase [14] or no significant increase [12, 13] in chromosome aberrations.

MMWs do not penetrate past the skin therefore epithelial and skin cells have been a common model of examination for possible genotoxic effects. DNA damage in a number of epithelial and skin cell types and at varied exposure parameters both below and above the ICNIRP limits have been examined using comet assays [15–19]. Despite the varied exposure models and methods used, no statistically significant evidence of DNA damage was identified in these studies. Evidence of genotoxic damage was further assessed in skin cells by the occurrence of micro-nucleation. De Amicis et al. [18] and Franchini et al. [19] reported a statistically significant increase in micro-nucleation, however,

Table 1 Experimental studies investigating low-level RF fields above 6 GHz and genotoxicity.

Reference	Biological system	Frequency range	Intensity	Exposure duration	Results	Quality
[26] Crouzier et al.	Bacteria & Yeast	9 GHz	0.5 to 16 W/kg	20 min	No change in ROS production at low exposure levels. SAR above the limit	No blinding
[18] De Amicis et al.	Cells in culture	100–150 GHz	4 W/m^2	Up to 24 h	No DNA damage but an increased occurrence of micro-nucleation. SAR above limit	Inadequate dosimetry and no blinding
[19] Franchini et al.	Cells in culture	25 GHz	8 W/m^2	Up to 24 h	No DNA damage but an increased occurrence of micro-nucleation. SAR above limit	No blinding
[32] Gapeyev et al.	Cells in culture	42 GHz	1 W/m²	20 min	MMW pre-exposure reduced DNA damage after x-ray exposure to leucocytes	Poor temperature control
[33] Gapeyev and Lukyanova	Cells in culture	42 GHz	1 W/m²	20 min	MMW pre-exposure reduced DNA damage after x-ray exposure to leucocytes	Poor temperature control
[12] Garaj-Vrhovac et al.	Cells in culture	7 GHz	5–300 W/m²	10–60 min	No statistically significant increase in chromosome aberrations	Inadequate dosimetry and no blinding
[13] Garaj-Vrhovac et al.	Cells in culture	7 GHz	5–300 W/m²	10–60 min	No statistically significant increase in chromosome aberrations	Inadequate dosimetry and no blinding
[30] Hintzsche et al.	Cells in culture	106 GHz	0.43–43 W/m²	5 h	Increase in spindle disturbances, but no indication of structural chromosome aberrations	Well designed
[15] Hintzsche et al.	Cells in culture	106 GHz	0.4–20 W/m²	2–24 h	No DNA strand breaks or chromosome damage. SAR above limit	Inadequate temperature and sham control
[29] Kalantaryan et al.	Miscellaneous	65 GHz	0.5 W/m²	Up to 120 min	Changes in DNA strand separation during artificial synthesis	Poor dosimetry and temperature control
[24] Kesari and Behari	In vivo	50 GHz	0.0086 W/m^2	2 h/day for 45 days	Increase in DNA double-strand breaks and a decrease in the levels of Protein kinase C	Low animal numbers (6 exposed)
[14] Korenstein-Ilan et al.	Cells in culture	100 GHz	0.31 W/m²	1–24 h	Chromosomal changes and asynchronous centromeres replications. SAR above limit	No blinding
[16] Koyama et al.	Cells in culture	60 GHz	10 W/m²	24 h	No increase in DNA strand breaks or heat shock protein expression	Well designed
[17] Koyama et al.	Cells in culture	45 GHz	10 W/m²	24 h	No increase in mironucleation, DNA strand breaks or heat shock protein expression	No blinding
[25] Kumar et al.	In vivo	10 and 50 GHz	2.1 W/m^2	2 h/day for 45 days	Increase in ROS and increases and decreases in enzymes that control the build-up of ROS	Low animal numbers (6 exposed) and no blinding
[28] Lukashevsky and Belyaev	Bacteria & Yeast	69–71 GHz	Up to 5 W/m²	30 min	Increase in indicators of DNA damage. SAR above limit	Inadequate dosimetry and temperature control
[23] Paulraj and Behari	In vivo	16.5 GHz	10 W/m^2	2 h/day for 35 days	Increase in indicators of DNA damage. SAR above limit	Low animal numbers (6 exposed) and no blinding
[20] Shckorbatov et al.	Cells in culture	42 GHz	2 W/m²	1–60 s	Decreased nuclei electrical charge and increased chromatin condensation in the nuclei	No blinding, sham control not described
[21] Shckorbatov et al.	Cells in culture	35 GHz	0.3 W/m^2	10 s	Increase in chromatin condensation as indicated by an increase in heterochromatin granule quantity	Inadequate dosimetry and temperature control
[22] Shckorbatov et al.	Cells in culture	36 GHz	0.01–1 W/m^2	1–10 s	Increase in chromatin condensation as indicated by an increase in heterochromatin granule quantity. SAR above limit	Inadequate dosimetry and temperature control
[27] Smolyanskaya and Vilenskaya	Bacteria & Yeast	45–46 GHz	0.1–10 W/m^2	0.5–2 h	Increase in indicator of DNA damage	Statistical methods and dosimetry were not described
[31] Zeni et al.	Cells in culture	120–130 GHz	0.5–2.3 W/m²	20 min	No indication of DNA damage or changes in cell cycle kinetics. SAR above limit	Inadequate temperature control

Hintzsche et al. [15] and Koyama et al. [16, 17] did not find an effect. Two of the studies also examined telomere length and found no statistically significant difference between exposed and unexposed cells [15, 19]. Last, a Ukrainian research group examined different skin cell types in three studies and reported an increase in chromosome condensation in the nucleus [20–22]; these results have not been independently verified. Overall, there was no confirmed evidence of MMWs causing genotoxic damage in epithelial and skin cells.

Three studies from an Indian research group have examined indicators of DNA damage and reactive oxygen species (ROS) production in rats exposed in vivo to MMWs. The studies reported DNA strand breaks based on evidence from comet assays [23, 24] and changes in enzymes that control the build-up of ROS [24]. Kumar et al. also reported an increase in ROS production [25]. All the studies from this research group had low animal numbers (six animals exposed) and their results have not been independently replicated. An in vitro study that investigated ROS production in yeast cultures reported an increase in free radicals exposed to high-level but not low-level MMWs [26].

Other studies have looked at the effect of low-level MMWs on DNA in a range of different ways. Two studies

Table 2 Experimental studies investigating low-level RF fields above 6 GHz and cell proliferation.

Reference	Biological system	Frequency range	Intensity	Exposure duration	Results	Quality
[56] Badzhinyan et al.	Cells in culture	40–90 GHz	0.5–1000 W/m^2	8 min	No change in cell survival at exposure levels below the limits	Inadequate dosimetry and temperature control
[51] Beneduci et al.	Cells in culture	53–78 GHz	1 µW, 44–46 mW	1–3 h/day for 5–10 days	Reduced cancer cell proliferation and changes in cell morphology	Inadequate dosimetry and temperature control
[53] Beneduci et al.	Cells in culture	53–78 GHz	0.0007 W/m^2	1–3 h/day for 5–10 days	Reduced cancer cell proliferation and changes in cell morphology	Inadequate dosimetry and temperature control
[54] Beneduci et al.	Cells in culture	53–78 GHz	0.01 W/m^2	1 h/day for 4 days	Reduction in viable cancer cells and changes in cell structural morphology	Inadequate dosimetry and temperature control
[53] Beneduci	Cells in culture	42–54 GHz	1.1–3.7 W/m^2	1 h/day for 4 days	No evidence of anti-proliferation effects in exposed cancer cells	Inadequate dosimetry and poor temperature control
[50] Chidichimo et al.	Cells in culture	53–78 GHz	7×10^{-4} W/m^2	1 h/day for 12 days	Unclear results due to the in text results not matching supporting conclusions	Poor temperature control and no blinding
[38] Cohen et al.	Bacteria & Yeast	99 GHz	2 W/m^2	1–19 h	No statistically significant changes in cell proliferation or survival. SAR above limit	No blinding
[48] Furia et al.	Bacteria & Yeast	42 GHz	Up to 0.08 W	Up to 4 h	No change in cell proliferation or viability	No blinding
[49] Gos et al.	Bacteria & yeast	40–43 GHz	0.005–0.5 W/m^2	2 and 5.5 h	No changes in cell proliferation	Inadequate sham control and no blinding
[47] Grundler and Keilmann	Bacteria & Yeast	42 GHz	40 mW	NS	Enhanced and inhibited rates of cell proliferation	Inadequate dosimetry, statistical analysis not described
[46] Grundler and Keilmann	Bacteria & Yeast	42 GHz	1–20 W/m²	Up to 12 h	Enhanced and inhibited rates of cell proliferation	Inadequate sham control and no blinding
[45] Hovnanyan et al.	Bacteria & Yeast	51–53 GHz	0.6 W/m^2	Up to 2 h	Increase in cell diameter and inhibition of cell growth	Inadequate dosimetry and temperature control
[37] Pakhomova et al.	Bacteria & Yeast	61–62 GHz	1.3 W/m^2	30 min	MMW pre-exposure did not change cell survival or alter the frequency of mutations. SAR above limit	Inadequate temperature control
[36] Rojavin and Ziskin	Bacteria & Yeast	61 GHz	10 W/m²	Up to 1 h	Increase in cell survival if MMW exposure occurred after UVC exposure. No effect of MMW exposure alone. SAR above limit	No blinding
[57] Shiina et al.	Neural activity	60 GHz	10 W/m²	24 h	No change in neurite outgrowth	No blinding
[44] Soghomonyan and Trchounian	Bacteria & Yeast	51–53 GHz	0.6 W/m²	1 h	Changes in ion transport across the membrane and an inhibitory effect on bacteria proliferation and survival	Inadequate dosimetry and no blinding
[39] Tadevosyan et al.	Bacteria & Yeast	51–53 GHz	0.6 W/m^2	Up to 1 h	Changes in ion transport across the membrane and an inhibitory effect on bacteria proliferation	Inadequate dosimetry and temperature control
[40] Torgomyan and Trchounian	Bacteria & Yeast	70–73 GHz	0.6 W/m^2	Up to 1 h	Inhibition of proliferation and changes in membrane proteins	Inadequate dosimetry and temperature control
[41] Torgomyan et al.	Bacteria & Yeast	70–73 GHz	0.6 W/m^2	Up to 2 h	Effect on bacterial growth and surrounding water medium	Inadequate dosimetry and temperature control
[42] Torgomyan et al.	Bacteria & Yeast	51–73 GHz	0.6 W/m^2	1 h	Enhanced inhibitory effect of antibiotics on bacterial proliferation. Changes in ion transport	Inadequate dosimetry and temperature control
[43] Torgomyan et al.	Bacteria & Yeast	51–53 GHz	0.6 W/m^2	1 h	Changes in the bacterial proliferation and survival. Changes in ion transport	Inadequate dosimetry and temperature control
[34] Webb and Booth	Bacteria & Yeast	65–75 GHz	NS	NS	Inhibition and stimulation of bacterial growth at specific frequencies	No details on dosimetry and no blinding
[35] Webb and Dodds	Bacteria & Yeast	136 GHz	7×10^{-6} W	Up to 4 h	Inhibition and stimulation of bacterial growth at specific frequencies	No details on dosimetry and no blinding
[55] Yaekashiwa et al.	Cells in culture	70–300 GHz	Up to 0.0127 W/m²	3–94 h	No change in proliferation, cell activity or cytotoxicity	No blinding

NS Not stated in the study.

reported that MMWs induce colicin synthesis and prophage induction in bacterial cells, both of which are suggested as indicative of DNA damage [27, 28]. Another study suggested that DNA exposed to MMWs undergoes polymerase chain reaction synthesis differently than unexposed DNA [29], although no statistical analysis was presented. Hintzsche et al. reported statistically significant occurrence of spindle disturbance in hybrid cells exposed to MMWs [30]. Zeni et al. found no evidence of DNA damage or alteration of cell cycle kinetics in blood cells exposed to MMWs [31]. Last, two studies from a Russian research group examined the protective effects of MMWs where mouse blood leukocytes were pre-exposed to low-level MMWs and then to X-rays [32, 33]. The studies reported that there was statistically significant less DNA damage in the leucocytes that were pre-exposed to MMWs than those exposed to X-rays alone. Overall, these studies had no independent replication.

Cell proliferation

A number of studies have examined the effects of low-level MMWs on cell proliferation and they have used a variety of cellular models and methods of investigation. Studies have exposed bacterial cells to low-level MMWs alone or in conjunction with other agents. Two early studies reported changes in the growth rate of E. coli cultures exposed to low-level MMWs; however, both of

Table 3 Experimental studies investigating low-level RF fields above 6 GHz and gene expression.

Reference	Biological system	Frequency range	Intensity	Exposure duration	Results	Quality
[64] Belyaev et al.	Bacteria & Yeast	41–52 GHz	0.01–1 W/m²	5–10 min	Frequency dependant changes in DNA conformation based on AVTD method and changes in DNA repair	Inadequate dosimetry and temperature control
[65] Belyaev et al.	Bacteria & Yeast	52 GHz	1 W/m²	5–10 min	Frequency dependant changes in DNA conformation based on AVTD method and changes in DNA repair	Inadequate dosimetry and temperature control
[66] Belyaev et al.	Bacteria & Yeast	41–52 GHz	0.01–3 W/m^2	30 min	Frequency dependant changes in DNA conformation based on AVTD method and changes in DNA repair	Inadequate dosimetry and temperature control
[67] Belyaev et al.	Bacteria & Yeast	41–52 GHz	0.1–1 W/m^2	5–10 min	Frequency dependant changes in DNA conformation based on AVTD method and changes in DNA repair	Inadequate dosimetry and temperature control
[68] Belyaev et al.	Bacteria & Yeast	41–52 GHz	10^{16}–10^{-6} W/m^2	10 min	Frequency dependant changes in DNA conformation based on AVTD method and changes in DNA repair	Inadequate dosimetry and temperature control
[69] Belyaev et al.	Bacteria & Yeast	41–52 GHz	0.1–1 W/m^2	5 min	Frequency dependant changes in DNA conformation based on AVTD method and suppression of DNA repair	Inadequate dosimetry and temperature control
[71] Belyaev and Kravchenko	Cells in culture	41 GHz	10^{-7} – 1 W/m^2	10 min	Frequency dependant changes in DNA conformation based on AVTD method. SAR above limit	Inadequate dosimetry and temperature control
[72] Belyaev et al.	Bacteria & Yeast	41–52 GHz	10^{-16} – 1 W/m^2	10–50 min	Frequency dependant changes in DNA conformation based on AVTD method and changes in cell developmental dynamics	Inadequate dosimetry and temperature control
[72] Belyaev et al.	Bacteria & Yeast	52 GHz	10^{-19} – 0.003 W/m^2	10 min	Frequency dependant changes in DNA conformation based on AVTD method	Inadequate dosimetry and temperature control
[76] Bush et al.	Cells in culture	38–75 GHz	Up to 5840 W/m^2	15 min	No changes in protein synthesis and no resonance effects detected even at high exposure levels	Temperature control and dosimetry methods were not described
[75] Gandhi et al.	Bacteria & Yeast	26.5–90.0 GHz	Up to 3000 W/m^2	Up to 5 s	No resonance effects detected even at exposure levels above the limits	Statistical methods not described
[58] Le Quement et al.	Cells in culture	60 GHz	18 W/m^2	1–24 h	Five genes were reported to have transient expression changes after exposure. SAR above limit	No blinding, poor temperature control
[62] Nicolaz et al.	Cells in culture	60 GHz	1.4 W/m²	24–72 h	No change in ER homeostasis, protein folding, secretions or transcription factors	No blinding
[63] Nicolaz et al.	Cells in culture	59–61 GHz	0.9–1.4 W/m²	24 h.	No changes in mRNA expression of chaperone proteins. SAR above limit	No blinding
[73] Shcheglov et al.	Bacteria & Yeast	51 GHz	Up to 10^{-7} W/m^2	10 min	Frequency dependant changes in DNA conformation. Cell to cell communication reported to enhance this effect	Inadequate dosimetry and temperature control
[74] Shcheglov et al.	Bacteria & Yeast	52 GHz	10^{-14} – 10 W/m²	Up to 10 min	Frequency dependant changes in DNA conformation. Cell to cell communication reported to enhance this effect	Inadequate dosimetry and temperature control
[59] Zhadobov et al.	Cells in culture	60 GHz	2.7 W/m²	1–33 h	No change in the expression of stress sensitive genes	Inadequate temperature control and no blinding
[60] Zhadobov et al.	Cells in culture	60 GHz	0.054–5.4 W/m²	1–33 h	No change in expression of chaperone proteins, heat shock proteins or reporting genes	No blinding
[61] Zhadobov et al.	Cells in culture	60 GHz	10 W/m²	24 h	No change in protein conformation, gene expression, cell viability or cell growth. SAR above limit	Temperature control not described and no blinding

these studies were preliminary in nature without appropriate dosimetry or statistical analysis [34, 35]. Two studies exposed E. coli cultures and one study exposed yeast cell cultures to MMWs alone, and before and after UVC exposure [36–38]. All three studies reported that MMWs alone had no significant effect on bacterial cell proliferation or survival. Rojavin et al., however, did report that when E. coli bacteria were exposed to MMWs after UVC sterilisation treatment, there was an increase in their survival rate [36]. The authors suggested this could be due to the MMW activation of bacterial DNA repair mechanisms. Other studies by an Armenian research group reported a reduction in E. coli cell growth when exposed to MMWs [39–45]. These studies reported that when E.coli cultures were exposed to MMWs in the presence of antibiotics, there was a greater reduction in the bacterial growth rate and an increase in the time between bacterial cell division compared with antibiotics exposure alone. Two of these studies investigated if these effects could be due to a reduction in the activity of the E. coli ATPase when exposed to MMWs. The studies reported exposure to MMWs in combination with particular antibiotics changed the concentration of H^+ and K^+ ions in the E.coli cells, which the authors linked to changes in ATPase activity [43, 44]. Overall, the results from studies on cell proliferation of bacterial cells have been inconsistent with different research groups reporting conflicting results.

Studies have also examined how exposure to low-level MMWs could affect cell proliferation in yeast. Two early studies by a German research group reported changes in yeast cell growth [46, 47]. However, another two independent studies did not report any changes in the growth rate of exposed yeast [48, 49]. Furia et al. [48] noted that the Grundler and Keilmann studies [46, 47] had a number of methodical issues, which may have skewed their results, such as poor exposure control and analysis of results. Another study exposed yeast to MMWs before and after UVC exposure and reported that MMWs did not change the rates of cell survival [37].

Table 4 Experimental studies investigating low-level RF fields above 6 GHz and cell signalling and electrical activity.

Reference	Biological system	Frequency range	Intensity	Exposure duration	Results	Quality
[79] Minasyan et al.	Neural activity	38–54 GHz	4.8 W/m²	20–60 min	Change in the duration of the inter-spike intervals	Inadequate dosimetry and temperature control
[81] Munemori and Ikeda	Neural activity	10 GHz	2.5 W/m²	4 min	Increase and decrease in the variance of inter-spike intervals.	No sham control and poor temperature control
[82] Munemori and Ikeda	Neural activity	10 GHz	0.007–700 W/m²	1 min	Decrease in the distribution of the inter-spike intervals with increasing exposure levels	No sham control and poor temperature control
[83] Pakhomov et al.	Neural activity	40–52 GHz	2.4–30 W/m²	10 or 60 min	Reduction in the latency period and an increase in amplitude of CAPs	No blinding
[84] Pakhomov et al.,	Neural activity	40 GHz	0.2–26 W/m²	23 min	Reduction in the effect of high rate stimulus causing a decrease in the test CAP	No blinding
[85] Pakhomov et al.	Neural activity	40–50 GHz	2.5–25 W/m²	12–50 min	Reduction in the effect of high rate stimulus causing a decrease in the test CAP	No blinding
[86] Pikov and Siegel	Neural activity	60 GHz	0.00071–6 W/m²	NS	Reduced neuron firing rate and a decrease in input resistance	No blinding
[80] Pikov et al.	Neural activity	60 GHz	Up to 0.008 W/m²	1 min	Reduced neuron firing rate and a decrease in input resistance	No blinding
[87] Romanenko et al.	Neural activity	17–60 GHz	9–140 W/m²	60 s	Reduction in the action potential firing rate	No blinding
[88] Romanenko et al.	Neural activity	60 GHz	10–40 W/m²	60 s	Reduction in the action potential firing rate	No blinding

NS Not stated in the study.

Studies have also examined the possible effect of low-level MMWs on tumour cells with some studies reporting a possible anti-proliferative effect. Chidichimo et al. reported a reduction in the growth of a variety of tumour cells exposed to MMWs; however, the results of the study did not support this conclusion [50]. An Italian research group published a number of studies investigating proliferation effects on human melanoma cell lines with conflicting results. Two of the studies reported reduced growth rate [51, 52] and a third study showed no change in proliferation or in the cell cycle [53]. Beneduci et al. also reported changes in the morphology of MMW exposed cells; however, the authors did not present quantitative data for these reported changes [51, 52]. In another study by the same Italian group, Beneduci et al. reported that exposure to low-level MMWs had a greater than 40% reduction in the number of viable erythromyeloid leukaemia cells compared with controls; however, there was no significant change in the number of dead cells [54]. More recently, Yaekashiwa et al. reported no statistically significant effect in proliferation or cellular activity in glioblastoma cells exposed to low-level MMWs [55].

Other studies did not report statistically significant effects on proliferation in chicken embryo cell cultures, rat nerve cells or human skin fibroblasts exposed to low-level MMWs [55–57].

Gene expression

Some studies have investigated whether low-level MMWs can influence gene expression. Le Queument et al. examined a multitude of genes using microarray analyses and reported transient expression changes in five of them. However, the authors concluded that these results were extremely minor, especially when compared with studies using microarrays to study known pollutants [58]. Studies by a French research group have examined the effect of MMWs on stress sensitive genes, stress sensitive gene promotors and chaperone proteins in human glial cell lines. In two studies, glial cells were exposed to low-level MMWs and there was no observed modification in the expression of stress sensitive gene promotors when compared with sham exposed cells [59–61]. Further, glial cells were examined for the expression of the chaperone protein clusterin (CLU) and heat shock protein HSP70. These proteins are activated in times of cellular stress to maintain protein functions and help with the repair process [60]. There was no observed modification in gene expression of the chaperone proteins. Other studies have examined the endoplasmic reticulum of glial cells exposed to MMWs [62, 63]. The endoplasmic reticulum is the site of synthesis and folding of secreted proteins and has been shown to be sensitive to environmental insults [62]. The authors reported that there was no elevation in mRNA expression levels of endoplasmic reticulum specific chaperone proteins. Studies of stress sensitive genes in glial cells have consistently shown no modification due to low-level MMW exposure [59–63].

Belyaev and co-authors have studied a possible resonance effect of low-level MMWs primarily on Escherichia Coli (E. coli) cells and cultures. The Belyaev research group reported that the resonance effect of MMWs can change the conformation state of chromosomal DNA complexes [64–74]; however, most of these experiments were not temperature controlled. This resonance effect was not supported by earlier experiments on a number of different cell types conducted by Gandhi et al. and Bush et al. [75, 76].

Table 5 Experimental studies investigating low-level RF fields above 6 GHz and membrane effects.

Reference	Biological system	Frequency range	Intensity	Exposure duration	Results	Quality
[89] Beneduci et al.	Artificial cell suspensions	53–78 GHz	Up to 0.0027 W/kg	4 h	Delays in the transition from gel to liquid phase or vice versa	Statistical methods were not described and no blinding
[90] Beneduci et al.	Artificial cell suspensions	53–78 GHz	Up to 0.1 W/ m^2	4 h	Reduction in water quadrupole splitting on simulated membrane	Statistical methods were not described and no blinding
[91] Beneduci et al.	Artificial cell suspensions	53–78 GHz	< 0.03 W/m^2	Up to 40 h	Delays in the transition from gel to liquid phase or vice versa	Statistical methods were not described and no blinding
[93] Chen et al.	Miscellaneous	30 GHz	10–35 W/m^2	1 h	Exposure increased membrane permeability	No sham control
[100] Cosentino et al.	Artificial cell suspensions	52–72 GHz	Up to 0.1 W/m^2	Up to 4 h	Change in size due to osmotic stress and a decrease in water permeability	Inadequate dosimetry and poor temperature control
[97] D'Agostino et al.	Artificial cell suspensions	53 GHz	1.1 W/kg	Up to 30 min	Enhanced efflux of potassium from vesicles with increased amplitude of the electrical signals	Statistical methods were not described and no blinding
[96] Deghoyan et al.	Miscellaneous	90–160 GHz	1.49 W/kg	Up to 10 min	Decrease in the cell volume of neurons and rat brain tissue	Inadequate dosimetry and temperature control
[99] Di Donato et al.	Artificial cell suspensions	53 GHz	Up to 1 W/m^2	Up to 2 min	Enhancement of the CA reaction rate resulting in membrane permeability changes	No blinding
[92] Geletyuk et al.	Cells in culture	42 GHz	1 W/m^2	Up to 30 min	Changes in binding affinity of channels for calcium with associated lowering of channel opening probability	No sham, dosimetry description or temperature control
[45] Hovnanyan et al.	Bacteria & Yeast	51–53 GHz	0.6 W/m^2	Up to 2 h	Increase in cell diameter and inhibition of cell growth	Inadequate dosimetry and temperature control
[98] Ramundo-Orlando et al.	Artificial cell suspensions	53 GHz	1 W/m^2	Up to 10 min	Cell morphology changes i.e. elongation and diffusion of dye across the membrane	Statistical methods were not described and no blinding
[94] Shckorbatov et al.	Cells in culture	37 GHz	2 W/m^2	1–60 s	Increase in cell permeability and both increased and decrease cell electronegativity	No sham and temperature control
[21] Shckorbatov et al.	Cells in culture	35 GHz	0.3 W/m^2	10 s	Reported an indication of cell membrane damage	Inadequate dosimetry and temperature control
[44] Soghomonyan and Trchounian	Bacteria & Yeast	51–53 GHz	0.6 W/m²	1 h	Changes in ion transport across the membrane and inhibitory effect on bacteria proliferation and survival	Inadequate dosimetry and no blinding
[38] Tadevosyan et al.	Bacteria & Yeast	51–53 GHz	0.6 W/m^2	Up to 1 h	Changes in ion transport across the membrane and inhibitory effect on bacteria proliferation	Inadequate dosimetry and poor temperature control
[40] Torgomyan and Trchounian	Bacteria & Yeast	70–73 GHz	0.6 W/m^2	Up to 1 h	Inhibition of proliferation and changes in membrane proteins	Inadequate dosimetry and temperature control
[41] Torgomyan et al.	Bacteria & Yeast	70–73 GHz	0.6 W/m^2	Up to 2 h	Effect on bacterial growth and changes in ion transport	Inadequate dosimetry and temperature control
[42] Torgomyan et al.	Bacteria & Yeast	51–73 GHz	0.6 W/m^2	1 h	Enhanced the inhibitory effect of antibiotics on bacterial proliferation. Changes in ion transport	Inadequate dosimetry and temperature control
[43] Torgomyan et al.	Bacteria & Yeast	51–53 GHz	0.6 W/m^2	1 h	Changes in the bacterial proliferation and survival. Changes in ion transport	Inadequate dosimetry and temperature control
[95] Zhadobov et al.	Artificial cell suspensions	60 GHz	Up to 9 W/m²	Up to 5 h	Increases in lateral membrane pressure but no changes to the microdomain organisation	Statistical analysis not described and no blinding

Table 6 Experimental studies investigating low-level RF fields above 6 GHz and other effects.

Reference	Biological system	Frequency range	Intensity	Exposure duration	Results	Quality
[117] Bellossi et al.	In vivo	60 GHz	5.1 W/m^2	30 min/day to death	Increased survival for the leukaemia inoculated mice	No temperature control and sham controls
[106] Gapeyev et al.	Cells in culture	41 to 42 GHz	0.24–0.5 W/m²	20 min	Frequency dependant change in ROS production	Inadequate dosimetry and temperature control methods not described
[107] Gapeyev et al.	Cells in culture	41 to 42 GHz	0.24–2.4 W/m²	20 min	Frequency dependant change in ROS production	Inadequate dosimetry and poor temperature control
[110] Gapeyev et al.	Cells in culture	42 GHz	1 W/m²	20 min	Changes in fatty acid concentrations in thymus cells and blood plasma	Poor temperature control and no blinding
[111] Gapeyev et al.	Cells in culture	40 GHz	1 W/m²	20 min	Changes in fatty acid concentrations of tumour bearing mice and restoration of fatty acid levels in the thymus	Poor temperature control and no blinding
[112] Gapeyev et al.	Cells in culture	40 GHz	1 W/m²	20 min	Accelerated recovery of fatty acid after X-ray exposure	Poor temperature control and no blinding
[109] Homenko et al.	Miscellaneous	100 GHz	0.31 W/m²	1, 2 and 24 h	Reduction in enzyme activity and decreased stability of antigen antibody complexes	No blinding
[104] Kesari and Behari	In vivo	10 and 50 GHz	0.0086 W/m^2	2 h/day for 45 days	Increase and decrease in enzymes that control the build-up of ROS. Changes in cell cycle kinetics	Low animal numbers (6 exposed)
[119] Khizhnyak and Ziskin	Miscellaneous	53–78 GHz	0.1 – 10000 W/m^2	Up to 40 min	Temperature oscillations in the liquid medium. SAR above limit	Inadequate dosimetry, no sham control and no blinding
[105] Kumar et al.	In vivo	10 GHz	2.1 W/m^2	2 h/day for 45 days	Decrease in the activity of histone kinase and an increase in ROS and the rate of apoptosis. There was also changes in cell cycle kinetics	Low animal numbers (6 exposed), no blinding
[101] Manikowska et al.	In vivo	9.4 GHz	10–100 W/m²	1 h/day for 2 weeks	Increase in occurrence of translocations and unpaired chromosomes during meiosis in sperm cells of mice	Inadequate dosimetry and temperature control
[114] Muller et al.	Human volunteers	77 GHz	0.03 W/m²	15 min	No alterations of autonomic nerve activity or cardiovascular function	Inadequate dosimetry and temperature control
[118] Olchowik and Maj	In vivo	53 GHz	10–100 W/ m^2	20 min/day for 30 days	No effects below limit, above the limit the effect of hydrocortisone on gamma-glutamyl transpeptidase was blocked	No description of dosimetry and poor temperature control
[113] Rotkovská et al.	In vivo	34 GHz	0.2 W/m²	17 h/day for 10 days	Increase in progenitors of granulocytes and macrophages in the bone marrow of exposed mice	Poor temperature control and statistical analysis not described
[108] Safronova et al.	Cells in culture	42 GHz	0.195 W/m²	20 min	Enhanced response of primed neutrophils to a chemotactic peptide	No blinding and poor temperature control
[120] Sarapultseva et al.	Miscellaneous	1–10 GHz	0.05–0.5 W/ m^2	Up to 10 h	Exposure decreased the motility of the protozoa S. ambiguum and their non-exposed offspring	Inadequate dosimetry and no blinding
[102] Subbotina et al.	In vivo	NS	3 W/m²	3.5–32 h for 63 days	Increase in the occurrence of abnormal sperm and an increase in litter size of exposed male mice	No description of dosimetry or temperature control
[116] Stensaas et al.	Cells in culture	41–74 GHz	Up to 10000 W/m^2	1 h	No effect on the ultracellular structure of the cells when temperature was controlled	Inadequate dosimetry, statistical analysis not described
[103] Volkova et al.	Cells in culture	42 GHz	0.3 W/m²	5–15 min	No change to sperm membrane integrity or nuclear chromatin status. Increase in percentage of mobile sperm	Inadequate dosimetry and temperature control
[115] Webb and Booth	Cells in culture	66–76 GHz	2×10^{-5} – 0.000103 W	NS	Frequency specific differences in the attenuation of MMW in healthy and tumour cells	Inadequate dosimetry, no sham or temperature control

NS Not stated in the study.

The results of Belyaev and co-workers have primarily been based on evidence from the anomalous viscosity time dependence (AVTD) method [77]. The research group argued that changes in the AVTD curve can indicate changes to the DNA conformation state and DNA-protein bonds. Belyaev and co-workers have reported in a number of studies that differences in the AVTD curve were dependent on several parameter including MMW characteristics (frequency, exposure level, and polarisation), cellular concentration and cell growth rate [69, 71–74]. In some of the Belyaev studies E. coli were pre-exposed to X-rays, which was reported to change the AVTD curve; however, if the cells were then exposed to MMWs there was no longer a change in the AVTD curve [64–67]. The authors suggested that exposure to MMWs increased the rate of recovery in bacterial cells previously exposed to ionising radiation. The Belyaev group also used rat thymocytes in another study and they concluded that the results closely paralleled those found in E. coli cells [67]. The studies on the DNA conformation state change relied heavily on the AVTD method that has only been used by the Balyaev group and has not been independently validated [78].

Cell signalling and electrical activity

Studies examining effects of low-level MMWs on cell signalling have mainly involved MMW exposure to nervous system tissue of various animals. An in vivo study on rats recorded extracellular background electrical spike activity from neurons in the supraoptic nucleus of the hypothalamus after MMW exposure [79]. The study reported that there were changes in inter-spike interval and spike activity in the cells of exposed animals when compared with controls. There was also a mixture of significant shifts in neuron population proportions and spike frequency. The effect on the regularity of neuron spike activity was greater at higher frequencies. An in vitro study on rat cortical tissue slices reported that neuron firing rates decreased in half of the samples exposed to low-level MMWs [80]. The width of the signals was also decreased but all effects were short lived. The observed changes were not consistent between the two studies, but this could be a consequence of different brain regions being studied.

In vitro experiments by a Japanese research group conducted on crayfish exposed the dissected optical components and brain to MMWs [81, 82]. Munemori and Ikeda reported that there was no significant change in the inter-spike intervals or amplitude of spontaneous discharges [81]. However, there was a change in the distribution of inter-spike intervals where the initial standard deviation decreased and then restored in a short time to a rhythm comparable to the control. A follow-up study on the same tissues and a wide range of exposure levels (many above the ICNIRP limits) reported similar results with the distribution of spike intervals decreasing with increasing exposure level [82]. These results on action potentials in crayfish tissue have not been independently investigated.

Mixed results were reported in experiments conducted by a US research group on sciatic frog nerve preparations. These studies applied electrical stimulation to the nerve and examined the effect of MMWs on the compound action potentials (CAPs) conductivity through the neurological tissue fibre. Pakhomov et al. found a reduction in CAP latency accompanied by an amplitude increase for MMWs above the ICNIRP limits but not for low-level MMWs [83]. However, in two follow-up studies, Pakhomov et al. reported that the attenuation in amplitude of test CAPs caused by high-rate stimulus was significantly reduced to the same magnitude at various MMW exposure levels [84, 85]. In all of these studies, the observed effect on the CAPs was temporal and reversible, but there were implications of a frequency specific resonance interaction with the nervous tissue. These results on action potentials in frog sciatic nerves have not been investigated by others.

Other common experimental systems involved low-level MMW exposure to isolated ganglia of leeches. Pikov and Siegel reported that there was a decrease in the firing rate in one of the tested neurons and, through the measurement of input resistance in an inserted electrode, there was a transient dose-dependent change in membrane permeability [86]. However, Romanenko et al. found that low-level MMWs did not cause suppression of neuron firing rate [87]. Further experiments by Romanenko et al. reported that MMWs at the ICNIRP public exposure limit and above reported similar action potential firing rate suppression [88]. Significant differences were reported between MMW effects and effects due to an equivalent rise in temperature caused by heating the bathing solution by conventional means.

Membrane effects

Studies examining membrane interactions with low-level MMWs have all been conducted at frequencies above 40 GHz in in vitro experiments. A number of studies investigated membrane phase transitions involving exposure to a range of phospholipid vesicles prepared to mimic biological cell membranes. One group of studies by an Italian research group reported effects on membrane hydration dynamics and phase transition [89–91]. Observations included transition delays from the gel to liquid phase or vice versa when compared with sham exposures maintained at the same temperature; the effect was reversed after exposure. These reported changes remain unconfirmed by independent groups.

A number of studies investigated membrane permeability. One study focussed on Ca^{2+} activated K^+ channels on the membrane surface of cultured kidney cells of African Green Marmosets [92]. The study reported modifications to the Hill coefficient and apparent affinity of the Ca^{2+} by the K^+ channels. Another study reported that the effectiveness of a chemical to supress membrane permeability in the gap junction was transiently reduced when the cells were exposed to MMWs [93, 94]. Two studies by one research group reported increases in the movement of molecules into skin cells during MMW exposure and suggested this indicates increased cell membrane permeability [21, 91]. Permeability changes based on membrane pressure differences were also investigated in relation to phospholipid organisation [95]. Although there was no evidence of effects on phospholipid organisation on exposed model membranes, the authors reported a measurable difference in membrane pressure at low exposure levels. Another study reported neuron shrinkage and dehydration of brain tissues [96]. The study reported this was due to influences of low-level MMWs on the cellular bathing medium and intracellular water. Further, the authors suggested this influence of MMWs may have led to formation of unknown messengers, which are able to modulate brain cell hydration. A study using an artificial axon system consisting of a network of cells containing aqueous phospholipid vesicles reported permeability changes with exposure to MMWs by measuring K^+ efflux [97]. In this case, the authors emphasised limitations in applying this model to processes within a living organism. The varied effects of low-level MMWs on membrane permeability lack replication.

Other studies have examined the shape or size of vesicles to determine possible effects on membrane permeability. Ramundo-Orlando et al., reported effects on the shape of giant unilamellar vesicles (GUVs), specifically elongation, attributed to permeability changes [98]. However, another study reported that only smaller diameter vesicles demonstrated a statistically significant change when exposed to MMWs [99]. A study by Cosentino et al. examined the effect of MMWs on the size distributions of both large unilamellar vesicles (LUVs) and GUVs in in vitro preparations [100]. It was reported that size distribution was only affected when the vesicles were under osmotic stress, resulting in a statistically significant reduction in their size. In this case, the effect was attributed to dehydration as a result of membrane permeability changes. There is, generally, lack of replication on physical changes to phospholipid vesicles due to low-level MMWs.

Studies on E. coli and E. hirae cultures have reported resonance effects on membrane proteins and phospholipid constituents or within the media suspension [39–42]. These studies observed cell proliferation effects such as changes to cell growth rate, viability and lag phase duration. These effects were reported to be more pronounced at specific MMW frequencies. The authors suggested this could be due to a resonance effect on the cell membrane or the suspension medium. Torgomyan et al. and Hovnanyan et al. reported similar changes to proliferation that they attributed to changes in membrane permeability from MMW exposure [43, 45]. These experiments were all conducted by an Armenian research group and have not been replicated by others.

Other effects

A number of studies have reported on the experimental results of other effects. Reproductive effects were examined in three studies on mice, rats and human spermatozoa. An in vivo study on mice exposed to low-level MMWs reported that spermatogonial cells had significantly more metaphase translocation disturbances than controls and an increased number of cells with unpaired chromosomes [101]. Another in vivo study on rats reported increased morphological abnormalities to spermatozoa following exposure, however, there was no statistical analysis presented [102]. Conversely, an in vitro study on human spermatozoa reported that there was an increase in motility after a short time of exposure to MMWs with no changes in membrane integrity and no generation of apoptosis [103]. All three of these studies looked at different effects on spermatozoa making it difficult to make an overall conclusion. A further two studies exposed rats to MMWs and examined their sperm for indicators of ROS production. One study reported both increases and decreases in enzymes that control the build-up of ROS [104]. The other study reported a decrease in the activity of histone kinase and an increase in ROS [105]. Both studies had low animal numbers (six animals exposed) and these results have not been independently replicated.

Immune function was also examined in a limited number of studies focussing on the effects of low-level MMWs on antigens and antibody systems. Three studies by a Russian research group that exposed neutrophils to MMWs reported frequency dependant changes in ROS production [106–108]. Another study reported a statistically significant decrease in antigen binding to antibodies when exposed to MMWs [109]; the study also reported that exposure decreased the stability of previously formed antigen–antibody complexes.

The effect on fatty acid composition in mice exposed to MMWs has been examined by a Russian research group using a number of experimental methods [110–112]. One study that exposed mice afflicted with an inflammatory condition to low-level MMWs reported no change in the fatty acid concentrations in the blood plasma. However, there was a significant increase in the omega-3 and omega-6 polyunsaturated fatty acid content of the thymus [110].

Another study exposed tumour-bearing mice and reported that monounsaturated fatty acids decreased and polyunsaturated fatty acids increased in both the thymus and tumour tissue. These changes resulted in fatty acid composition of the thymus tissue more closely resembling that of the healthy control animals [111]. The authors also examined the effect of exposure to X-rays of healthy mice, which was reported to reduce the total weight of the thymus. However, when the thymus was exposed to MMWs before or after exposure to X-rays, the fatty acid content was restored and was no longer significantly different from controls [112]. Overall, the authors reported a potential protective effect of MMWs on the recovery of fatty acids, however, all the results came from the same research group with a lack of replication from others.

Physiological effects were examined by a study conducted on mice exposed to WWMs to assess the safety of police radar [113]. The authors reported no statistically significant changes in the physiological parameters tested, which included body mass and temperature, peripheral blood and the mass and cellular composition, and number of cells in several important organs. Another study exposing human volunteers to low-level MMWs specifically examined cardiovascular function of exposed and sham exposed groups by electrocardiogram (ECG) and atrioventricular conduction velocity derivation [114]. This study reported that there were no significant differences in the physiological indicators assessed in test subjects.

Other individual studies have looked at various other effects. An early study reported differences in the attenuation of MMWs at specific frequencies in healthy and tumour cells [115]. Another early study reported no effect in the morphology of BHK-21/C13 cell cultures when exposed to low-level MMWs; the study did report morphological changes at higher levels, which were related to heating [116]. One study examined whether low-level MMWs induced cancer promotion in leukaemia and Lewis tumour cell grafted mice. The study reported no statistically significant growth promotion in either of the grafted cancer cell types [117]. Another study looked at the activity of gamma-glutamyl transpeptidase enzyme in rats after treatment with hydrocortisone and exposure to MMWs [118]. The study reported no effects at exposures below the ICNIRP limit, however, at levels above authors reported a range of effects. Another study exposed saline liquid solutions to continuous low and high level MMWs and reported temperature oscillations within the liquid medium but lacked a statistical analysis [119]. Another study reported that low-level MMWs decrease the mobility of the protozoa S. ambiguum offspring [120]. None of the reported effects in all of these other studies have been investigated elsewhere.

Epidemiological studies

There are no epidemiological studies that have directly investigated 5 G and potential health effects. There are however epidemiological studies that have looked at occupational exposure to radar, which could potentially include the frequency range from 6 to 300 GHz. Epidemiological studies on radar were included as they represent occupational exposure below the ICNIRP guidelines. The review included 31 epidemiological studies (8 cohort, 13 case-control, 9 cross-sectional and 1 meta-analysis) that investigated exposure to radar and various health outcomes including cancer at different sites, effects on reproduction and other diseases. The risk estimates as well as limitations of the epidemiological studies are shown in Table 7.

Three large cohort studies investigated mortality in military personnel with potential exposure to MMWs from radar. Studies reporting on over 40-year follow-up of US navy veterans of the Korean War found that radar exposure had little effect on all-cause or cancer mortality with the second study reporting risk estimates below unity [121, 122]. Similarly, in a 40-year follow-up of Belgian military radar operators, there was no statistically significant increase in all-cause mortality [123, 124]; the study did, however, find a small increase in cancer mortality. More recently in a 25-year follow-up of military personnel who served in the French Navy, there was no increase in all-cause or cancer mortality for personnel exposed to radar [125]. The main limitation in the cohort studies was the lack of individual levels of RF exposure with most studies based on job-title. Comparisons were made between occupations with presumed high exposure to RF fields and other occupations with presumed lower exposure. This type of non-differential misclassification in dichotomous exposure assessment is associated mostly with an effect measure biased towards a null effect if there is a true effect of RF fields. If there is no true effect of RF fields, non-differential exposure misclassification will not bias the effect estimate (which will be close to the null value, but may vary because of random error). The military personnel in these studies were compared with the general population and this 'healthy worker effect' presents possible bias since military personnel are on average in better health than the general population; the healthy worker effect tends to underestimate the risk. The cohort studies also lacked information on possible confounding factors including other occupational exposures such as chemicals and lifestyle factors such as smoking.

Several epidemiological studies have specifically investigated radar exposure and testicular cancer. In a case-control study where most of the subjects were selected from military hospitals in Washington DC, USA, Hayes et al. found no increased risk between exposure to radar and testicular cancer [126]; exposure to radar was self-reported

Table 7 Epidemiological studies investigating occupational exposure to radar at frequencies above 6 GHz.

Reference	Type of study	Study population	Exposure assessment	Disease	Risk Estimate	Limitations
[143] Baste et al.	Cross-sectional	Norwegian Navy personnel (10,497 men)	Self-reported	Infertility	OR 1.86 (1.46–2.37)	No information on confounding factors including sailing time
[147] Baste et al.	Cohort (retrospective)	Norwegian Navy personnel followed from 1967 to 2008 (28,337 men)	Job-exposure matrix	Perinatal mortality	Acute exposure OR 2.87 (1.25–6.59); Long-term exposure OR 0.97 (0.69–1.37)	No information on confounding factors; Prone to multiple testing
[129] Baumgardt-Elms et al.	Case-control	General population of five German cities (269 cases and 797 controls)	Self-reported and expert assessment	Testicular cancer	OR 1.0 (0.60–1.75)	Only 57% of identified controls participated
[148] Beard et al.	Case-control	U.S. military veterans (621 cases and 958 controls)	Self-reported	Amyotrophic lateral sclerosis	OR 1.74 (0.89–3.38)	Likely under-ascertainment of non-exposed cases; Prone to multiple testing
[125] Dabouis	Cohort (retrospective)	French Navy personnel followed from 1975 to 2000 (39,850 men)	Expert assessment	All-cause mortality All-cancer mortality	RR 1.0 (0.88–1.14) RR 0.92 (0.69–1.24)	43 % missing causes of death; No information on relevant confounding factors
[127] Davis and Mostofi	Cohort (retrospective)	Officers from two police departments in Washington, US, followed from 1979 to 1991 (340 men)	Job title	Testicular cancer	O/E 6.9 ($p < 0.001$)	Exposure was only assessed for the 6 cases in the cohort; No information on confounding factors
[145] De Roos et al.	Case-control	General US and Canadian population (538 cases and 504 controls, children)	Expert assessment	Neuroblastoma in offspring	OR 2.2 (0.6–8.3)	Result based on only 9 cases and 3 controls exposed to radar
[123] Degrave et al.	Cohort (retrospective)	Belgian military personnel followed from 1968 to 2003 (27,671 men)	Job title	All-cause mortality	SMR 1.05 (0.95–1.16)	Not all causes of death ascertained (76% in the radar group and 72% in the control group); No information on relevant confounding factors
[124] Degrave et al.	Cohort (retrospective)	Belgian professional military personnel followed from 1968–2004 (7,349 men)	Job title	All-cause mortality All-cancer mortality	RR 1.04 (0.96–1.14) RR 1.23 (1.03–1.47)	Not all causes of death ascertained (71% in the radar group and 70% in the control group); No information on relevant confounding factors
[137] Fabbro-Peray et al.	Case-control	General population of Languedoc-Roussillon, France (445 cases and 1025 controls)	Job title	Non-Hodgkin's lymphoma	OR 1.3 (0.5–3.3)	Low participation among the controls (52.2%); Low number of cases (7) and controls (14) exposed to radar
[136] Finkelstein	Cohort (retrospective)	Officers from police departments in Ontario, Canada, followed from 1964 to 1995 (22,197 men)	Job title	All-cancer Melanoma	SIR 0.9 (0.83–0.98) SIR 1.45 (1.10–1.88)	No information on confounding factors; Significant loss to follow up (22%)
[131] Grayson	Case-control (nested)	US Air Force service personnel (230 cases and 920 controls, men)	Job-exposure matrix	Brain cancer	OR 1.39 (1.01–1.9)	Lack of diagnosis confirmation; No potential confounders were included in the analysis
[122] Groves et al.	Cohort (retrospective)	US Navy personnel followed from 1950 to 1997 (40,890 men)	Job title	All-cause mortality All-cancer mortality	RR 0.87 (0.83–0.9) RR 0.8 (0.74–0.87)	Under-ascertainment of cases; Limited exposure assessment period; No information on possible confounders
[128] Hardell et al.	Case-control	General Swedish population (148 cases and 314 controls, men)	Job title	Testicular cancer	OR 2.0 (0.3–14.2)	Result based on only 2 radar workers and 3 controls
[126] Hayes et al.	Case-control	Patients from medical institutions in Washington, US (271 cases and 259 controls, men)	Self-reported	Testicular cancer	OR 1.1 (0.7–1.9)	Short exposure period; No response rates reported
[133] Holly et al.	Case-control	Patients from the Ocular Oncology Unit at the University of California, US (221 cases of 447 controls, men)	Self-reported	Uveal melanoma	OR 2.1 (1.1–4.0)	Prone to multiple testing
[135] LA Vecchia et al.	Case-control	General population Milan, Italy (263 cases and 287 controls)	Self-reported	Bladder Cancer	No association, risk estimate not reported	Prone to multiple testing; Small number of cases across all the agents investigated
[146] Mageroy et al.	Cross-sectional	Norwegian Navy personnel (3,100 births from 1,438 parents)	Self-reported	Congenital anomalies	OR 4.0 (1.9–8.6)	The response rate was only 58%; Prone to multiple testing
[144] Mollerlokken et al.	Cross-sectional	Norwegian Navy personnel (3,752 men)	Expert assessment	Infertility	OR 2.28 (1.27–4.09)	No adjustment made for time spent on a boat
[121] Robinette et al.	Cohort study (retrospective)	US Navy enlisted personnel followed from 1950 to 1974 (40,890 men)	Job title	All-cause mortality All-cancer mortality	MR 0.96 MR 1.04	Under-ascertainment of cases; Limited exposure assessment period; No information on possible confounding factors
[132] Santana et al.	Case-control	Brazilian Navy personnel (40 cases and 671 controls, men)	Job title	Brain cancer	OR 0.56 (0.17–1.82)	Small number of cases (40); Lack of diagnosis confirmation; Use of last job title only

Table 7 (continued)

Reference	Type of study	Study population	Exposure assessment	Disease	Risk Estimate	Limitations
[134] Stang et al.	Case-control	General population of Essen, Germany (118 cases and 475 controls)	Self-reported	Uveal Melanoma	OR 0.4 (0.0–2.6)	High non-response among the population controls (52%)
[138] Variani	Meta-analysis	Populations from Groves et al. (2002), Degrave et al. (2009) and Dabouis et al. (2014)	Various	All-cancer mortality	MR 0.81 (0.78–0.83)	Only six studies included in the meta-analysis with significant heterogeneity between studies
[142] Velez de la Calle et al.	Case-control	Military personnel from Brest, France (60 cases and 165 controls, couples)	Self-reported	Infertility	OR 0.8 (0.4–1.6)	No comparison in sperm characteristics between cases and controls
[130] Walschaerts	Case-control	Patients from 5 cities in France (229 cases and 800 controls, men)	Job title	Testicular cancer	OR 0.84 (0.38–1.87)	Low participation (39%) in control group

OR Odds ratio, *RR* Relative risk, *O/E* Observed to expected ratio, *SIR* Standardised incidence ratio, *MR* Mortality ratio

and thus subject to misclassification. In this study, the misclassification was likely non-differential, biasing the result towards the null. Davis and Mostofi reported a cluster of testicular cancer within a small cohort of 340 police officers in Washington State (USA) where the cases routinely used handheld traffic radar guns [127]; however, exposure was not assessed for the full cohort, which may have overestimated the risk. In a population-based case-control study conducted in Sweden, Hardell et al. did not find a statistically significant association between radar work and testicular cancer; however, the result was based on only five radar workers questioning the validity of this result [128]. In a larger population-based case control study in Germany, Baumgardt-Elms et al. also reported no association between working near radar units (both self-reported and expert assessed) and testicular cancer [129]; a limitation of this study was the low participation of identified controls (57%), however, there was no difference compared with the characteristics of the cases so selection bias was unlikely. In the cohort study of US navy veterans previously mentioned exposure to radar was not associated with testicular cancer [122]; the limitations of this cohort study mentioned earlier may have underestimated the risk. Finally, in a hospital-based case-control study in France, radar workers were also not associated with risk of testicular cancer [130]; a limitation was the low participation of controls (37%) with a difference in education level between participating and non-participating controls, which may have underestimated this result.

A limited number of studies have investigated radar exposure and brain cancer. In a nested case-control study within a cohort of male US Air Force personnel, Grayson reported a small association between brain cancer and RF exposure, which included radar [131]; no potential confounders were included in the analysis, which may have overestimated the result. However, in a case-control study of personnel in the Brazilian Navy, Santana et al. reported no association between naval occupations likely to be exposed to radar and brain cancer [132]; the small number of cases and lack of diagnosis confirmation may have biased the results towards the null. All of the cohort studies on military personnel previously mentioned also examined brain cancer mortality and found no association with exposure to radar [122, 124, 125].

A limited number of studies have investigated radar exposure and ocular cancer. Holly et al. in a population-based case-control study in the US reported an association between self-reported exposure to radar or microwaves and uveal melanoma [133]; the study investigated many different exposures and the result is prone to multiple testing. In another case-control study, which used both hospital and population controls, Stang et al. did not find an association between self-reported exposure to radar and uveal

melanoma [134]; a high non-response in the population controls (52%) and exposure misclassification may have underestimated this result. The cohort studies of the Belgian military and French navy also found no association between exposure to radar and ocular cancer [124, 125].

A few other studies have examined the potential association between radar and other cancers. In a hospital-based case-control study in Italy, La Vecchia investigated 14 occupational agents and risk of bladder cancer and found no association with radar, although no risk estimate was reported [135]; non-differential self-reporting of exposure may have underestimated this finding if there is a true effect. Finkelstein found an increased risk for melanoma in a large cohort of Ontario police officers exposed to traffic radar and followed for 31 years [136]; there was significant loss to follow up which may have biased this result in either direction. Finkelstein found no statistically significant associations with other types of cancer and the study reported a statistically significant risk estimate just below unity for all cancers, which is reflective of the healthy worker effect [136]. In a large population-based case-control study in France, Fabbro-Peray et al. investigated a large number of occupational and environmental risk factors in relation to non-Hodgkin lymphoma and found no association with radar operators based on job-title; however, the result was based on a small number of radar operators [137]. The cohort studies on military personnel did not find statistically significant associations between exposure to radar and other cancers [122, 124, 125].

Variani et al. conducted a recent systematic review and meta-analysis investigating occupational exposure to radar and cancer risk [138]. The meta-analysis included three cohort studies [122, 124, 125] and three case-control studies [129–131] for a total sample size of 53,000 subjects. The meta-analysis reported a decrease in cancer risk for workers exposed to radar but noted the small number of studies included with significant heterogeneity between the studies.

Apart from cancer, a number of epidemiological studies have investigated radar exposure and reproductive outcomes. Two early studies on military personnel in the US [139] and Denmark [140] reported differences in semen parameters between personnel using radar and personnel on other duty assignments; these studies included only volunteers with potential fertility concerns and are prone to bias. A further volunteer study on US military personnel did not find a difference in semen parameters in a similar comparison [141]; in general these type of cross-sectional investigations on volunteers provide limited evidence on possible risk. In a case-control study of personnel in the French military, Velez de la Calle et al. reported no association between exposure to radar and male infertility [142]; non-differential self-reporting of exposure may have underestimated this finding if there is a true effect. In two separate cross-sectional studies of personnel in the Norwegian navy, Baste et al. and Møllerløkken et al. reported an association between exposure to radar and male infertility, but there has been no follow up cohort or case control studies to confirm these results [143, 144].

Again considering reproduction, a number of studies investigated pregnancy and offspring outcomes. In a population-based case-control study conducted in the US and Canada, De Roos et al. found no statistically significant association between parental occupational exposure to radar and neuroblastoma in offspring; however, the result was based on a small number of cases and controls exposed to radar [145]. In another cross-sectional study of the Norwegian navy, Mageroy et al. reported a higher risk of congenital anomalies in the offspring of personnel who were exposed to radar; the study found positive associations with a large number of other chemical and physical exposures, but the study involved multiple comparisons so is prone to over-interpretation [146]. Finally, a number of pregnancy outcomes were investigated in a cohort study of Norwegian navy personnel enlisted between 1950 and 2004 [147]. The study reported an increase in perinatal mortality for parental service aboard fast patrol boats during a short period (3 months); exposure to radar was one of many possible exposures when serving on fast patrol boats and the result is prone to multiple testing. No associations were found between long-term exposure and any pregnancy outcomes.

There is limited research investigating exposure to radar and other diseases. In a large case-control study of US military veterans investigating a range of risk factors and amyotrophic lateral sclerosis, Beard et al. did not find a statistically significant association with radar [148]; the study reported a likely under-ascertainment of non-exposed cases, which may have biased the result away from the null. The cohort studies on military personnel did not find statistically significant associations between exposure to radar and other diseases [122, 124, 125].

A number of observational studies have investigated outcomes measured on volunteers in the laboratory. They are categorised as epidemiological studies because exposure to radar was not based on provocation. These studies investigated genotoxicity [149], oxidative stress [149], cognitive effects [150] and endocrine function [151]; the studies generally reported positive associations with radar. These volunteer studies did not sample from a defined population and are prone to bias [152].

Discussion

The experimental studies investigating exposure to MMWs at levels below the ICNIRP occupational limits have looked

at a variety of biological effects. Genotoxicity was mainly examined by using comet assays of exposed cells. This approach has consistently found no evidence of DNA damage in skin cells in well-designed studies. However, animal studies conducted by one research group reported DNA strand breaks and changes in enzymes that control the build-up of ROS, noting that these studies had low animal numbers (six animals exposed); these results have not been independently replicated. Studies have also investigated other indications of genotoxicity including chromosome aberrations, micro-nucleation and spindle disturbances. The methods used to investigate these indicators have generally been rigorous; however, the studies have reported contradictory results. Two studies by a Russian research group have also reported indicators of DNA damage in bacteria, however, these results have not been verified by other investigators.

The studies of the effect of MMWs on cell proliferation primarily focused on bacteria, yeast cells and tumour cells. Studies of bacteria were mainly from an Armenian research group that reported a reduction in the bacterial growth rate of exposed E. coli cells at different MMW frequencies; however, the studies suffered from inadequate dosimetry and temperature control and heating due to high RF energy deposition may have contributed to the results. Other authors have reported no effect of MMWs on E. coli cell growth rate. The results on cell proliferation of yeast exposed to MMWs were also contradictory. An Italian research group that has conducted the majority of the studies on tumour cells reported either a reduction or no change in the proliferation of exposed cells; however, these studies also suffered from inadequate dosimetry and temperature control.

The studies on gene expression mainly examined two different indicators, expression of stress sensitive genes and chaperone proteins and the occurrence of a resonance effect in cells to explain DNA conformation state changes. Most studies reported no effect of low-level MMWs on the expression of stress sensitive genes or chaperone proteins using a range of experimental methods to confirm these results; noting that these studies did not use blinding so experimental bias cannot be excluded from the results. A number of studies from a Russian research group reported a resonance effect of MMWs, which they propose can change the conformation state of chromosomal DNA complexes. Their results relied heavily on the AVTD method for testing changes in the DNA conformation state, however, the biological relevance of results obtained through the AVTD method has not been independently validated.

Studies on cell signalling and electrical activity reported a range of different outcomes including increases or decreases in signal amplitude and changes in signal rhythm, with no consistent effect noting the lack of blinding in most of the studies. Further, temperature contributions could not be eliminated from the studies and in some cases thermal interactions by conventional heating were studied and found to differ from the MMW effects. The results from some studies were based on small sample sizes, some being confined to a single specimen, or by observed effects only occurring in a small number of the samples tested. Overall, the reported electrical activity effects could not be dismissed as being within normal variability. This is indicated by studies reporting the restoration of normal function within a short time during ongoing exposure. In this case there is no implication of an expected negative health outcome.

Studies on membrane effects examined changes in membrane properties and permeability. Some studies observed changes in transitions from liquid to gel phase or vice versa and the authors implied that MMWs influenced cell hydration, however the statistical methods used in these studies were not described so it is difficult to examine the validity of these results. Other studies observing membrane properties in artificial cell suspensions and dissected tissue reported changes in vesicle shape, reduced cell volume and morphological changes although most of these studies suffered from various methodological problems including poor temperature control and no blinding. Experiments on bacteria and yeast were conducted by the same research group reporting changes in membrane permeability, which was attributed to cell proliferation effects, however, the studies suffered from inadequate dosimetry and temperature control. Overall, although there were a variety of membrane bioeffects reported, these have not been independently replicated.

The limited number of studies on a number of other effects from exposure to MMWs below the ICNIRP limits generally reported little to no consistent effects. The single in vivo study on cancer promotion did not find an effect although the study did not include sham controls. Effects on reproduction were contradictory that may have been influenced by opposing objectives of examining adverse health effects or infertility treatment. Further, the only study on human sperm found no effects of low-level MMWs. The studies on reproduction suffered from inadequate dosimetry and temperature control, and since sperm is sensitive to temperature, the effect of heating due to high RF energy deposition may have contributed to the studies showing an effect. A number of studies from two research groups reported effects on ROS production in relation to reproduction and immune function; the in vivo studies had low animal numbers (six animals per exposure) and the in vitro studies generally had inadequate dosimetry and temperature control. Studies on fatty acid composition and physiological indicators did not generally show any effects; poor temperature control was also a problem in the majority of these studies. A number of other studies investigating various other biological effects reported mixed results.

Although a range of bioeffects have been reported in many of the experimental studies, the results were generally not independently reproduced. Approximately half of the studies were from just five laboratories and several studies represented a collaboration between one or more laboratories. The exposure characteristics varied considerably among the different studies with studies showing the highest effect size clustered around a PD of approximately 1 W/m^2. The meta-analysis of the experimental studies in our companion paper [9] showed that there was no dose-response relationship between the exposure (either PD or SAR) and the effect size. In fact, studies with a higher exposure tended to show a lower effect size, which is counterfactual. Most of the studies showing a large effect size were conducted in the frequency range around 40–55 GHz, representing investigations into the use of MMWs for therapeutic purposes, rather than deleterious health consequences. Future experimental research would benefit from investigating bioeffects at the specific frequency range of the next stage of the 5 G network roll-out in the range 26–28 GHz. Mobile communications beyond the 5 G network plan to use frequencies higher than 30 GHz so research across the MMW band is relevant.

An investigation into the methods of the experimental studies showed that the majority of studies were lacking in a number of quality criteria including proper attention to dosimetry, incorporating positive controls, using blind evaluation or accurately measuring or controlling the temperature of the biological system being tested. Our meta-analysis showed that the bulk of the studies had a quality score lower than 2 out of a possible 5, with only one study achieving a maximum quality score of 5 [9]. The meta-analysis further showed that studies with a low quality score were more likely to show a greater effect. Future research should pay careful attention to the experimental design to reduce possible sources of artefact.

The experimental studies included in this review reported PDs below the ICNIRP exposure limits. Many of the authors suggested that the resulting biological effects may be related to non-thermal mechanisms. However, as is shown in our meta-analysis, data from these studies should be treated with caution because the estimated SAR values in many of the studies were much higher than the ICNIRP SAR limits [9]. SAR values much higher than the ICNIRP guidelines are certainly capable of producing significant temperature rise and are far beyond the levels expected for 5 G telecommunication devices [1]. Future research into the low-level effects of MMWs should pay particular attention to appropriate temperature control in order to avoid possible heating effects.

Although a systematic review of experimental studies was not conducted, this paper presents a critical appraisal of study design and quality of all available studies into the bioeffects of low level MMWs. The conclusions from the review of experimental studies are supported by a meta-analysis in our companion paper [9]. Given the low-quality methods of the majority of the experimental studies we infer that a systematic review of different bioeffects is not possible at present. Our review includes recommendations for future experimental research. A search of the available literature showed a further 44 non-English papers that were not included in our review. Although the non-English papers may have some important results it is noted that the majority are from research groups that have published English papers that are included in our review.

The epidemiological studies on MMW exposure from radar that has a similar frequency range to that of 5 G and exposure levels below the ICNIRP occupational limits in most situations, provided little evidence of an association with any adverse health effects. Only a small number of studies reported positive associations with various methodological issues such as risk of bias, confounding and multiple testing questioning the result. The three large cohort studies of military personnel exposed to radar in particular did not generally show an association with cancer or other diseases. A key concern across all the epidemiological studies was the quality of exposure assessment. Various challenges such as variability in complex occupational environments that also include other co-exposures, retrospective estimation of exposure and an appropriate exposure metric remain central in studies of this nature [153]. Exposure in most of the epidemiological studies was self-reported or based on job-title, which may not necessarily be an adequate proxy for exposure to RF fields above 6 GHz. Some studies improved on exposure assessment by using expert assessment and job-exposure matrices, however, the possibility of exposure misclassification is not eliminated. Another limitation in many of the studies was the poor assessment of possible confounding including other occupational exposures and lifestyle factors. It should also be noted that close proximity to certain very powerful radar units could have exceeded the ICNIRP occupational limits, therefore the reported effects especially related to reproductive outcomes could potentially be related to heating.

Given that wireless communications have only recently started to use RF frequencies above 6 GHz there are no epidemiological studies investigating 5 G directly as yet. Some previous epidemiological studies have reported a possible weak association between mobile phone use (from older networks using frequencies below 6 GHz) and brain cancer [11]. However, methodological limitations in these studies prevent conclusions of causality being drawn from the observations [152]. Recent investigations have not shown an increase in the incidence of brain cancer in the population that can be attributed to mobile phone use [154, 155]. Future epidemiological research should

continue to monitor long-term health effects in the population related to wireless telecommunications.

The review of experimental studies provided no confirmed evidence that low-level MMWs are associated with biological effects relevant to human health. Many of the studies reporting effects came from the same research groups and the results have not been independently reproduced. The majority of the studies employed low quality methods of exposure assessment and control so the possibility of experimental artefact cannot be excluded. Further, many of the effects reported may have been related to heating from high RF energy deposition so the assertion of a 'low-level' effect is questionable in many of the studies. Future studies into the low-level effects of MMWs should improve the experimental design with particular attention to dosimetry and temperature control. The results from epidemiological studies presented little evidence of an association between low-level MMWs and any adverse health effects. Future epidemiological research would benefit from specific investigation on the impact of 5 G and future telecommunication technologies.

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Compliance with ethical standards

Conflict of interest The authors declare no competing interest

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References

1. Wu T, Rappaport TS, Collins CM. Safe for generations to come: considerations of safety for millimeter waves in wireless communications. IEEE Micro Mag. 2015;16:65–84.
2. Health protection agency (HPA). Health effects from radiofrequency electromagnetic fields: the report of the independent advisory group on non-ionising radiation (AGNIR). HPA. 2012; RCE 20.
3. Scientific committee on emerging and newly identified health risks (SCENHIR). Potential health effects of exposure to electromagnetic fields (EMF). Euro Comm. 2015; 1831-4783.
4. Australian radiation protection and nuclear safety agency (ARPANSA). Radiation protection standard for maximum exposure levels to radiofrequency fields—3 kHz to 300 GHz. Radiation Protection Series 3. ARPANSA; 2002.
5. International Commission on Non-Ionizing Radiation Protection (ICNIRP). ICNIRP guidelines for limiting exposure to electromagnetic fields (100 KHz to 300 GHz). Health Phys. 2020;118:483–524.
6. Institute of electrical and electronics engineers (IEEE). IEEE standard for safety levels with respect to human exposure to electric, magnetic, and electromagnetic fields, 0 Hz to 300 GHz. IEEE 2019; C95.1.
7. Stam R. Comparison of international policies on electromagnetic fields (power frequency and radiofrequency fields). National institute for public health and the environment, RIVM 2018.
8. Simkó M, Mattsson MO. 5G Wireless communication and health effects—a pragmatic review based on available studies regarding 6 to 100 GHz. Int J Environ Res Public Health. 2019;16:3406.
9. Wood A, Mate R, Karipidis K. Meta-analysis of in vitro and in vivo studies of the biological effects of low-level millimetre waves. 2020. https://doi.org/10.1038/s41370-021-00307-7.
10. International commission on non-Ionizing radiation protection (ICNIRP). Exposure to high frequency electromagnetic fields, biological effects and health consequences (100 kHz-300 GHz). ICNIRP 2009; 978-3-934994-10-2.
11. International agency for research on cancer (IARC). IARC monographs: non-ionizing radiation, part 2: radiofrequency electromagnetic fields. IARC 2013;102:1–460.
12. Garaj-Vrhovac V, Horvat D, Koren Z. The relationship between colony-forming ability, chromosome aberrations and incidence of micronuclei in V79 Chinese hamster cells exposed to microwave radiation. Mutat Res Lett. 1991;263:143–9.
13. Garaj-Vrhovac V, Fučić A, Horvat D. The correlation between the frequency of micronuclei and specific chromosome aberrations in human lymphocytes exposed to microwave radiation in vitro. Mutat Res Lett. 1992;281:181–6.
14. Korenstein-Ilan A, Barbul A, Hasin P, Eliran A, Gover A, Korenstein R. Terahertz radiation increases genomic instability in human lymphocytes. Radiat Res. 2008;170:224–34.
15. Hintzsche H, Jastrow C, Kleine-Ostmann T, Kärst U, Schrader T, Stopper H. Terahertz electromagnetic fields (0.106 THz) do not induce manifest genomic damage in vitro. PloS One. 2012;7: e46397.
16. Koyama S, Narita E, Shimizu Y, Suzuki Y, Shiina T, Taki M, et al. Effects of long-term exposure to 60 GHz millimeter-wavelength radiation on the genotoxicity and heat shock protein (Hsp) expression of cells derived from human eye. Int J Environ Res Public Health. 2016;13:802.
17. Koyama S, Narita E, Suzuki Y, Shiina T, Taki M, Shinohara N, et al. Long-term exposure to a 40-GHz electromagnetic field does not affect genotoxicity or heat shock protein expression in HCE-T or SRA01/04 cells. J Radiat Res. 2019;60:417–23.
18. De Amicis A, De Sanctis S, Di Cristofaro S, Franchini V, Lista F, Regalbuto E, et al. Biological effects of in vitro THz radiation exposure in human foetal fibroblasts. Mutat Res Genet Toxicol Environ Mutagen. 2015;793:150–60.
19. Franchini V, Regalbuto E, De Amicis A, De Sanctis S, Di Cristofaro S, Coluzzi E, et al. Genotoxic effects in human fibroblasts exposed to microwave radiation. Health Phys. 2018;115:126–39.

20. Shckorbatov YG, Grigoryeva NN, Shakhbazov VG, Grabina VA, Bogoslavsky AM. Microwave irradiation influences on the state of human cell nuclei. Bioelectromagnetics. 1998;19:414–9.
21. Shckorbatov YG, Pasiuga VN, Kolchigin NN, Grabina VA, Batrakov DO, Kalashnikov VV. The influence of differently polarised microwave radiation on chromatin in human cells. Int J Radiat Biol. 2009;85:322–9.
22. Shckorbatov YG, Pasiuga VN, Goncharuk EI, Petrenko TP, Grabina VA, Kolchigin NN, et al. Effects of differently polarized microwave radiation on the microscopic structure of the nuclei in human fibroblasts. J Zhejiang Univ Sci B. 2010;11:801–5.
23. Paulraj R, Behari J. Single strand DNA breaks in rat brain cells exposed to microwave radiation. Mutat Res. 2006;596:76–80.
24. Kesari KK, Behari J. Fifty-gigahertz microwave exposure effect of radiations on rat brain. Appl Biochem Biotechnol. 2009;158:126.
25. Kumar S, Kesari KK, Behari J. Evaluation of genotoxic effects in male Wistar rats following microwave exposure. Indian J Exp Biol. 2010;48:586–92.
26. Crouzier D, Perrin A, Torres G, Dabouis V, Debouzy JC. Pulsed electromagnetic field at 9.71 GHz increase free radical production in yeast (Saccharomyces cerevisiae). Patho Biol. 2009;57:245–51.
27. Smolyanskaya AZ, Vilenskaya RL. Effects of millimeter-band electromagnetic radiation on the functional activity of certain genetic elements of bacterial cells. Sov Phys. 1974;16:571. USPEKHI
28. Lukashevsky KV, Belyaev IY. Switching of prophage lambda genes in Escherichia coli by millimetre waves. Med Sci Res. 1990;18:955–7.
29. Kalantaryan VP, Vardevanyan PO, Babayan YS, Gevorgyan ES, Hakobyan SN, Antonyan AP. Influence of low intensity coherent electromagnetic millimeter radiation (EMR) on aqua solution of DNA. Prog Electromag Res. 2010;13:1–9.
30. Hintzsche H, Jastrow C, Kleine-Ostmann T. Terahertz radiation induces spindle disturbances in human-hamster hybrid cells. Radiat Res. 2011;175:569–74.
31. Zeni O, Gallerano GP, Perrotta A, Romano M, Sannino A, Sarti M, et al. Cytogenetic observations in human peripheral blood leukocytes following in vitro exposure to THz radiation: a pilot study. Health Phys. 2007;92:349–57.
32. Gapeyev A, Lukyanova N, Gudkov S. Hydrogen peroxide induced by modulated electromagnetic radiation protects the cells from DNA damage. Open Life Sci. 2014;9:915–21.
33. Gapeyev AB, Lukyanova NA. Pulse-modulated extremely high-frequency electromagnetic radiation protects cellular DNA from the damaging effects of physical and chemical factors in vitro. Biophys. 2015;60:732–8.
34. Webb SJ, Dodds DD. Inhibition of bacterial cell growth by 136 GC microwaves. Nature. 1968;218:374–5.
35. Webb SJ, Booth AD. Absorption of microwaves by microorganisms. Nature. 1969;222:1199–200.
36. Rojavin MA, Ziskin MC. Effect of millimeter waves on survival of UVC-exposed Escherichia coli. Bioelectromagnetics. 1995;16:188–96.
37. Pakhomova ON, Pakhomov AG, Akyel Y. Effect of millimeter waves on UV-induced recombination and mutagenesis in yeast. Bioelectrochem Bioenerg. 1997;43:227–32.
38. Cohen I, Cahan R, Shani G, Cohen E, Abramovich A. Effect of 99 GHz continuous millimeter wave electro-magnetic radiation on E. coli viability and metabolic activity. Int J Radiat Biol. 2010;86:390–9.
39. Tadevosyan H, Kalantaryan V, Trchounian A. Extremely high frequency electromagnetic radiation enforces bacterial effects of inhibitors and antibiotics. Cell Biochem Biophys. 2008;51:97–103.
40. Torgomyan H, Trchounian A. Low-intensity electromagnetic irradiation of 70.6 and 73 GHz frequencies enhances the effects of disulfide bonds reducer on Escherichia coli growth and affects the bacterial surface oxidation–reduction state. Biochem Biophys Res Commun. 2011;414:265–9.
41. Torgomyan H, Kalantaryan V, Trchounian A. Low intensity electromagnetic irradiation with 70.6 and 73 GHz frequencies affects Escherichia coli growth and changes water properties. Cell Biochem Biophys. 2011;60:275–81.
42. Torgomyan H, Hovnanyan K, Trchounian A. Escherichia coli growth changes by the mediated effects after low-intensity electromagnetic irradiation of extremely high frequencies. Cell Biochem Biophys. 2012;65:445–54.
43. Torgomyan H, Ohanyan V, Blbulyan S, Kalantaryan V, Trchounian A. Electromagnetic irradiation of Enterococcus hirae at low-intensity 51.8-and 53.0-GHz frequencies: changes in bacterial cell membrane properties and enhanced antibiotics effects. FEMS microbiol Lett. 2012;329:131–7.
44. Soghomonyan D, Trchounian A. Comparable effects of low-intensity electromagnetic irradiation at the frequency of 51.8 and 53 GHz and antibiotic ceftazidime on Lactobacillus acidophilus growth and survival. Cell Biochem Biophys. 2013;67:829–35.
45. Hovnanyan K, Kalantaryan V, Trchounian A. The distinguishing effects of low-intensity electromagnetic radiation of different extremely high frequencies on Enterococcus hirae: growth rate inhibition and scanning electron microscopy analysis. Lett Appl microbiol. 2017;65:220–5.
46. Grundler W, Keilmann F. Nonthermal effects of millimeter microwaves on yeast growth. Z Naturforsch. 1977;33:15–22.
47. Grundler W, Keilmann F. Sharp resonances in yeast growth prove nonthermal sensitivity to microwaves. Phys Rev Lett. 1983;51:1214.
48. Furia L, Hill DW, Gandhi OMP. Effect of millimeter-wave irradiation on growth of Saccharomyces cerevisiae. IEEE Trans Biom Eng. 1986;33:993–9.
49. Gos P, Eicher B, Kohli J, Heyer WD. Extremely high frequency electromagnetic fields at low power density do not affect the division of exponential phase Saccharomyces cerevisiae cells. Bioelectromagnetics. 1997;18:142–55.
50. Chidichimo G, Beneduci A, Nicoletta M, Critelli M, De RR, Tkatchenko Y, et al. Selective inhibition of tumoral cells growth by low power millimeter waves. Anticancer Res. 2002;22:1681–8.
51. Beneduci A, Chidichimo G, Tripepi S, Perrotte E. Frequency and irradiation time-dependant antiproliferative effect of low-power millimeter waves on RPMI 7932 human melanoma cell line. Anticancer Res. 2005;25(2A):1023–8.
52. Beneduci A, Chidichimo G, Tripepi S, Perrotte E. Transmission electron microscopy study of the effects produced by wide-band low-power millimeter waves on MCF-7 human breast cancer cells in culture. Anticancer Res. 2005;25(2A):1009–13.
53. Beneduci A. Evaluation of the potential in vitro antiproliferative effects of millimeter waves at some therapeutic frequencies on RPMI 7932 human skin malignant melanoma cells. Cell Biochem Biophys. 2009;1:25–32.
54. Beneduci A, Chidichimo G, Tripepi S, Perrotta E, Cufone F. Antiproliferative effect of millimeter radiation on human erythromyeloid leukemia cell line K562 in culture: ultrastructural- and metabolic-induced changes. Bioelectrochemistry. 2007;70:214–20.
55. Yaekashiwa N, Otsuki S, Hayashi SI, Kawase K. Investigation of the non-thermal effects of exposing cells to 70–300 GHz irradiation using a widely tunable source. J Radiat Res. 2017;59:116–21.
56. Badzhinyan SA, Sayadyan AB, Sarkisyan NK, Grigoryan RM, Gasparyan GG. Lethal effect of electromagnetic radiation of the

millimeter wavelength range on cell cultures of chicken embryo. Dokl Biochem Biophys. 2001;377:94–5.
57. Shiina T, Suzuki Y, Kasai Y, Inami Y, Taki M, Wake K. Effect of two-times 24 h exposures to 60 GHz millimeter-waves on neurite outgrowth in PC12VG cells in consideration of polarization. IEEE Int Sympo Electromag Compat. 2014;13:166–9.
58. Le Quément C, Nicolas Nicolaz C, Zhadobov M, Desmots F, Sauleau R, Aubry M, et al. Whole-genome expression analysis in primary human keratinocyte cell cultures exposed to 60 GHz radiation. Bioelectromagnetics. 2012;33:147–58.
59. Zhadobov M, Sauleau R, Le Coq L, Thouroude D, Orlov I, Michel D et al. 60 GHz electromagnetic fields do not activate stress-sensitive gene expression. IEEE 11th Int Sympo on Antenna Technol and appl electromag. 2005;11:1–4.
60. Zhadobov M, Sauleau R, Le Coq L, Debure L, Thouroude D, Michel D, et al. Low-power millimeter wave radiations do not alter stress-sensitive gene expression of chaperone proteins. Bioelectromagnetics. 2007;28:188–96.
61. Zhadobov M, Nicolaz CN, Sauleau R, Desmots F, Thouroude D, Michel D, et al. Evaluation of the potential biological effects of the 60-GHz millimeter waves upon human cells. IEEE Trans Antennas Propag. 2009;57:2949–56.
62. Nicolaz CN, Zhadobov M, Desmots F, Ansart A, Sauleau R, Thouroude D, et al. Study of narrow band millimeter-wave potential interactions with endoplasmic reticulum stress sensor genes. Bioelectromagnetics. 2008;30:365–73.
63. Nicolaz CN, Zhadobov M, Desmots F, Sauleau R, Thouroude D, Michel D, et al. Absence of direct effect of low-power millimeter-wave radiation at 60.4 GHz on endoplasmic reticulum stress. Cell Biol Toxicol. 2009;25:471–8.
64. Belyaev IY, Alipov YD, Shcheglov VS, Lystsov VN. Resonance effect of microwaves on the genome conformational state of E. coli cells. Z Naturforsch C. 1992;47:621–7.
65. Belyaev IY, Shcheglov VS, Alipov YD. Existence of selection rules on helicity during discrete transitions of the genome conformational state of E. coli cells exposed to low-level millimetre radiation. Bioelectrochem Bioenerg. 1992;27:405–11.
66. Belyaev IY, Shcheglov VS, Alipov YD. Selection rules on helicity during discrete transitions of the genome conformational state in intact and X-rayed cells of E. coli in millimeter range of electromagnetic field. Charg Field Eff Biosyst. 1992;3:115–26.
67. Belyaev I, Alipov YD, Shcheglov VS, Chromosome DNA. as a target of resonant interaction between Escherichia coli cells and low–intensity millimeter waves. Electro Magnetobiol. 1992;11:97–108.
68. Belyaev IY, Alipov YD, Polunin VA, Shcheglov VS. Evidence for dependence of resonant frequency of millimeter wave interaction with Escherichia coli K12 cells on haploid genome length. Electro Magnetobiol. 1993;12:39–49.
69. Belyaev IY, Shcheglov VS, Alipov YD, Radko SP. Regularities of separate and combined effects of circularly polarized millimeter waves on E. coli cells at different phases of culture growth. Bioelectrochem Bioenerg. 1993;31:49–63.
70. Belyaev IY, Alipov YD, Shcheglov VS, Polunin VA, Aizenberg OA. Cooperative response of Escherichia coli cells to the resonance effect of millimeter waves at super low intensity. Electro Magnetobiol. 1994;13:53–66.
71. Belyaev IY, Kravchenko VG. Resonance effect of low-intensity millimeter waves on the chromatin conformational state of rat thymocytes. Z Naturforsch. 1994;49:352–8.
72. Belyaev IY, Shcheglov VS, Alipov YD, Polunin VA. Resonance effect of millimeter waves in the power range from 10-19 to 3× 10-3 W/cm2 on Escherichia coli cells at different concentrations. Bioelectromagnetics. 1996;17:312–21.
73. Shcheglov VS, Belyaev I, Alipov YD, Ushakov VL. Power-dependent rearrangement in the spectrum of resonance effect of millimeter waves on the genome conformational state of Escherichia Coli cells. Electro Magnetobiol. 1997;16:69–82.
74. Shcheglov VS, Alipov ED, Belyaev I. Cell-to-cell communication in response of E. coli cells at different phases of growth to low-intensity microwaves. Biochim biophys Acta. 2002;1572:101–6.
75. Gandhi OP, Hagmann MJ, Hill DW, Partlow LM, Bush L. Millimeter wave absorption spectra of biological samples. Bioelectromagnetics. 1980;1:285–98.
76. Bush LG, Hill DW, Riazi A, Stensaas LJ, Partlow LM, Gandhi OP. Effects of millimeter-wave radiation on monolayer cell cultures. III. A search for frequency-specific athermal biological effects on protein synthesis. Bioelectromagnetics. 1981;2:151–9.
77. Belyaev IY, Shcheglov VS, Alipov ED, Ushakov VD. Nonthermal effects of extremely high-frequency microwaves on chromatin conformation in cells in vitro—dependence on physical, physiological, and genetic factors. IEEE Trans Micro Theory Tech. 2000;48:2172–9.
78. Pakhomov AG, Akyel Y, Pakhomova ON, Stuck BE, Murphy MR. Current state and implications of research on biological effects of millimeter waves: a review of the literature. Bioelectromagnetics. 1998;19:393–413.
79. Minasyan SM, Grigoryan GY, Saakyan SG, Akhumyan AA, Kalantaryan VP. Effects of the action of microwave-frequency electromagnetic radiation on the spike activity of neurons in the supraoptic nucleus of the hypothalamus in rats. Neurosci Behav Physiol. 2007;37:175–80.
80. Pikov V, Arakaki X, Harrington M, Fraser SE, Siegel PH. Modulation of neuronal activity and plasma membrane properties with low-power millimeter waves in organotypic cortical slices. J Neural Eng. 2010;7:045003.
81. Munemori J, Ikeda T. Effects of low-level microwave radiation on the eye of the crayfish. Med Biol Eng Comput. 1982;20:84–8.
82. Munemori J, Ikeda T. Biological effects of X-band microwave radiation on the eye of the crayfish. Med Biol Eng Comput. 1984;22:263–7.
83. Pakhomov AG, Prol HK, Mathur SP, Akyel Y, Campbell CB. Frequency-specific effects of millimeter-wavelength electromagnetic radiation in isolated nerve. Electro Magnetobiol. 1997;16:43–57.
84. Pakhomov AG, Prol HK, Mathur SP, Akyel Y, Campbell CB. Search for frequency-specific effects of millimeter-wave radiation on isolated nerve function. Bioelectromagnetics. 1997;18:324–34.
85. Pakhomov AG, Prol HK, Mathur SP, Akyel Y, Campbell CB. Role of field intensity in the biological effectiveness of millimeter waves at a resonance frequency. Bioelectrochem Bioenerg. 1997;43:27–33.
86. Pikov V, Siegel PH. Millimeter wave-induced changes in membrane properties of leech Retzius neurons. Photonic Therapeutics Diagnostics. 2011;7883:56–1.
87. Romanenko S, Siegel PH, Pikov V. Microdosimetry and physiological effects of millimeter wave irradiation in isolated neural ganglion preparation. IEEE 2013 International kharkov symposium on physics and engineering of microwaves, millimeter and submillimeter waves. IEEE. 2013;13:512–6.
88. Romanenko S, Siegel PH, Wagenaar DA, Pikov V. Effects of millimeter wave irradiation and equivalent thermal heating on the activity of individual neurons in the leech ganglion. J Neurophysiol. 2014;112:2423–31.
89. Beneduci A, Filippelli L, Cosentino K, Calabrese ML, Massa R, Chidichimo G. Microwave induced shift of the main phase transition in phosphatidylcholine membranes. Bioelectrochemistry. 2012;1:18–24.
90. Beneduci A, Cosentino K, Chidichimo G. Millimeter wave radiations affect membrane hydration in phosphatidylcholine vesicles. Materials. 2013;6:2701–12.

91. Beneduci A, Cosentino K, Romeo S, Massa R, Chidichimo G. Effect of millimetre waves on phosphatidylcholine membrane models: a non-thermal mechanism of interaction. Soft Matter. 2014;10:5559–67.
92. Geletyuk VI, Kazachenko VN, Chemeris NK, Fesenko EE. Dual effects of microwaves on single Ca2+-activated K+ channels in cultured kidney cells Vero. FEBS Lett. 1995;359:85–8.
93. Chen Q, Zeng QL, Lu DQ, Chiang H. Millimeter wave exposure reverses TPA suppression of gap junction intercellular communication in HaCaT human keratinocytes. Bioelectromagnetics. 2004;25:1–4.
94. Shckorbatov YG, Shakhbazov VG, Navrotskaya VV, Grabina VA, Sirenko SP, Fisun AI, et al. Application of intracellular microelectrophoresis to analysis of the influence of the low-level microwave radiation on electrokinetic properties of nuclei in human epithelial cells. Electrophoresis. 2002;23:2074–9.
95. Zhadobov M, Sauleau R, Vié V, Himdi M, Le Coq L, Thouroude D. Interactions between 60-GHz millimeter waves and artificial biological membranes: dependence on radiation parameters. IEEE Trans Micro Theory Tech. 2006;54:2534–42.
96. Deghoyan A, Heqimyan A, Nikoghosyan A, Dadasyan E, Ayrapetyan S. Cell bathing medium as a target for non thermal effect of millimeter waves. Electromag Biol Med. 2012;31:132–42.
97. D'Agostino S, Della Monica C, Palizzi E, Di Pietrantonio F, Benetti M, Cannatà D, et al. Extremely high frequency electromagnetic fields facilitate electrical signal propagation by increasing transmembrane potassium efflux in an artificial axon model. Sci Rep. 2018;8:9299.
98. Ramundo-Orlando A, Longo G, Cappelli M, Girasole M, Tarricone L, Beneduci A, et al. The response of giant phospholipid vesicles to millimeter waves radiation. Biochem Biophys Acta. 2009;1788:1497–507.
99. Di Donato L, Cataldo M, Stano P, Massa R, Ramundo-Orlando A. Permeability changes of cationic liposomes loaded with carbonic anhydrase induced by millimeter waves radiation. Radiat Res. 2012;178:437–46.
100. Cosentino K, Beneduci A, Ramundo-Orlando A, Chidichimo G. The influence of millimeter waves on the physical properties of large and giant unilamellar vesicles. J Biol Phys. 2013;39:395–410.
101. Manikowska E, Luciani JM, Servantie B, Czerski P, Obrenovitch J, Stahl A. Effects of 9.4 GHz microwave exposure on meiosis in mice. Experientia. 1979;35:388–90.
102. Subbotina TI, Tereshkina OV, Khadartsev AA, Yashin AA. Effect of low-intensity extremely high frequency radiation on reproductive function in Wistar rats. Bull Exp Biol Med. 2006;142:189–90.
103. Volkova NA, Pavlovich EV, Gapon AA, Nikolov OT. Effects of millimeter-wave electromagnetic exposure on the morphology and function of human cryopreserved spermatozoa. Bull Exp Biol Med. 2014;157:574–6.
104. Kesari KK, Behari J. Microwave exposure affecting reproductive system in male rats. Appl Biochem Biotechnol. 2010;162: 416–28.
105. Kumar S, Kesari KK, Behari J. Influence of microwave exposure on fertility of male rats. Fertil Steril. 2011;95:1500–2.
106. Gapeyev AB, Safronova VG, Chemeris NK, Fesenko EE. Inhibition of the production of reactive oxygen species in mouse peritoneal neutrophils by millimeter wave radiation in the near and far field zones of the radiator. Bioelectrochem Bioenerg. 1997;43:217–20.
107. Gapeyev AB, Yakushina VS, Chemeris NK, Fesenko EE. Modification of production of reactive oxygen species in mouse peritoneal neutrophils on exposure to low-intensity modulated millimeter wave radiation. Bioelectrochem Bioenerg. 1998;46:267–72.
108. Safronova VG, Gabdoulkhakova AG, Santalov BF. Immunomodulating action of low intensity millimeter waves on primed neutrophils. Bioelectromagnetics. 2002;23:599–606.
109. Homenko A, Kapilevich B, Kornstein R, Firer MA. Effects of 100 GHz radiation on alkaline phosphatase activity and antigen–antibody interaction. Bioelectromagnetics. 2009;30:167–75.
110. Gapeyev AB, Kulagina TP, Aripovsky AV, Chemeris NK. The role of fatty acids in anti-inflammatory effects of low-intensity extremely high-frequency electromagnetic radiation. Bioelectromagnetics. 2011;32:388–95.
111. Gapeyev AB, Kulagina TP, Aripovsky AV. Exposure of tumor-bearing mice to extremely high-frequency electromagnetic radiation modifies the composition of fatty acids in thymocytes and tumor tissue. Int J Radiat Biol. 2013;89:602–10.
112. Gapeyev AB, Aripovsky AV, Kulagina TP. Modifying effects of low-intensity extremely high-frequency electromagnetic radiation on content and composition of fatty acids in thymus of mice exposed to X-rays. Int J Radiat Biol. 2015;91:277–85.
113. Rotkovská D, Moc J, Kautská J, Bartonícková A, Keprtová J, Hofer M. Evaluation of the biological effects of police radar RAMER 7F. Environ Health Perspect. 1993;101:134–6.
114. Müller J, Hadeler KP, Müller V, Waldmann J, Landstorfer FM, Wisniewski R, et al. Influence of low power cm-/mm-microwaves on cardiovascular function. Int J Environ Health Res. 2004;14:331–41.
115. Webb SJ, Booth AD. Microwave absorption by normal and tumor cells. Science. 1971;1:72–4. 174
116. Stensaas LJ, Partlow LM, Bush LG, Iversen PL, Hill DW, Hagmann MJ, et al. Effects of millimeter-wave radiation on monolayer cell cultures. II. Scanning and transmission electron microscopy. Bioelectromagnetics. 1981;2:141–50.
117. Bellossi A, Dubost G, Moulinoux JP, Himdi M, Ruelloux M, Rocher C. Biological effects of millimeter wave irradiation on mice-preliminary results. IEEE Trans Micro Theory Tech. 2000;48:2104–10.
118. Olchowik G, Maj JG. Inhibitory action of microwave radiation on gamma-glutamyl transpeptidase activity in liver of rats treated with hydrocortisone. Folia Histochemica Et Cytobiologica. 2000;38:189–91.
119. Khizhnyak EP, Ziskin MC. Temperature oscillations in liquid media caused by continuous (nonmodulated) millimeter wavelength electromagnetic irradiation. Bioelectromagnetics. 1996;17:223–9.
120. Sarapultseva EI, Igolkina JV, Tikhonov VN, Dubrova YE. The in vivo effects of low-intensity radiofrequency fields on the motor activity of protozoa. Int J Radiat Biol. 2014;90:262–7.
121. Robinette CD, Silverman C, Jablon S. Effects upon health of occupational exposure to microwave radiation (radar). Am J Epidemiol. 1980;112:39–53.
122. Groves FD, Page WF, Gridley G, Lisimaque L, Stewart PA, Tarone RE, et al. Cancer in Korean war navy technicians: mortality survey after 40 years. Am J Epidemiol. 2002;155:810–8.
123. Degrave E, Autier P, Grivegnée AR, Zizi M. All-cause mortality among Belgian military radar operators: a 40-year controlled longitudinal study. Eur J Epidemiol. 2005;20:677–81.
124. Degrave E, Meeusen B, Grivegnée AR, Boniol M, Autier P. Causes of death among Belgian professional military radar operators: a 37-year retrospective cohort study. Int J Cancer. 2009;124:945–51.
125. Dabouis V, Arvers P, Debouzy JC, Sebbah C, Crouzier D, Perrin A. First epidemiological study on occupational radar exposure in the French Navy: a 26-year cohort study. Int J Environ Health Res. 2016;26:131–44.
126. Hayes RB, Brown LM, Pottern LM, Gomez M, Kardaun JW, Hoover RN, et al. Occupation and risk for testicular cancer: a case-control study. Int J Epidemiol. 1990;19:825–31.

127. Davis RL, Mostofi FK. Cluster of testicular cancer in police officers exposed to hand-held radar. Am J Ind Med. 1993;24:231–3.
128. Hardell LE, Näsman A, Ohlson CG, Fredrikson MA. Case-control study on risk factors for testicular cancer. Int J Oncol. 1998;13:1299–602.
129. Baumgardt-Elms C, Ahrens W, Bromen K, Boikat U, Stang A, Jahn I, et al. Testicular cancer and electromagnetic fields (EMF) in the workplace: results of a population-based case–control study in Germany. Cancer Causes Control 2002;13:895–902.
130. Walschaerts M, Muller A, Auger J, Bujan L, Guérin JF, Lannou DL, et al. Environmental, occupational and familial risks for testicular cancer: a hospital-based case-control study. Int J Androl. 2007;30:222–9.
131. Grayson JK. Radiation exposure, socioeconomic status, and brain tumor risk in the US Air Force: a nested case-control study. Am J Epidemiol. 1996;143:480–6.
132. Santana VS, Silva M, Loomis D. Brain neoplasms among naval military men. Int J Occup Environ health. 1999;5:88–94.
133. Holly EA, Aston DA, Ahn DK, Smith AH. Intraocular melanoma linked to occupations and chemical exposures. Epidemiology. 1996;1:55–61.
134. Stang A, Anastassiou G, Ahrens W, Bromen K, Bornfeld N, Jöckel KH. The possible role of radiofrequency radiation in the development of uveal melanoma. Epidemiology. 2001;1:7–12.
135. La Vecchia CA, Negri E, D'avanzo BA, Franceschi S. Occupation and the risk of bladder cancer. Int J Epidemiol. 1990;19:264–8.
136. Finkelstein MM. Cancer incidence among Ontario police officers. Am J Ind Med. 1998;34:157–62.
137. Fabbro-Peray P, Daures JP, Rossi JF. Environmental risk factors for non-Hodgkin's lymphoma: a population-based case–control study in Languedoc-Roussillon, France. Cancer Causes Control. 2001;12:201–12.
138. Variani AS, Saboori S, Shahsavari S, Yari S, Zaroushani V. Effect of occupational exposure to radar radiation on cancer risk: a systematic review and meta-analysis. Asian Pac J cancer prev. 2019;20:3211–9.
139. Weyandt TB, Schrader SM, Turner TW, Simon SD. Semen analysis of military personnel associated with military duty assignments. Reprod Toxicol. 1996;10:521–8.
140. Hjollund NH, Bonde JP, Skotte J. Semen analysis of personnel operating military radar equipment. Reprod Toxicol. 1997;11:897
141. Schrader SM, Langford RE, Turner TW, Breitenstein MJ, Clark JC, Jenkins BL. Reproductive function in relation to duty assignments among military personnel. Reprod Toxicol. 1998;12:465–8.
142. Velez De La Calle JF, Rachou E, le Martelot MT, Ducot B, Multigner L, Thonneau PF. Male infertility risk factors in a French military population. Hum reprod. 2001;16:481–6.
143. Baste V, Riise T, Moen BE. Radiofrequency electromagnetic fields; male infertility and sex ratio of offspring. Eur J Epidemiol. 2008;23:369–77.
144. Møllerløkken OJ, Moen BE. Is fertility reduced among men exposed to radiofrequency fields in the Norwegian Navy? Bioelectromagnetics. 2008;29:345–52.
145. De Roos AJ, Teschke K, Savitz DA, Poole C, Grufferman S, Pollock BH, et al. Parental occupational exposures to electromagnetic fields and radiation and the incidence of neuroblastoma in offspring. Epidemiology. 2001;1:508–17.
146. Mageroy N, Mollerlokken OJ, Riise T, Koefoed V, Moen BE. A higher risk of congenital anomalies in the offspring of personnel who served aboard a Norwegian missile torpedo boat. Occup Environ Med. 2006;63:92–7.
147. Baste V, Moen BE, Oftedal G, Strand LA, Bjørge L, Mild KH. Pregnancy outcomes after paternal radiofrequency field exposure aboard fast patrol boats. J Occup Environ Med. 2012;54:431–8.
148. Beard JD, Kamel F. Military service, deployments, and exposures in relation to amyotrophic lateral sclerosis etiology and survival. Epidemiol Rev. 2015;37:55–70.
149. Garaj-Vrhovac V, Gajski G, Pažanin S, Šarolić A, Domijan AM, Flajs D, et al. Assessment of cytogenetic damage and oxidative stress in personnel occupationally exposed to the pulsed microwave radiation of marine radar equipment. Int J Hyg Environ Health. 2011;214:59–65.
150. Mortazavi SM, Shahram TA, Dehghan N. Alterations of visual reaction time and short term memory in military radar personnel. Iran J Public Health. 2013;42:428.
151. Singh S, Mani KV, Kapoor N. Effect of occupational EMF exposure from radar at two different frequency bands on plasma melatonin and serotonin levels. Int J Radiat Biol. 2015;91:426–34.
152. Ahlbom A, Green A, Kheifets L, Savitz D, Swerdlow A. ICNIRP standing committee on epidemiology: epidemiology of health effects of radiofrequency exposure. Environ Health Perspect. 2004;112:1741–54.
153. Savitz DA. Exposure assessment strategies in epidemiological studies of health effects of electric and magnetic fields. Sci Total Environ. 1995;168:143–53.
154. J-H Kim S, Ioannides SJ, Elwood JM. Trends in incidence of primary brain cancer in New Zealand, 1995 to 2010. Aust NZ J Public Health. 2015;39:148–52.
155. Karipidis K, Elwood M, Benke G, Sanagou M, Tjong L, Croft RJ. Mobile phone use and incidence of brain tumour histological types, grading or anatomical location: a population-based ecological study. BMJ Open. 2018;8:e024489.

Education Committee of the Whole Report
Tuesday, November 16, 2021
VIA ZOOM
2:30 p.m.

Mandate: *To discuss and make recommendations to the board on the general directions for education in the district, and to serve as a vehicle for regular reports to the board on educational programs and services.*

1. ACKNOWLDEGEMENT OF TRADITIONAL TERRITORIES

2. OPENING COMMENTS

3. SHARED LEARNING

a. False Bay School: Digging with Dana – FBS Students Connect with Simon Fraser University Professor of Archaeology
A wonderful presentation with pictures from Peta Knight, with video clips of students speaking of their learning.

b. Marcela Ortiz, School District Social Worker
A very unique position in BC. Marcela gave us the understanding of what her position does with supporting families, students and staff. She spoke of post pandemic impacts and helping families with community supports, financial stress and crisis. She acts as the connection with the various ministries for our students and teachers.

c. Teaching & Learning Team
Team introduction and their roles. Lots of experience and really look forward to meeting with them near school year end and learn about where the focus was and should go in the future.

d. Update from Director of Instruction

i. **SOGI Summit**, a virtual meeting was held with all school leads.

ii. **District Learning** – the first in a dinner series on assessment had approximately 70 educators in attendance. The session was a great success and attendees commented how wonderful it was to be meeting in person again. There are 2 more sessions planned this school year.

4. INFORMATION

a. 2021-2022 Learning Grant Update
There was a lot of interest with many applications being submitted containing lots of great initiatives. A bigger space for end of year sharing will be considered, maybe a 'fair' type of venue. Stay tuned.

b. Remembrance Day Activities

c. Winter Activities

5. DISCUSSION

6. QUESTION PERIOD

7. FUTURE TOPICS

8. NEXT MEETING DATE:

- Tuesday, January 18, 2022 at 2:30 p.m. (via Zoom until further notice)

9. ADJOURNMENT

Site	Teachers	Inquiry Question
AES	Gaynor Charnock Karen Fletcher Julie Whynacht	If we design flexible, play-based, inclusive UDL learning environments will this help our students to be more regulated in the classroom and then be able to engage more readily with each other and the learning intentions of the class?
AES/OES/QBES/NBES	Ruth Stefanek (T&L) Janice Proctor (AES) Adam Stefiuk (OES) Reuben Friesen (QBES) Maria Mihoc (NBES) Karen Mostad (NBES)	How can we use vertical surfaces to create a collaborative learning culture in our Grade 6 and 7 mathematics classrooms and enhance our professional practice?
BES	Tara McClinton Debbie Comer Monique Pelletier Cindy Neufeld	What shifts in our thinking, understanding and teaching practice of inclusive literature using a balanced literacy approach, will engage our diverse group of learners and significantly improve student achievement?
BSS	Jess Kerr Mindy Holman Terry Kent Francois Provencher	How can project-based learning increase student interest and engagement while leading to a deeper, more complex understanding of real-world challenges?
BSS	Lara Zalinko Ms. Kennedy	How can we nurture student choice, voice and autonomy in order to maximize student learning and engagement through a Universal Design for Learning (UDL) Lens
BSS/KSS	Ruth Stefanek (T&L) Christina Hardin (KSS) Gord Dodd (KSS) Traci Nesbitt (KSS) Joy Daniel (KSS) Maria Gonzales (KSS) Kas Tomiyama (BSS) Jessica Kerr (BSS) Melissa Gravel (BSS) Jaqueline La Fleur (BSS)	How can we use vertical surfaces to create a collaborative learning culture in our secondary mathematics classrooms and enhance our professional practice?
EES	Ashley ArmstrongJessica VirginFlo WongAmy Kazeil	Would like to continue the work begun through this grant last year. How does the design of learning environment (third teacher) enhance a child's potential to be calm (regulated), connected (relational) and a critical and creative thinker?
EES	Ellen Armbruster Claire Weir	Effective use of iPads to support inclusive literacy and numeracy programs

EES/SES/BSS	Rebecca L'Hirondelle - EES Roo Whetstone - EES Eric Neumeyer – SES Grade 8 teachers – BSS (TBD)	How can we create a shared understanding of strengths and needs between the elementary and secondary levels to help our grade 7 students be prepared for the academic and social-emotional expectations required for a successful transition to high school?
EOES	Erica Dragani Keira Angus	How can we implement a structure such as choice boards that will support a wide variability of learners?
EOES	Karen Lawrence Melanie Vogels Amy Grainger	How can direct and routine teaching surrounding learning skills, problem-solving and emotion management improve our student's social and personal awareness
FBS	Petra Knight Amanda Jahnke Adrian Esau	With a focus on staying local on Lasqueti Island, how can we use our community partnerships on Lasqueti in a COVID World to foster learning and social emotional well-being?
KSS	Kyle Dykstra Ben Leggett Carolin Mattice Heather Deering KSS student gov't Social Justice-Inclusion Fusion Global ROAMS student leadership possibly NOIIE team	How can KSS contribute to creating an inclusive learning environment that is focused on action for sustainability? How can bringing a community of experts together assist our students in developing personal and social responsibility and awareness towards equitable stewardship?
NBES	Karen Mostad Anna Dodds	Picture books and novel on the topic of diversity and inclusion, SOGI, physical and health education.
NBES	Tracie Finstad Becky Weiss	How can we work in reciprocity between school and community (Snaw-Naw-As)?
NBES	Chris Brown Tammi Burke Deanna Whiteside Anna Dodds	Resource materials to enable several project-based outdoor learning activities to be implemented this year for teachers to provide a variety of learning opportunities for their students to use and care for the outdoor spaces near the school
QBES	Paul Wunderlich	Will giving every student of specific grades an opportunity to try an extra-curricular physical activity during school time result in increased participation in sport and increased physical literacy?
QBES	Aleisha Stewart Kayla Mohr Ashley Kuramoto Elia Bravo Reid Wilson Bonnie Willers	Can working with a PALS dog create an emotional opening for improving student literacy and self-regulation?

SES Support Team	Sarah Hung Tarri Morrison Lauren Nikirk Victoria Langenmaier Pauline Danoit Kate Taylor Jenny Pearson	Through whole-school collaboration time how can we foster the use of UDL in the classroom?
SES/PASS-WW	Alanna Whitaker Tara Wolfe Martin Jedlik Sarah Hung Manisha Singh Eric Neumeyer	In what ways can we create meaningful outdoor excursions that ties many aspects of the BC Curriculum with place-based learning opportunities, Indigenous ways of knowing and being in connection to land, water and animals, Environment and SEL, that will encourage community, resilience, social/emotional well-being in our students, staff and community partners?
T&L	Autumn Taylor Martin Jedlik Alanna Whitaker Kathryn Lindahl Cheryl Beler	How can we create an Interactive Indigenous Enrichment Classroom (IIEC) that is an engaging learning environment for all students, staff, community and district members and provides ongoing opportunity to incorporate Indigenous perspectives and ways of knowing into the BC curriculum and the SD69 community?
T&L/EES/QBES/SLP	Denise Spencer-Dahl (T&L) Triona Boquist (EES) Teresa Holder (EES) Tabitha Smith (QBES) Lindsay Mitchell (QBES) Amy Kazeil (SLP)	How can we build capacity in teachers to support emergent reading instruction so that our classrooms are inclusive and honour the needs of all students?

~~STUDENT FEES AND BAND INSTRUMENTS~~ FEES AND SUBSIDIES

~~**Purpose**~~

~~It is the intention of the Board of Education to permit schools to charge fees to students only in circumstances permitted by the School Act and in conformity with the attached Regulations attendant Administrative Procedure. No student shall be denied access to a program, course or class because of financial hardship. Fees may not be charged for programs, courses or classes which are required to complete educational programs essential for graduation.~~

Context

The School Act S82 and S168 (2) (j) governs school related fees and rentals. Board of Education Fees (ministry order M236/07) and Provincial Fees (ministry order M140/89) further explains fees and rentals related to graduation from Schools in B.C.

Policy Statement

The Board will charge fees as needed and in full compliance with the School Act and Ministry Orders. No student will be denied access to a program, course or class that is required for graduation because they cannot afford the fee. Fees charged for extra-curriculum activities are covered in Policy ….

Guiding Principles

The Board believes that:

1. Every student has a right to complete a graduation program.
2. Any fees charged will be on a cost recovery basis.
3. A monthly boarding subsidy may be provided to families of eligible students to assist ~~families~~ with the costs associated with living away from home while pursuing graduation in a School District 69 school.

References:

- The School Act:
  https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96412_06#section82
  https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96412_11#section168
- Ministry Orders:
  https://www2.gov.bc.ca/assets/gov/education/administration/legislation-policy/legislation/schoollaw/e/m236_07.pdf
  https://www2.gov.bc.ca/assets/gov/education/administration/legislation-policy/legislation/schoollaw/e/m140_89.pdf
- *Administrative Procedures to Board Policy 703: Auxiliary Services (Fees/Subsidies)*

Dates of Adoption/Amendments:

Adopted: 1979.07.01

Amended: 1984.07.04: 1988.02.14: 1988.12.21: 1990.08.29: 1991.09.24: 1991.12.17: 1995.09.26: 1999.03.23: Reviewed 2005.09.19: 2010.02.23: **2018.02.27**

~~STUDENT FEES AND BAND INSTRUMENTS~~ FEES AND SUBSIDIES

Schools in which any student fees are to be levied must present their fee schedule to the Superintendent for approval by May 15 of each school year. Prior to June 30 each year, the Superintendent will present a schedule of fees for each school for Board approval.

Prior to the submission of the fee schedule to the Superintendent each school must present the proposed full fee schedule to the Parent Advisory Council of the school for consultation regarding the appropriateness and amount of the fees to be charged.

Each school must annually establish and communicate to parents/guardians the procedures to facilitate participation by any student who would otherwise be excluded from, or experience hindered access to, a program, class or course.

In general, the Board permits schools to charge the following types of fees to students provided that the above conditions are met by schools:

- Schools may charge for, or request that parents/guardians provide for students, personal supplies and equipment which school do not typically provide, such as: writing tools, notebooks, binders, gym wear, basic art supplies, basic calculator, student planners and other supplies for a student's personal use.
- The rental or purchase of musical instruments for a student's personal use. No student will be denied participation in the instrument music program because of inability to pay for the rental of an instrument. Such cases will be determined by the teacher in consultation with the Principal of the school.
- Schools may charge students a returnable deposit for the use by students of school or district equipment or learning resources which are expected to be returned by students after use.
- Fees may be charged for optional school special events, clubs, sporting and social activities which are not regulated by the *School Act* and which are not essential to the educational curriculum of the school. The Board expects schools to be sensitive to the issue of student/family financial hardship in making decisions to sponsor or organize extra-curricular activities.
- Fees may be charged for optional field trips which are not essential to the educational curriculum. If such field trips occur during the normal operating hours of the classroom, the Board requires that students who do not participate in the optional field trip will be provided with quality alternative educational experiences.
- Fees may be charged where students opt to use materials of superior quality - for example, in a shop class - provided that all students have the option of selecting materials of satisfactory quality without charge.
- Fees may be charged for specialty academies in accordance with Specialty Academy provisions of the *School Act*.
- Students in "trades programs" (as defined in the School Act) may be required to provide their own tools, equipment and materials, or the Board may charge fees for the purchase or rental of these items as per the *School Act*.

References:

- *The School Act*
- *Board Policy 703: Fees and Subsidies*

Dates of Adoption/Amendments:

- Adopted: 2018.02.27
- Amended:

STUDENT CATCHMENT AREAS/CROSS BOUNDARY TRANSFER/ DISTRICT BUS TRANSPORTATION

~~**Purpose**~~

~~The Board of Education has the responsibility to assign students to various schools in the School District, and authority to divide the District into areas for the purpose of assigning students to schools.~~

~~The Board of Education believes that, in general, students should attend schools designated by the Board for their particular attendance area. For purposes of school attendance, a student's residence shall be considered that of his/her parent(s) or legal guardian(s).~~

~~Parents/guardians may request permission for their children to attend schools outside their normal attendance area. Such a request may be made through submission of the Student Transfer Request form. When such permission is obtained, parents/guardians will be expected to assume responsibility for transportation, or any additional costs incurred by granting of a cross-boundary transfer.~~

Context

Under the School Act sections 74.1, 75, and 75.1, the Board has the responsibility to assign students to various schools in the School District, and authority to divide the District into catchment areas for the purpose of assigning students to schools.

Policy Statement

Generally, students will attend schools within their catchment area based on the parents/guardian's residence. In some circumstances crossing of catchment areas may be permitted upon request.

Guidelines

1. Approval of transfer is to be based on space availability in the requested school.

2. Parents/guardians will assume responsibility for transportation, or any additional costs incurred by granting of a cross-boundary transfer.

3. Bus transportation may be provided **to out of catchment students** if space is available on the bus with all expenses paid for by **parents/guardians**.

~~Definitions:~~

~~Space availability – may exist when there is expected, to be capacity to provide the student or applicant with an educational program appropriate to their needs.~~

References:

- The School Act (s74.1,s75,s75.1) https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96412_06#section74.1
- Administrative Procedure to Board Policy 704: *Student Catchment Areas – Cross Boundary Transfer.*

Dates of Adoption/Amendments:

Adopted: 1979.09.01

Amended: 1987.10.28: 1986.08.27: 1988.12.21: 1991.09.10: 2002.10.22: 2003.08.26: Review 2007:01:23: 2007.03.27: 2011.03.29: **2018.02.27**

Student Catchment Areas/cross Boundary Transfers

1. Changes in catchment areas, if required, shall be determined and approved by the Board not later than March 1, to be implemented in September.

2. Transfer of a student to a school outside of his/her catchment area will be considered upon written application of the parents/guardians to the Superintendent of Schools or designate, on or before the last Friday in March prior to Spring Break.

3. Approval of transfer is to be based on space availability in the requested school. Space availability is deemed to exist when there is expected, based on reasonable projections, to be capacity to provide the student or applicant with an educational program appropriate to his or her needs, taking into account physical and educational resources.

   The Board of Education delegates to the Superintendent of Schools or designate, the decisions as to whether space is available in individual schools and educational programs.

   Decisions on space and facilities availability will be made in consultation with the principal of the affected school and will be based on consideration of the following factors:
   - the operating capacity of the school as defined by the Ministry of Education
   - staff assigned to a school by the District
   - the physical space in which instructional programs operate in the school
   - the ability of the school to provide appropriate educational programs for the applicant and other students
   - the needs of other programs located in the school

   If space and facilities are determined to be available, enrolment in educational programs in the school will be offered in the following priority order, provided that application deadlines and requirements are met:
   - catchment area child who attended the school during the previous school year
   - other catchment area child
   - non-catchment area child
   - non-school district child

4. Students who reside within a defined school catchment area will be given placement priority up to September 30th of any school year. Transfer students may be returned to their catchment area school, or, upon a parents/guardian's request, to another District 69 school (subject to space availability) up to and including September 30th of any school year.

5. A student who has spent the previous school year in an approved cross-boundary placement at a District 69 school will be deemed to be a member of that school community.

This status will be retained upon transition to the secondary school which students from that school would normally attend based on district catchment areas.

6. Siblings of students (who, by nature of Regulation #5 above are considered "students of this school's catchment area") will, at the request of the parents/guardians through the completion of the district's Application for Cross-Boundary Enrollment form, be considered catchment area students for this school.

7. Access to District programs, such as Collaborative Education Alternative Program (CEAP), PASS/Woodwinds Alternate School or French Immersion, is not subject to Transfer Request approval.

8. Transportation or transportation assistance will be provided ~~(subject to Board Policy 7054)~~ for a student who cannot attend his or her catchment area school because space is not available.

9. Transportation for a student choosing to attend a non-catchment area school or district program is the responsibility of the parents/guardians.

Transportation of Students by District School Bus Service

1. Walk limits are distances determined by the Ministry of Education. Funding is based on provincially established eligibility walk limits. The Board will establish local walk limits annually.

2. Exceptions to established walk limits are:
   a. Students at all grade levels who are living, and attending school, in the catchment areas for Nanoose Bay, Errington, and Bowser Elementary Schools, will have an eligible walk limit of 1.5 km.
   b. Special needs students, where transportation costs are recognized on a door-to-door basis for those students diagnosed unable to walk to school due to physical or mental disabilities and therefore need to travel to school by vehicle.
   c. Extra curricular activities, when funding is provided for this service by schools.

3. The need for transportation fees and the cost of any actual fees for courtesy riders* will be determined by the Board during budget deliberations in the spring of each year. Announcement of any fees and payment schedule will be made public following approval of the budget for the next school year. There are no fees for eligible riders.

4. The bus driver is the final authority in all matters relating to the safety and well-being of passengers.

***Courtesy Riders* – students who fall outside of the criteria for eligible riders but who can be accommodated through surplus space on existing transportation routes on a fee for service basis.**

References:

- *The School Act (Sections 74.1, 75, and 75.1)*
- *Board Policy 704: Student Catchment Areas/Cross Boundary Transfer/District Bus Transportation*
- ~~*Board Policy 7054: Transportation of Students by District School Bus Service*~~
- *Application for Cross-Boundary Enrollment Form*

Dates of Adoption/Amendments:

Adopted: 1979.09.01

Amended: 1987.10.28: 1986.08.27: 1988.12.21: 1991.09.10: 2002.10.22: 2003.08.26: Review 2007:01:23: 2007.03.27: 2011.03.29: 2018.02.27**: 2018.04.24**

SAFE, CARING ~~COMPASSIONATE~~, AND INCLUSIVE SCHOOL COMMUNITIES

CONTEXT:
In accordance with international, federal, and provincial laws and protocols, schools must be safe, compassionate and inclusive communities of learning. The B.C. Curriculum Core Competencies, and Ministerial Order 276/07 (M341/16) mandate the need for specific school and district-based systems that maintain and enhance positive and respectful climates within all schools. The Board strongly upholds the "recognition of the inherent dignity and the equal and inalienable rights of all members of the human family is the foundation of freedom, peace and justice in the world." (Preamble UN Universal Declaration of Human Rights.)

POLICY STATEMENT:
The Board supports all and any actions that contribute to the establishment and maintenance of a safe, compassionate and inclusive school community as outlined in international, federal and provincial rights legislation. Active and persistent work to teach, model and encourage positive social behaviour is expected at all levels of our organization.

GUIDING PRINCIPLES:
The Board believes that:

1. All schools must provide a positive, responsive, safe, compassionate, and inclusive environment for all learners.
2. Educational equity is paramount and we must recognize and celebrate diversity in our schools and community.
3. School Districts must work with all community partners to actively develop and collaboratively maintain protocols that support safety and inclusion while protecting against any violence or safety concerns.

The Board expects that:

1. Each school will establish procedures, protocols and practices that create and enhance safe, compassionate and inclusive environments. These will be evident in each school's code of conduct.
2. Incidents compromising the safety of students will be responded to in a timely, fair and reasonable manner.
3. Wherever possible, responses and interventions to incidents that compromise safety will be restorative; meaning they will repair harm, strengthen relationships and enhance a sense of belonging to school and community.
4. District wide professional learning for educators will continuously provide best practices.
5. All staff who work directly with students shall have access to training on the ~~a clear understanding of the~~ impacts of trauma. ~~including intergenerational trauma, and actively practice trauma informed teaching and intervention.~~
6. The right of individuals to be different, and to consider themselves different will be respected as long as their individual expression does not compromise a safe, compassionate and inclusive environment.

REFERENCES:

- *Administrative Procedure: Safe, ~~Caring~~, **Compassionate** and Inclusive School Communities*
- *Board Policy ~~7001~~ **701**: Student Discipline and its attendant Administrative Procedure*
- *B.C. Human Rights Code as of July 2021* https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_96210_01
- *Violence, Threat-making, Risk and Threat Assessment Community Protocol* https://www2.gov.bc.ca/assets/gov/erase/documents/vtra_protocolguide.pdf
- *Provincial Standards for Codes of Conduct Order [Ministerial Order 276/07(M341/16)]* https://www2.gov.bc.ca/assets/gov/education/administration/legislation-policy/legislation/schoollaw/e/m276_07.pdf
- *SOGI 1 2 3* https://www.sogieducation.org/
- *Universal Declaration of Human Rights (United Nations)* https://www.un.org/en/about-us/universal-declaration-of-human-rights
- *Canadian Charter of Rights and Freedoms* https://www.canada.ca/content/dam/pch/documents/services/download-order-charter-bill/canadian-charter-rights-freedoms-eng.pdf
- *Ministry of Education Province of B.C. Core Competencies* https://curriculum.gov.bc.ca/competencies

Purpose

The Board of Education recognizes its responsibility to provide safe, **caring**, ~~compassionate~~ and inclusive learning environments in our schools. Bullying, intimidation, discrimination, harassment and violence are behaviours that can disrupt a student's ability to learn and interfere with the school's ability to maintain an appropriate learning environment. Therefore, bullying, intimidation, discrimination, harassment, or violence constitute serious misconduct that warrants appropriate intervention should it occur and the implementation of educational programs and administrative measures that are designed to prevent it from occurring.

This administrative procedure is explicitly directed toward the conduct of students in their interaction with other students. Also included in this administrative procedure is the bullying, intimidation, discrimination, harassment, or violence toward adults by students.

Bullying, intimidation, discrimination, harassment, or violence by adults toward students or of adults by other adults are similarly prohibited but are governed by procedural guidelines in other school district administrative procedures - Collective Agreements, Human Rights and Workers Compensation Legislation and in *the Criminal Code of Canada*.

School Codes of Conduct

The Board of Education believes that a Code of Conduct with broad support of the students, parents, teachers, staff and administrative personnel greatly contributes to a safe and effective learning environment. The Board of Education also believes that there should be ongoing communication and consultation regarding behavioral expectations of students within the school community.

The Board of Education supports the values expressed in the *BC Human Rights Code* respecting the rights of all individuals in accordance with the law – prohibiting discrimination based on race, colour, ancestry, place of origin, religion, marital status, family status, physical and mental disability, sex, sexual orientation, gender identity or expression, and age.

Principals and Vice-Principals shall establish, with the involvement of students, parents, and staff a Code of Conduct for the school. This Code of Conduct shall be in compliance with the *Provincial Standards for Codes of Conduct Order [Ministerial Order 276/07(M341/16)].*

1. This code shall establish expectations for student conduct:
   a. within the school facility in all school programs and activities
   b. outside the school facility in all school programs and activities
   c. going to and from school, when the school deems it to be appropriate

2. Principals and Vice-Principals have the overall responsibility to see that Codes of Conduct are enforced and have paramount authority for the discipline of students.

3. All adults in the school are expected to be vigilant and to act thoughtfully and responsibly in ensuring the safety and security of the students and the building.

4. Strategies are to be in place for active teaching and promotion of the behavioural expectations outlined in the Code of Conduct.

5. Significant breaches of the Code of Conduct and related disciplinary/restorative responses will be noted in the district student information system.

6. The Code of Conduct will clearly state a range of consequences for inappropriate behavior.

7. The school's Code of Conduct will be informally reviewed annually with input from students, staff, parents, and administration. Confirmation of the review will be filed with the Superintendent of Schools or designate by April 15th of each school year (*attached form*).

8. Each school's Code of Conduct shall be filed with the Superintendent of Schools or designate by July 15th, annually and submitted for approval by the Board of Education at its September Regular Board Meeting.

9. The school's Code of Conduct shall be posted publically.

10. All reasonable steps will be taken to prevent retaliation against a student who has made a complaint of a breach of a Code of Conduct.

Student Dress Code

1. Each school is required to develop, in consultation with students, parents, teachers, staff and administrative personnel, a school dress code.

2. The school's dress code may be incorporated into the school's student Code of Conduct.

3. The school's dress code should guide and support students and parents to making appropriate individual choices around attire suitable for a learning environment.

4. The school's dress code may be reviewed annually by students, parents, teachers, staff and administrative personnel as part of the Code of Conduct.

Education for Prevention of Bullying, Intimidation, Discrimination, Harassment and Violence

The Board expects that each school in the district will ensure:

a. that communication with parents, at least annually, includes emphasis of the seriousness with which the district regards bullying, intimidation, discrimination, harassment, or violence and the provisions of this administrative procedure.

b. that students are informed on an annual basis, in language appropriate to their age level about the following:
   - the definition of bullying, intimidation, discrimination, harassment, and violence

- the expectations of the district for student conduct with regard to bullying, intimidation, discrimination, harassment, and violence - including the obligation of students to report to adults incidents of bullying, intimidation, discrimination, harassment, or violence
- the interventions listed in this administrative procedure

The Goals for SOGI Inclusive Education in School District No. 69 (Qualicum) are as follows:

Visibility
The diversity of sexual orientations, gender identities and expressions are recognized and valued.

Protection
The dignity of all people across the sexual orientation and gender identity (SOGI) spectra is preserved and protected from harm.

Inclusion
Equitable treatment and inclusion are a reality for people of all sexual orientations, gender identities and gender expressions.

How We Are Committing Ourselves to Achieving These Goals:

Developing Common Language and Understandings
Staff and learners will be well-informed and equipped with appropriate and respectful language. We acknowledge that language is ever evolving and that the individual is always the expert on how they may identify and when it comes to the language or terms they consider respectful and inclusive.

Glossary of SOGI Terms for Staff and Learners to Support and Inform our Work:

Agender - Describes a person who identifies as having no gender.

Ally - A person who supports and stands up for the rights of LGBT people.

Asexual - Describes a person who experiences little or no sexual attraction to others. Asexuality is not the same as celibacy.

Assigned sex at birth - The sex (male or female) assigned to a child at birth, most often based on the child's external anatomy. Also referred to as birth sex, natal sex, biological sex, or sex.

Bisexual - A sexual orientation that describes a person who is emotionally and sexually attracted to people of their own gender and people of other genders.

Cisgender - A person whose gender identity and assigned sex at birth correspond (i.e., a person who is not transgender).

Gay - A sexual orientation that describes a person who is emotionally and sexually attracted to people of their own gender. It can be used regardless of gender identity, but is more commonly used to describe men.

Gender binary structure - The idea that there are only two genders, boy/man/male and girl/woman/female, and that a person must strictly fit into one category or the other.

Gender dysphoria - Distress experienced by some individuals whose gender identity does not correspond with their assigned sex at birth.

Gender expression - This term describes the ways (e.g., feminine, masculine, androgynous) in which a person communicates their gender to the world through their clothing, speech, behavior, etc. Gender expression is fluid and is separate from assigned sex at birth or gender identity.

Gender fluid - Describes a person whose gender identity is not fixed. A person who is gender fluid may always feel like a mix of the two traditional genders, but may feel more one gender some of the time, and another gender at other times.

Gender identity - A person's inner sense of being a boy/man/male, girl/woman/female, another gender, or no gender.

Gender non-conforming - Describes a gender expression that differs from a given society's norms for males and females.

Gender role - A set of societal norms dictating what types of behaviors are generally considered acceptable, appropriate, or desirable for a person based on their actual or perceived sex.

Heterosexual (straight) - A sexual orientation that describes women who are emotionally and sexually attracted to men, and men who are emotionally and sexually attracted to women.

Lesbian - A sexual orientation that describes a woman who is emotionally and sexually attracted to other women.

Non-binary - Describes a person whose gender identity falls outside of the traditional gender binary structure.

Pansexual - A sexual orientation that describes a person who is emotionally and sexually attracted to people of all gender identities.

Queer - An umbrella term used by some to describe people who think of their sexual orientation or gender identity as outside of societal norms. Some people view the term queer as more fluid and inclusive than traditional categories for sexual orientation and gender identity. Due to its history as a derogatory term, the term queer is not embraced or used by all members of the LGBT community.

Questioning - Describes an individual who is unsure about or is exploring their own sexual orientation and/or gender identity.

Sexual orientation - How a person characterizes their emotional and sexual attraction to others.

Transgender - Describes a person whose gender identity and assigned sex at birth do not correspond. Also used as an umbrella term to include gender identities outside of male and female. Sometimes abbreviated as trans.

Two-Spirt - Describes a person who embodies both a masculine and a feminine spirit. This is a culture-specific term used among some Native American, American Indian, and First Nations people.

(Credit: National LGBT Health Education Centre)

Providing Safe and Inclusive Learning Environments
Staff will commit to both proactive measures and responsive actions in order to ensure that sexual orientation and gender identity are not barriers to learner participation in all aspects of school life or a factor in their safety/wellbeing while in our care.

Recognizing the Right to Self-Identification
Learners will have the right to self-identification, which includes the name by which they wish to be addressed and the preferred pronouns that correspond to their gender identity.

Protecting Confidentiality
Learners will have the right to the confidentiality of their official and/or preferred sex, gender, and name.

Broadening Dress Guidelines
Learners are entitled to gender expression through what they wear to school. Dress codes are to support and guide appropriate learner choice in this regard.

Offering Integrated and Inclusive Activities
We will strive to offer integrated and inclusive activities which enable learners to participate in teams and groups that they feel correspond with their gender identity. Students will be included and accommodated in activities regardless of their sexual orientation or gender identity, including support to set up a Gender-Sexuality Alliance/Gay-Straight Alliance or similar clubs.

Providing Training to Staff
All staff will be provided with knowledge, strategies and tools to develop a broad understanding of SOGI issues and to inform their practices in working with learners.

Promoting Inclusive Learning Experiences
Staff will ensure that classroom materials and activities will contain positive images and accurate information about sexual orientation, gender identity and gender expression.

Providing Safe, Respectful and Inclusive Facilities
Learners may choose to use washrooms and change rooms that match their gender identity. Staff will endeavor to provide washroom and change room options that support and honour learner choice.

Complaints of Bullying, Intimidation, Discrimination, Harassment, or Violence
An allegation of bullying, intimidation, discrimination, harassment, or violence shall be made informally through a verbal report to a staff member or, more formally, in writing to the Principal or Vice-Principal of the school or a district administrator. A trusted adult may accompany students making complaints.

Complaints may be made anonymously but those making such complaints should understand that an anonymous complaint might not be resolved satisfactorily due to the limitations placed on an investigation by anonymity.

Persons lodging complaints may request that their identity be kept confidential for fear of reprisal. Staff should endeavour to honour such requests but any person lodging a complaint must be informed that due process may, at some stage of the investigation and intervention process or of a subsequent legal process, require the District to release all information.

All staff are responsible for receiving complaints of bullying, intimidation, discrimination, harassment, or violence and for ensuring that the most appropriate staff member is informed of the complaint.

Falsely Reporting Bullying, Intimidation, Discrimination, Harassment, or Violence
It is a violation of this district administrative procedure to knowingly report false allegations of bullying, intimidation, discrimination, harassment, or violence. Persons found knowingly to have filed a false report will be subject to appropriate discipline and/or the filing of a complaint with other appropriate authorities.

Retaliation
No student, school employee, parent or volunteer may engage in reprisal or retaliation against a victim, witness, or other person who brings forward information about an act of bullying, intimidation, discrimination, harassment, or violence. Reprisal**/**retaliation or shunning/isolation is prohibited and will result, where appropriate, in discipline and/or in the filing of a complaint with other appropriate authorities.

Possession or Use of Weapons
The District considers the possession or use of any weapon or simulated weapon by anyone on or near school premises to be a serious threat to the school environment and to the safety of students and staff. Staff are to take appropriate action to ensure the safety and well-being of students and staff.

Violent incidences must be documented as indicated and reported to the student's parents and a Violence, Threat-Making and Rapid Assessment (VTRA) completed.

Where a Principal/Vice-Principal reasonably believes that a person on or near school premises is in possession or has used a weapon, that person shall:

a. invoke the appropriate All Hazards Emergency Procedure in order to minimize the risk of injury to any person
b. immediately notify the police and the Superintendent of Schools or designate
c. ensure the weapon is removed from school premises (confiscated)
d. contact parent/guardian

Resultant consequences will range from school disciplinary action to charges being laid by the police depending on specific circumstances.

Investigation

All complaints of bullying, intimidation, discrimination, harassment, or violence will be taken seriously and will be followed up in a timely manner. In cases a criminal offence has occurred, the school or district administration will notify the RCMP. Similarly, in all cases where child abuse is suspected, a report will be made to the appropriate ministry. An investigation of bullying, intimidation, discrimination, harassment, or violence shall include obtaining input from the person(s) alleged to have been harmed by the behaviour, from the alleged perpetrator and from one witness, (if one exists) to the alleged behaviour.

More intensive interviewing of those involved and/or of witnesses may be required at the discretion of the investigator, depending on the nature of the behaviour or incident.

Intervention

When there is a finding that misconduct has occurred, intervention will be:

- appropriate to the degree of misconduct
- educative, preventive and/or restorative
- implemented in a timely manner
- appropriate intervention may include, for example, one or more of the following actions:
- an opportunity for those harmed by the behaviour to explain to the perpetrator that his/her conduct is unwelcome, offensive or inappropriate either in writing or face-to-face
- a statement from the Principal/designate to an individual that such behaviour is not appropriate and could lead to discipline
- a general public statement from the Principal/designate to the school as a whole which outlines this administrative procedure without identifying those involved or revealing details of previous behaviour or incidents
- arranging measures which are designed to provide those harmed with restitution of status or sense of self-worth
- counselling or educative measures designed to support any students involved with bullying, intimidation, discrimination, harassment, or violence – including both those who may have been harmed and those who are responsible

- disciplinary measures up to and including suspension or expulsion from a regular educational program
- notification of other agencies as deemed by the Principal/designate to be appropriate or legally required

Student Locker Searches

A student locker search may be undertaken if there are reasonable grounds to believe that a school rule has been or is being violated and that evidence of the violation will be found in the student's locker.

1. All requests/questions regarding student locker searches will be referred to the Principal of the school.

2. Students shall be advised at the time they are assigned a locker of the following Rules and Conditions of Use under which the locker is assigned:

   The locker is assigned to a student for use during the school year based on the following rules and conditions of use:

   a. Students are responsible for the locker which is assigned to them and the locker is not to be used by any other person.
   b. Only approved locks may be used on student lockers and the combination of the lock must be registered at the office.
   c. No illegal substances, weapons or other prohibited or offensive material are to be placed in school lockers.
   d. School officials may search student lockers at any time and without prior notice in order to ensure compliance with the conditions of use and other school policies and rules. It is recommended that an additional staff member be present when a locker is searched, except in an emergency situation.
   e. Permission to use the locker may be terminated where a student does not comply with the conditions of use or school policies or rules.
   f. If any student has reason to believe that any locker contains anything which would threaten the safety of other students, staff or any other person, that student is expected to immediately report the information to a teacher, Vice Principal or Principal. The name of the student making the report will be kept confidential.

Questioning of Students by Law Enforcement Authorities

School and District administration should be aware of the current provisions and requirements of the *Youth Criminal Justice Act* and other pertinent legislation.

Issues of particular importance to school and District administration in current legislation are:

a. the 'ban on publication' provisions which seek to protect the identity of young offenders or those accused or suspected of committing an offence
b. the potential admissibility of all statements made by students to school authorities

The RCMP School Liaison Officer is authorized to discuss police matters directly with students at the school and, where appropriate or required by law, make contact with the parent or guardian of a student being questioned. This does not preclude the questioning of students by other RCMP officers who have the legal right to do so.

Where practicable, the designated RCMP School Liaison Officer should be involved when students are to be questioned by police.

Should the parent or guardian not be available, the Principal or designate may, with the agreement of the student, act in loco parentis with his/her primary concern being the protection of the rights of the student.

No school district employee shall act or be required to act as a representative of the police.

Routine cooperation with the police, where such cooperation is a legal or reasonable expectation of school and district personnel such as providing student contact information or arranging meeting space, does not constitute acting as a representative of the police.

The Principal or designate acting in loco parentis in a police investigation shall not assume the lead role in subsequent school investigations or outcomes related to the matter(s) originally under investigation.

Unless otherwise instructed by the RCMP, the Principal or designate (as soon as practicable) shall inform the parent and/or guardian of any case where a student is accused of an alleged offence or is apprehended.

The Principal or designate shall proceed with any school-level investigation and/or other discipline-related steps as necessary pursuant to school and district policy.

The Principal or designate shall make it clear to students and parents that school-related consequences may be determined separately from the police investigation and outcomes, and that information gained from statements by students to police may result in school and/or school district level consequences.

Violence, Threat, Risk Assessment (VTRA)

Trained multidisciplinary teams at both the school and district level will be guided by the *Assessing Violence Potentials: Protocol for Dealing with High-Risk Student Behaviours* when responding to threats.

Each school is to review this threat assessment policy with all staff and students at the beginning of each school year as well as with the school PAC, and with parents/guardians through the school newsletter and/or website in order to provide “Fair Notice” that each threat will be taken seriously.

Students and staff who become aware of a threat have a duty to inform the school Principal/Vice Principal immediately.

The Principal or Vice Principal is expected to secure the school environment by detaining students involved in a threatening or violent situation, notifying parents/guardians, implementing the school Code

of Conduct as appropriate to the situation or by taking any other immediate action deemed necessary to ensure student and staff safety.

The School Threat Assessment Team is to be notified of all threats or violent situations and will coordinate the school's Threat Assessment Procedures.

The suspension of students for engaging in threatening or violent acts is not to be a substitute for a thorough threat assessment and intervention plan; however, suspension may be used as an interim intervention as the threat assessment is conducted and within the guidelines of the suspension policy until such time as an adequate intervention plan can be implemented as appropriate.

School Threat Assessment Teams may be formed to assess intervention needs, based on the level of the threat (low, medium, high), consult with outside experts, and provide intervention recommendations to the school coordinator and to the school Principal as per the District VTRA intervention planning document.

When the threat assessment protocol is activated, a designated Threat Assessment Team member will notify parents/guardians when it is deemed appropriate. Whenever possible, parents should be an integral part of the VTRA process.

For serious threats requiring significant interventions and protection of students and/or staff, a District Threat Assessment Team will be convened by the Safe Schools Coordinator or Superintendent.

The District Threat Assessment Team will meet with the School Threat Assessment Team coordinator to review the incident, assess the threat intervention needs, and make recommendations for intervention planning to the school Principal for action and the Superintendent of schools for information.

The resulting VTRA report and recommendations represent the collective opinion of the whole team rather than any one individual member of the team.

If students are suspended for threat containment purposes for up to and including 5 school days as per Board Policy 70~~0~~1: *Student Discipline and its attendant Administrative Procedure* until the threat assessment is completed, then interim counselling and support serVices are to be provided as appropriate when students are suspended for up to and including 5 days to ensure student safety and well-being. Any recommended suspensions over 5 school days will be referred to the District Discipline Committee as per Board Policy 70~~0~~1: *Student Discipline*.

Schools are to report all threats involving threat assessment procedures to the Superintendent's office outlining the incident, the assessed threat level, actions and interventions taken and planned.

Any communication with the media regarding incidents of violence, risk or threat will be done through the Superintendent's office.

Appeal

All decisions of the Board or district staff are subject to appeal pursuant to Section 11 of the *School Act* and Board Bylaw 5: *Parent/Student Appeals to the Board of Education* and its attendant Administrative Procedure.

Other Laws

Nothing in this administrative procedure precludes any person harmed by alleged bullying, harassment, intimidation or violence from exercising his/her rights under procedures outlined in other laws; for example, *the Criminal Code of Canada* or civil action.

Other District Policies and Procedures

Nothing in this administrative procedure is intended to prohibit discipline or remedial action for inappropriate student conduct that falls outside of the definition of bullying, intimidation, discrimination, harassment, or violence as defined in Board Policy 700~~0~~*: Safe, **Caring** ~~Compassionate~~ and Inclusive School Communities*, but which is or may be prohibited by other district policies or by school codes of conduct.

References:

- *Board Policy 700: Safe, **Caring** ~~Compassionate~~ and Inclusive School Communities*
- *Board Policy 701: Student Discipline and its attendant Administrative Procedure*
- *Violence, Threat-Making, Risk and Threat Assessment Community Protocol*
- *Provincial Standards for Codes of Conduct Order [Ministerial Order 276/07(M341/16)]*
- *Youth Criminal Justice Act*
- *Guidelines: School Support for Trans and Gender Non-Conforming Students (Vancouver School Board)*
- *SOGI 1-2-3*
- *National LGBT Health Education Centre*

Dates of Adoption/Amendments:

Adopted: 2016.11.22
Amended: 2018.01.23

~~The Board of Education believes that a positive discipline program at all times is intended:~~
~~a. to develop and maintain an environment in which all students are able to learn.~~
~~b. to protect the rights of all students to learn.~~
~~c. to encourage all students to reach their full potential.~~

~~The Board of Education expects that students shall comply with Rules, Policies and/or Codes of Conduct as sanctioned by the Board of Education in order to maintain an environment conducive to learning. All students need to be provided with the greatest possible assistance and support from within and outside the system. Out-of-school suspension should be used judiciously in the context of a progressive discipline model.~~

~~The Board of Education will ensure that all students who have been suspended for more than five (5) days and who appear before a District Discipline Committee, shall receive a fair and just hearing under the protection of the *Charter of Rights and Freedoms*.~~

CONTEXT:
In order for learning to occur students must feel and be safe at school. The Board works actively and persistently to create and maintain safe, compassionate and inclusive school communities as per Board Policy 700. Infractions to students' feeling and being safe at school will occur and require intervention and action on the part of the school and/or the district.

POLICY STATEMENT:
The Board will maintain an environment that supports learning through ensuring schools are safe, compassionate and inclusive. Should incidents occur that compromise this environment, efforts at the classroom, school and district level may be used to restore the environment.

GUIDING PRINCIPLES:
The Board believes in modelling and using a positive discipline program that will
1. Preserve and support a safe and effective learning environment that allows students to reach their full potential.
2. Model and educate students to practice positive social behaviors, healthy life skills and habits.

The Board expects:
1. All students will always comply with the codes of conduct while on school grounds or attending school (or district) sanctioned events.
2. Incidents compromising the safety of students will be responded to in a timely, fair and reasonable manner.
3. Wherever possible, responses and interventions to incidents that compromise safety will be restorative; meaning they will repair harm, strengthen relationships and enhance a sense of belonging to school and community.
4. Should a disciplinary response be required, it will be progressive, and individualized.
5. School and community resources may provide students with additional support.
6. Interventions may happen at the classroom, school or district level and will typically progress through these levels; however, serious infractions may result in escalation to school or district.

7. Out-of-school suspension should be used judiciously in the context of a progressive discipline model and reserved for cases that impact the safety of those in the learning environment, such as bullying, violence, weapons, and illegal use of substances.
8. That all students who have been suspended for more than five (5) days and who appear before a District ~~Discipline~~ ~~Student~~ **Review** Committee, shall receive a fair and just hearing under the protection of the *Charter of Rights and Freedoms*.

REFERENCES:

- *Administrative Procedure to Board Policy 701: Student Discipline*
- *The School Act: Sections 26, 85(2)(c)(ii), 85(2)(d)*
- *Charter of Rights and Freedoms*

DATES OF ADOPTION/AMENDMENTS:
Adopted: 1998.02.24
Amended: 2000.08.29: 2016.12.13: Reviewed October 2017:

1. The Board delegates the right and responsibility to teachers and school-based principals/vice-principals to require students to apply themselves to their studies and to abide by the Code of Conduct established in a school. Paramount authority in this regard rests with the administrative officers with a school.

2. The Board requires that teachers and principals/vice-principals take appropriate progressive disciplinary action when:
   a. students fail to abide by the Code of Conduct established in a school to the extent that their behaviour is wilfully disobedient or has a harmful effect on other students; or,
   b. students fail to apply themselves to their studies.

3. School personnel shall be guided by Section 85 of the *School Act* in all of their dealings with students.

4. Students failing to comply with the Rules, Policies and/or Codes of Conduct as sanctioned by the Board of Education may be suspended according to Section 85(2) (d) of the *School Act*. Principals or Vice Principals, when suspending a student, must ensure that an educational program is available for the student during the period of suspension. Parent/guardian(s) shall be notified that the school will provide an educational program and the nature and expectation of that program.

5. Principals and Vice Principals may suspend students for up to five (5) school days as a disciplinary measure. When a student is suspended from school, the student shall remain at the school under the Principal's or Vice Principal's supervision and control until contact has been established with the student's parent/guardian(s) or the designated adult family alternative and a plan has been put in place for the student to be returned to the authority of the parent/guardian(s). The Principal or Vice Principal shall notify the student and parent/guardian(s) verbally followed by a letter to the parent/guardian(s) with a copy being forwarded to the Superintendent of Schools and/or designate.

6. The Principal or Vice Principal, where appropriate, shall arrange a meeting with the student and ~~his/her~~ **their** parent/guardian(s) to resolve the suspension and to establish conditions and expectations which will govern the student's return to school.

7. Any recommended suspension of longer than five (5) school days must be in accordance with Section 85(2)(d) of the *School Act* and shall be immediately reported to the parent/guardian(s) verbally and confirmed in writing by mail or be delivered by hand. The Superintendent of Schools and/or designate must be notified and shall arrange a District ~~Student~~ Review Committee hearing.

8. All written reports, including pertinent student records and information, from teachers and the school administration shall be submitted to the Superintendent of Schools and/or designate within three (3) school days of the student's suspension from school. Copies of pertinent written reports shall be made available to the parent/guardian(s) and the student at least twenty-four (24) hours prior to the hearing.

9. When students have been suspended for more than five days the Superintendent of Schools and/or designate shall convene a District ~~Student~~ Review Committee made up of the Superintendent of Schools or designate and up to three non-involved Principals/Vice Principals and/or community professionals.

   This District ~~Student~~ Review Committee shall meet with the student, the parent/guardian(s), and the referring Principal/Vice Principal to understand the circumstances leading to the suspension and to make recommendations regarding resolution of the suspension.

   After the student, the parent/guardian(s) and the referring Principal/Vice Principal have left, the District ~~Student~~ Review Committee shall consider the educational and support options and/or program offerings available for the student and decide the most appropriate action to take.

10. The decision of the District ~~Student~~ Review Committee will, in most cases, be communicated by telephone, through the Superintendent of Schools and**/**or designate, to the parent/guardian(s) and the student and the Principal/Vice Principal within twenty-four (24) hours of the hearing.

11. Written confirmation shall be directed to the parent/guardian(s) and the student and the referring Principal/Vice Principal by the Superintendent of Schools and/or designate**.** A copy of Bylaw No. 5 (Appeals) shall be attached to the letter.'

12. To protect the student's right to privacy, all copies of written reports originally distributed to District ~~Student~~ Review Committee members shall be collected and destroyed immediately after the committee's decision. The original documentation will be held in a confidential file under the jurisdiction of the Superintendent of Schools.

References:

- *Board Policy ~~7001~~ **701**: Student Discipline*
- *The School Act: Sections 26, 85(2)(c)(ii), 85(2)(d)*
- *Charter of Rights and Freedoms*

Dates of Adoption/Amendments:

Adopted: 1998.02.24
Amended: 2000.08.29: 2016.12.13: Reviewed October 2017

SCHOOL DISTRICT No. 69 (QUALICUM)

BOARD POLICY 601

EMPLOYEE CONFLICT OF INTEREST

Context
All personnel (including volunteers, contractors and others) must model highly ethical and thoughtful behaviour for our students. Public education relies on public trust and confidence. Understanding and responding to any perceived or actual conflicts of interest is part of this important standard and maintenance of public trust.

Policy Statement
The Board expects the highest standard of conduct from its employees and other personnel. Public education requires that all personnel understand the fundamental importance of developing and maintaining the public's trust and confidence in the District. Public trust and confidence is maintained when students, parents and public witness thoughtful and ethical behaviour in conflict of interest situations.

Guidelines
The Board believes:
1. All personnel must conduct themselves honestly, and with personal integrity.
2. Highly ethical and thoughtful behaviour are conditions of employment and employees must exhibit these behaviours within all daily activities.
3. Personnel will understand and identify both perceived and actual conflicts of interest.
4. Personnel will respond appropriately when witnessing or participating in a perceived or actual conflict of interest situation.

Definitions:
Conflict of Interest – When an individual in a decision-making position is presented with a situation where they can personally benefit (directly or through a personal relationship) from the decision.

Perceived Conflict of Interest – When an individual in a decision-making position could be seen to be biased or personally benefiting from the decision.

References:
- *Administrative Procedure to Board Policy 601: Employee Conflict of Interest*

Dates of Adoption/Amendments:
Adopted: 1984.10.03
Amended: 1986.08.27: 1990.03.28: 1991.09.10: 2005.03.29: 2018.01.23

Understanding Conflict of Interest
The issue of conflict of interest is a delicate one that must be handled with the utmost care and consideration for employees while still adhering to an unwavering commitment to high standards of employee conduct including but not limited to the following:

District employees have a duty of loyalty to the District as the employee's employer. This duty requires employees to provide services to the best of the employee's ability regardless of the employee's own personal perspectives of Board direction or policy.

The honesty and integrity of District employees must be above reproach and coupled with impartiality in the conduct of the employee's duties to ensure that the employee's actions are above public suspicion.

The actions and conduct of employees must be such as to instill within the public a sense of trust and confidence in the District.

It is essential that employees recognize their responsibility to ensure that confidential information received as a result of employment with the District remains confidential, and not be divulged to anyone other than individuals authorized to receive such information. This includes confidential information received verbally or in written or electronic form. Disclosure of confidential information may put employees in a position of conflict of interest, and great care must be taken when communicating with individuals both inside and outside of the District.

A conflict of interest may also occur when an employee's private affairs or financial interests are in conflict, or could result in a perception of conflict, with the employee's duties or responsibilities in such a way that:

- the employee's ability to act in the public interest could be impaired.
- the employee's actions or conduct could undermine or compromise the public's confidence in the employee's ability to discharge work responsibilities.
- the trust that the public places in the public service is undermined.

Expectations for Employees
Employees are expected to request a determination of the Superintendent before engaging in any activity which might reasonably give rise to questions about a possible conflict of interest.

The Superintendent is expected to request a determination of the Board before engaging in any activity that might reasonably give rise to questions about a possible conflict of interest.
A breach of the conflict of interest policy is considered to be a serious breach of an employee's obligations and as a result, may result in discipline up to and including dismissal.

While the Board recognizes the right of public service employees to be involved in activities as citizens of the community, conflict must not exist between employees' private interests and the discharge of the employee's job-related duties.

Employees are to disqualify themselves as participants in personnel decisions when the employee's objectivity would be compromised for any reason, benefit or perceived benefit which could accrue to them. For example, employees are not to participate in staffing actions involving direct relatives or persons living in the same household.

Upon accepting a position in the District, employees must arrange their private affairs in a manner that will prevent conflicts of interest, or the perception of conflicts of interest, from arising.

Representative Examples of Conflict of Interest

Examples of conflicts of interest include, but are not limited to, the following:

- An employee uses District property or the employee's position to pursue personal interests.
- An employee is under obligation to a person who might benefit from or seek to gain special consideration or favour.
- An employee, in the performance of duties, gives preferential treatment to an individual, corporation or organization, including a non-profit organization, in which the employee, a relative or friend of the employee has an interest, financial or otherwise.
- An employee benefits from, or is reasonably perceived by the public to have benefited from, the use of information acquired solely by reason of the employee's employment.
- An employee benefits from, or is reasonably perceived by the public to have benefited from, a government transaction over which the employee can influence decisions (for example, investments, sales, purchases, borrowing, grants, contracts, regulatory or discretionary approvals or appointments)
- An employee requests or accepts from an individual, corporation or organization, directly or indirectly, a personal gift or benefit that arises out of the employee's employment in the District other than the exchange of normal hospitality between persons doing business together or gifts to persons participating in public functions.

Employees are in a conflict of interest when dealing with direct relatives or individuals who permanently reside with them when the following working relationships exist:

- A reporting relationship exists where one employee has influence, input or decision-making power over the other employee's performance evaluation, salary, premiums, special permissions, conditions of work and similar matters.
- The working relationship affords an opportunity for collusion between the two employees that would have a detrimental effect on the employer's interest.

The above restriction on working relationships may be waived provided that the Superintendent or Secretary-Treasurer is satisfied that sufficient safeguards are in place to ensure that the employer's interests are not compromised.

Employees may engage in remunerative employment with another employer, carry on a business, receive remuneration from public funds for activities outside the employee's position, or engage in volunteer activities without there being a conflict of interest, provided it does not:

- Interfere with the performance of the employee's duties as an employee of the District.
- Bring the District into disrepute.

- Represent a conflict of interest or create the reasonable perception of a conflict of interest.
- Appear to be an official act or to represent District direction or policy.
- Involve the unauthorized use of work time or District premises, services, equipment or supplies to which they have access by virtue of the employee's employment with the District.
- Gain an advantage or appear to gain an advantage that is derived from the employee's employment with the District.

Duty to Report

Employees shall promptly report any fact or circumstances of which they become aware that might give rise to a real or perceived conflict of interest. Reports shall be made in writing to the employee's Principal or Supervisor.

An employee who alleges conflict of interest on the part of another employee, may report this to the employee's Principal or Supervisor, in writing. If the employee whose actions are being questioned is the direct Supervisor, the matter may be reported to the Superintendent of Schools or Secretary-Treasurer.

A Principal or Supervisor who receives a written report of an alleged conflict of interest will seek guidance from the Superintendent or Secretary-Treasurer.

References:

- *Board Policy 601: Employee Conflict of Interest*

Dates of Adoption/Amendments:

Adopted: 2018.01.23
Amended:

Context:
The Board of Education of School District 69 (Qualicum) recognizes the right of employees and students to work and learn in an environment free from bullying and harassment. **The District has an obligation to prevent and address workplace bullying and harassment. This obligation is reinforced by legislation, contractual language and forms the basis of all relationships in our district.**

Policy Statement:
The Board ~~of Education of School District 69 (Qualicum)~~ considers bullying and harassment in any form to be totally unacceptable and will not tolerate its occurrence. **The Board believes that in diversity there is strength.**

The Board believes and is committed to:

1. Ensuring that all individuals will be treated in a fair and respectful manner;
2. Encouraging full acceptance and valuing diversity.
3. Treating any claim of bullying or harassment as serious and taking immediate action.

Guiding Principles:

1. **The Board recognizes the rich diversity of Canadian Society and the benefits which diversity brings to all members of our community.**
2. **~~Every individual has the inherent right to be treated with dignity and respect.~~ All individuals must be treated with dignity and respect,**
3. **All personnel must be effectively trained to understand, identify, and take appropriate action when bullying or harassment is reported.**
4. **Bullying and harassment excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.**

Definitions:
Bullying and harassment may include any inappropriate conduct or comment by a person towards a worker that causes the worker to be humiliated or intimidated.

Bullying/harassment may occur in any interpersonal, written or electronic communications.

To be considered bullying, there must be an imbalance of power between the parties, which may be a result of reporting structure, social currency, or physicality. To be considered harassment, the behaviours must be both unwanted and ongoing.

References:

- WorkSafeBC; Toward a respectful workplace: a handbook on preventing and addressing workplace bullying and harassment
- Occupational Health and Safety Regulation (Sections 115 to 117)
- Workers' Compensation Act (Action 150)
- MATA Collective Agreement Article E.2
- CUPE Collective Agreement Article 4.3
- Administrative Procedures to Board Policy 604: *Workplace Bullying and Harassment*
- Board Policy 700: *Safe, Caring and Inclusive School Communities*
- Board Policy 606: *Respectful Workplace*

Dates of Adoption/Amendments:

Adopted: 1985.07.11

Amended: 1991.06.11: 1991/09.10: Review October 2000: 2000.12.19: 2008.03.11: 15.11.24: **2017.06.27**

Statement of Commitment
The inherent right of all individuals to be treated with dignity and respect is central to the beliefs of School District No. 69 (Qualicum). School District No. 69 (Qualicum) recognizes the right of all employees to work, to conduct business and otherwise associate free from bullying and harassment ~~(including sexual harassment)~~. The District has an obligation under WorkSafeBC's Occupational Health and Safety (OHS) policies under Sections 115, 116, and 117 of the *Workers Compensation Act*, to prevent and address workplace bullying and harassment ~~(including sexual harassment)~~.

In making this commitment, the District recognizes the rich diversity of our social fabric and the benefits which diversity brings to all members of our community. The District is committed to encouraging the tolerance of and valuing of differences. The District considers bullying and harassment in any form ~~(including sexual harassment)~~ to be totally unacceptable and will not tolerate its occurrence.

Who Is Covered
All persons working for the District or carrying out District business on a temporary, part time or full-time basis are covered by these procedures. (A 'person' could be a workplace party such as a supervisor, or co-worker).

Should a harassment incident involve a non-workplace party or student that an employee comes into contact with at the workplace, the Superintendent of Schools or designate, will determine the procedures to follow and the parties will be so notified.

Purpose
To ensure that all persons covered by these procedures are aware of their duties regarding bullying and harassment ~~(including sexual harassment)~~ in the workplace, and to provide clear and precise procedures for the reporting and resolution of incidents and complaints.

Board Policy Linkages
Policy 604: Workplace Bullying and Harassment ~~(Including Sexual Harassment)~~
Policy 700: Safe, Caring and Inclusive School Communities and its Attendant Administrative Procedure

Responsibilities
It is the District's expectation that all persons covered by these procedures, will comply with the District's policies and procedures, and are required to:

a. refrain from engaging in bullying and harassment ~~(including sexual harassment)~~ of other employees, supervisors, the employer or persons acting on behalf of the employer
b. report occurrences of bullying and harassment ~~(including sexual harassment)~~ observed or experienced in the workplace

~~c.~~ apply and comply with the District's policies and procedures on bullying and harassment ~~(including sexual harassment)~~

1. participate in training sessions and/or annual reviews (MATA Members also refer to Collective Agreement Article E.2.6.)

WorkSafeBC OHS Definition of ~~Workplace~~ Bullying and Harassment ~~(Including Sexual Harassment)~~

Bullying and harassment ~~(including sexual harassment)~~ includes any inappropriate conduct or comment by a person towards a worker that the person knew or reasonably ought to have known would cause the worker to be humiliated or intimidated, but excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.

MATA Members also refer to Collective Agreement Article E.2.2.

Bullying and Harassment ~~(Including Sexual Harassment)~~ may include, but is not limited to:

a. Verbal aggression or insults; calling someone derogatory names
b. Vandalizing personal belongings
c. Sabotaging someone's work
d. Spreading malicious gossip or rumours
e. Engaging in harmful or offensive initiation practices or hazing
f. Physical or verbal threats (this could also constitute "violence" or "improper activity or behaviour" under the Regulation
g. Making personal attacks, based on someone's private life and/or personal traits
h. Making aggressive or threatening gestures
i. Any comment, look, suggestion, physical contact, or real or implied action of a sexual nature which creates an uncomfortable working environment for the recipient
j. Any circulation or display of visual material of a sexual nature that has the effect of creating an uncomfortable working environment
k. An implied promise of reward for complying with a request of a sexual nature
l. Misuse of power or authority as intimidation, threats, coercion and blackmail
m. Reprisal or a threat of reprisal made by a person in authority after a sexual advance is rejected
n. Cyber-bullying – the sending of derogatory or threatening messages to either the Complainant or others about the Complainant through email, text messaging, social networking, and websites or sharing personal and confidential messages or images

Repetition is not always a necessary element in harassment; however, the more innocuous the behaviour, the less likely a reasonable person would consider the behaviour harassment if it only happened a few times. Serious allegations, however, even if the action only occurred once, can be considered harassment.

Bullying and Harassment ~~(Including Sexual Harassment)~~ is not:

a. Expressing differences of opinion
b. Offering constructive feedback, guidance, or advice about work-related behaviour and performance
c. Making a legitimate complaint about someone's conduct through established procedures

Workplace Defined

For the purpose of these procedures, the workplace includes locations where activities related to the business of the District take place. These include:

a. Activities within offices, staff rooms, classrooms, lunch rooms and other District property
b. Events associated with and including extra-curricular activities
c. Situations outside of District operated premises e.g., field trips, work-related conferences, training sessions, travel, community events or social gatherings
d. Activities in other locations where workplace bullying and harassment ~~(including sexual harassment)~~ may have a subsequent impact on the work relationship, performance or environment

Human Rights Code/Criminal Code/Grievance Procedure Reference

Filing a complaint under these procedures is not intended to preclude rights under the Collective Agreement, BC Human Rights Code, Criminal Code of Canada or other avenues of redress open under the law.

The complaint and investigation procedures should not be invoked or pursued at the same time as a parallel complaint before the BC Human Rights Tribunal or if a grievance remains outstanding. While such proceedings are taking place, the procedures outlined here will be suspended and may be superseded, where appropriate.

Reporting Time Frame

Any complaint must be filed within a reasonable time following the occurrence of the triggering incident. The Board adopts a six (6) month time frame and may, in its discretion, decide not to deal with the complaint when the facts upon which the complaint is based occurred more than six (6) months before the complaint was filed.

However, where a reasonable circumstance exists for failing to bring the complaint forward within six (6) months and the delay would not result in any prejudice to the Respondent, a complaint may be accepted beyond the six (6) month limit.

Complaint Withdrawal

The Complainant may choose to withdraw the complaint at any stage. However, the District may be obliged under these procedures, to continue the inquiry into the complaint and to take whatever remedial action it deems appropriate, or refer the matter to another process or procedure.

Responsibilities for Reporting Bullying and Harassment ~~(Including Sexual Harassment)~~
All persons covered under these procedures have the responsibility for and are expected to promote a working and learning environment that is free from bullying and harassment ~~(including sexual harassment)~~, and to assist anyone who believes that they are being or may have been bullied or harassed. Anyone who believes that a colleague or another person covered under these procedures is being or may have been bullied or harassed, is encouraged to notify their Supervisor, Director of Human Resources or Superintendent of Schools or designate, or their Union Representative.

The Complainant has the right to decide how to respond to bullying or harassment (~~including sexual harassment)~~ including informal, verbal or written communication with the Respondent, or through the filing of a complaint under these procedures. The Complainant may wish to seek guidance or counselling from ~~his or her~~ **their** Supervisor, Director of Human Resources, Superintendent of Schools or designate or Union Representative to discuss the situation and how it might be resolved. Since advice only is being sought at this stage, names need not be disclosed.

Employment Consequence of Engaging in Harassment (~~Including Sexual Harassment)~~
Employees who engage, directly or indirectly, in bullying or harassment ~~(including sexual harassment)~~ may be disciplined up to and including dismissal.

Confidentiality
All records of the complaint filed at Step 2, including contents of meetings, interviews, results of inquiries and other relevant material will be kept confidential, except where disclosure is required by a disciplinary or other remedial process or required by operation of law or as a consequence of contemplated or actual litigation. Records will be stored in a secure file in the Human Resources Department.

The Complainant and the Respondent and any witnesses interviewed in an investigation are to maintain strict confidentiality about the complaint.

Counselling
The District's Employee Family Assistance Program (E.F.A.P.) is available to all employees and the employee's immediate families and offers counselling and resource assistance on a voluntary and confidential basis.

No Reprisals
For the purposes of these procedures, "reprisal" against an individual will be treated as harassment ~~(including sexual harassment)~~ when such actions occur for:

a. invoking these procedures (whether on behalf of oneself or another individual);
b. participating or co-operating in any inquiry under these procedures; or,
c. associating with a person who has invoked these procedures or participated in these procedures.

BULLYING OR HARASSMENT ~~(INCLUDING SEXUAL HARASSMENT~~) COMPLAINT PROCEDURE STEPS:

These procedures contain three (3) steps, which are outlined below. In most instances, the complaint will be advanced through the Steps outlined below. It is noted that some exceptions to this may apply, and Step 1 may be bypassed and the complaint initiated at Step 2.

All parties involved in a complaint agree to deal with the complaint expeditiously; however, timelines set out in this procedure may be subject to variation by a Representative of the District, after consultation with the parties and the party's Union Representative, if applicable.

MATA Members also refer to Collective Agreement Article E.2.3.

Step 1 - Speak Up

a. The Complainant (person who considers that ~~he/she has~~ **they have** been subjected to bullying or harassment ~~[including sexual harassment])~~ is advised to record the details surrounding the incident(s) including times, dates, places, people involved, names of witnesses, if any, what was said or done, and circumstances surrounding the incident(s).

b. The Complainant is encouraged to bring the matter to the attention of the Respondent (person responsible for the comment or conduct) calmly, but firmly, making a direct and clear objection indicating that the comment or conduct is not acceptable, is unwelcome, will not be tolerated and must stop. This is often an effective way to resolve the issue and end the bullying or harassment ~~(including sexual harassment).~~ The Complainant may choose to do this alone or accompanied by a representative of the complainant's choice (i.e. Supervisor, Director of Human Resources, Superintendent of Schools or designate or Union representative). It is important the Complainant document any communication ~~he or she has~~ **they have** with the Respondent. It is also important that the Respondent document any communication regarding a bullying or harassment ~~(including sexual harassment)~~ complaint.

c. Before proceeding to Step 2, the Complainant may choose to either correspond with or approach ~~his/her~~ **their** Supervisor, Director of Human Resources, Union Representative, or Superintendent of Schools or designate to report ~~his/her~~ **their** complaint and to discuss potential means of resolving the complaint and to request assistance in resolving the matter. A resolution may be attempted using the Informal Resolution Outcomes outlined below. If the matter is resolved to the Complainant's satisfaction, the matter is deemed to be resolved.

Informal Resolution Outcomes

a. All discussions shall be solely an attempt to mediate the complaint;
b. Any and all discussions shall be completely off the record and will not form part of any record;
c. Only the Complainant, Respondent, and Supervisor (Principal in the case where the Complainant and Respondent are both BCTF members) shall be present at such meetings;
d. No discipline of any kind would be imposed on the Respondent; and
e. Where the Complainant and Respondent are both BCTF members, the BCTF and its locals, based on the foregoing, will not invoke the notice of investigation and other discipline provisions of the collective agreement at meetings.

Should a resolution be reached between the Complainant and Respondent at Step 1 under the Informal Resolution Outcomes, it shall be written up and signed by both parties. Only the Complainant and the Respondent shall have copies of the resolution and they shall be used only for the purpose of establishing that a resolution was reached. No other copies of the resolution shall be made.

In the circumstances where a Respondent has acknowledged responsibility, the Supervisor may advise a Respondent of the expectations of behaviour in a neutral, circumspect memo. Such memo will be non-disciplinary in nature and shall not form part of any record. Only the Respondent shall retain a copy of the memo. That the memo was sent can be referred to as proof that the Respondent had been advised about the standard of conduct.

Step 2

The Complainant may find it necessary to deal with the complaint at Step 2:

i. if the Complainant does not feel comfortable talking to the Respondent;
ii. if the Complainant is not satisfied with the result of the initial contact with the Respondent; or
iii. if the bullying or harassment ~~(including sexual harassment~~) continues.

a. To initiate the Step 2 process, the Complainant is required to complete the ***Workplace Bullying or Harassment (~~Including Sexual Harassment~~) Complaint Form*** attached to these procedures which details the particulars of the allegations, and submit it along with any other supporting documentation, to the Superintendent of Schools or designate. The complaint should include specific incident(s) which form the basis of the complaint and the definitions of bullying or harassment (~~including sexual harassment~~) which may apply; however, the form of the complaint will in no way restrict a mediation or investigation or its conclusions.

b. The Superintendent of Schools or designate will review the particulars of the complaint (further particulars may be requested from the Complainant). Upon the conclusion of such a review, the Superintendent of Schools or designate shall:

i. initiate an investigation of the complaint and appoint an investigator; or

ii. recommend mediation or other alternative disputes resolution processes to resolve the complaint.

Should the complainant not agree with the process recommended by the Employer, an investigation will be initiated.

c. The Respondent cited in a complaint shall be provided with notice of the mediation or investigation, in writing and shall be provided with a copy of the ***Workplace Bullying or Harassment (~~Including Sexual Harassment~~) Complaint Form*** filed by the Complainant within three (3) working days of the submission. The Superintendent of Schools or designate is responsible for ensuring that the Respondent receives a copy of the written complaint.

d. The Superintendent of Schools or designate will inform both the Complainant and the Respondent in writing, with a copy to the Union (if applicable), of the following:
   i. that they have the right to representation during any discussions or meetings held during the process, and,
   ii. notice of mediation or investigation.

e. In the event the Superintendent of Schools is involved either as the Complainant or Respondent, the complaint shall, at the Complainant's discretion, be immediately referred to either BCPSEA or a third party who shall have been named by prior agreement of the District and the Union, who shall proceed to investigate the complaint in accordance with Step 3 of these procedures and report to the Board.

Step 3 – Investigation Process:

a. A representative of the District will investigate the complaint of bullying or harassment (~~including sexual harassment~~)*.
   **The Superintendent of Schools may appoint an independent investigator.*

b. The investigator will collect evidence by interviewing the Complainant and Respondent (separately), interviewing any witnesses, and otherwise investigating all aspects of the matter which are relevant in determining whether the allegations of bullying or harassment ~~(including sexual harassment~~) are substantiated.

c. The investigation shall be conducted by a person who shall have training and/or experience in investigating complaints of bullying and harassment ~~(including sexual harassment~~). The Complainant may request that the investigator shall be of the same gender as the Complainant and where practicable the request will not be denied.

d. The Investigator must keep confidential and comprehensive notes of all meetings.

e. The investigation shall be conducted as soon as is reasonably possible and shall be completed in twenty (20) working days unless otherwise agreed to by the parties. Such agreement will not be unreasonably withheld.

f. Both the Complainant and the Respondent have the right to representation during any discussions or meetings held during the process and shall be advised of this right by the investigator.

g. Notwithstanding either party's refusal to co-operate in an investigation, the District may deem it necessary to follow the complaint procedure through to completion.

h. The Employer will advise the Complainant and the Respondent, in writing, of the results of the investigation and any actions that may be taken in the matter. The specific details of any disciplinary action will only be provided to the employee who is to be disciplined and ~~his/her~~ **their** Union, if applicable.

Outcomes

Depending on the outcome of the investigation, a decision regarding rehabilitative or disciplinary action for the Respondent and/or the Complainant may include, but is not limited to:

a. Counselling
b. Education on Bullying and Harassment (e.g. training or awareness sessions)
c. Formal written apology
d. Change of work assignment of the Complainant and/or Respondent
e. Verbal warning
f. Written warning
g. Suspension or dismissal

Note: If disciplinary action is required, a copy of any disciplinary correspondence will be placed in the employee's personnel file.

References:

- Administrative Procedures to Board Policy 604: ~~Workplace~~ Bullying and Harassment
- Board Policy 606: Respectful Workplaces
- Board Policy 700: Safe, Caring and Inclusive School Communities
- MATA Collective Agreement Article
- CUPE Local 3570 Collective Agreement Article
- WorkSafeBC, Towards a Respectful Workplace: A Handbook on Preventing and Addressing Workplace Bullying and Harassment
- Occupational Health and Safety Regulation (Sections 115 to 117)
- Workers' Compensation Act (Action 150)

Dates of Adoption/Amendments:

Adopted: 1985.07.11:
Amended: 1991.06.11: 1991.09.10: 2000.12.19: 2008.03.11: 2015.11.24: **2017.06.27**

CHECKLIST

All persons working for the Board or carrying out Board business on a temporary, part time or full time basis are covered by these procedures. A 'person' could be a workplace party such as a supervisor, or co-worker. Should a bullying or harassment incident involve a non-workplace party or student that an employee comes into contact with at the workplace, the Superintendent of Schools or designate will determine the procedures to follow and the parties will be so notified.

Complaints from an individual or group should be reported within a reasonable time following the occurrence of the triggering incident. The Board adopts a six (6) month time frame and may, in its discretion, decide not to deal with the complaint when the facts upon which the complaint is based occurred more than six (6) months before the complaint was filed. However, where a reasonable circumstance exists for failing to bring the complaint forward within six (6) months, and the delay would not result in any prejudice to the Respondent, a complaint may be accepted beyond the six (6) month time limit.

IN SOME CIRCUMSTANCES STEP 1 MAY BE BYPASSED AND THE COMPLAINT PROCEDURE MAY BE STARTED AT STEP 2.

STEP 1 – SPEAK UP
(THE MAJORITY OF CASES ARE RESOLVED AT THIS STEP)

- ☐ Complainant is advised to record the details surrounding the incident (times, dates, places, names of people involved, witnesses, circumstances, etc.)
- ☐ Complainant is encouraged to advise the Respondent in person or in writing that ~~he/she~~ **they** considers the conduct in question to be offensive and request the Respondent to stop. This may be done in the presence of a resource person.
- ☐ Both the Complainant and the Respondent are advised to document the details of the meeting.
- ☐ Complainant may wish assistance to resolve the complaint using the Informal Resolution Outcomes outlined below. If the matter is resolved to the Complainant's satisfaction, the matter is deemed to be resolved.

INFORMAL RESOLUTION OUTCOMES

- ☐ All discussions shall be solely an attempt to mediate the complaint.
- ☐ Any and all discussions shall be completely off the record and will not form part of any record.
- ☐ Only the Complainant, Respondent, and Supervisor (Principal in the case where both parties are BCTF members) shall be present at such meetings.
- ☐ No discipline will be imposed on the Respondent.

☐ Should a resolution be reached between the Complainant and Respondent, it shall be written up and signed by both parties. Only the Complainant and the Respondent shall have copies of the resolution. No other copies of the resolution shall be made.

☐ Where a Respondent has acknowledged responsibility, the Supervisor may advise a Respondent of the expectations of behaviour in a neutral, circumspect memo. Such memo will be non-disciplinary in nature and shall not form part of any record. Only the Respondent shall retain a copy of the memo. That the memo was sent can be referred to as proof that the Respondent had been advised about the standard of conduct.

☐ If the Respondent fails to stop, or if the Complainant does not feel comfortable in confronting the Respondent in the first place, or if the Complainant is not satisfied with the initial contact, then move to STEP 2.

STEP 2

☐ Complainant completes the Workplace Bullying or Harassment (~~Including Sexual Harassment~~) Complaint Form and submits form along with any supporting documentation to the Superintendent of Schools or designate. The complaint should include specific incident(s) and the definitions of bullying or harassment (~~including sexual harassment~~) which may apply.

☐ The Superintendent of Schools or designate will review the particulars of the complaint (further particulars may be requested). Upon conclusion of the review, the Superintendent of Schools or designate shall initiate an investigation and appoint an investigator or recommend mediation or other alternative disputes resolution processes to resolve the complaint. Should the complainant not agree with the process recommended, an investigation will be initiated.

☐ Superintendent of Schools or designate ensures that the Respondent receives notice of the mediation or investigation and a copy of the complaint, in writing.

☐ Superintendent of Schools or designate ensures that the Complainant, Respondent and Union (if applicable) are informed, in writing, that a representative may accompany them to any meetings and provides them with notice of mediation or investigation.

(If the Respondent is the Superintendent of Schools or designate, the Complainant is to contact either BCPSEA or a third party who shall have been named by prior agreement of the District and the Union, who shall proceed to investigate the complaint in accordance with Step 3 and report to the Board).

STEP 3 – INVESTIGATION PROCESS

☐ A Representative of the District will commence an investigation of the complaint as soon as is reasonably possible following the receipt of a written request for a Step 3 investigation. [The Complainant may request that the investigator be of the same gender as him or her and where practicable the request will not be denied.]

**The Superintendent of Schools may appoint an independent investigator.*

☐ The investigator will collect evidence by interviewing the Complainant, Respondent and any witnesses (separately).

☐ The investigator will inform both the Complainant and Respondent of their right to representation during any discussions or meetings held.

☐ The investigator will keep confidential and comprehensive notes of all meetings.

☐ The investigation will be completed in twenty (20) working days unless otherwise agreed to by the parties and the party's Union Representative, if applicable.

THE INVESTIGATOR WILL INVESTIGATE FULLY. THE INVESTIGATION SHALL BE COMPLETED AS EXPEDITIOUSLY AS POSSIBLE.

Following the investigation:

☐ The Complainant and the Respondent will be advised by the Employer of the conclusion of the Step 3 investigation.

☐ The results of the investigation will be shared, in writing, with the Complainant, Respondent and Union, if applicable. The specific details of any disciplinary action will only be provided to the employee who is disciplined and the employee's Union, if applicable.

OUTCOMES

Depending on the outcome of the Step 3 investigation, a decision regarding rehabilitative or disciplinary action for the Respondent and/or the Complainant may include, but is not limited to:

☐ Counselling
☐ Education on Bullying and Harassment (e.g. training or awareness sessions)
☐ Formal written apology
☐ Change of work assignment of the Complainant and/or Respondent
☐ Verbal warning
☐ Written warning
☐ Suspension or dismissal

For more detailed information, refer to pages 1 – 8 of this document.

COMPLAINT FORM

All persons working for the District or carrying out District business on a temporary, part time or full-time basis are covered by these procedures. (A 'person' could be a workplace party such as a supervisor, or co-worker). Should a bullying or harassment incident involve a non-workplace party or student that an employee comes into contact with at the workplace, the Superintendent of Schools or designate will determine the procedures to follow and the parties will be so notified.

PRIVATE AND CONFIDENTIAL

Complainants may seek assistance before completing this form.

This form, along with any documentation supporting this complaint (e.g. emails, handwritten notes, photographs, or physical evidence like vandalized personal belongings), is to be submitted to the Superintendent of Schools or designate. (If the Respondent is the Superintendent of Schools or designate, submit this form and supporting documentation to either BCPSEA or a third party who shall have been named by prior agreement of the District and the Union.

Name of Complainant:

_____

School/Department/Work Site:

_____

Description of Alleged Bullying or Harassment (~~Including Sexual Harassment~~) – attach further information if required (e.g. behaviour and/or words used):

_____

_____

_____

_____

Name(s) of Person(s) Accused of Bullying or Harassment (~~Including Sexual Harassment~~):

_____

_____

_____

Date(s) of Incident(s) or Time Frame and Location of Incident(s):

_____

_____

_____

Name(s) of any Witnesses to the Incident(s) of Bullying or Harassment (~~Including Sexual Harassment~~):

_____

_____

What steps have been taken to date to resolve the complaint?

_____

_____

_____

Resolution Requested:

_____

_____

Complainant(s) Signature(s):

_____ Date: _____

_____ Date: _____

Superintendent or Designate's Signature (indicating receipt):

_____

Date of Receipt: _____

The information contained in this form is of a highly confidential nature and will be protected as outlined in the District's procedures to address workplace bullying and harassment (~~including sexual harassment~~) incidents and complaints.

INSTRUCTIONS FOR HANDLING THIS FORM

Place this form in a sealed envelope marked "PRIVATE AND CONFIDENTIAL" and forward as outlined above for a Step 3 investigation.

Context
The School Act governs the provision of public and private education in B.C. This Act sets out the duties and responsibilities of the Board, parents and students. When disputes occur, the act outlines a process for appeal (Board bylaw 5). Agreements among unions, BC Confederation of Parent Advisory Councils and School Boards agree that disputes can and should be handled first at the classroom and school level before being forwarded to the Superintendent and that the appeal process should follow these steps.

Policy Statement
The Board is fundamentally committed to providing an educational program for all students. When complaints occur, the Board commits to having these resolved in an efficient way that supports the continued education, health and safety of students.

Guiding Principles
The Board believes that:
1. Conflicts, misunderstandings and disputes will occur in schools and operational sites from time to time.
2. When disagreements arise, resolution should be first sought where the conflict has occurred, and not be elevated until there has been a fulsome attempt at agreement or compromise.
3. If not resolved at the classroom, department, or site supervisory level, complaints may be made through this policy and administrative procedures by application to the Superintendent or designate.
4. Appeals to the Board through Bylaw 5 may be made if the complaints are not resolved by working with the Superintendent or designate.
5. Restorative and/or interest based models of conflict resolution will be used.
6. Advocates may be used as a part of this process.
7. In accordance with the School Act, some complaints regarding serious misconduct will not be subject to this policy.
8. The complaint resolution process will be available to students, parents, and other interested persons, and applies to complaints concerning the decisions, actions or conduct of the School District or its Personnel.

Definitions
1. **Restorative practices** (for example Restorative Justice):
   Is intended to build healthy communities by restoring relationships and directly addressing the harm that has been created by the conflict situation. Restorative practices rely on those who caused the harm recognizing and repairing that harm.

2. **Interest based resolution** (for example mediation and negotiation):
   Is intended to result in solutions based on shared common interests of the parties. In the case of education, for example, the health and safety of all students is often a common interest.

References:

- *School Act: Part 2*
- *Administrative Procedure to Board Policy 710: Resolution of Student and Parent Complaints*
- *Board Bylaw 5: Parent/Student Appeals to the Board of Education*
- *Administrative Procedures to Board Bylaw 5: Parent/Student Appeals to the Board of Education*
- *BC Confederation of Parent Advisory Councils (BCCPAC) resources*

Dates of Adoption/Amendments:
Adopted: 1989.10.15
Amended: 1991.09.10: 2001.04.24: 2002.10.22: 2003.05.27: 2009.04.28: **2016.03.08**

What Complaints Does This Policy Apply To?
The Complaint resolution process outlined below is available to students, parents and other interested persons and applies to complaints concerning the decisions, actions or conduct of the School District or its personnel.

Not every complaint or concern that is received will be amenable to resolution under this Policy.

The following matters are **not** subject to this Policy:

- Student suspensions of more than 5 days (which will be reviewed by **a hearing of** the District Student Review Committee in accordance with Board Policy 701: *Student Discipline*);
- Decisions of the District Student Review Committee;
- Where an investigation or resolution process under a collective agreement is available;
- Where the matters raised are the subject of ongoing legal proceedings;
- Where the matters complained of involve serious misconduct by a member of Personnel warranting an independent investigation and response by the School District;
- Where the School District has reason to believe the Complaint is malicious, frivolous, vexatious or filed in bad faith or the Complainant refuses to participate in a manner that is appropriate or respectful of the other participants.

The School District also reserves the right, in its sole discretion and on a case by case basis, to process complaints through other processes.

Any matters not covered by this Policy should be reported in writing to the applicable School Principal or School District office for appropriate action.

Application to Student and Parent Concerns (See Figure 2 attached)
Section 11 of the School Act provides students or parents with a right of appeal to the Board of Education from a decision of an employee of the School District that "significantly affects the education, health or safety of a student".

A parent or student who wishes to exercise that right of appeal will be required to first complete the dispute resolution process set out in this Policy (See Bylaw 5; and School Act s. 11(4)), unless the decision in issue is a decision of the District Student Review Committee in which case the parent or student may proceed directly to the appeal process outlined in Bylaw 5, if available.

Application to Complaints about Senior Administration.
Complaints about the decisions, actions or conduct of the Superintendent, Assistant-Superintendent or Secretary-Treasurer of the School District, should be in writing and sent to the attention of the Superintendent, and a Complaint concerning the Superintendent may be sent to the attention of the Secretary Treasurer. Where the Superintendent or, as applicable, the Secretary-Treasurer, considers it appropriate to do so, ~~he/she~~ they may submit such a Complaint to the resolution process outlined below, but omitting Step 2.

PROCESS (*See attached Figure 1 and 2*)

Step 1 - Initial Contact

At Step 1 of the Process, the Complainant is encouraged to directly approach the person about whom the Complaint relates (the "Respondent") and communicate his or her concerns or issues. The Complainant may choose to approach the Respondent in person or through written communications and should reference this Policy.

At Step 1 of the Process, the Parties will attempt to:

- define the concern(s);
- clarify the issue(s);
- develop an appreciation and understanding of each other's point of view; and,
- resolve the concern(s).

If the Complainant is unwilling to approach the Respondent directly or there is no resolution at Step 1, the Complainant may proceed to Step 2 by filing a written letter of complaint with the Respondent's direct management supervisor (the "Facilitator") (in most cases, the school principal). Please contact the School District office if clarification of the appropriate individual to receive the Complaint is needed.

In complaints concerning management Personnel (including principals, superintendent, assistant-superintendent and secretary treasurer) Step 2 will be omitted, and the Complainant may proceed directly to Step 3 by sending a written letter of complaint to the Superintendent (Complaints about the Superintendent shall be sent to the attention of the Secretary-Treasurer).

Step 2 - Facilitated Contact

Upon receiving a Complaint, the Facilitator will arrange to meet with each of the parties. The Facilitator will, as applicable, advise the union of any Complaint involving one of its members. Any party may choose to be accompanied by a support person in meeting with the Facilitator.

The Facilitator will:

- gather information and evidence;
- record the Complaint or allegations and/or investigate the Complaint;
- attempt to facilitate resolution; and,
- make a decision concerning the appropriate resolution or remedy or, where appropriate, may confirm, rescind, vary or modify the decision or action under review.

The Facilitator will Complete the Process for Resolution of Concerns Form (attached), and, if appropriate, provide copies to all parties, including, the union, the Superintendent and the Secretary Treasurer. However, circulation of the Resolution of Concerns Form may be restricted in some cases to ensure the privacy of the individuals involved.

Most Complaints will be resolved or concluded at Step 2, and the decision of the Facilitator will be considered final.

However, in appropriate circumstances, if a matter is not resolved at Step 2, it may be referred by the Facilitator to Step 3. Matters which will be referred to Step 3, include:

- student discipline or suspension (except where the matter has been reviewed by the District Student Review Committee);
- decisions significantly affecting the health or welfare of students (within the meaning of Section 11 of the School Act);
- complaints or concerns about any inappropriate conduct by any member of the Personnel.

Step 3 - School District Review

At Step 3, the Superintendent or ~~his/her~~ designate will review the Complaint and all information relevant to the matter, and may:

- contact or meet with the Complainant and Respondent;
- receive further information or evidence or investigate;
- attempt to facilitate a resolution;
- make a decision concerning the appropriate resolution or remedy or, where appropriate, confirm, rescind, vary or modify the decision under review;
- notify the parties of ~~his/her~~ **their** decision verbally or in writing.

At Step 3 the Superintendent may refer any matter related to student discipline to the District Student Review Committee for its review and recommendations.

Step 4 – Board of Education Review

Certain student matters may also be subject to a further right of appeal to the Board of Education. Students and parents should refer to Board Bylaw 5: *Parent/Student Appeals to the Board of Education* to determine whether they are eligible to appeal their concerns to the Board of Education.

GENERAL PRINCIPLES

1. Confidentiality. The School District will endeavour to respect the confidentiality of the parties involved in a Complaint, but confidentiality cannot be guaranteed. It may be necessary for the School District to disclose details of a Complaint in order to fairly and appropriately investigate and respond to it.

2. Freedom of Information Legislation and Information Access. The School District is subject to the Freedom of Information and Protection of Privacy Act. Accordingly, Complaint documentation may be subject to access and disclosure under this legislation. For more information see the School District's Privacy Policy at www.sd69.bc.ca.

3. Awareness of this Policy. All Personnel are responsible to inform members of the educational community (i.e. parents, students, and other interested persons) about this Policy as one means of resolving individual complaints or concerns.

4. Annual Policy Review. On at least an annual basis, the Superintendent shall review and circulate this Policy to school and district administrators. On or before October 30 each school year, school principals shall review this Policy with staff and local parent advisory councils.

5. Timeliness. The School District and all Personnel are expected to make reasonable efforts to file and respond to Complaints within a reasonable period of time. Complaints should be initiated within thirty (30) days of the decision or incident complained of.

6. Notification. If a Complaint involves allegations against a member of Personnel, that person will be provided notice of the allegations and an opportunity to respond.

7. Support. The School District and all personnel are expected to support the Resolution of Complaints process and to provide clarification of the process to parents, students and other interested persons as required.

References:

- Board Policy 710: Resolution of **Parent and Student** Complaints
- Board Bylaw 5: Parent/Student Appeals to the Board of Education
- The School Act: Part 2
- BC Confederation of Parent Advisory Councils (BCCPAC) Resources

Dates of Adoption/Amendments:

Adopted: 1989.10.15 :
Amended: 1991.09.10: Review October 2000: 2001.04.24 : 2002.10.22 : 2003.05.27: 2009.04.28: **2016.03.08**

Figure 1:
General Concerns

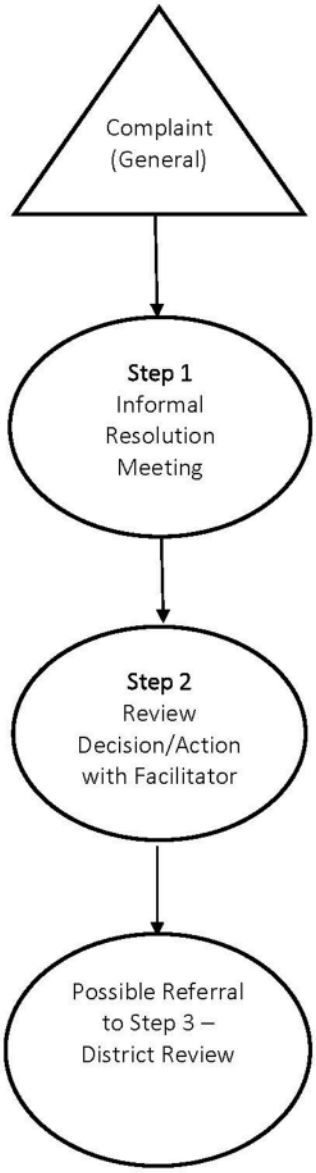
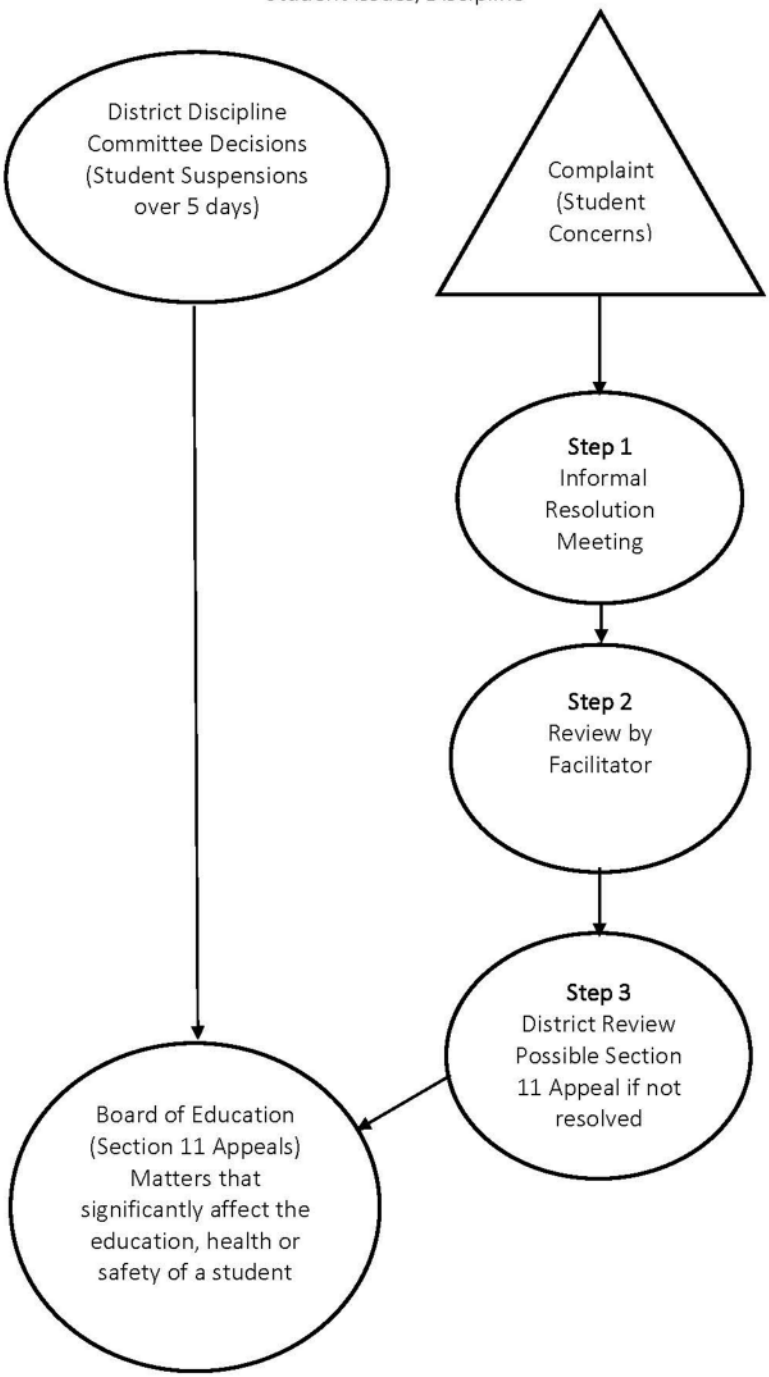


Figure 2:
Student Issues/Discipline



Notice of Complaint

Name of Individual Raising the Concern: _____
(Please Print)

Phone # **:** _____

Email: _____

Date Submitted: _____

School or Work Site Where Concern Originated: _____

Others involved in this situation: _____

_____

Please describe the situation/issue you are concerned about. Please be brief and factual; if you require assistance, please contact the DPAC president. Use the back side of this form if necessary and where appropriate, please name the persons involved in this issue.

In chronological sequence, please outline, in note form, the actions you have taken up to now in an attempt to resolve this problem.

Signature of Individual Raising Concern: _____

Date this form was completed: _____

For Facilitator Use Only

Name of Facilitator:_____

Position:_____

Dates of Meetings/Contact:

_____

_____

Measures Undertaken to Resolve the Matter

_____

_____

_____

_____

_____

☐ Resolved

Decisions, Remedies and/or Outcomes:

_____

_____

_____

☐ Unresolved

Matter referred to:

☐ Superintendent or Designate

Date:_____

Copies to:

- Superintendent
- Senior Staff the matter is referred to
- Supervisor's file
- Individual raising concern

SD69 QUALICUM

Finance & Operations Committee of the Whole Report
Monday, November 15, 2021
Via Zoom
10:30 a.m.

Mandate: *To discuss and make recommendations to the board on financial matters and matters pertaining to facilities, maintenance, technology and transportation.*

1. Acknowledgement of Traditional Territories

2. Presentation
None

3. Project Updates:

a. Oceanside Community Track (at Ballenas) Project Update
Elaine Young, Trustee, updated the Committee with the latest fundraising information, sharing that there is a Silent Auction scheduled for December 9, with viewing set up at Pacific Shores Resort. The Contribution Agreement with the four partners is now drafted with some final edits and should likely be ready for signing before the end of the year.

b. Green House Gas Emissions Study by Prism Engineering
Chris Dempster, General Manager of Operations, indicated that the BC Hydro contracts have now been authorized to access the grants for the energy audits being conducted by Prism. Timing for the audits has yet to be determined although it is known they will be done at the sites.

4. Items for Discussion

a. 2020-2021 Statement of Financial Information (SOFI)
Ron Amos, Secretary Treasurer, reviewed the purpose and statutory nature of this report, and the requirement within the Financial Information regulation.

5. Information Items

a. Landscaping/Tree Removal
Chris Dempster, General Manager of Operations, reviewed the operational planning that is considered when the Department deals with trees and other vegetation. Review by a third-party contractor is done when looking at the safety and hazard concerns presented by trees on or immediately adjacent to our sites. When stakeholders come forward with suggestions for installing trees, they too are dealt with by the Operations Department in order to review the best placement for them. It was shared that for the Arrowview Daycare building,1 or 2 trees were removed as part of the site preparation for the project and was part of the consideration in determining the best placement for the new building. There was some discussion on whether there was a need for the inclusion of new trees into policy. It was suggested to ask that the Policy Committee review the Sustainable Practices policy and its environmental stewardship language.

b. Land and Facilities Review

Peter Jory, Superintendent, provided an update on recent planning for the review and indicated the Board would provide input on the topics needing to be considered. It was also shared that the process likely would not include an in-person element but would still have the opportunity for a robust dialogue through townhall and focus group discussions. Messaging of the process would occur in December so that the review could begin in January.

c. School Site Acquisition Charge (SSAC)

Ron Amos, Secretary Treasurer, provided information on the background and process necessary for the Board to enact an SSAC resolution. From the Local Government Legislation, it is a charge per dwelling paid by residential developers and collected by Local Governments. He shared information on the legislation and the guidelines that set up the process, including the need for fairness and equity, accountability, consultation and certainty. It was also shared that the District had these agreements in the past when sites were needed for the growth in the late 1990's. There was general agreement that this would be one of the many considerations for the Land and Facilities review.

6. Recommendations to the Board of Education

Statement of Financial Information to be approved at the Regular Board meeting on November 23rd.

7. Future Topics

a. Exploration of Community Schools Concept

8. Next Meeting Date/Location:

- Monday, January November 17, 2022 at 10:30 – Via Zoom Until Further Notice

BRITISH COLUMBIA | Ministry of Education

SCHOOL DISTRICT
STATEMENT OF FINANCIAL INFORMATION
(SOFI)

6049

SCHOOL DISTRICT NUMBER	NAME OF SCHOOL DISTRICT	YEAR
69	Qualicum	2021

OFFICE LOCATION(S)	TELEPHONE NUMBER
100 Jensen Avenue East	250-248-4241

MAILING ADDRESS: PO Box 430

CITY	PROVINCE	POSTAL CODE
Parksville	BC	V9P 2G5

NAME OF SUPERINTENDENT	TELEPHONE NUMBER
Peter Jory	250-954-4687
NAME OF SECRETARY TREASURER	TELEPHONE NUMBER
Ron Amos	250-954-4675

DECLARATION AND SIGNATURES

We, the undersigned, certify that the attached is a correct and true copy of the Statement of Financial Information for the year ended June 30, 2021 *for School District No.* 69 *as required under Section 2 of the Financial Information Act.*

SIGNATURE OF CHAIRPERSON OF THE BOARD OF EDUCATION	DATE SIGNED
SIGNATURE OF SUPERINTENDENT	DATE SIGNED
SIGNATURE OF SECRETARY TREASURER	DATE SIGNED

EDUC. 6049 (REV. 2008/09)

Statement of Financial Information for Year Ended June 30, 2021

Financial Information Act-Submission Checklist

			Due Date
a)	❑	A statement of assets and liabilities (audited financial statements).	*September 30*
b)	❑	An operational statement including, i) a Statement of Income and ii) a Statement of Changes in Financial Position, or, if omitted, an explanation in the Notes to Financial Statements (audited financial statements)	*September 30*
c)	❑	A schedule of debts (audited financial statements).	*September 30*
d)	❑	A schedule of guarantee and indemnity agreements including the names of the entities involved and the amount of money involved. (Note: Nil schedules can be submitted December 31).	*September 30*
e)		A schedule of remuneration and expenses, including:	*December 31*
	❑	i) an alphabetical list of employees earning over $75,000, the total amount of expenses paid to or on behalf of each employee for the year reported and a consolidated total for employees earning under $75,000. If the total wages and expenses differs from the audited financial statements, an explanation is required.	
	❑	ii) a list by name and position of Board Members with the amount of any salary and expenses paid to or on behalf of the member	
	❑	iii) the number of severance agreements started during the fiscal year and the range of months' pay covered by the agreement, in respect of excluded employees. If there are no agreements to report, an explanation is required	
f)	❑	An alphabetical list of suppliers receiving over $25,000 and a consolidated total for those suppliers receiving less than $25,000. If the total differs from the Audited Financial Statements, an explanation is required.	*December 31*
g)	❑	Approval of Statement of Financial Information.	*December 31*
h)	❑	A management report approved by the Chief Financial Officer	*December 31*

School District Number & Name: School District No. 69 (Qualicum)

School District
Statement of Financial Information (SOFI)

School District No. 69 (Qualicum)

Fiscal Year Ended June 30, 2021

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School District
Statement of Financial Information (SOFI)

School District No. 69 (Qualicum)

Fiscal Year Ended June 30, 2021

MANAGEMENT REPORT

The Financial Statements contained in this Statement of Financial Information under the *Financial Information Act* have been prepared by management in accordance with Canadian generally accepted accounting principles and the integrity and objectivity of these statements are management's responsibility.

Management is also responsible for all other schedules of financial information and for ensuring this information is consistent, where appropriate, with the information contained in the financial statements and for implementing and maintaining a system of internal controls to provide reasonable assurance that reliable financial information is produced.

The Board of Education is responsible for ensuring that management fulfils its responsibilities for financial reporting and internal control and for approving the financial information included in the Statement of Financial Information.

The external auditors, McGorman MacLean, Chartered Accountants, conduct an independent examination, in accordance with generally accepted auditing standards, and express their opinion on the financial statements as required by the *School Act*. Their examination does not relate to the other schedules of financial information required by the *Financial Information Act*. Their examination includes a review and evaluation of the board's system of internal control and appropriate tests and procedures to provide reasonable assurance that the financial statements are presented fairly.

On behalf of School District

_____
Peter Jory, Superintendent
Date:

_____
Ron Amos, Secretary Treasurer
Date:

Prepared as required by *Financial Information Regulation,* Schedule 1, section 9

Audited Financial Statements of

School District No. 69 (Qualicum)

And Independent Auditors' Report thereon

June 30, 2021

School District No. 69 (Qualicum)

June 30, 2021

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School District No. 69 (Qualicum)

MANAGEMENT REPORT
Version: 7271-6525-4543

Management's Responsibility for the Financial Statements.

The accompanying financial statements of School District No. 69 (Qualicum) have been prepared by management in accordance with the accounting requirements of Section 23.1 of the Budget Transparency and Accountability Act of British Columbia, supplemented by Regulations 257/2010 and 198/2011 issued by the Province of British Columbia Treasury Board, and the integrity and objectivity of these statements are management's responsibility. Management is also responsible for all of the notes to the financial statements and schedules, and for ensuring that this information is consistent, where appropriate, with the information contained in the financial statements.

The preparation of financial statements necessarily involves the use of estimates based on management's judgment particularly when transactions affecting the current accounting period cannot be finalized with certainty until future periods.

Management is also responsible for implementing and maintaining a system of internal controls to provide reasonable assurance that assets are safeguarded, transactions are properly authorized and reliable financial information is produced.

The Board of Education of School District No. 69 (Qualicum) (called the "Board") is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control and exercises these responsibilities through the Board. The Board reviews internal financial statements on a monthly basis and externally audited financial statements yearly.

The external auditors, McGorman MacLean, conduct an independent examination, in accordance with Canadian generally accepted auditing standards, and express their opinion on the financial statements. The external auditors have full and free access to financial management of School District No. 69 (Qualicum) and meet when required. The accompanying Independent Auditors' Report outlines their responsibilities, the scope of their examination and their opinion on the School District's financial statements.

On behalf of School District No. 69 (Qualicum)

	October 4, 2021
Signature of the Chairperson of the Board of Education	Date Signed
	Oct. 5, 2021
Signature of the Superintendent	Date Signed
	Sept 27, 2021
Signature of the Secretary Treasurer	Date Signed

McGORMAN
MacLEAN
Chartered Professional Accountants

Campbell B. MacLean, Ltd.
Stana Pazicka, Inc.
Leanne M. Souchuck, Ltd.
Mark A.A. McGorman (Retired)

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INDEPENDENT AUDITORS' REPORT

To the Board of Education of School District No. 69 (Qualicum), and
To the Minister of Education, Province of British Columbia

Opinion

We have audited the accompanying consolidated financial statements of School District No. 69 (Qualicum), which comprise the statement of financial position as at June 30, 2021 and the statements of operations, changes in net financial assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of School District No. 69 (Qualicum) as at June 30, 2021, and the results of its operations, changes in net financial assets and cash flows for the year then ended in accordance with the financial reporting provisions of Section 23.1 of the Budget Transparency and Accountability Act of the Province of British Columbia.

Basis of Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the School District in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the financial reporting provisions of Section 23.1 of the Budget Transparency and Accountability Act of the Province of British Columbia and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the School District's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the School District or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the School District's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

180 McCarter Street, 3rd Floor, PO Box 760, Parksville, BC V9P 2G8

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the School District's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the School District's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the School District to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

McGarrow MacLean
CHARTERED PROFESSIONAL ACCOUNTANTS

Parksville, Canada
September 28, 2021

180 McCarter Street, 3rd Floor, PO Box 760, Parksville, BC V9P 2G8

School District No. 69 (Qualicum)

Statement 1

Statement of Financial Position
As at June 30, 2021

	2021 Actual	2020 Actual
	$	$
Financial Assets		
Cash and Cash Equivalents	**17,116,087**	14,007,248
Accounts Receivable		
Due from Province - Ministry of Education	**181,817**	737,438
Other (Note 3)	**285,548**	211,672
Total Financial Assets	**17,583,452**	14,956,358
Liabilities		
Accounts Payable and Accrued Liabilities		
Other (Note 4)	**5,028,488**	4,379,136
Unearned Revenue (Note 5)	**2,278,449**	503,858
Deferred Revenue (Note 6)	**844,032**	616,953
Deferred Capital Revenue (Note 7)	**46,083,460**	46,277,020
Employee Future Benefits (Note 8)	**6,098,992**	5,839,669
Total Liabilities	**60,333,421**	57,616,636
Net Debt	**(42,749,969)**	(42,660,278)
Non-Financial Assets		
Tangible Capital Assets (Note 9)	**62,829,137**	62,465,265
Prepaid Expenses	**124,698**	100,075
Total Non-Financial Assets	**62,953,835**	62,565,340
Accumulated Surplus (Deficit) (Note 13)	**20,203,866**	19,905,062

Contractual Obligations (Note 10)

Contractual Rights (Note 14)

Approved by the Board

Signature of the Chairperson of the Board of Education — Date Signed: October 4, 2021

Signature of the Superintendent — Date Signed: Oct. 5, 2021

Signature of the Secretary Treasurer — Date Signed: Sept 29, 2021

School District No. 69 (Qualicum)

Statement of Operations
Year Ended June 30, 2021

	2021 Budget	2021 Actual	2020 Actual
	$	$	$
Revenues			
Provincial Grants			
Ministry of Education	53,192,803	**54,489,959**	50,781,724
Other	110,000	**147,870**	191,878
Tuition	1,000,000	**1,370,654**	3,829,455
Other Revenue	1,490,000	**684,632**	1,247,328
Rentals and Leases	550,000	**624,850**	653,214
Investment Income	190,000	**122,796**	236,041
Amortization of Deferred Capital Revenue	2,440,024	**2,440,024**	2,345,075
Total Revenue	58,972,827	**59,880,785**	59,284,715
Expenses			
Instruction	45,897,676	**46,461,738**	45,877,751
District Administration	2,223,574	**2,191,247**	2,398,481
Operations and Maintenance	8,639,718	**8,889,015**	9,335,586
Transportation and Housing	2,129,082	**2,039,981**	1,746,375
Total Expense	58,890,050	**59,581,981**	59,358,193
Surplus (Deficit) for the year	82,777	**298,804**	(73,478)
Accumulated Surplus (Deficit) from Operations, beginning of year		**19,905,062**	19,978,540
Accumulated Surplus (Deficit) from Operations, end of year		**20,203,866**	19,905,062

The accompanying notes are an integral part of these financial statements.

School District No. 69 (Qualicum)

Statement 4

Statement of Changes in Net Debt
Year Ended June 30, 2021

	2021 Budget	2021 Actual	2020 Actual
	$	$	$
Surplus (Deficit) for the year	82,777	**298,804**	(73,478)
Effect of change in Tangible Capital Assets			
Acquisition of Tangible Capital Assets	(418,550)	**(3,139,669)**	(2,698,607)
Amortization of Tangible Capital Assets	2,775,797	**2,775,797**	2,659,362
Total Effect of change in Tangible Capital Assets	2,357,247	**(363,872)**	(39,245)
Acquisition of Prepaid Expenses		**(124,698)**	(100,075)
Use of Prepaid Expenses		**100,075**	92,785
Total Effect of change in Other Non-Financial Assets	-	**(24,623)**	(7,290)
(Increase) Decrease in Net Debt, before Net Remeasurement Gains (Losses)	2,440,024	**(89,691)**	(120,013)
Net Remeasurement Gains (Losses)			
(Increase) Decrease in Net Debt		**(89,691)**	(120,013)
Net Debt, beginning of year		**(42,660,278)**	(42,540,265)
Net Debt, end of year		**(42,749,969)**	(42,660,278)

School District No. 69 (Qualicum)

Statement 5

Statement of Cash Flows
Year Ended June 30, 2021

	2021 Actual	2020 Actual
	$	$
Operating Transactions		
Surplus (Deficit) for the year	**298,804**	(73,478)
Changes in Non-Cash Working Capital		
Decrease (Increase)		
Accounts Receivable	**481,745**	(658,916)
Prepaid Expenses	**(24,623)**	(45,048)
Increase (Decrease)		
Accounts Payable and Accrued Liabilities	**649,352**	728,152
Unearned Revenue	**1,774,591**	(1,847,666)
Deferred Revenue	**227,079**	(45,045)
Employee Future Benefits	**259,323**	67,679
Amortization of Tangible Capital Assets	**2,775,797**	2,659,362
Amortization of Deferred Capital Revenue	**(2,440,024)**	(2,345,075)
Services and Supplies purchased with Bylaw Capital	**(559,646)**	(651,913)
Services and Supplies purchased with Other Provincial Capital		(45,487)
Total Operating Transactions	**3,442,398**	(2,257,435)
Capital Transactions		
Tangible Capital Assets Purchased	**(3,139,669)**	(2,698,607)
Total Capital Transactions	**(3,139,669)**	(2,698,607)
Financing Transactions		
Capital Revenue Received	**2,806,110**	3,919,006
Total Financing Transactions	**2,806,110**	3,919,006
Net Increase (Decrease) in Cash and Cash Equivalents	**3,108,839**	(1,037,036)
Cash and Cash Equivalents, beginning of year	**14,007,248**	15,044,284
Cash and Cash Equivalents, end of year	**17,116,087**	14,007,248
Cash and Cash Equivalents, end of year, is made up of:		
Cash	**17,116,087**	14,007,248
	17,116,087	14,007,248

NOTE 1 AUTHORITY AND PURPOSE

The School District, established in 1946, operates under authority of the *School Act* of British Columbia as a corporation under the name of "The Board of Education of School District No. 69 (Qualicum)" and operates as "School District No. 69 (Qualicum)." A board of education ("Board") elected for a four-year term governs the School District. The School District provides educational programs to students enrolled in schools in the district, and is principally funded by the Province of British Columbia through the Ministry of Education. School District No. 69 (Qualicum) is exempt from federal and provincial corporate income taxes.

The COVID-19 outbreak was declared a pandemic by the World Health Organization in March 2020 and has had a significant financial, market and social dislocating impact worldwide. Under direction of the Provincial Health Officer, all schools suspended in-class instruction in March 2020 and the District remained open to continue to support students and families in a variety of ways. Parents were given the choice to send their children back to school on a gradual and part-time basis beginning June 1 and full-time beginning Sept 1, 2020 with new health and safety guidelines. The ongoing impact of the pandemic presents uncertainty over future cash flows, may have a significant impact on future operations including decreases in revenue, impairment of receivables, reduction in investment income and delays in completing capital project work. As the situation is dynamic and the ultimate duration and magnitude of the impact are not known, an estimate of the future financial effect on the District is not practicable at this time.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the School District are prepared by management in accordance with the basis of accounting described below. Significant accounting policies of the School District are as follows:

a) Basis of Accounting

These financial statements have been prepared in accordance with Section 23.1 of the *Budget Transparency and Accountability Act of the Province of British Columbia.* This Section requires that the financial statements be prepared in accordance with Canadian public sector accounting standards except in regard to the accounting for government transfers as set out in Notes 2(e) and 2(j).

In November 2011, the Treasury Board provided a directive through Restricted Contributions Regulation 198/2011 providing direction for the reporting of restricted contributions whether they are received or receivable by the School District before or after this regulation was in effect.

As noted in Notes 2(e) and 2(j), Section 23.1 of the *Budget Transparency and Accountability Act* and its related regulations require the School District to recognize government transfers for the acquisition of tangible capital assets into revenue on the same basis as the related amortization expense.

As these transfers do not contain stipulations that create a liability, Canadian public sector accounting standards would require that:

- Government transfers, which do not contain a stipulation that creates a liability, be recognized as revenue by the recipient when approved by the transferor and the eligibility criteria have been met in accordance with public sector accounting standard PS3410; and

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

a) Basis of Accounting (continued)

- Externally restricted contributions be recognized as revenue in the period in which the resources are used for the purpose or purposes specified in accordance with public sector accounting standard PS3100.

The impact of this difference on the financial statements of the School District is as follows:

Year ended June 30, 2020 - decrease in annual surplus by $153,403
June 30, 2020 - increase in accumulated surplus and decrease in deferred contributions by $44,992,755

Year ended June 30, 2021 - increase in annual surplus by $441,865
June 30, 2021 - increase in accumulated surplus and decrease in deferred contributions by $45,404,619

b) Cash and Cash Equivalents

Cash and cash equivalents include cash and highly liquid securities that are readily convertible to known amounts of cash and that are subject to an insignificant risk of change in value. These cash equivalents generally have a maturity of three months or less at acquisition and are held for the purpose of meeting short-term cash commitments rather than for investing.

c) Accounts Receivable

Accounts receivable are measured at amortized cost and shown net of allowance for doubtful accounts.

d) Unearned Revenue

Unearned revenue includes tuition fees received for courses to be delivered in future periods and receipt of proceeds for services or products to be delivered in a future period. Revenue will be recognized in that future period when the courses, services, or products are provided.

e) Deferred Revenue and Deferred Capital Revenue

Deferred revenue includes contributions received with stipulations that meet the description of restricted contributions in the Restricted Contributions Regulation 198/2011 issued by the Treasury Board. When restrictions are met, deferred revenue is recognized as revenue in the fiscal year in a manner consistent with the circumstances and evidence used to support the initial recognition of the contributions received as a liability as detailed in Note 2(j).

Funding received for the acquisition of depreciable tangible capital assets is recorded as deferred capital revenue and amortized over the life of the asset acquired as revenue in the statement of operations. This accounting treatment is not consistent with the requirements of Canadian public sector accounting standards which require that government transfers be recognized as revenue when approved by the transferor and eligibility criteria have been met unless the transfer contains a stipulation that creates a liability in which case the transfer is recognized as revenue over the period that the liability is extinguished. See Note 2(a) for the impact of this policy on these financial statements.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

f) Employee Future Benefits

The School District provides certain post-employment benefits including vested and non-vested benefits for certain employees pursuant to certain contracts and union agreements. The School District accrues its obligations and related costs including both vested and non-vested benefits under employee future benefit plans. Benefits include vested sick leave, accumulating non-vested sick leave, early retirement, retirement/severance, vacation, overtime and death benefits. The benefits cost is actuarially determined using the projected unit credit method pro-rated on service and using management's best estimate of expected salary escalation, termination rates, retirement rates and mortality. The discount rate used to measure obligations is based on the cost of borrowing. The cumulative unrecognized actuarial gains and losses are amortized over the expected average remaining service lifetime (EARSL) of active employees covered under the plan.

The most recent valuation of the obligation was performed at March 31, 2019 and projected to March 31, 2022. The next valuation will be performed at March 31, 2022 for use at June 30, 2022. For the purposes of determining the financial position of the plans and the employee future benefit costs, a measurement date of March 31 was adopted for all periods subsequent to July 1, 2004.

The School District and its employees make contributions to the Teachers' Pension Plan and Municipal Pension Plan. The plans are multi-employer plans where assets and obligations are not separated. The costs are expensed as incurred.

g) Tangible Capital Assets

The following criteria apply:

- Tangible capital assets acquired or constructed are recorded at cost which includes amounts that are directly related to acquisition, design, construction, development, improvement or betterment of the assets. Cost also includes overhead directly attributable to construction as well as interest costs that are directly attributable to the acquisition or construction of the asset.
- Donated tangible capital assets are recorded at their fair market value on the date of donation, except in circumstances where fair value cannot be reasonably determined, which are then recognized at nominal value.
- Work-in-progress is recorded as an acquisition to the applicable asset class at substantial completion.
- Tangible capital assets are written down to residual value when conditions indicate they no longer contribute to the ability of the School District to provide services or when the value of future economic benefits associated with the sites and buildings are less than their net book value. The write-downs are accounted for as expenses in the Statement of Operations.
- Buildings that are demolished or destroyed are written-off.
- Works of art, historic assets and other intangible assets are not recorded as assets in these financial statements.
- The cost, less residual value, of tangible capital assets (excluding sites), is amortized on a straight-line basis over the estimated useful life of the asset. It is management's responsibility to determine the appropriate useful lives for tangible capital assets. These useful lives are reviewed on a regular basis or if significant events initiate the need to revise.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

g) Tangible Capital Assets (continued)

- Estimated useful life is as follows:

Buildings	40 years
Furniture and Equipment	10 years
Vehicles	10 years
Computer Hardware	5 years

h) Prepaid Expenses

Amounts for maintenance contracts and other services are included as a prepaid expense and stated at acquisition cost and are charged to expense over the periods expected to benefit from it.

i) Funds and Reserves

Certain amounts, as approved by the Board, are set aside in accumulated surplus for future operating and capital purposes. Transfers to and from funds and reserves are an adjustment to the respective fund when approved (see Note 13 - Accumulated Surplus).

j) Revenue Recognition

Revenues are recorded on an accrual basis in the period in which the transactions or events occurred that gave rise to the revenues, the amounts are considered to be collectible and can be reasonably estimated.

Contributions received or where eligibility criteria have been met, are recognized as revenue except where the contribution meets the criteria for deferral as described below. Eligibility criteria are the criteria that the School District has to meet in order to receive the contributions including authorization by the transferring government.

For contributions subject to a legislative or contractual stipulation or restriction as to their use, revenue is recognized as follows:

- Non-capital contributions for specific purposes are recorded as deferred revenue and recognized as revenue in the year related expenses are incurred.
- Contributions restricted for site acquisitions are recorded as revenue when the sites are purchased.
- Contributions restricted for tangible capital assets acquisitions, other than sites, are recorded as deferred capital revenue and amortized over the useful life of the related assets.

Donated tangible capital assets, other than sites, are recorded at fair market value and amortized over the useful life of the assets. Donated sites are recorded as revenue at fair market value when received or receivable.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

j) Revenue Recognition (continued)

The accounting treatment for restricted contributions is not consistent with the requirements of Canadian public sector accounting standards which require that government transfers be recognized as revenue when approved by the transferor and eligibility criteria have been met unless the transfer contains a stipulation that meets the criteria for liability recognition in which case the transfer is recognized as revenue over the period that the liability is extinguished. See Note 2(a) for the impact of this policy on these financial statements.

Revenue related to fees or services received in advance of the fee being earned or the service being performed is deferred and recognized when the fee is earned or service performed.

Investment income is reported in the period earned. When required by the funding party or related Act, investment income earned on deferred revenue is added to the deferred revenue balance.

k) Expenditures

Expenses are reported on an accrual basis. The cost of all goods consumed and services received during the year is expensed.

Categories of Salaries

- Principals, Vice-Principals, and Director of Instruction employed under an administrative officer contract are categorized as Principals and Vice-Principals.
- Superintendents, Assistant Superintendents, Secretary-Treasurers, Trustees and other employees excluded from union contracts are categorized as Other Professionals.

Allocation of Costs

- Operating expenses are reported by function, program, and object. Whenever possible, expenditures are determined by actual identification. Additional costs pertaining to specific instructional programs, such as special and aboriginal education, are allocated to these programs. All other costs are allocated to related programs.
- Actual salaries of personnel assigned to two or more functions or programs are allocated based on the time spent in each function and program. School-based clerical salaries are allocated to school administration and partially to other programs to which they may be assigned. Principals' and Vice-Principals' salaries are allocated to school administration and may be partially allocated to other programs to recognize their other responsibilities.
- Employee benefits and allowances are allocated to the same programs, and in the same proportions, as the individual's salary.
- Supplies and services are allocated based on actual program identification.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

l) Financial Instruments

A contract establishing a financial instrument creates, at its inception, rights and obligations to receive or deliver economic benefits. The financial assets and financial liabilities portray these rights and obligations in the financial statements. The School District recognizes a financial instrument when it becomes a party to a financial instrument contract. Financial instruments consist of cash and cash equivalents, accounts receivable and accounts payable and accrued liabilities.

All financial assets and liabilities are recorded at cost or amortized cost and the associated transaction costs are added to the carrying value of these instruments upon initial recognition. Transaction costs are incremental costs directly attributable to the acquisition or issue of a financial asset or a financial liability.

All financial assets, except derivatives are tested annually for impairment. When financial assets are impaired, impairment losses are recorded in the statement of operations.

m) Measurement Uncertainty

Preparation of financial statements in accordance with the basis of accounting described in Note 2(a) requires management to make estimates and assumptions that impact reported amounts of assets and liabilities at the date of the financial statements and revenues and expenses during the reporting periods. Significant areas requiring the use of management estimates relate to the potential impairment of assets, rates for amortization and estimated employee future benefits. Actual results could differ from those estimates.

n) Future Changes in Accounting Policies

PS 3280 Asset Retirement Obligations, issued August 2018, establishes standards for recognition, measurement, presentation and disclosure of legal obligations associated with the retirement of tangible capital assets and is effective July 1, 2022. A liability will be recognized when, as at the financial reporting date:

- There is a legal obligation to incur retirement costs in relation to a tangible capital asset;
- The past transaction or event giving rise to the liability has occurred;
- It is expected that future economic benefits will be given up; and
- A reasonable estimate of the amount can be made.

Liabilities are recognized for statutory, contractual or legal obligations associated with the retirement of tangible capital assets when those obligations result from the acquisition, construction, development or normal operation of the assets. The obligations are measured initially at fair value, determined using present value methodology, and the resulting costs capitalized into the carrying amount of the related tangible capital asset. In subsequent periods, the liability is adjusted for accretion and any changes in the amount or timing of the underlying future cash flows. The capitalized asset retirement cost is amortized on the same basis as the related asset and accretion expense is included in the Statement of Operations.

A modified retroactive application has been recommended by Government. Management is in the process of assessing the impact of adopting this standard on the School District's financial results.

NOTE 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

n) Future Changes in Accounting Policies (continued)

PS 3400 Revenue, issued November 2018, establishes standards on how to account for and report on revenue and is effective July 1, 2023. Specifically, it differentiates between revenue arising from transactions that include performance obligations, referred to as "exchange transactions", and transactions that do not have performance obligations, referred to as "non-exchange transactions".

Revenue from transactions with performance obligations should be recognized when (or as) the School District satisfies a performance obligation by providing the promised goods or services to a payor.

Revenue from transactions with no performance obligations should be recognized when a School District:

- Has the authority to claim or retain an inflow of economic resources; and
- Identifies a past transaction or event that gives rise to an asset.

This standard may be applied retroactively or prospectively. Management is in the process of assessing the impact of adopting this standard on the School District's financial results

NOTE 3 ACCOUNTS RECEIVABLE - OTHER RECEIVABLES

	2021	2020
Due from Federal Government	$ 95,393	$ 65,120
Mount Arrowsmith Teachers Association	28,349	18,587
CUPE Local 3570	14,816	18,373
Thomas Bus	55,476	55,476
Other	91,514	54,116
	$ 285,548	$ 211,672

NOTE 4 ACCOUNTS PAYABLE AND ACCRUED LIABILITIES - OTHER

	2021	2020
Trades payable	$ 1,005,727	$ 766,557
Salaries and benefits payable	2,989,629	2,768,031
Accrued vacation pay	235,545	234,302
Employer health tax payable	257,201	440,357
Other	540,386	169,889
	$ 5,028,488	$ 4,379,136

NOTE 5 UNEARNED REVENUE

	2021	2020
Tuition fees	$ 2,245,247	$ 503,858
Rentals	33,202	-
	$ 2,278,449	$ 503,858

NOTE 6 DEFERRED REVENUE

Deferred revenue includes unspent grants and contributions received that meet the description of a restricted contribution in the Restricted Contributions Regulation 198/2011 issued by the Treasury Board, i.e., the stipulations associated with those grants and contributions have not yet been fulfilled. Detailed information about the changes in deferred revenue is included in Schedule 3A.

NOTE 7 DEFERRED CAPITAL REVENUE

Deferred capital revenue includes grants and contributions received that are restricted by the contributor for the acquisition of tangible capital assets that meet the description of a restricted contribution in the Restricted Contributions Regulation 198/2011 issued by the Treasury Board. Once spent, the contributions are amortized into revenue over the life of the asset acquired. Detailed information about the changes in deferred revenue is included in Schedule 4C and 4D.

NOTE 8 EMPLOYEE FUTURE BENEFITS

Benefits include vested sick leave, accumulating non-vested sick leave, early retirement, retirement/severance, vacation, overtime and death benefits. Funding is provided when the benefits are paid and accordingly, there are no plan assets. Although no plan assets are uniquely identified, the School District has provided for the payment of these benefits.

	2021	2020
Reconciliation of Accrued Benefit Obligation		
Accrued Benefit Obligation – April 1	$ 6,384,645	$ 6,299,743
Service Cost	457,364	432,388
Interest Cost	146,736	160,284
Benefit Payments	(471,803)	(548,592)
Increase in Obligation due to Plan Amendment	-	-
Actuarial (Gain) Loss	(304,383)	40,822
Accrued Benefit Obligation – March 31	$ 6,212,559	$ 6,384,645
Reconciliation of Funded Status at End of Fiscal Year		
Accrued Benefit Obligation – March 31	$ 6,212,559	$ 6,384,645
Market Value of Plan Assets – March 31	-	-
Funded Status – Deficit	(6,212,559)	(6,384,645)
Employer Contributions After Measurement Date	216,560	247,192
Benefits Expense After Measurement Date	(153,206)	(151,025)
Unamortized Net Actuarial Loss	50,212	448,809
Accrued Benefit Liability – June 30	$ (6,098,992)	$ (5,839,669)
Reconciliation of Change in Accrued Benefit Liability		
Accrued Benefit Liability – July 1	$ 5,839,668	$ 5,771,990
Net expense for fiscal year	700,495	685,928
Employer Contributions	(441,171)	(618,249)
Accrued Benefit Liability – June 30	$ 6,098,992	$ 5,839,669

NOTE 8 EMPLOYEE FUTURE BENEFITS (continued)

Components of Net Benefit Expense

Service Cost	$ 456,592	$ 438,632
Interest Cost	149,689	156,897
Immediate Recognition of Plan Amendment	-	-
Amortization of Net Actuarial Loss	94,214	90,399
Net Benefit Expense	$ 700,495	$ 685,928

The significant actuarial assumptions adopted for measuring the School District's accrued benefit obligations are:

	2021	2020
Discount Rate – April 1	2.25%	2.50%
Discount Rate – March 31	2.50%	2.25%
Long Term Salary Growth – April 1	2.50% + seniority	2.50% + seniority
Long Term Salary Growth – March 31	2.50% + seniority	2.50% + seniority
EARSL – March 31	10.7	10.7

NOTE 9 TANGIBLE CAPITAL ASSETS

Net Book Value:

	June 30, 2021	June 30, 2020
Sites	$ 11,929,778	$ 11,929,778
Buildings	47,034,941	47,023,836
Furniture and Equipment	694,323	651,753
Vehicles	3,104,785	2,842,061
Computer Hardware	65,310	17,837
Total	$ 62,829,137	$ 62,465,265

June 30, 2021

Cost:	Opening Balance	Additions	Disposals	Transfers (WIP)	Total 2021
Sites	$ 11,929,778	$ -	$ -	$ -	$ 11,929,778
Buildings	105,383,582	2,259,419	-	-	107,643,001
Furniture and Equipment	1,130,558	155,626	132,243	-	1,153,941
Vehicles	4,084,809	671,205	102,854	-	4,653,160
Computer Hardware	29,732	53,419	-	-	83,151
Total	$ 122,558,459	$ 3,139,669	$ 235,097	$ -	$ 125,463,031

Accumulated Amortization:	Opening Balance	Additions	Disposals	Total 2021
Buildings	$ 58,359,746	$ 2,248,314	$ -	$ 60,608,060
Furniture and Equipment	478,805	113,056	132,243	459,618
Vehicles	1,242,748	408,481	102,854	1,548,375
Computer Hardware	11,895	5,946	-	17,841
Total	$ 60,093,194	$ 2,775,797	$ 235,097	$ 62,633,894

NOTE 9 TANGIBLE CAPITAL ASSETS (continued)

June 30, 2020

Cost:	Opening Balance	Additions	Disposals	Transfers (WIP)	Total 2020
Sites	$ 11,929,778	$ -	$ -	$ -	$ 11,929,778
Buildings	103,788,335	1,595,247	-	-	105,383,582
Furniture and Equipment	860,206	283,026	12,674	-	1,130,558
Vehicles	3,421,937	820,334	157,462	-	4,084,809
Computer Hardware	56,058	-	26,326	-	29,732
Total	$ 120,056,314	$ 2,698,607	$ 196,462	$ -	$122,558,459

Accumulated Amortization:	Opening Balance	Additions	Disposals	Total 2020
Buildings	$ 56,139,809	$ 2,219,937	$ -	$ 58,359,746
Furniture and Equipment	405,459	86,020	12,674	478,805
Vehicles	1,058,016	342,194	157,462	1,242,748
Computer Hardware	27,010	11,211	26,326	11,895
Total	$ 57,630,294	$ 2,659,362	$ 196,462	$ 60,093,194

NOTE 10 CONTRACTUAL OBLIGATIONS AND CONTINGENCIES

The School District, in conducting its usual business activities, is involved in legal claims and litigation. In the event any unsettled claims are successful, management believes that such claims are not expected to have a material effect on the School District's financial position.

NOTE 11 EMPLOYEE PENSION PLANS

The School District and its employees contribute to the Teachers' Pension Plan and Municipal Pension Plan, jointly trusteed pension plans (the "plans"). The boards of trustees for these plans, representing plan members and employers, are responsible for administering the pension plans, including investing assets and administering benefits. The plans are multi-employer defined benefit pension plans. Basic pension benefits are based on a formula. As at December 31, 2020, the Teachers' Pension Plan has about 49,000 active members and approximately 40,000 retired members. As of December 31, 2020, the Municipal Pension Plan has about 220,000 active members, including approximately 28,000 from School Districts.

Every three years, an actuarial valuation is performed to assess the financial position of the plans and adequacy of plan funding. The actuary determines an appropriate combined employer and member contribution rate to fund the plans. The actuary's calculated contribution rate is based on the entry-age normal cost method, which produces the long-term rate of member and employer contributions sufficient to provide benefits for average future entrants to the plans. This rate may be adjusted for the amortization of any actuarial funding surplus and will be adjusted for the amortization of any unfunded actuarial liability.

The most recent actuarial valuation of the Teachers' Pension Plan as at December 31, 2017 indicated a $1,656 million surplus for basic pension benefits on a going concern basis.

NOTE 11 EMPLOYEE PENSION PLANS (continued)

The most recent actuarial valuation for the Municipal Pension Plan as at December 31, 2018 indicated a $2,866 million funding surplus for basic pension benefits on a going concern basis.

The School District paid $4,036,337 for employer contributions to these plans in the year ended June 30, 2021 (2020 - $3,933,885).

The next valuation for the Teachers' Pension Plan will be as at December 31, 2020, with results available in the last quarter of 2021. The next valuation for the Municipal Pension Plan will be as at December 31, 2021, with results available in 2022.

Employers participating in the plans record their pension expense as the amount of employer contributions made during the fiscal year (defined contribution pension plan accounting). This is because the plans record accrued liabilities and accrued assets for each plan in aggregate, resulting in no consistent and reliable basis for allocating the obligation, assets and cost to individual employers participating in the Plan.

NOTE 12 EXPENSE BY OBJECT

	2021	2020
Salaries and benefits	$ 49,270,310	$ 48,277,968
Services and supplies	7,535,874	8,420,863
Amortization	2,775,797	2,659,362
	$ 59,581,981	$ 59,358,193

NOTE 13 ACCUMULATED SURPLUS

Accumulated surplus consists of:

	2021	2020
Invested in tangible capital assets	$ 17,377,559	$ 17,425,551
Local capital surplus	325,147	486,263
Total capital surplus	17,702,706	17,911,814
Operating surplus	2,501,160	1,993,248
	$ 20,203,866	$ 19,905,062

Interfund transfers between the operating, special purpose and capital funds for the year ended June 30, 2021, were as follows:

- Capital assets were purchased with Operating funds ($207,781)
- Capital assets were purchased with Special Purpose funds ($30,000)

NOTE 13 ACCUMULATED SURPLUS (continued)

The operating surplus has been internally restricted (appropriated) for:

	2021	2020
School budgets	$ 61,944	$ 110,051
Capital maintenance	421,493	361,493
Educational programs	53,300	27,500
Energy projects	112,337	200,000
Budgeted allocation of surplus	814,047	300,000
	1,463,121	999,044
Contingency reserve	1,038,039	994,204
Internally restricted	2,501,160	1,993,248
Unrestricted operating surplus	-	-
Total operating surplus	$ 2,501,160	$ 1,993,248

NOTE 14 CONTRACTUAL RIGHTS

Contractual rights are rights to economic resources arising from contracts or agreements that will result in revenues and assets in the future. The School District's contractual rights arise because of contracts entered into for the rental of facilities. The following summarizes the contractual rights of the School District for future assets:

	2022	2023	2024	2025
Future rental revenue	$ 511,471	$ 350,625	$ 187,841	$ 100,034

NOTE 15 RELATED PARTY TRANSACTIONS

The School District is related through common ownership to all Province of British Columbia ministries, agencies, school districts, health authorities, colleges, universities and crown corporations. Transactions with these entities, unless disclosed separately, are considered to be in the normal course of operations and are recorded at the exchange amount.

NOTE 16 BUDGET FIGURES

The budget figures included in the financial statements are not audited. The budget figures data presented in these financial statements is based upon the 2020/21 amended annual budget adopted by the Board on January 26, 2021. The following chart compares the original annual budget bylaw approved June 5, 2020 to the amended annual budget bylaw reported in these financial statements.

NOTE 16 BUDGET FIGURES (continued)

	2021 Amended Annual Budget	2021 Annual Budget
Revenues		
Provincial Grants		
Ministry of Education	$ 55,632,827	$ 52,361,710
Other Provincial Revenues	110,000	101,450
Tuition	1,000,000	2,000,000
Other Revenue	1,490,000	1,490,000
Rentals and Leases	550,000	550,000
Investment Income	190,000	200,000
Total Revenue	58,972,827	56,703,160
Expenses		
Instruction	$ 45,897,676	$ 43,968,150
District Administration	2,223,574	2,234,527
Operations and Maintenance	8,639,718	8,602,726
Transportation and Housing	2,129,082	2,106,404
Total Expenses	58,890,050	56,911,807
Net Revenue (Expenses)	82,777	(208,647)
Budgeted Allocation of Surplus	-	300,000
Budgeted Surplus for the year	$ 82,777	$ 91,353

NOTE 17 ECONOMIC DEPENDENCE

The operations of the School District are dependent on continued funding from the Ministry of Education and various governmental agencies to carry out its programs. These financial statements have been prepared on a going concern basis.

NOTE 18 RISK MANAGEMENT

The School District has exposure to the following risks from its use of financial instruments: credit risk, market risk and liquidity risk.

The Board ensures that the School District has identified its risks and ensures that management monitors and controls them.

a) Credit risk:
Credit risk is the risk of financial loss to an institution if a customer or counterparty to a financial instrument fails to meet its contractual obligations. Such risks arise principally from certain financial assets held consisting of cash and cash equivalents, amounts receivable and investments.

NOTE 18 RISK MANAGEMENT (continued)

The School District is exposed to credit risk in the event of non-performance by a debtor. This risk is mitigated as most amounts receivable are due from the Province and are collectible.

It is management's opinion that the School District is not exposed to significant credit risk associated with its cash deposits and investments as they are placed in recognized British Columbia institutions and the School District invests solely in the Central Deposit Program with the Ministry of Finance.

b) Market risk:
Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk is comprised of currency risk and interest rate risk.

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. It is management's opinion that the School District is not exposed to significant currency risk, as amounts held and purchases made in foreign currency are insignificant.

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in the market interest rates. The School District is exposed to interest rate risk through its investments. It is management's opinion that the School District is not exposed to significant interest rate risk as they invest solely in the Central Deposit Program with the Ministry of Finance.

c) Liquidity risk:
Liquidity risk is the risk that the School District will not be able to meet its financial obligations as they become due.

The School District manages liquidity risk by continually monitoring actual and forecasted cash flows from operations and anticipated investing activities to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the School District's reputation.

Risk Management and insurance services for all School Districts in British Columbia are provided by the Risk Management Branch of the Ministry of Finance. There have been no changes to risk exposure from 2020 related to credit, market or liquidity risks.

School District No. 69 (Qualicum)

Schedule of Changes in Accumulated Surplus (Deficit) by Fund
Year Ended June 30, 2021

	Operating Fund	Special Purpose Fund	Capital Fund	2021 Actual	2020 Actual
	$	$	$	$	$
Accumulated Surplus (Deficit), beginning of year	1,993,248		17,911,814	**19,905,062**	19,978,540
Changes for the year					
Surplus (Deficit) for the year	715,693	30,000	(446,889)	**298,804**	(73,478)
Interfund Transfers					
Tangible Capital Assets Purchased	(207,781)	(30,000)	237,781	-	
Net Changes for the year	**507,912**	-	**(209,108)**	**298,804**	(73,478)
Accumulated Surplus (Deficit), end of year - Statement 2	**2,501,160**	-	**17,702,706**	**20,203,866**	19,905,062

School District No. 69 (Qualicum)

Schedule 2

Schedule of Operating Operations
Year Ended June 30, 2021

	2021 Budget	2021 Actual	2020 Actual
	$	$	$
Revenues			
Provincial Grants			
Ministry of Education	46,829,952	**47,244,111**	45,475,829
Other	110,000	**147,870**	146,391
Tuition	1,000,000	**1,370,654**	3,829,455
Other Revenue	140,000	**91,855**	152,848
Rentals and Leases	550,000	**624,850**	653,214
Investment Income	190,000	**117,053**	222,467
Total Revenue	48,819,952	**49,596,393**	50,480,204
Expenses			
Instruction	38,835,782	**39,412,105**	40,328,635
District Administration	2,223,574	**2,191,247**	2,398,481
Operations and Maintenance	5,623,056	**5,645,848**	6,087,087
Transportation and Housing	1,718,990	**1,631,500**	1,404,181
Total Expense	48,401,402	**48,880,700**	50,218,384
Operating Surplus (Deficit) for the year	418,550	**715,693**	261,820
Net Transfers (to) from other funds			
Tangible Capital Assets Purchased	(418,550)	**(207,781)**	(252,874)
Total Net Transfers	(418,550)	**(207,781)**	(252,874)
Total Operating Surplus (Deficit), for the year	-	**507,912**	8,946
Operating Surplus (Deficit), beginning of year		**1,993,248**	1,984,302
Operating Surplus (Deficit), end of year		**2,501,160**	1,993,248
Operating Surplus (Deficit), end of year			
Internally Restricted (Note 13)		**2,501,160**	1,993,248
Total Operating Surplus (Deficit), end of year		**2,501,160**	1,993,248

School District No. 69 (Qualicum)

Schedule 2A

Schedule of Operating Revenue by Source
Year Ended June 30, 2021

	2021 Budget	2021 Actual	2020 Actual
	$	$	$
Provincial Grants - Ministry of Education			
Operating Grant, Ministry of Education	44,146,379	**44,534,890**	42,927,094
Other Ministry of Education Grants			
Pay Equity	936,176	**936,176**	936,176
Funding for Graduated Adults		**16,883**	13,423
Student Transportation Fund	426,341	**426,341**	426,341
Carbon Tax Grant			58,640
Employer Health Tax Grant			357,774
Support Staff Benefits Grant	68,245	**68,245**	46,702
Support Staff Wage Increase Funding			222,073
Teachers' Labour Settlement Funding	1,156,463	**1,156,463**	477,493
Early Career Mentorship Funding	95,000	**95,000**	
FSA Scorer Grant		**8,187**	8,187
Early Learning Framework	1,348	**1,926**	1,926
Total Provincial Grants - Ministry of Education	46,829,952	**47,244,111**	45,475,829
Provincial Grants - Other	110,000	**147,870**	146,391
Tuition			
International and Out of Province Students	1,000,000	**1,370,654**	3,829,455
Total Tuition	1,000,000	**1,370,654**	3,829,455
Other Revenues			
Miscellaneous			
Transportation Revenue	50,000	**22,016**	50,666
Miscellaneous	90,000	**62,068**	92,593
Pcard Dividend		**7,771**	9,589
Total Other Revenue	140,000	**91,855**	152,848
Rentals and Leases	550,000	**624,850**	653,214
Investment Income	190,000	**117,053**	222,467
Total Operating Revenue	48,819,952	**49,596,393**	50,480,204

School District No. 69 (Qualicum)

Schedule of Operating Expense by Object
Year Ended June 30, 2021

Schedule 2B

	2021 Budget	2021 Actual	2020 Actual
	$	$	$
Salaries			
Teachers	18,681,515	**19,182,758**	19,318,832
Principals and Vice Principals	3,530,584	**3,594,794**	3,297,303
Educational Assistants	3,694,131	**3,378,651**	3,786,620
Support Staff	5,091,281	**5,203,566**	5,250,800
Other Professionals	1,578,493	**1,587,849**	1,767,748
Substitutes	1,739,942	**1,730,410**	1,440,897
Total Salaries	34,315,946	**34,678,028**	34,862,200
Employee Benefits	9,149,589	**8,777,457**	8,979,756
Total Salaries and Benefits	43,465,535	**43,455,485**	43,841,956
Services and Supplies			
Services	1,774,130	**1,908,443**	2,639,084
Student Transportation	1,000		
Professional Development and Travel	419,085	**321,190**	410,577
Rentals and Leases	5,000	**14,702**	3,235
Dues and Fees	71,000	**72,941**	69,879
Insurance	164,000	**166,616**	139,686
Supplies	1,565,652	**1,959,969**	2,231,575
Utilities	936,000	**981,354**	882,392
Total Services and Supplies	4,935,867	**5,425,215**	6,376,428
Total Operating Expense	48,401,402	**48,880,700**	50,218,384

School District No. 69 (Qualicum)

Schedule 2C

Operating Expense by Function, Program and Object

Year Ended June 30, 2021

	Teachers Salaries	Principals and Vice Principals Salaries	Educational Assistants Salaries	Support Staff Salaries	Other Professionals Salaries	Substitutes Salaries	Total Salaries
	$	$	$	$	$	$	$
1 Instruction							
1.02 Regular Instruction	15,934,885	1,030,401		10,822		1,045,830	18,021,938
1.03 Career Programs	176,806			39,819			216,625
1.07 Library Services	604,067	36,059		234,910		402	875,438
1.08 Counselling	731,620						731,620
1.10 Special Education	1,342,013	222,715	3,064,664	46,508	70,027	360,827	5,106,754
1.30 English Language Learning	69,311						69,311
1.31 Indigenous Education	108,121	123,858	313,987				545,966
1.41 School Administration		1,909,643		1,083,014		24,945	3,017,602
1.62 International and Out of Province Students	215,935	272,118		59,345	135,615		683,013
1.64 Other					40,745		40,745
Total Function 1	**19,182,758**	**3,594,794**	**3,378,651**	**1,474,418**	**246,387**	**1,432,004**	**29,309,012**
4 District Administration							
4.11 Educational Administration					443,426		443,426
4.40 School District Governance					110,023		110,023
4.41 Business Administration				349,943	561,521		911,464
Total Function 4	-	-	-	**349,943**	**1,114,970**	-	1,464,913
5 Operations and Maintenance							
5.41 Operations and Maintenance Administration				71,263	162,772		234,035
5.50 Maintenance Operations				2,280,693		230,369	2,511,062
5.52 Maintenance of Grounds				159,598			159,598
5.56 Utilities							-
Total Function 5	-	-	-	**2,511,554**	**162,772**	**230,369**	2,904,695
7 Transportation and Housing							
7.41 Transportation and Housing Administration				58,104	63,720	3,934	125,758
7.70 Student Transportation				809,547		64,103	873,650
7.73 Housing							-
Total Function 7	-	-	-	**867,651**	**63,720**	**68,037**	999,408
9 Debt Services							
Total Function 9	-	-	-	-	-	-	-
Total Functions 1 - 9	**19,182,758**	**3,594,794**	**3,378,651**	**5,203,566**	**1,587,849**	**1,730,410**	**34,678,028**

School District No. 69 (Qualicum)

Operating Expense by Function, Program and Object

Year Ended June 30, 2021

	Total Salaries	Employee Benefits	Total Salaries and Benefits	Services and Supplies	2021 Actual	2021 Budget	2020 Actual
	$	$	$	$	$	$	$
1 Instruction							
1.02 Regular Instruction	18,021,938	4,595,829	22,617,767	1,055,196	23,672,963	22,908,913	23,180,940
1.03 Career Programs	216,625	55,027	271,652	422,861	694,513	703,483	679,513
1.07 Library Services	875,438	228,664	1,104,102	22,381	1,126,483	1,158,336	1,139,684
1.08 Counselling	731,620	190,882	922,502		922,502	981,330	1,020,731
1.10 Special Education	5,106,754	1,408,870	6,515,624	48,439	6,564,063	7,030,196	6,967,382
1.30 English Language Learning	69,311	19,506	88,817		88,817	87,889	84,251
1.31 Indigenous Education	545,966	147,411	693,377	37,123	730,500	731,778	687,300
1.41 School Administration	3,017,602	757,958	3,775,560	79,230	3,854,790	3,885,671	3,847,563
1.62 International and Out of Province Students	683,013	176,919	859,932	846,773	1,706,705	1,297,919	2,676,110
1.64 Other	40,745	10,024	50,769		50,769	50,267	45,161
Total Function 1	29,309,012	7,591,090	36,900,102	2,512,003	39,412,105	38,835,782	40,328,635
4 District Administration							
4.11 Educational Administration	443,426	48,678	492,104	93,279	585,383	656,975	690,633
4.40 School District Governance	110,023	8,045	118,068	83,229	201,297	215,358	197,612
4.41 Business Administration	911,464	218,402	1,129,866	274,701	1,404,567	1,351,241	1,510,236
Total Function 4	1,464,913	275,125	1,740,038	451,209	2,191,247	2,223,574	2,398,481
5 Operations and Maintenance							
5.41 Operations and Maintenance Administration	234,035	52,248	286,283	187,094	473,377	606,444	515,076
5.50 Maintenance Operations	2,511,062	549,105	3,060,167	745,311	3,805,478	3,634,692	4,274,285
5.52 Maintenance of Grounds	159,598	42,755	202,353	86,813	289,166	325,920	319,806
5.56 Utilities	-		-	1,077,827	1,077,827	1,056,000	977,920
Total Function 5	2,904,695	644,108	3,548,803	2,097,045	5,645,848	5,623,056	6,087,087
7 Transportation and Housing							
7.41 Transportation and Housing Administration	125,758	22,487	148,245	3,143	151,388	160,594	135,172
7.70 Student Transportation	873,650	244,647	1,118,297	330,580	1,448,877	1,540,396	1,250,252
7.73 Housing	-		-	31,235	31,235	18,000	18,757
Total Function 7	999,408	267,134	1,266,542	364,958	1,631,500	1,718,990	1,404,181
9 Debt Services							
Total Function 9	-	-	-	-	-	-	-
Total Functions 1 - 9	34,678,028	8,777,457	43,455,485	5,425,215	48,880,700	48,401,402	50,218,384

School District No. 69 (Qualicum)

Schedule 3

Schedule of Special Purpose Operations
Year Ended June 30, 2021

	2021 Budget	2021 Actual	2020 Actual
	$	$	$
Revenues			
Provincial Grants			
Ministry of Education	5,912,851	**6,686,202**	4,653,982
Other Revenue	1,350,000	**592,777**	1,094,480
Total Revenue	7,262,851	**7,278,979**	5,748,462
Expenses			
Instruction	7,061,894	**7,049,633**	5,549,116
Operations and Maintenance	199,346	**199,346**	199,346
Transportation and Housing	1,611		
Total Expense	7,262,851	**7,248,979**	5,748,462
Special Purpose Surplus (Deficit) for the year	-	**30,000**	-
Net Transfers (to) from other funds			
Tangible Capital Assets Purchased		**(30,000)**	
Total Net Transfers	-	**(30,000)**	-
Total Special Purpose Surplus (Deficit) for the year	-	-	-
Special Purpose Surplus (Deficit), beginning of year			
Special Purpose Surplus (Deficit), end of year		-	-

School District No. 69 (Qualicum)

Changes in Special Purpose Funds and Expense by Object

Year Ended June 30, 2021

	Annual Facility Grant	Learning Improvement Fund	School Generated Funds	Strong Start	Ready, Set, Learn	OLEP	CommunityLINK	Classroom Enhancement Fund - Overhead	Classroom Enhancement Fund - Staffing
	$	$	$	$	$	$	$	$	$
Deferred Revenue, beginning of year	-	-	575,191	-	-	16,964	-	-	-
Add: Restricted Grants									
Provincial Grants - Ministry of Education	199,346	158,680		96,000	19,600	102,743	380,322	400,019	3,276,118
Other			644,957						
	199,346	158,680	644,957	96,000	19,600	102,743	380,322	400,019	3,276,118
Less: Allocated to Revenue	199,346	158,680	592,777	96,000	19,600	119,707	380,322	400,019	3,276,118
Deferred Revenue, end of year	-	-	627,371	-	-	-	-	-	-
Revenues									
Provincial Grants - Ministry of Education	199,346	158,680		96,000	19,600	119,707	380,322	400,019	3,276,118
Other Revenue			592,777						
	199,346	158,680	592,777	96,000	19,600	119,707	380,322	400,019	3,276,118
Expenses									
Salaries									
Teachers						57,661			2,579,620
Principals and Vice Principals							40,071		
Educational Assistants		124,945					227,655	199,916	
Support Staff	145,274							115,060	
	145,274	124,945	-	-	-	57,661	267,726	314,976	2,579,620
Employee Benefits	39,224	33,735				15,568	59,080	85,043	696,498
Services and Supplies	14,848		562,777	96,000	19,600	46,478	53,516		
	199,346	158,680	562,777	96,000	19,600	119,707	380,322	400,019	3,276,118
Net Revenue (Expense) before Interfund Transfers	-	-	30,000	-	-	-	-	-	-
Interfund Transfers									
Tangible Capital Assets Purchased			(30,000)						
	-	-	(30,000)	-	-	-	-	-	-
Net Revenue (Expense)	-	-	-	-	-	-	-	-	-

School District No. 69 (Qualicum)

Changes in Special Purpose Funds and Expense by Object

Year Ended June 30, 2021

	Classroom Enhancement Fund - Remedies	First Nation Student Transportation	Mental Health in Schools	Changing Results for Young Children	Safe Return to School Grant	Federal Safe Return to Class Fund	TOTAL
	$	$	$	$	$	$	$
Deferred Revenue, beginning of year	-	1,611	16,578	6,609	-	-	616,953
Add: Restricted Grants							
Provincial Grants - Ministry of Education	48,650	100,854	55,000	52,000	311,500	1,660,269	6,861,101
Other							644,957
	48,650	100,854	55,000	52,000	311,500	1,660,269	7,506,058
Less: Allocated to Revenue	48,650	-	13,058	2,933	311,500	1,660,269	7,278,979
Deferred Revenue, end of year	-	102,465	58,520	55,676	-	-	844,032
Revenues							
Provincial Grants - Ministry of Education	48,650	-	13,058	2,933	311,500	1,660,269	6,686,202
Other Revenue							592,777
	48,650	-	13,058	2,933	311,500	1,660,269	7,278,979
Expenses							
Salaries							
Teachers	48,650					671,209	3,357,140
Principals and Vice Principals							40,071
Educational Assistants						39,749	592,265
Support Staff					131,491	150,319	542,144
	48,650	-	-	-	131,491	861,277	4,531,620
Employee Benefits					35,503	318,554	1,283,205
Services and Supplies			13,058	2,933	144,506	480,438	1,434,154
	48,650	-	13,058	2,933	311,500	1,660,269	7,248,979
Net Revenue (Expense) before Interfund Transfers	-	-	-	-	-	-	30,000
Interfund Transfers							
Tangible Capital Assets Purchased							(30,000)
	-	-	-	-	-	-	(30,000)
Net Revenue (Expense)	-	-	-	-	-	-	-

School District No. 69 (Qualicum)

Schedule 4

Schedule of Capital Operations

Year Ended June 30, 2021

	2021 Budget	2021 Actual			2020 Actual
		Invested in Tangible Capital Assets	Local Capital	Fund Balance	
	$	$	$	$	$
Revenues					
Provincial Grants					
Ministry of Education	450,000	559,646		559,646	651,913
Other				-	45,487
Investment Income			5,743	5,743	13,574
Amortization of Deferred Capital Revenue	2,440,024	2,440,024		2,440,024	2,345,075
Total Revenue	2,890,024	2,999,670	5,743	3,005,413	3,056,049
Expenses					
Operations and Maintenance	450,000	559,646	116,859	676,505	731,985
Amortization of Tangible Capital Assets					
Operations and Maintenance	2,367,316	2,367,316		2,367,316	2,317,168
Transportation and Housing	408,481	408,481		408,481	342,194
Total Expense	3,225,797	3,335,443	116,859	3,452,302	3,391,347
Capital Surplus (Deficit) for the year	(335,773)	(335,773)	(111,116)	(446,889)	(335,298)
Net Transfers (to) from other funds					
Tangible Capital Assets Purchased	418,550	237,781		237,781	252,874
Total Net Transfers	418,550	237,781	-	237,781	252,874
Other Adjustments to Fund Balances					
Tangible Capital Assets Purchased from Local Capital		50,000	(50,000)	-	
Total Other Adjustments to Fund Balances		50,000	(50,000)	-	
Total Capital Surplus (Deficit) for the year	82,777	(47,992)	(161,116)	(209,108)	(82,424)
Capital Surplus (Deficit), beginning of year		17,425,551	486,263	17,911,814	17,994,238
Capital Surplus (Deficit), end of year		17,377,559	325,147	17,702,706	17,911,814

School District No. 69 (Qualicum)

Tangible Capital Assets
Year Ended June 30, 2021

	Sites	Buildings	Furniture and Equipment	Vehicles	Computer Software	Computer Hardware	Total
	$	$	$	$	$	$	$
Cost, beginning of year	11,929,778	105,383,582	1,130,558	4,084,809		29,732	**122,558,459**
Changes for the Year							
Increase:							
Purchases from:							
Deferred Capital Revenue - Bylaw		1,118,528	81,144	548,310			**1,747,982**
Deferred Capital Revenue - Other		1,103,906					**1,103,906**
Operating Fund		6,985	24,482	122,895		53,419	**207,781**
Special Purpose Funds		30,000					**30,000**
Local Capital			50,000				**50,000**
	-	2,259,419	155,626	671,205	-	53,419	**3,139,669**
Decrease:							
Deemed Disposals			132,243	102,854			**235,097**
	-	-	132,243	102,854	-	-	**235,097**
Cost, end of year	11,929,778	107,643,001	1,153,941	4,653,160	-	83,151	**125,463,031**
Work in Progress, end of year							**-**
Cost and Work in Progress, end of year	11,929,778	107,643,001	1,153,941	4,653,160	-	83,151	**125,463,031**
Accumulated Amortization, beginning of year		58,359,746	478,805	1,242,748		11,895	**60,093,194**
Changes for the Year							
Increase: Amortization for the Year		2,248,314	113,056	408,481		5,946	**2,775,797**
Decrease:							
Deemed Disposals			132,243	102,854			**235,097**
		-	132,243	102,854	-	-	**235,097**
Accumulated Amortization, end of year		60,608,060	459,618	1,548,375	-	17,841	**62,633,894**
Tangible Capital Assets - Net	**11,929,778**	**47,034,941**	**694,323**	**3,104,785**	-	**65,310**	**62,829,137**

School District No. 69 (Qualicum)

Schedule 4C

Deferred Capital Revenue
Year Ended June 30, 2021

	Bylaw Capital	Other Provincial	Other Capital	Total Capital
	$	$	$	$
Deferred Capital Revenue, beginning of year	43,988,032	950,299	54,424	**44,992,755**
Changes for the Year				
Increase:				
Transferred from Deferred Revenue - Capital Additions	1,747,982	1,103,906		**2,851,888**
	1,747,982	1,103,906	-	**2,851,888**
Decrease:				
Amortization of Deferred Capital Revenue	2,395,215	35,223	9,586	**2,440,024**
	2,395,215	35,223	9,586	**2,440,024**
Net Changes for the Year	(647,233)	1,068,683	(9,586)	**411,864**
Deferred Capital Revenue, end of year	43,340,799	2,018,982	44,838	**45,404,619**
Work in Progress, beginning of year				-
Changes for the Year				
Net Changes for the Year	-	-	-	-
Work in Progress, end of year	-	-	-	-
Total Deferred Capital Revenue, end of year	**43,340,799**	**2,018,982**	**44,838**	**45,404,619**

School District No. 69 (Qualicum)

Changes in Unspent Deferred Capital Revenue
Year Ended June 30, 2021

	Bylaw Capital	MEd Restricted Capital	Other Provincial Capital	Land Capital	Other Capital	Total
	$	$	$	$	$	$
Balance, beginning of year	-	-	1,079,594	204,671		1,284,265
Changes for the Year						
Increase:						
Provincial Grants - Ministry of Education	2,307,628					**2,307,628**
Provincial Grants - Other			484,500			**484,500**
Investment Income			11,078	2,904		**13,982**
	2,307,628	-	495,578	2,904	-	**2,806,110**
Decrease:						
Transferred to DCR - Capital Additions	1,747,982		1,103,906			**2,851,888**
Purchase of Services and Supplies	559,646					**559,646**
	2,307,628	-	1,103,906	-	-	**3,411,534**
Net Changes for the Year	-	-	(608,328)	2,904	-	**(605,424)**
Balance, end of year	-	-	**471,266**	**207,575**	-	**678,841**

School District
Statement of Financial Information (SOFI)

School District No. 69 (Qualicum)

Fiscal Year Ended June 30, 2021

SCHEDULE 1 - SCHEDULE OF DEBT

Information on all long term debt is included in the School District Audited Financial Statements.

Prepared as required by *Financial Information Regulation*, Schedule 1, section 4

School District
Statement of Financial Information (SOFI)

School District No. 69 (Qualicum)

Fiscal Year Ended June 30, 2021

SCHEDULE 2 - SCHEDULE OF GUARANTEE AND INDEMNITY AGREEMENTS

School District No. 69 (Qualicum) has not given any guarantee or indemnity under the Guarantees and Indemnities Regulation.

Prepared as required by *Financial Information Regulation*, Schedule 1, section 5

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

ELECTED OFFICIALS

Name	Remuneration	Expenses
AUSTIN, JULIE E	17,615.31	360.00
FLYNN, EVE M.	19,216.35	2,490.84
GODFREY, LAURA	16,013.71	-
KURLAND, BARRY	16,013.71	650.00
YOUNG, ELAINE	16,013.71	101.92
TOTAL ELECTED OFFICIALS	84,872.79	3,602.76

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
ABEL, JARET	95,681.10	-
AMOS, RONALD	168,911.73	-
AVIS, MICHAEL	97,661.60	230.05
AYERS, BYRON M	87,317.34	3,003.31
BARBER, DONALD C	87,317.29	-
BARCLAY (ROSTRON), SARA LISA	80,124.17	1,048.53
BARTLE, MARIE AGNES-MARI	86,966.17	-
BAUDER, AYNSLEE ELIZABETH	93,371.10	276.37
BEASLEY, MICHELLE JO	80,895.31	64.78
BELL, RONDA	136,059.05	2,783.36
BENOIT, ROSE LYNN-MARIE	78,676.72	852.93
BEVILACQUA, BARRY	87,969.55	-
BIDDLECOMBE, JOANNA CHRISLYN	86,260.01	83.45
BOLD, DONALD M	136,059.05	2,796.04
BONNOR, LAURA L	95,306.71	-
BOUDROT, SARA L	87,317.28	-
BRADBURY, MONICA	95,681.24	493.99
BRAVO, ELIA M	87,317.33	-
BRITZ, DARYL	87,301.82	68.25
BROWN, JILL	85,706.21	563.02
BROWN-DANOIT, PAULINE WINNIFRED	92,889.83	-
BURGER, ELIZABETH	87,301.89	-
BURGESS, CRYSTAL ANN	87,317.30	642.48
CAMPBELL, DOUGLAS B	95,698.07	417.60
CARMICHAEL, DARIN J.	95,698.10	110.88
CATHRINE, PATRICIA	122,296.77	960.70
CAVE, SHELLY ANDRE	170,990.44	580.36
CHARNOCK, GAYNOR	119,100.42	800.53
CHRISTIE, KERRI LYNNE	84,748.25	815.02
COCHLIN, KIMIE	75,172.75	96.08
COLLYER, VIVIAN	148,245.89	619.21
COMER, DEBORAH ANNE	93,517.97	-
CONFORTIN, SHANNON	96,679.60	-
CONN, JEREMY	93,517.92	-
COOMES, JENNIFER A	76,820.66	-

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
CRAVEN, DAN	87,317.27	725.91
CROSSLEY, ANNE MARIE	90,007.71	157.75
DAHLSTEDT, DAVID H	82,042.62	1,423.99
DAVIDSEN, BRADLEY ROBERT	95,698.03	-
DAVIDSON, ANGELA ZOE	87,317.34	-
DAVIES, CHERYL LEE	88,678.14	20.98
DE BUYSSCHER, DEBBIE L	156,754.09	-
DEERING, HEATHER	119,350.17	188.21
DEMPSTER, CHRISTEN	127,448.43	1,819.53
DIEWOLD, JEANNETTE NAOMI	95,681.10	-
DINNING, ROBERT	87,317.27	-
DODD, GORDON A	95,698.01	-
DOMINY, AUSTIN	77,313.62	719.05
DONKERS, MARK GREGORY	85,350.35	-
DORSAY, STEPHEN ALFRED	95,697.60	-
DRAGANI, ERICA	95,323.48	479.60
DUERKSEN, LISA WILHELMINA	83,396.71	-
DUTTON, KATHRYN	87,317.32	189.80
FAA, KERRI	95,681.15	-
FENTON, JASON D	95,698.09	156.78
FERNANDEZ, LINDA TAMARA	92,302.39	20.73
FERREIRA, LUCY MARY	99,014.72	-
FINSTAD, TRACIE ALISON	87,317.18	2,388.90
FLETCHER, CARMEN	93,501.39	-
FLYNN, DALLAS DIANA	87,317.31	451.72
FORSTER, TROY J	77,376.34	44.00
FRAMPTON, CARRIE	95,681.10	781.83
FRASER, DAVID	87,317.84	116.25
FRIESEN, REUBEN	109,853.47	257.52
FRIESEN, YAKOV	103,564.62	367.50
FUHRMANN, JENNIFER RUTH	119,350.17	602.51
GARDNER, TANYA RHEON	87,317.17	131.85
GAUVIN, CHRISTOPHER	82,316.30	14.26
GIBBS, ROBERT	93,501.39	1,919.11
GORDON, BRAYDEN KENT	119,350.18	704.71

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
GREGORY, SHAWN DANIEL	77,843.41	656.07
GUNN, TANDY	139,702.79	1,149.06
HAGARTY, MARJORIE A	76,820.74	-
HARWIJNE, KEITH	87,317.33	-
HEINRICHS, NORBERTA	97,170.47	-
HENRY, PATRICIA LYNNE	76,480.46	-
HERGT, KARIN	76,217.84	199.40
HOLDER, TERESA LORRAINE	87,317.64	78.47
HOLMAN, MINDY MARIE	95,681.18	180.98
HUME, GERALD SCOTT	78,848.86	-
HUNEAULT, RONALD	77,481.20	200.54
HUNG, SARAH	119,350.17	323.64
HUNTER, TRACY PAULINE	95,698.22	-
ISENOR, KRISTOFOR MILES	95,698.00	-
ISENOR, SHANNON MARY	76,603.25	-
JANSSEN, DEIRDRE	95,698.08	334.05
JEDLIK, MARTIN	96,054.64	391.17
JOHNSEN, CORBY DAVID	95,681.23	-
KATCHUR, KAREN	95,698.18	-
KELLAS, BRENT J	87,317.34	2,890.82
KELLY, GERALDINE	77,214.70	-
KENNEDY, DEIRDRE AISLING	83,381.94	575.00
KENNY, MICHAEL	95,698.12	-
KENT, THERESA C	93,517.92	29.09
KING, DAWN L	95,697.99	800.69
KINNEY, DENISE MARIE	80,142.04	685.41
KLASSEN, DENNIS	95,681.26	-
KNIGHT, JANE	87,584.39	75.60
KNUDSON, DAREN	77,348.99	250.00
KORTAS, HELENA M	87,301.80	-
KOZIELECKI, SUSAN	95,698.06	1,128.27
L'HIRONDELLE, REBECCA	87,316.87	131.76
LACOUVEE, LESLEY ELLEN	132,129.78	7,504.54
LANGENMAIER, KONRAD TORU	81,590.95	-
LAPPER, JAYNE	95,698.18	-

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
LAUER, CANDICE NICOLE	87,301.82	-
LAVOIE, ALLISON DAPHNE	86,203.05	42.24
LAWRENCE, KAREN	95,681.16	420.84
LEWIS, GREG	95,698.01	2,192.10
LIBBY, MARTIN	76,866.27	-
LINDAHL, KATHRYN	95,681.13	310.80
LITTON, PATRICK	80,895.22	88.67
LUKIANCHUK, PAUL	95,698.09	-
LUNNY, JENNIFER A	119,350.18	459.86
MACMILLAN, ELISABETH JOHNSTON	86,638.81	-
MACVICAR, DAVE EDWARD	87,317.35	-
MALCOLM, JUDITH	80,142.03	-
MANDZIUK-HALFORD, STEPHEN WAYNE	76,820.77	-
MARSHALL, LORI	143,348.29	-
MATTICE, CAROLIN C	94,825.80	-
MCCALLUM, LESLIE	95,698.08	-
MCINNES, MARK GILBERT	104,130.14	191.76
MCKEE, KEVIN	136,059.06	-
MCKEE, SHERRI IRENE	87,317.28	177.32
MCKINNON-SANDERSON, CORLEEN	119,350.17	205.33
MCLATCHIE, WILLIAM	85,556.70	-
MCLAUGHLIN, BARBARA J	76,544.92	147.80
MCLEOD-SHANNON, ROSIE	125,742.92	-
MCMILLEN, KEVIN	87,317.27	-
MCNABB, MARY	87,317.28	-
MEIER, JOLIN PAGE	95,698.06	107.11
MIHOC, MARIA	87,317.26	-
MONTGOMERY, DONALD ANDREW	86,260.01	219.80
MORRISON, SHEILA	136,059.05	109.09
MORRISON, TARRI	95,698.13	-
MOSTAD, KAREN	95,698.05	222.15
MOUSSEAU, DENNIS	80,265.49	-
MUIRHEAD, GREGORY JAMES	81,807.24	2,744.19
NAILOR, GRAEME	95,698.01	-
NDIAYE, DJIMITH	87,317.29	-

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
NESBITT, TRACI	80,880.91	-
NEUFELD, CYNTHIA	110,025.25	-
NEUMEYER, ERIC SCOTT	93,501.40	-
NIKIRK, LAUREN E.	93,557.95	-
NIKULA, BRIAN	95,698.05	-
NIKULA, JESSICA	95,698.04	4,643.62
NOWAK, TOBIAS	93,501.40	-
PARKIN, PAULETTE	78,173.30	191.32
PATTERSON, ROSEMARY IRENE	95,681.12	360.00
PAUL, BRENDA-LEE	148,245.89	58.49
PEDERSEN-SKENE, LISA	128,033.93	1,405.74
PELLETIER, MONIQUE	87,301.81	-
PEPPER, ROSS WILLIAM	136,059.05	2,684.53
PHILIP, CARRIE	76,544.96	230.06
PHILLIPS, ANNA	81,161.05	682.67
PICKARD, JENNIFER	95,926.50	255.29
PINTAL, DANIEL	87,317.30	-
POWELSON, BRIAN DONALD	79,194.80	-
PRESTON, SOPHIE	96,365.74	819.48
PRICE, ELIZABETH	88,557.20	-
PROCTOR, JANIS MARIE	95,698.03	21.22
PROVENCHER, JEAN-FRANCOIS	95,698.08	88.48
RAHN, LANA GAIL	95,698.16	-
RASA, LILIAN	93,517.96	5,957.73
RAVIGLIONE, MANUELA	76,558.60	-
RAY, JENNIFER LEE	93,517.92	90.16
RHODE, PATRICK DENNIS	96,131.95	23.54
RIDYARD, KATE PENELOPE	80,138.36	-
ROGERS, GREG	87,317.26	-
ROSENDALE, CHRIS	86,537.94	4,321.42
ROWAN, LESLEY	125,742.92	698.88
RUFFELL, JOHN RICHARD PR	75,362.81	-
RYCROFT, EWEN	80,493.60	562.16
SAVAGE, CARL	87,317.33	-
SAVAGE, GARY EDWARD	95,698.03	-

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
SCHULZ, JACQUELYN	95,681.20	-
SEIDEL, EDWARD	95,681.19	56.00
SLAUGHTER, KELI	142,899.56	-
SNYDER, DARREN JOSEPH	86,876.71	-
SOMMERFELD, KATIE EVA	101,133.68	-
SPENCER, TEVIS M.A.	86,112.94	13.43
SPENCER-DAHL, DENISE C	95,681.11	237.93
SPRAY, BRYAN	95,698.03	-
STEFANEK, LARRY	95,681.13	-
STEFANEK, RUTH	95,698.13	-
STEFIUK, ADAM MURRAY	117,002.48	149.47
STEIN, RICHARD	78,070.53	-
STEWART, JUDITH M	95,681.16	-
STODDART, NATHAN	95,697.02	1,736.55
STUTT, BREE THERESA	83,396.21	-
TANNER, AMBER C	93,517.92	56.38
TAUDIN-CHABOT, MARIAN	86,713.60	-
TAYLOR, AUTUMN	135,774.29	932.74
TAYLOR, EKATERINE	84,017.76	-
TERPSTRA, RUDOLPH	143,348.29	433.48
TICKELL, KAREN	95,698.11	982.67
TOMIYAMA, KAZUO	95,698.10	-
VAN DER MARK, AMBER LOUISE	87,346.17	1,298.49
VOGLER, REBECCA ERNA-ANN	86,260.04	67.17
VOLLMERS, SHAYNE	87,969.42	2,191.08
WHITESIDE, DEANNA B	93,517.91	-
WHYNACHT, JULIE RACHELLE	93,517.88	-
WIDING, ANDREA HARMONY	82,093.26	-
WILLERS, BONNIE	87,317.42	157.76
WILLIAMS, JOHN	136,059.04	-
WILLIAMS, KATHRYN	80,297.37	-
WILLIAMS, NICHOLA	87,317.28	-
WILSON, GILLIAN DENISE	174,816.51	124.05
WILSON, REID DAVID	95,698.07	-
WITTE, JESSE	136,059.05	67.19

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 3 - SCHEDULE OF REMUNERATION AND EXPENSE

DETAILED EMPLOYEES > 75,000

Name	Remuneration	Expenses
WONG, FLORENCE BIK-YEE	94,263.76	1,263.03
WOODS, LINETTE KATRINE	91,021.56	-
WOODS, MATTHEW	93,301.85	-
WORTHEN, BRIAN D	132,414.54	-
WORTHEN, KATI	95,469.64	-
ZALINKO, LARA JEAN	87,331.58	39.51
TOTAL DETAILED EMPLOYEES > 75,000	20,814,757.22	89,114.77
TOTAL EMPLOYEES <= 75,000.00	19,436,371.91	116,542.57
TOTAL EMPLOYEES OTHER THAN ELECTED OFFICIALS	40,251,129.13	205,657.34
CONSOLIDATED TOTAL	40,336,001.92	209,260.10
CONSOLIDATED TOTAL, REMUNERATION PAID	40,545,262.02	
TOTAL EMPLOYER PREMIUM FOR CPP/EI		2,175,178.55

School District
Statement of Financial Information (SOFI)

School District No. 69 (Qualicum)

Fiscal Year Ended June 30, 2021

SCHEDULE 4 - STATEMENT OF SEVERANCE AGREEMENTS

There were no severance agreements made between School District No. 69 (Qualicum) and its non-unionized employees during fiscal year 2020-21.

Prepared as required by *Financial Information Regulation*, Schedule 1, subsection 6(7)

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 5 - SCHEDULE OF PAYMENTS FOR GOODS AND SERVICES

DETAILED VENDORS > 25,000.00 :

Vendor Name	Expense
ALPHA ROOFING & CLADDING INC.	745,158.23
ANDREW SHERET LIMITED	38,005.47
APPLE CANADA INC.	95,240.98
ARCHIE JOHNSTONE PLUMBING & HEATING	87,703.34
ARI FINANCIAL SERVICES	42,638.00
B.C. HYDRO & POWER AUTHORITY	463,180.33
B.C.T.F.	346,204.05
BCSTA	39,199.85
BJK ARCHITECTURE INC.	97,639.41
BUNZL CLEANING & HYGIENE	141,205.40
CANADIAN LINEN & UNIFORM SERVICES	39,065.94
CDI COMPUTER DEALERS, INC	305,250.40
CDW CANADA CORP.	35,211.41
CITY OF PARKSVILLE	107,149.37
COLLINS ELECTRIC INC.	78,534.75
DYNAMIC SPECIALTY VEHICLES LTD	418,679.44
E.B. HORSMAN & SON	109,622.11
FILTERPRO SERVICES CANADA LTD.	25,424.34
FIVE STAR SECURITIES	36,337.35
FORTISBC	260,280.66
GRAND & TOY LIMITED	75,938.86
HAKAI ENERGY SOLUTIONS	45,916.32
IA PRIVATE WEALTH	57,204.00
ICS CLEAN SUPPLIES LTD.	33,627.98
ISLAND ENVIRONMENTAL HEALTH & SAFETY LTD.	77,923.79
ISLAND EQUIPMENT RENTALS	25,646.10
KEV SOFTWARE INC.	30,036.16
KEVEN ELDER	283,115.34
KOERS & ASSOCIATES ENGINEERING	28,783.44
LIFEWORKS (CANADA) LTD.	35,922.10
LORDCO AUTO PARTS	32,546.89
M.A.T.A.	157,643.00
MADILL - THE OFFICE COMPANY	47,380.42

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

SCHEDULE 5 - SCHEDULE OF PAYMENTS FOR GOODS AND SERVICES

DETAILED VENDORS > 25,000.00 :

Vendor Name	Expense
MCGORMAN MACLEAN	26,775.00
MICROSERVE	108,746.15
MID ISLAND CONSUMER SERV. CO-OP	227,578.01
MINISTER OF FINANCE	85,515.70
MKM PROJECTS LTD.	951,414.93
MOUNT BENSON MECHANICAL	137,261.25
MUNICIPAL PENSION PLAN	957,146.29
OCEANSIDE BUILDING LEARNING	158,442.45
PACIFIC BLUE CROSS	1,262,698.20
POWERSCHOOL CANADA ULC	79,462.16
PROPACIFIC HAZMAT SERVICES LTD	84,926.43
PUBLIC EDUCATION BENEFITS TRUST	698,240.21
QDPVPA	51,550.00
RICOH CANADA INC.	51,494.43
RIDGELINE MECHANICAL LTD.	88,542.76
SMCN CONSULTING INC.	45,150.00
SOFTCHOICE LP	44,441.25
SWING TIME DISTRIBUTORS	51,732.10
TEACHERS' PENSION PLAN	3,021,180.65
TELUS MOBILITY CELLULAR INC.	39,320.62
THE SHERWIN-WILLIAMS CO.	62,860.24
TLD COMPUTERS INC.	27,591.87
TOWN OF QUALICUM BEACH	76,409.19
TRAVEL HEALTHCARE INSURANCE SOLUTIONS	26,941.35
VANCOUVER ISLAND UNIVERSITY	113,098.63
WASTE CONNECTIONS OF CANADA INC.	44,923.16
WASTE MANAGEMENT OF CANADA CORP.	42,257.95
WESTERN CANADA IC BUS INC	265,087.99
WORKSAFEBC	316,647.60
WTC	25,726.08
X10 NETWORKS	59,024.56
TOTAL DETAILED VENDORS > 25,000.00	13,675,602.44
TOTAL VENDORS <= 25,000.00	3,380,225.70
TOTAL PAYMENTS FOR THE GOODS AND SERVICES	17,055,828.14

SCHOOL DISTRICT NO. 69 (QUALICUM)
YEAR ENDED JUNE 30, 2021

COMPARISON OF SCHEDULED PAYMENTS TO AUDITED FINANCIAL STATEMENT EXPENDITURES
SCHEDULE 6

SCHEDULED PAYMENTS			
Schedule of Remuneration and Expenses			
Remuneration	$ 40,545,262		
Employee Expenses	209,260		
Employer Portion of EI and Canada Pension Plan	2,175,179		
Total Schedule of Remuneration and Expenses		$ 42,929,701	
Schedule of Payments for Goods and Services		17,055,828	
CONSOLIDATED TOTAL OF SCHEDULED PAYMENTS			**$ 59,985,529**
FINANCIAL STATEMENT EXPENDITURES			
Operating Fund Expenditures		$ 48,880,700	
Trust Fund Expenditures		7,248,979	
Capital Fund Expenditures		3,452,302	
CONSOLIDATED TOTAL OF FINANCIAL STATEMENT EXPENDITURES			**$ 59,581,981**
DIFFERENCE BETWEEN SCHEDULED PAYMENTS AND FINANCIAL STATEMENT EXPENDITURES			**403,548**

EXPLANATION OF DIFFERENCE

The schedule of payments for the provision of goods and services differs from the financial statements in the following ways:

- 100% of GST paid to suppliers is included, whereas the financial statement expenditures are net of the GST rebate
- Third party recoveries of expenses from PAC and school fundraising activities may not all be adjusted for in the schedules
- Employee benefits may be duplicated in the schedule of payments where also reported in employee remuneration
- Travel expenses that are paid directly to suppliers may be duplicated in employee expenses
- Other miscellaneous cost recoveries that may not have been deducted from the scheduled payments

The financial statements are reported on an accrual basis, and include payroll liabilities that are not reflected in the schedule of remuneration and expenses, and accounts payable balances that are not reflected in the schedule of payment for the provision of goods and services. Changes in liability balances from year to year affect the financial statement expenditures but not the scheduled payments which are reported on a cash basis.

SD69 QUALICUM

Board and Trustee Representative Committee Report

Trustee Representative: R. Elaine Young
Committee Name: Oceanside Community Track Steering Committee
Meeting Location: Zoom
9:00 AM October 20, 2021

Mandate:
To upgrade Ballenas Secondary track so that it can be safely used by all in the Oceanside community.

Indigenous Acknowledgement:

Silent Auction Update – Our Guest Sarah Russick
December 9 at Pacific Shores. Big packages including 2 holidays, Harbour Boat Tours, Looking for more big items. Looking for help for connections to resorts etc. Poster attached. Can bid on-line through Facebook Oceanside Track Silent Auction.

Fundraising:
- Bottle Drive Fundraiser – still counting the $$.
- Fundraising plan in progress – upcoming events include reaching out to selected businesses as major donors; media events at the signing of the joint use agreement and last lap on the old track event in the spring. Many other ideas are being considered and the sub-committee is open to anyone wanting to attend.
- Grants – None have come through. May have to rethink our plan. Elaine will gather information on best practices regarding fundraising.
- Plan to meet with MLA and MP to do a directed request (Rudy/Elaine)

Questions/Issues:
- Suggestion to put out a request for interest. Need to do more work. Chris will send this through the Senior Management Team meeting for further consideration and discussion.
- Football field request – Would cost nearly $1 M and we don't have the funds. North field has been upgraded by the school district for a practice field.
- Washrooms are needed if we have a surplus.
- Steering Committee membership – To include Sarah Russick as a member of the Steering Committee.
- Further discussion re: business membership and other membership referred to future meetings.

Recommendation:
- To include Sarah Russick as a member of the Steering Committee.

Dates of Next Meetings
- Fundraising Sub-committee - Wednesday, December 8 at 11:00 A.M.
- Steering Committee - Wednesday, December 15 at 9:00 A.M.

OCEANSIDE COMMUNITY TRACK

RENEWAL

SILENT AUCTION FUNDRAISER

Thurs. December 9, 2021

Bidding & Auction Item Viewing
From 7 am - 9 pm

In-person (with vaccine passport)
@ Pacific Shores Resort and Spa (Front Entrance Foyer)

AUCTION ITEMS AND DONATIONS ARE GREATLY NEEDED!

Online on Facebook Groups @
Oceanside Track Silent Auction

For more information on this community project please visit
oceansidecommunitytrack.ca

If you have donations or questions contact
Sarah Russick
250-686-4686

HELP US REACH OUR 1.2M GOAL!

SCHOOL DISTRICT No.69 (QUALICUM)

November 8, 2021

Mayor Ed Mayne
City of Parksville
100 Jensen Avenue East
Parksville, BC V9P 2H3

Dear Mayor Mayne:

At its Regular Board Meeting held on Tuesday, October 26, 2021, the Board of Education approved the following motion:

> ***THAT*** *the Board of Education of School District 69 (Qualicum) write a letter to the governing bodies of the Town of Qualicum, the City of Parksville and the Regional District of Nanaimo requesting direct advance notice of proposals they are considering that may affect a school or our school community. These projects may be initiatives of the municipality or RDN or may be proposals under consideration from an outside entity. i.e.: cell towers, community development plans, road and transportation systems.*

As a board of school trustees, we have decision-making processes in place, such as committees and regular board meetings much like the municipalities and regional district. When projects that affect the school district come to the table at the municipal or regional district level we would like time to reflect on these projects that may have an impact on our learning community. By the time a notice is extended to the public for comment, it leaves little opportunity for the school district to confer and respond.

The school district values the collaborative relationships we have with you, our community partners. As the largest employer in the district, the school board respectfully requests that it receive advance notice regarding pending proposals and projects in order to give informed, thoughtful feedback.

Sincerely,

Eve Flynn
Board Chair

c: Board of Education, SD69
Peter Jory, Superintendent of Schools/CEO, SD69
Ron Amos, Secretary Treasurer, SD69
Chris Dempster, General Manager of Operations, SD69

SCHOOL DISTRICT No.69 (QUALICUM)

November 8, 2021

Mayor Brian Wiese
Town of Qualicum Beach
201-660 Primrose Street
Qualicum Beach, BC V9K 1S7

Dear Mayor Wiese:

At its Regular Board Meeting held on Tuesday, October 26, 2021, the Board of Education approved the following motion:

> **THAT** the Board of Education of School District 69 (Qualicum) write a letter to the governing bodies of the Town of Qualicum, the City of Parksville and the Regional District of Nanaimo requesting direct advance notice of proposals they are considering that may affect a school or our school community. These projects may be initiatives of the municipality or RDN or may be proposals under consideration from an outside entity. i.e.: cell towers, community development plans, road and transportation systems.

As a board of school trustees, we have decision-making processes in place, such as committees and regular board meetings much like the municipalities and regional district. When projects that affect the school district come to the table at the municipal or regional district level we would like time to reflect on these projects that may have an impact on our learning community. By the time a notice is extended to the public for comment, it leaves little opportunity for the school district to confer and respond.

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Sincerely,

Eve Flynn
Board Chair

c: Board of Education, SD69
Peter Jory, Superintendent of Schools/CEO, SD69
Ron Amos, Secretary Treasurer, SD69
Chris Dempster, General Manager of Operations, SD69

SCHOOL DISTRICT No.69 (QUALICUM)

November 8, 2021

Tyler Brown, Board Chair
City of Nanaimo
455 Wallace Street
Nanaimo, BC V9S 5J6

Dear Tyler Brown:

At its Regular Board Meeting held on Tuesday, October 26, 2021, the Board of Education approved the following motion:

> **THAT** the Board of Education of School District 69 (Qualicum) write a letter to the governing bodies of the Town of Qualicum, the City of Parksville and the Regional District of Nanaimo requesting direct advance notice of proposals they are considering that may affect a school or our school community. These projects may be initiatives of the municipality or RDN or may be proposals under consideration from an outside entity. i.e.: cell towers, community development plans, road and transportation systems.

As a board of school trustees, we have decision-making processes in place, such as committees and regular board meetings much like the municipalities and regional district. When projects that affect the school district come to the table at the municipal or regional district level we would like time to reflect on these projects that may have an impact on our learning community. By the time a notice is extended to the public for comment, it leaves little opportunity for the school district to confer and respond.

The school district values the collaborative relationships we have with you, our community partners. As the largest employer in the district, the school board respectfully requests that it receive advance notice regarding pending proposals and projects in order to give informed, thoughtful feedback.

Sincerely,

Eve Flynn
Board Chair

c: Board of Education, SD69
Peter Jory, Superintendent of Schools/CEO, SD69
Ron Amos, Secretary Treasurer, SD69
Chris Dempster, General Manager of Operations, SD69