

Trail Area Health & Environment Committee



Summary

Meeting: December 6, 2023, 7:00 p.m.

Hybrid Location: *Trail City Hall – Committee Room #2, Spokane St. Entrance & Zoom*

Committee members in attendance:

Colleen Jones, Chair, City of Trail
Thea Hanson, Alternate Chair, City of Trail
Dr. Karin Goodison, Interior Health MHO
Trevor Allegretto, USW Local 480 Rep
Clare North, Teck Trail Operations
Dan Bouillon, Teck Trail Operations
Julia Stockhausen, Community Member (FAN)

Carolyn Amantea, Village of Warfield
Julie Orban, BC Ministry of Environment
Jasen Nelson, BC Ministry of Environment
Erika Krest, Community Member (Chamber)
Tara Bullanoff, Alternate, Interior Health
Annick de Goede, Community Member (Parent)
Steve Hilts, Community Member (History)

Others in attendance:

Cecilee Pitman, Interior Health
Meghan Morris, Interior Health
Morgan Sternberg, AtkinsRealis
Christina Yamada, Interior Health
Nelson Ames, Community Member
Jayne Garry, Teck Trail Operations
Keith Klimchuk, Teck Trail Operations

Wendy Goodrich, AtkinsRealis
Cindy Hall, AtkinsRealis
Michelle Laurie, THEC Lead Facilitator
Tobias Gelber, Community Member
Frances Boreland, Broken Hill
Thompson Hickey, Teck Trail Operations
Dave Bell, Teck Trail Operations

The Trail Area Health & Environment Committee (THEC) meets five times per year online or in person. Members, designates and community members are welcome.

WELCOME AND INTRODUCTIONS

- THEC Chair, Mayor Colleen Jones welcome everyone in the room and online. She thanked everyone for their commitment especially the volunteer community members who continue to be engaged members of the THEC.

MEETING MINUTES

- The minutes from the September 27, 2023 THEC meeting were approved. They will be posted on thep.ca.

PRESENTATIONS, REPORTS, DISCUSSIONS, AND RECOMMENDATIONS

Children Blood Lead Clinic Results

Presenter: **Dr. Karin Goodison, Interior Health Medical Health Officer**

- View [presentation online](#).
 - The blood lead geomean for Areas 2 and 3 is 2.1 micrograms per decilitre.
 - Discussion ensued and Dr. Goodison proposed for future presentations including a slide that compares blood lead data for children in other smelter communities.
 - A key message shared by Dr. Goodison was to “narrow the gap” between children’s blood lead in Trail and the rest of Canada.
 - The group discussed the importance of addressing social determinants of health as part of THEP.

- The draft Blood Lead Clinic Results media release was reviewed. The final version was shared via the [City of Trail](#) to their media contacts and is also posted on [thep.ca](#).
 - Local media picked up the news: [MYKOOTENAYNOW](#); [Trail Times](#).
 - Discussion ensued around the desire to improve public perception of Trail.

How Human Health Risk Assessment for Lead is being used to inform the WARP

Presenter: Tara Siemens-Kennedy, AtkinsRealis

- See attached presentation.
- Next steps include:
 - Interior Health's blood lead analysis will be integrated into the Human Health Risk Assessment;
 - Dr. Goodison will review the HHRA as part of developing a recommendation for an acceptable level of human health risk to be used in the WARP;
 - The HHRA for Pb will be incorporated into the draft WARP to support a Trail specific risk-based standard;
 - Community based public consultation on Dr. Goodison's recommendation and the WARP will be conducted.

Long-term Soil Study

Presenters: Morgan Sternberg / Dave Bell, Atkins Realis / Teck

- See attached presentation.
- The presentation stimulated discussion and questions were asked about site locations (chosen to mimic residential yards), representation across the areas where blood lead testing takes place (Area 1, 2 and 3), and what could be learned from other locations such as historical soil replacement in other smelting and mining communities, and results from the long-term soil study in Port Pirie.

PROGRAM REPORTS AND UPDATES

Air Quality

- Air Quality Report (see attached).
- Air Quality Working Group Update (AQWG)
 - Steve Hilts, Chair, shared the group met on November 22nd for the third meeting of 2023.
 - Clare North and Christina Yamada gave an update to the AQWG on the Human Health Risk Assessment (HHRA) for Lead and how it informs a future public consultation on the WARP. The group also learned specifically how Pb in air data was being used in the HHRA and how it could help inform future air quality monitoring.
 - The group reviewed THEP's strategic plan milestones for air and made recommendations to include both Pb and SO₂ in communications planning (previously the milestone referred to SO₂ only).
 - Donna Haga from ENV will present to the THEC in February 2024 on Pb in air for Trail as compared to other cities including Canadian data.
 - Three AQWG meetings are planned for 2024 and everyone is welcome.

Health Report – (see attached).

Community Program Office Report – (see attached).

Community & Round Table Check-In - All

- Earlier in the meeting, community member Dr. Tobias Gelber introduced himself. Dr. Gelber recently moved back to the area and works as a family physician in Rossland as well as at Aspen

Maternity clinic in Trail. He is working with Dr. Goodison and THEP to include maternal blood lead screening during regular maternity visits. The clinic will also share THEP information packages with Aspen clients with the intent to help more expecting parents access supports sooner.

Program Planning Update - Michelle Laurie, THEC Lead Facilitator

- Community Perception Survey Results ([link](#))
 - Results are similar to what was seen in 2019.
 - Follow-up will take place for respondents that shared a suggestion or had an inquiry.
- Thep.ca website analytics from Oct 1, 2022- Sept 30, 2023 were shared (see attached)
 - Website traffic was similar to the previous reporting period (Oct 2021 – Sept 2022) with a slight increase of approximately 100 users over the 12 months.
- The concept for an international online conference in May 2024 for practitioners working in communities with lead smelting and mining was shared. Michelle is working with South Australia EPA and South Australia Health on the concept (see attached). Participants around the table were excited by the idea, as well as raising the profile of Trail and the good work taking place.

Partner Meeting Report – Colleen Jones, THEC Chair

- There were 2 partner meetings.
 - A meeting was held November 28th to review the Blood Lead report with the MHO along with the draft press release. Questions of clarification were asked and suggestions made.
 - The second meeting held on the morning of December 6th was the first annual partner reflection meeting on the 2022-2027 Strategic Plan and milestones. Partners reviewed the year and THEP activities. It was an opportunity to look across the areas of work and see the bigger picture. A summary will be shared at the February THEC meeting.

2024 THEC MEETING DATES

- February 27
- April 24
- June 19
- September-December will be determined in the new year.

THEC meetings are held from 7:00-9:00pm.

Trail Area Health & Environment Committee



AGENDA

HYBRID Meeting: December 6, 2023, 7:00 p.m.

Location: City of Trail Committee Room #2 (Spokane St entrance) & <https://us02web.zoom.us/j/85282070073>

Committee Members:

Colleen Jones, Chair, City of Trail
Thea Hanson, Alternate Chair, City of Trail
Dr. Karin Goodison, Interior Health MHO
Jane Power, Interior Health
Trevor Allegretto, USW Local 480 Rep
Ron Joseph, Community Member (Resident)
Dan Bouillon, Teck Trail Operations -away.
Clare North, Teck Trail Operations
Annick de Goede, Community Member (Parent)

Linda Worley, RDKB Area B
Carolyn Amantea, Village of Warfield
Ali Grieve, RDKB Area A
Julie Orban, BC Ministry of Environment
Jasen Nelson, BC Ministry of Environment
Erika Krest, Community Member (Chamber)
Steve Hiltz, Community Member (History)
Julia Stockhausen, Community Member (FAN)
Ashley Melenchuk, Community (Parent)

The Trail Area Health & Environment Committee (THEC) meets five times per year online or in-person. Members, designates and community members are welcome.

WELCOME and INTRODUCTIONS

- Opening remarks from Colleen Jones, THEC Chair

MEETING MINUTES

- Approve minutes from THEC meeting, September 27, 2023 (as attached)

PRESENTATIONS, REPORTS, DISCUSSIONS & RECOMMENDATIONS

Children Blood Lead Clinic Results (30 mins)

Presenter: Dr. Karin Goodison, Interior Health Medical Health Officer

- Q&A
- Media Release (Michelle Laurie, THEC Lead Facilitator)

How Human Health Risk Assessment for Lead is being used to inform the WARP (20 mins)

Presenter: Tara Siemens-Kennedy, AtkinsRealis

- Q&A

Long-term Soil Study (10 mins)

Presenters: Dave Bell (Teck) and Morgan Sternberg (AtkinsRealis)

- Q&A

Program Reports & Updates

Air, Health, and Community Program Office reports are provided in the agenda package for your review prior to the meeting. Please bring your questions and comments for discussion.

Q&A and Comments on Reports All (10 mins)

- Q&A on all reports (Air, Health, Community Program Office)
 - Air Quality Working Group Update (SteveHilts, Chair)
 - Highlights and open questions (**All**)

Community & Round Table Check-In - All (15 mins)

- Round table contributions & questions

Program Planning Update - Michelle Laurie, THEC Lead Facilitator (10 min)

- Community Perception Survey Results (see attached)
- Communications:
 - Website analytics from 2021-2022 (see attached)
- Pb smelting and mining Community of Practice conference concept (see attached)

Partner Meeting Report – Colleen Jones, Chair

2024 THEC MEETING DATES

- February 27
- April 24
- June 19
- Sept and Nov to be confirmed
- THEC meetings are held from 7:00-9:00pm.



Blood lead levels in Trail Fall 2023

Dr. Karin Goodison, Medical Health Officer

Land Acknowledgement

We recognize and acknowledge that we are collectively gathered on the traditional, ancestral, and unceded territories of all the Interior Region First Nations. This region is also home to 15 Chartered Métis Communities. It is with humility that we continue to strengthen our relationships with First Nation, Métis, and Inuit peoples across the Interior.

Ktunaxa, Secwépemc, Syilx, Sinixt



Objective

- Overview of blood lead (Pb) levels tested in fall 2023
- Comparison of mean blood Pb levels in 2023 to previous years



Who was tested in 2023?

- Children aged 6-36 months, living in City of Trail or Rivervale (Area 2/3)
- Children aged 6-36 months living in Warfield, Oasis, Casino and Waneta (Area 1)



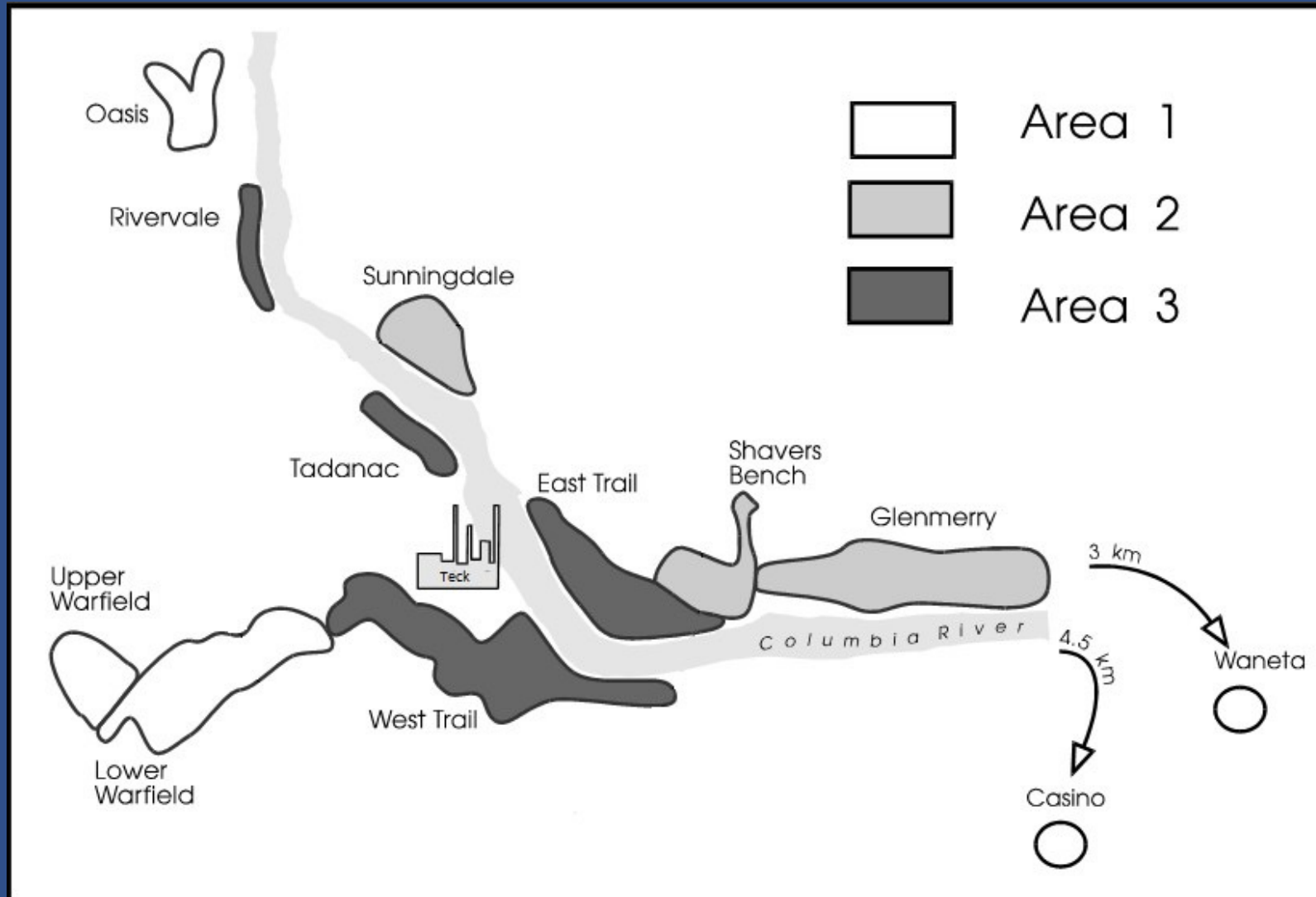
Additional Testing

These results do not contribute to the yearly analysis

- Children new to the area, up to the age of 5 years old
- Children with previous enhanced support follow up who are now over 36 months old
- Children whose parents requested testing for their child from outside target area and age range



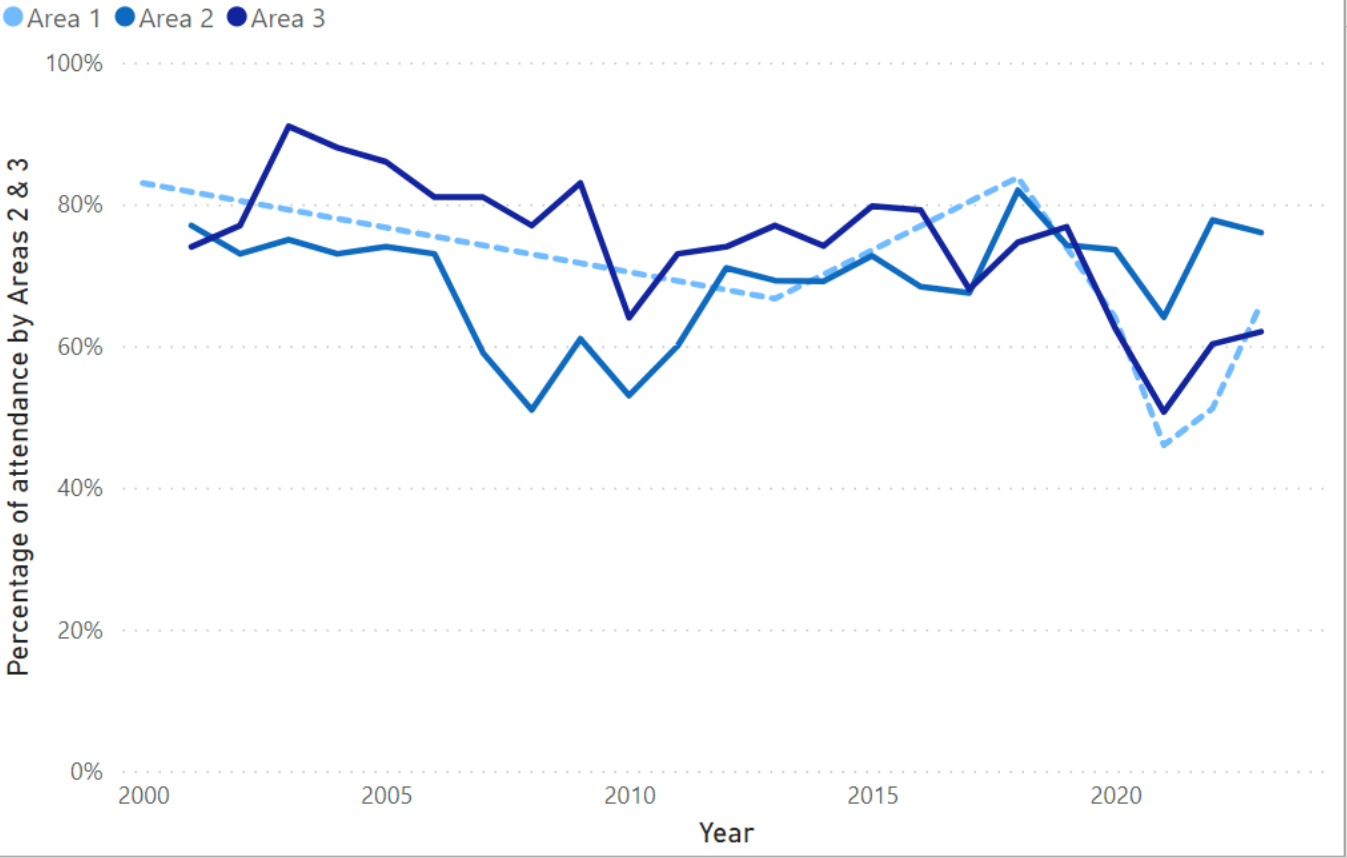
"Areas" and Neighbourhoods



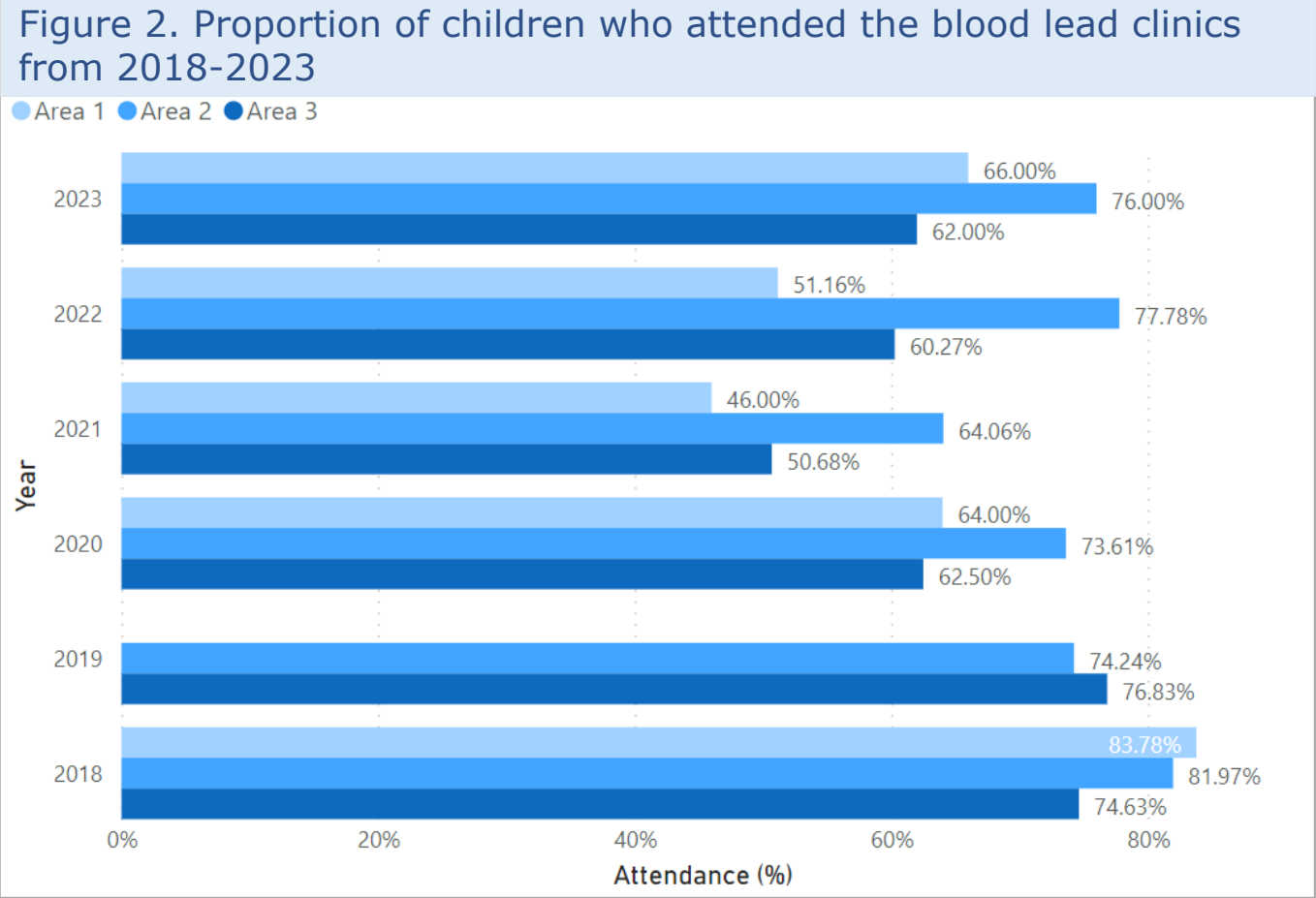
Participation By Target Areas (6-36 months old)

- No. of samples collected in 2023: 106
- No of children participated in 2023: 110

Figure 1. Proportion of children who attended the blood lead clinics over the past years by areas



Participation By Target Areas contd.



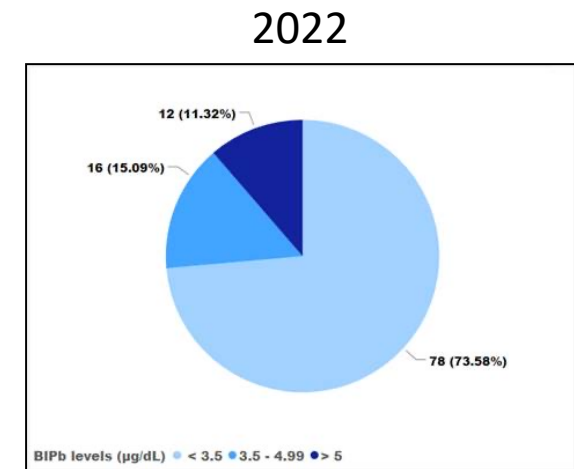
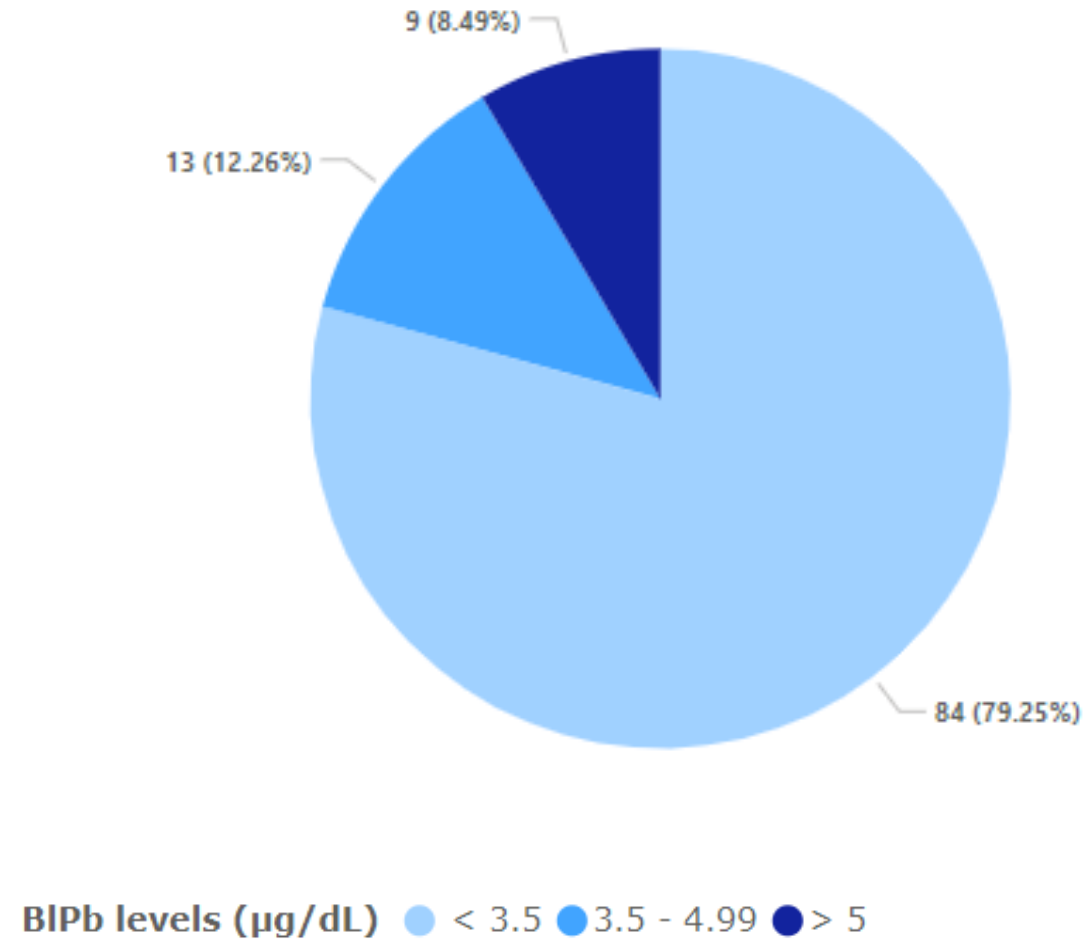


Blood Pb Level Threshold

- There is no safe blood Pb level threshold
- Canadian children 3-5 years old had geomean blood Pb levels at 0.50 $\mu\text{g}/\text{dL}$ in 2018/19 **
 - ** note that Trail children's geomean reflects ages 6-36 months (age when higher BL is expected)
- BCCDC uses 5 $\mu\text{g}/\text{dL}$ as exposure investigation levels (EILs) for children (aged 0-18 years), and women aged 19-49.
- In BC, blood Pb levels that meet or exceed the defined EILs will prompt further follow up by public health agencies.
- The US CDC uses the term Blood Lead Reference Value. Previously, this was 5 $\mu\text{g}/\text{dL}$ until 2021 when it was decreased to 3.5 $\mu\text{g}/\text{dL}$.

Range of Blood Pb Levels

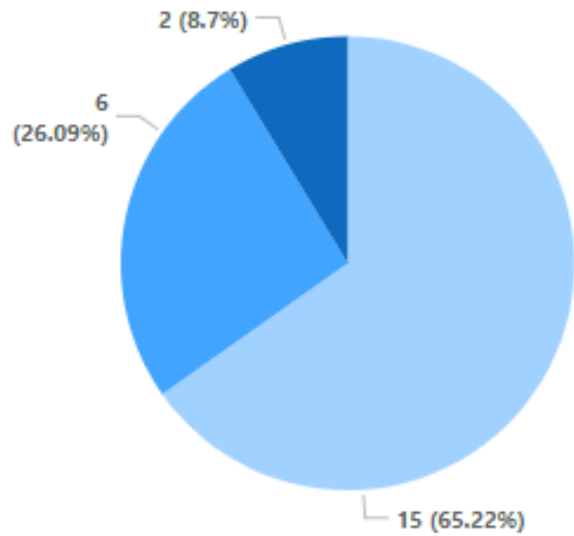
Figure 3. Proportion of children stratified by blood lead levels for 2023 (n= 106)



Blood Pb levels

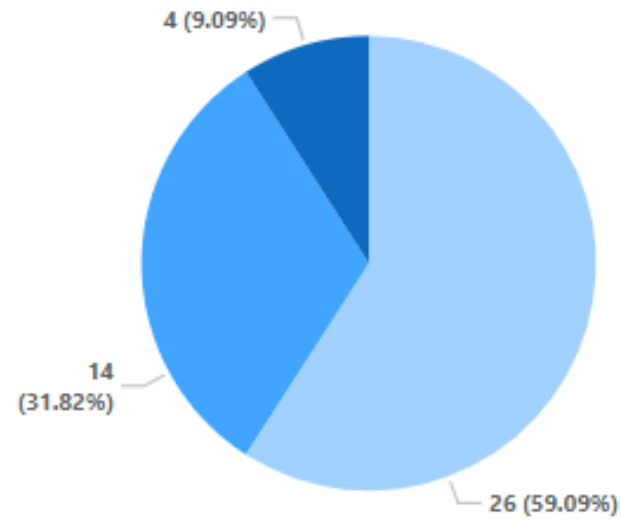
Figure 2. Proportion of children stratified by blood lead levels for three areas in 2023

Area 1



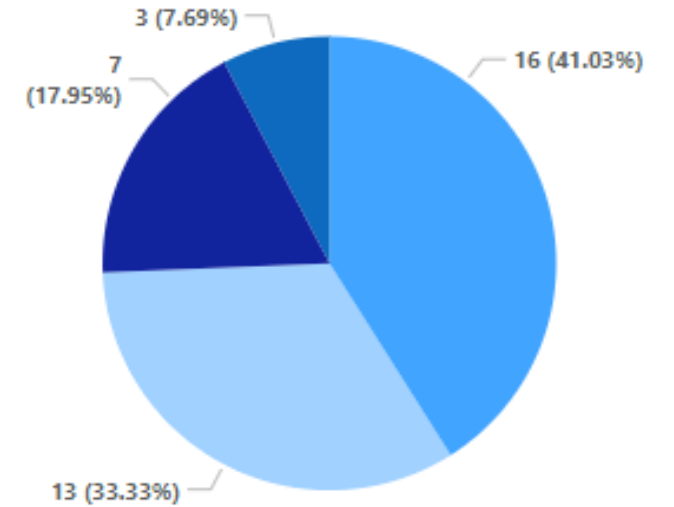
BIPb levels (µg/dL) <2 2-3.99 4-5.99

Area 2



BIPb levels (µg/dL) <2 2-3.99 4-5.99

Area 3



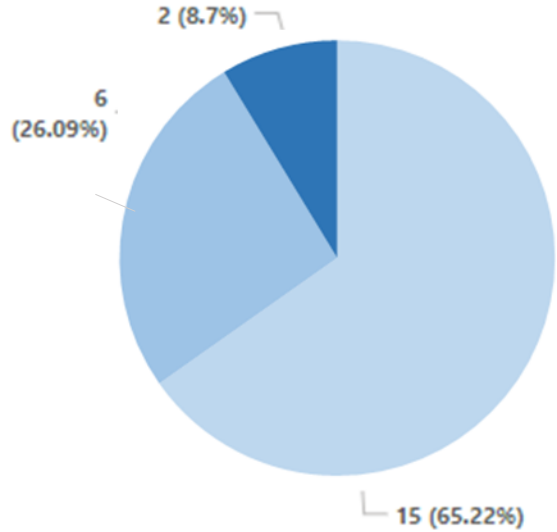
BIPb levels (µg/dL) <2 2-3.99 4-5.99 >6



Blood Pb levels

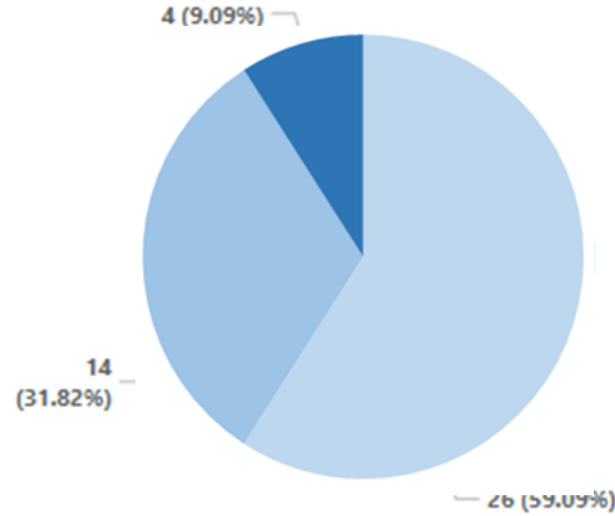
Figure 4. Proportion of children stratified by blood lead levels for three areas in 2023

Area 1 (n=23)



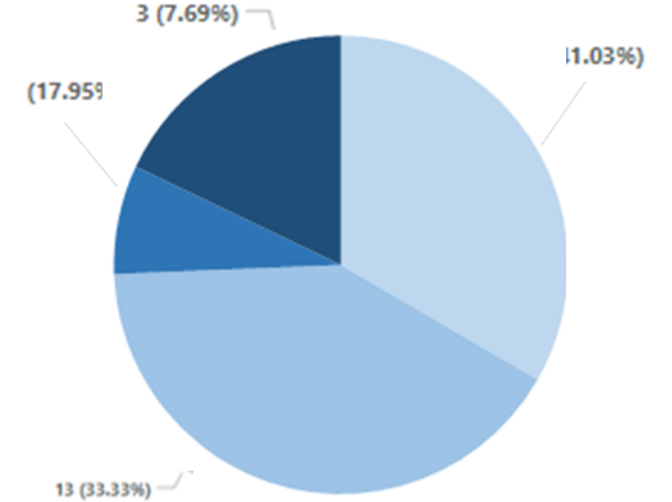
BIPb levels (µg/dL) ■ <2 ■ 2-3.99 ■ 4-5.99

Area 2 (n=44)



BIPb levels (µg/dL) ■ <2 ■ 2-3.99 ■ 4-5.99

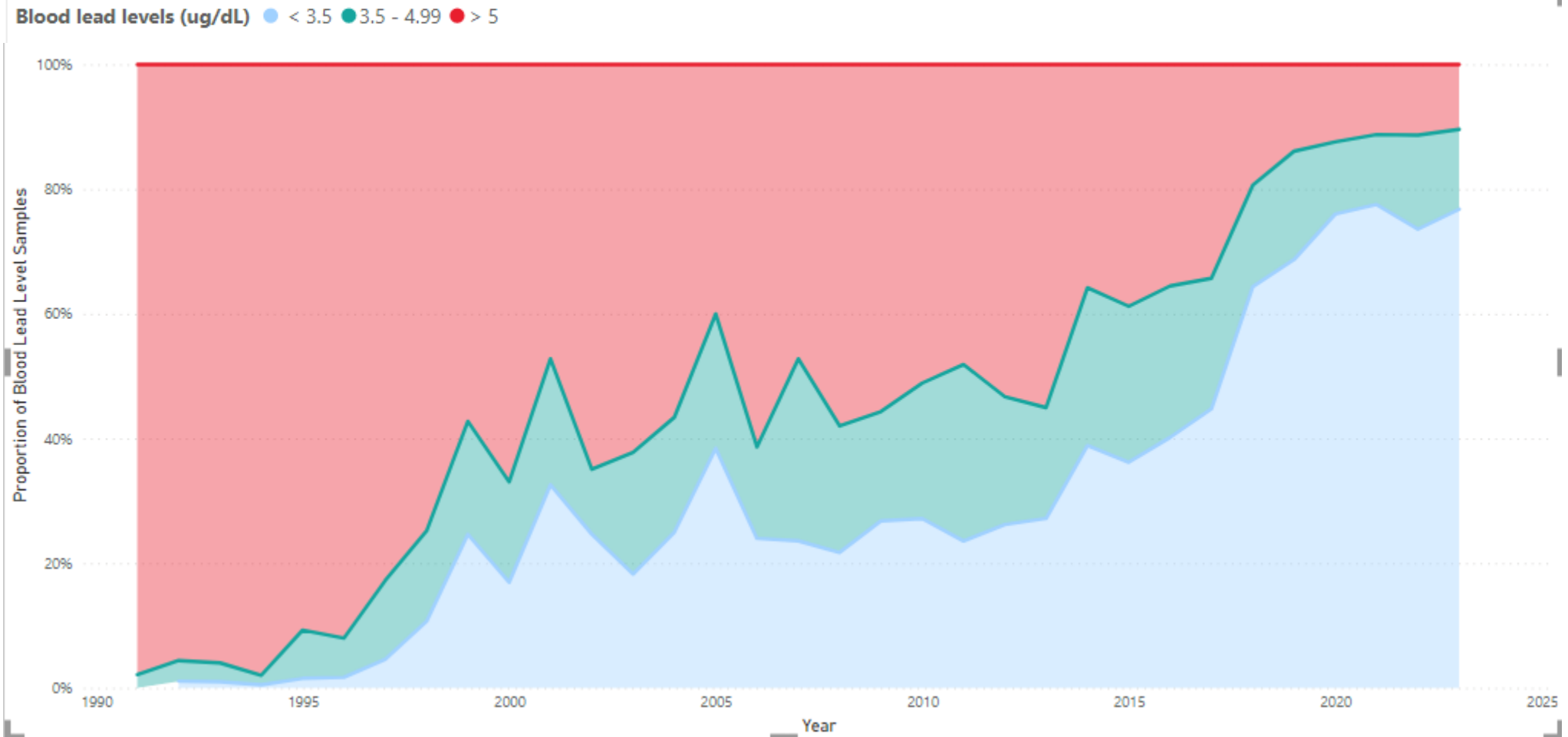
Area 3 (n=39)



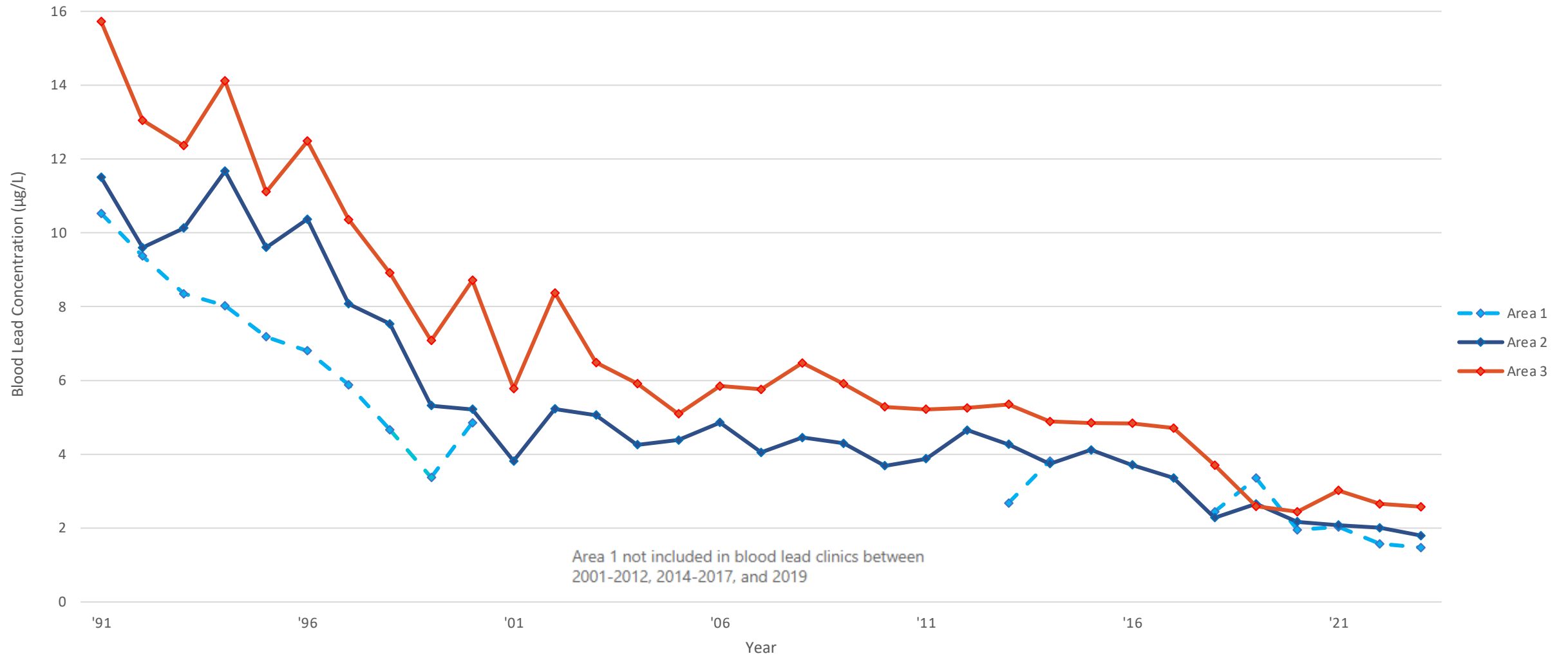
BIPb levels (µg/dL) ■ <2 ■ 2-3.99 ■ 4-5.99 ■ >6



Figure 5. Proportion blood Pb samples collected over the years for all areas by blood lead level concentrations



Trend of Blood Pb Geomean by Area



Blood Pb Levels in Trail, Canada & U.S. Data

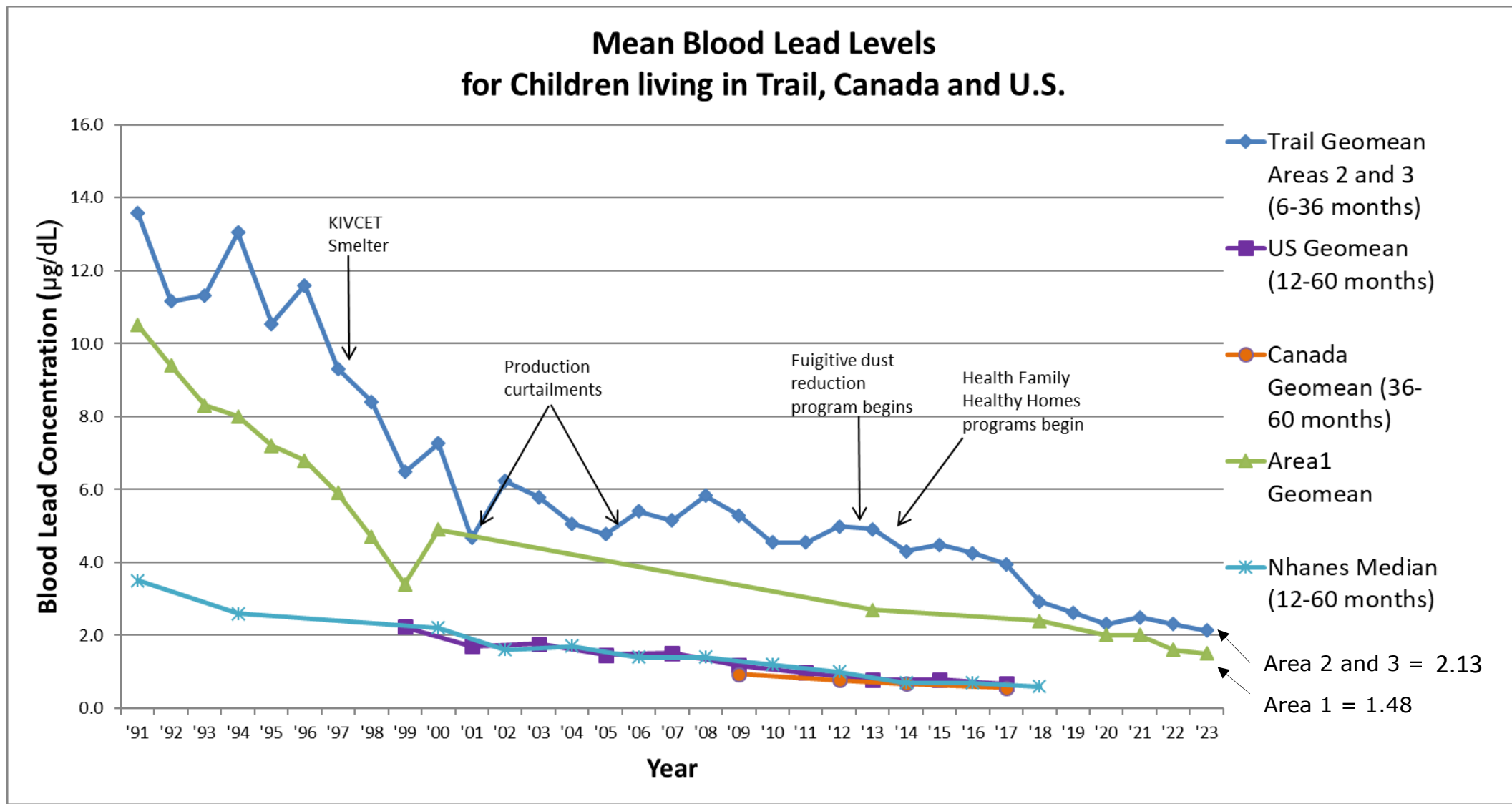
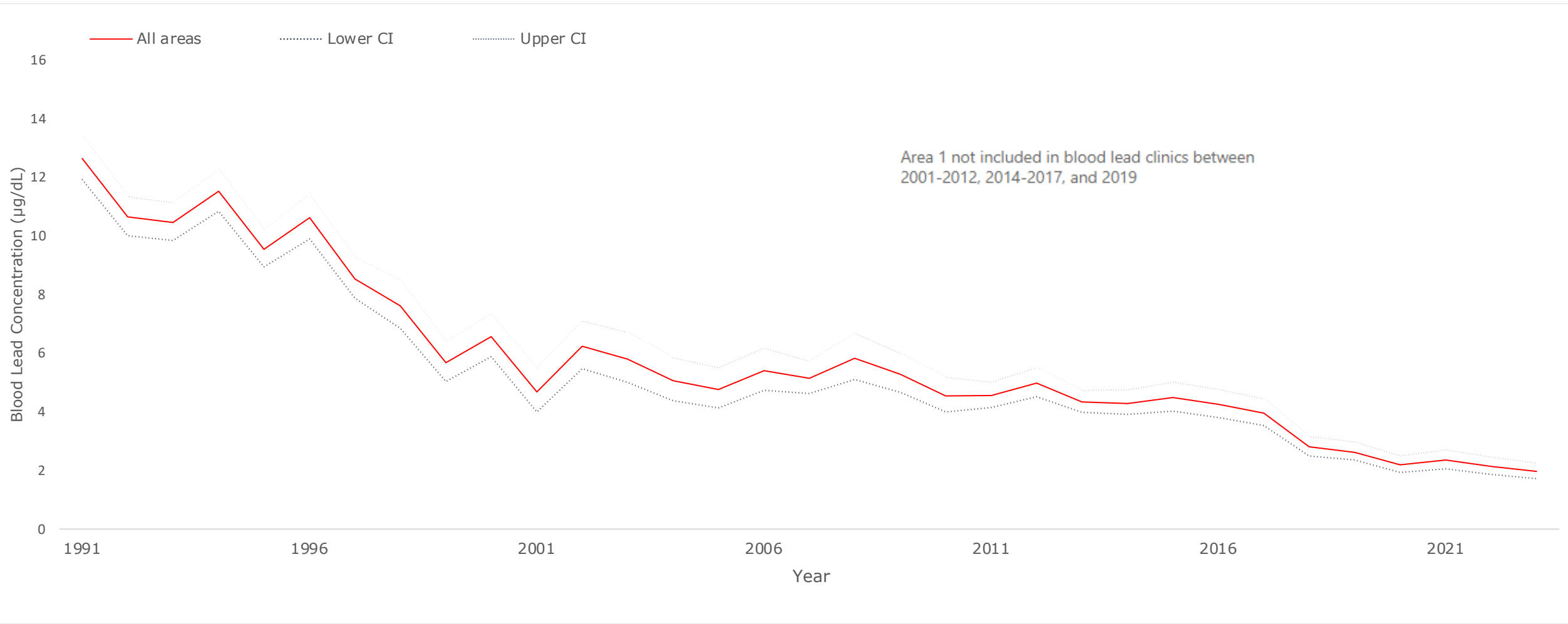


Figure 8. Blood lead concentration over the years by all areas combined along with confidence interval (CI)



Concluding messages

Area 2&3 Geomean 2022= 2.3 **2023= 2.1**

Overall Geomean 2022=2.1 **2023= 2.0**

The mean blood lead levels continue to demonstrate evidence of some exposure to lead in the environment

We continue to see a decrease in blood lead levels with a narrowing of the gap between Trail children and other Canadian and American children of similar age.



Thank you





*Human Health Risk Assessment for Lead (Pb), Trail BC
Presentation for the Trail Area Health and Environment Committee
December 2023*



Blood
Lead
Data



- Provides a measure of actual exposure
- Inherently assesses bioavailability

Site Specific
Human Health
Risk Assessment



- Based on the same models used to derive health-based soil standards
- Allows for consideration of site-specific factors that influence exposure (e.g., oral absorption)

BC Contaminated Sites
Regulation
Generic Numerical
Standards for Human Health

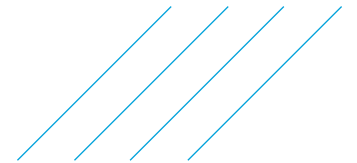
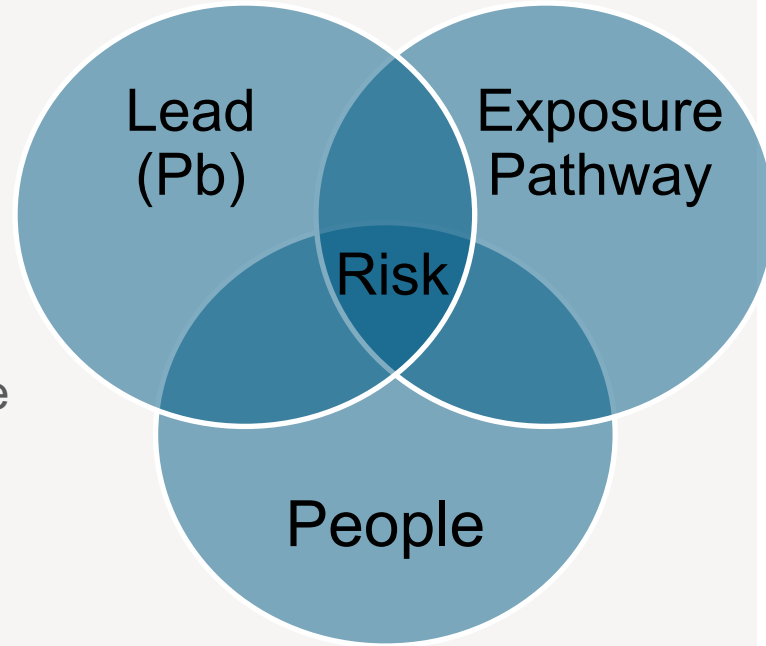


- Health based standards conservatively derived to be protective of all potential conditions



Site Specific Human Health Risk Assessment for Pb

- › **Human Health Risk Assessment** is one tool that can be used to assess and manage environmental health risks
- › Uses a **standardized approach** to estimate how much Pb people may be exposed to
- › **Exposure estimates** are compared to safe levels to provide an estimate of risk
- › **Conservative** assumptions and models used, which usually results in over-prediction of exposures and therefore risks



Scenarios Evaluated in the HHRA

Reasonable Maximum Scenario

- Represents *worst case* exposures
- Assumes people living in Trail area are exposed to the *highest* concentrations of Pb measured in soil in their neighborhood every day of their lives
- *Highest* soil Pb concentrations used to estimate indoor dust concentrations
- *Upper bound* exposure assumptions used (e.g., soil ingestion rates)

Central Tendency Scenario

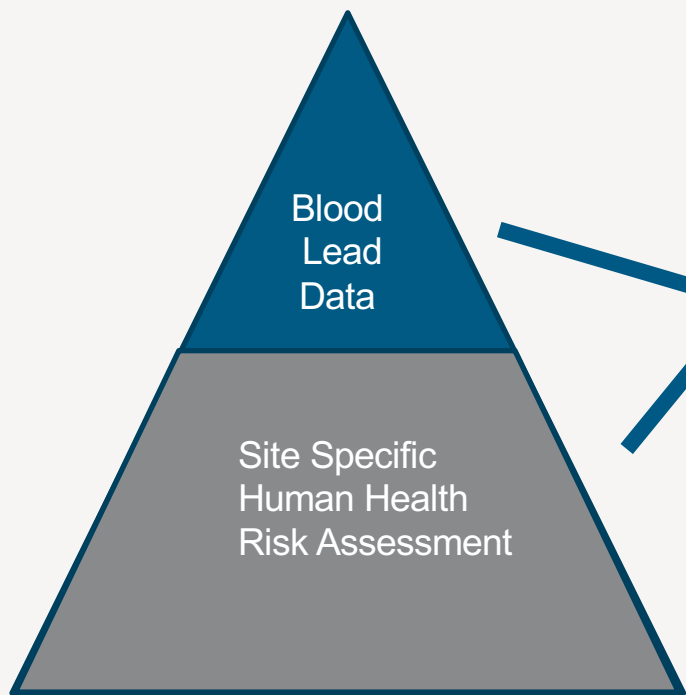
- Represents *average* exposures
- Assumes people living in Trail area are exposed to the *average* concentrations of Pb measured in soil in their neighborhood every day of their lives
- *Average* soil Pb concentrations used to estimate indoor dust concentrations
- *Average* exposure assumptions used (e.g., soil ingestion rates)



Site Specific Human Health Risk Assessment for Pb

- › To date, the Problem Formulation, Exposure Assessment and Toxicity Assessment have been conducted
- › Risk Characterization underway (presents estimates of risks)
- › Interior Health has analyzed the blood Pb data collected in Trail – results used to inform the recommendations for a Trail area specific, risk-based standard

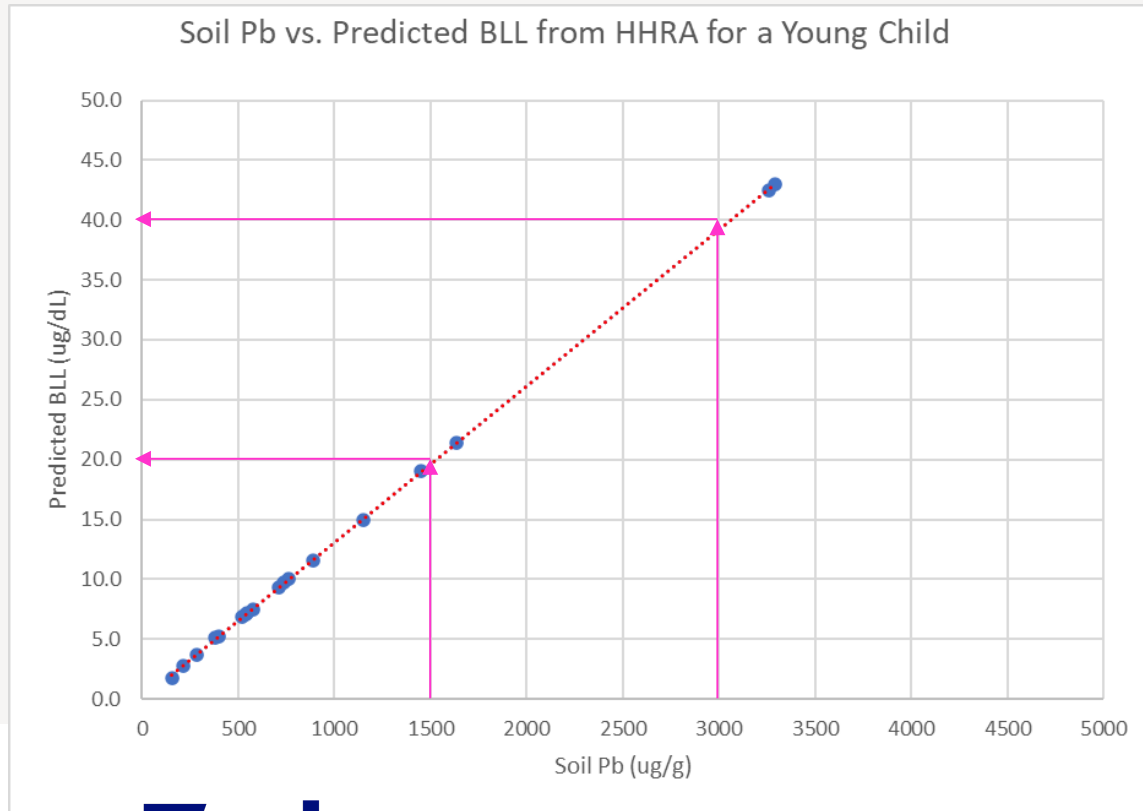




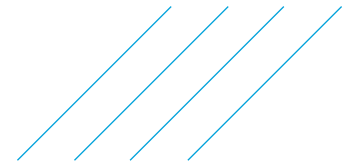
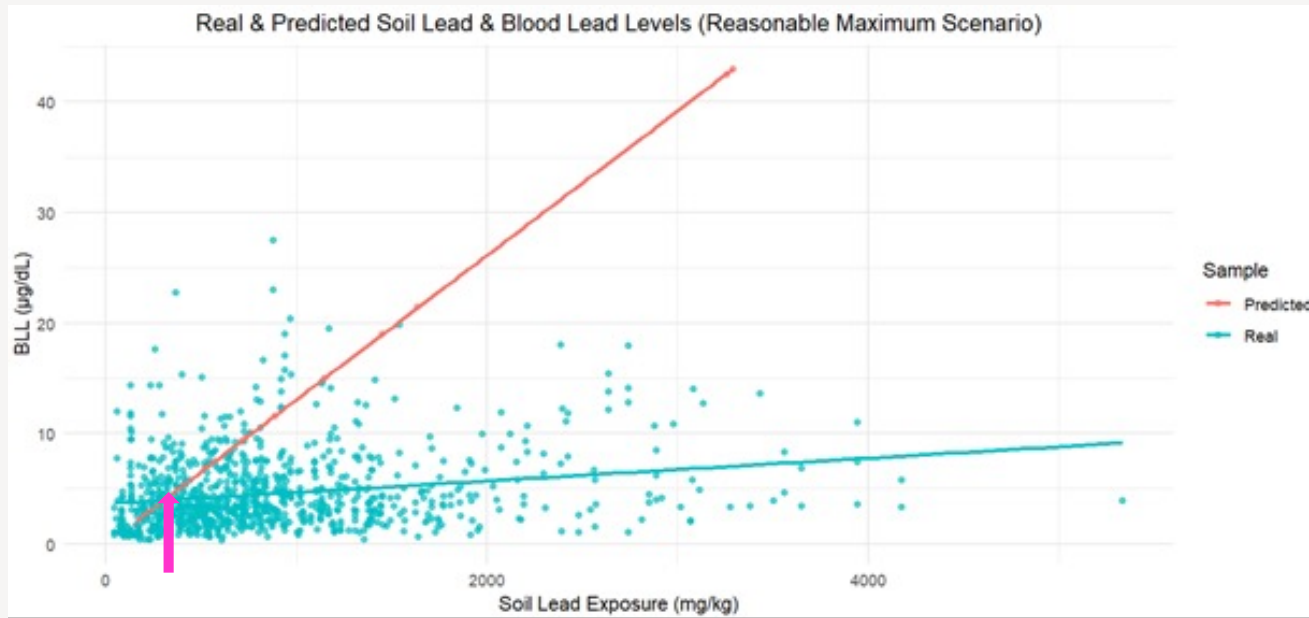
Trail Area Specific,
Risk-Based Standard
(based on Pb in soil)



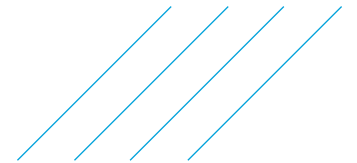
Predicted BLL from the HHRA – Reasonable Maximum Scenario



Preliminary Results of the HHRA compared to IH Blood Pb Data Reasonable Maximum Scenario for a Young Child

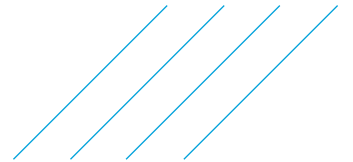


Preliminary Results of the HHRA compared to IH Blood Pb Data Central Tendency Scenario for a Young Child



Site Specific Human Health Risk Assessment for Pb – What's Next?

- › Integrate learnings from Trail area blood Pb data analysis with the results of the HHRA
- › HHRA findings will help to inform:
 - › Recommendation of a Trail area specific risk-based standard for Wide Area Remediation Plan
 - › Actions being taken to manage human health risks in Trail area e.g. Trail Area Health & Environment Program





Long Term Soil Study

Introductory Presentation to THEC

6 December 2023

What is the Long-Term Soil Study?

- Monitor soil metals levels over time

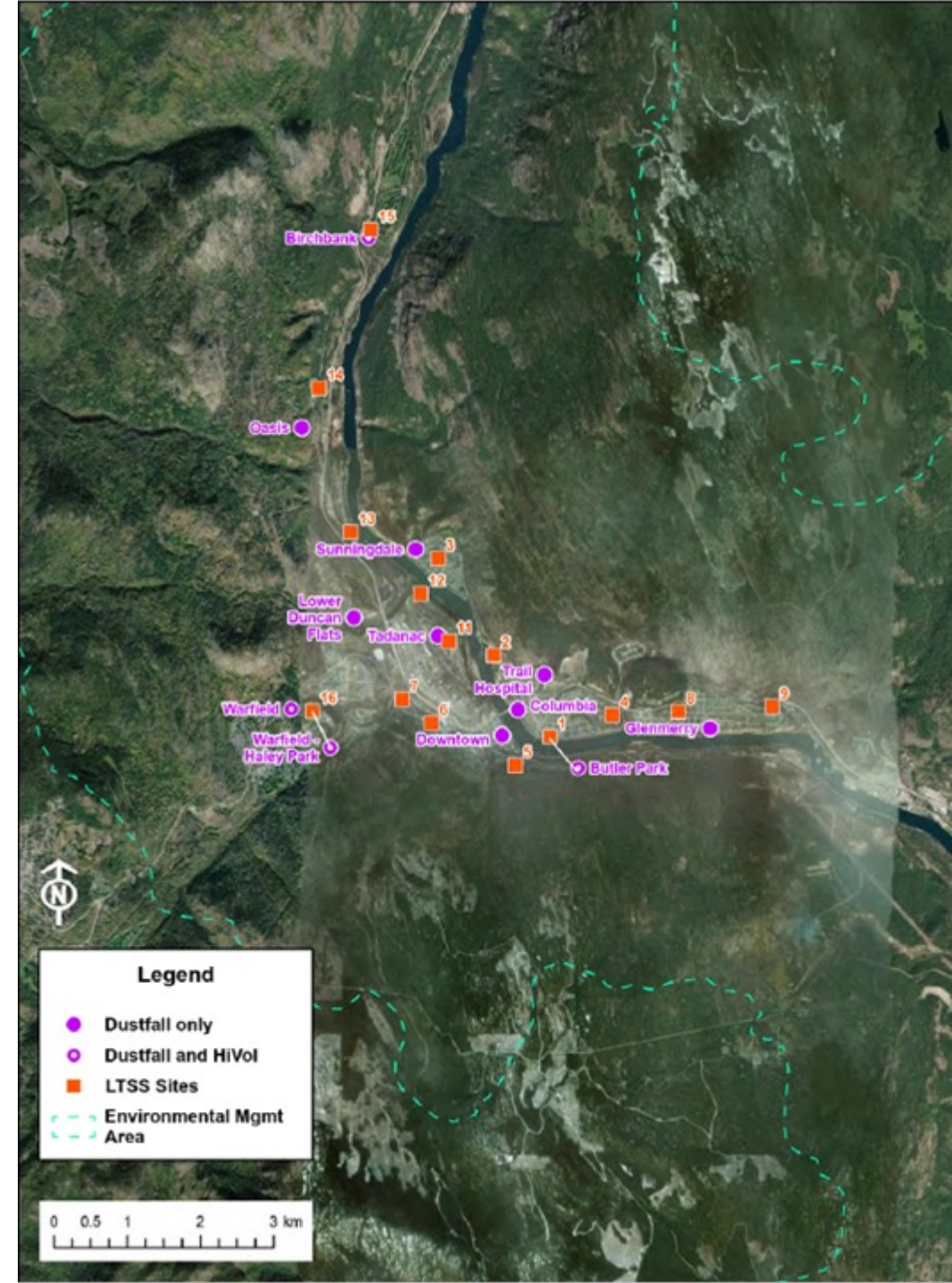
Why is it needed?

- Verify that soil replacement is a long-term action to reduce lead in the community

Why could soil metals increase?

Has this been done elsewhere?

- Similar study in Port Pirie





Study Plot Installation

- Most located in public greenspaces
- Same procedure as residential soil replacement
- Plots not visually identifiable
- Maintained the same as surrounding lands



Baseline Testing

- Baseline core samples collected from all newly installed plots

Annual Sampling

- Core sample collected from each plot using a grid



How long will the study last?

- Depends on results
- Up to 30 years

What's Next?

- Report back on findings
- If soil metals increase, additional analyses will evaluate source(s)



REPORTS



Air Quality Report – December 2023

1. Lead in Air:

Figure 1 presents the 3-month rolling average for lead in air measured at the Butler Park station compared to the US EPA standard of $0.15 \mu\text{g}/\text{m}^3$. Federal and BC Provincial governments do not have ambient air quality objectives or standards for lead; however, it is reasonable to rely on standards from other jurisdictions when this is the case.

Lead in air levels measured at Butler Park and Birchbank meet the US EPA standard of $0.15 \mu\text{g}/\text{m}^3$ on a 3-month average. The intra-annual variability in the data reflects the influence of weather including dominant wind direction and precipitation. Read THEP’s Lead (Pb) [Fact Sheet](#) to learn more.

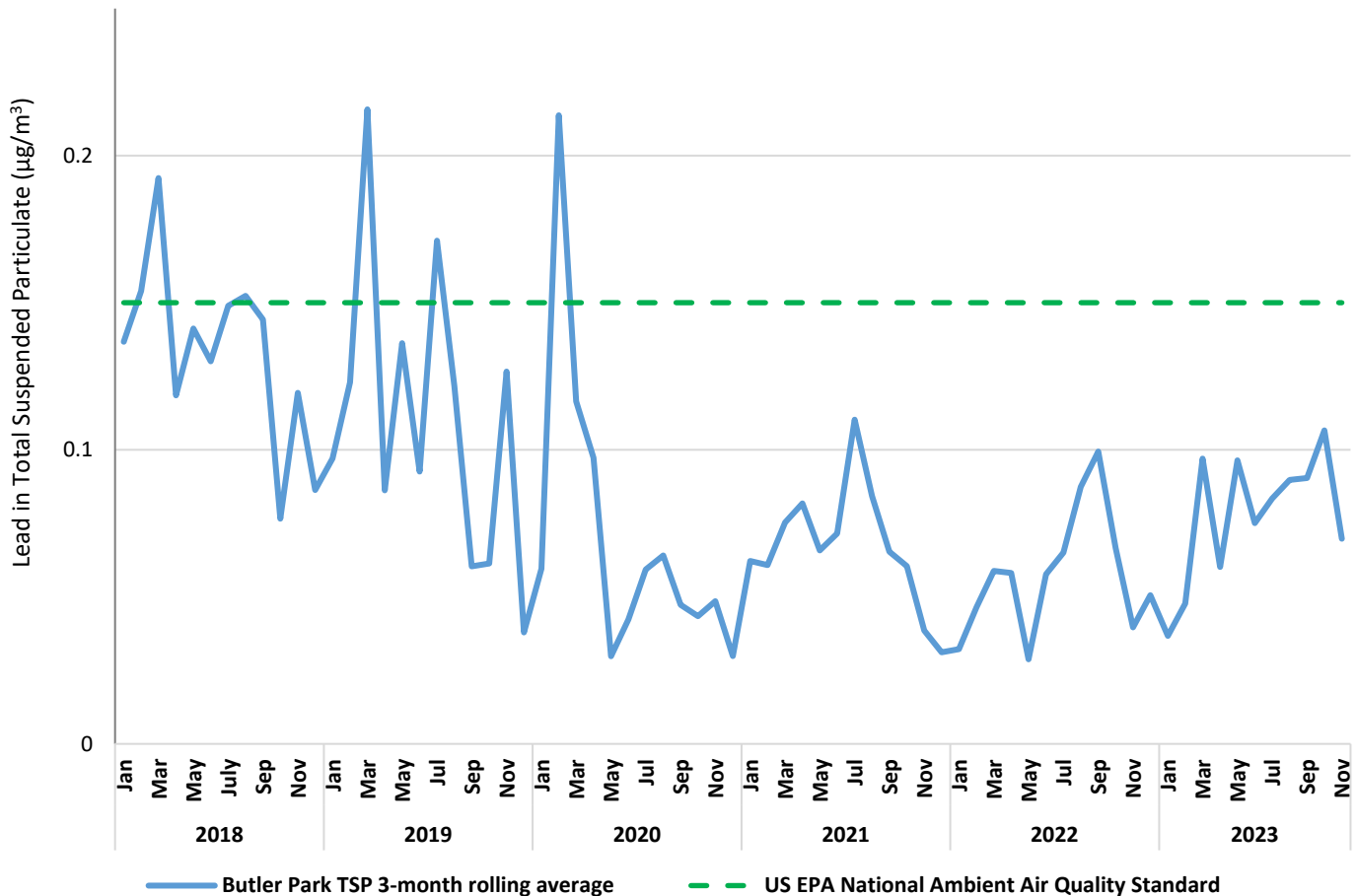


Figure 1: 3-month rolling average lead in air at Butler Park station (as total suspended particulate measured bi-daily)

The chart in Figure 1 shows the 3-month rolling average for lead in air for Butler Park (blue line), in comparison to the US EPA standard (green dashed line).

Questions or concerns about Air Quality?
 Call Teck’s Community and Environment Feedback line at (250) 364-4817

2. Sulphur Dioxide (SO₂):

SO₂ is emitted by Teck Trail Operations as a by-product of processing mine concentrates, which contain sulphur, into metal and chemical products. Teck Trail Operations currently captures more than 99% of the sulphur and converts it to by-products, such as fertilizer and sulphuric acid. About 1% leaves the operation through emissions to air. With environmental improvements, SO₂ emissions continue to decline. However, the dispersion of air emissions from the smelter is constrained due to the location of the smelter, weather and the surrounding topography.

SO₂ is monitored by Teck at four locations throughout Trail and the surrounding areas – Birchbank, Butler Park, Columbia Gardens and Warfield. These stations operate continuously, with near real-time data publicly available at <https://www.env.gov.bc.ca/epd/bcairquality/readings/find-stations-map-SO2.html> SO₂ levels fluctuate throughout the day, month and year.

THEP's SO₂ [Fact Sheet](#) provides guidance for actions to take when SO₂ levels are elevated. The chart below provides SO₂ hourly data from Butler Park and Birchbank stations for the last 10 years categorized by the health guidance levels. As Teck Trail Operations continues to implement emissions reductions measures, the percentage of hours within the yellow (35-185 ppb) and red (>185 ppb) categories is decreasing. In 2022 and 2023 year-to-date, there were no hours in the red (>185 ppb) category at Butler Park or Birchbank stations.

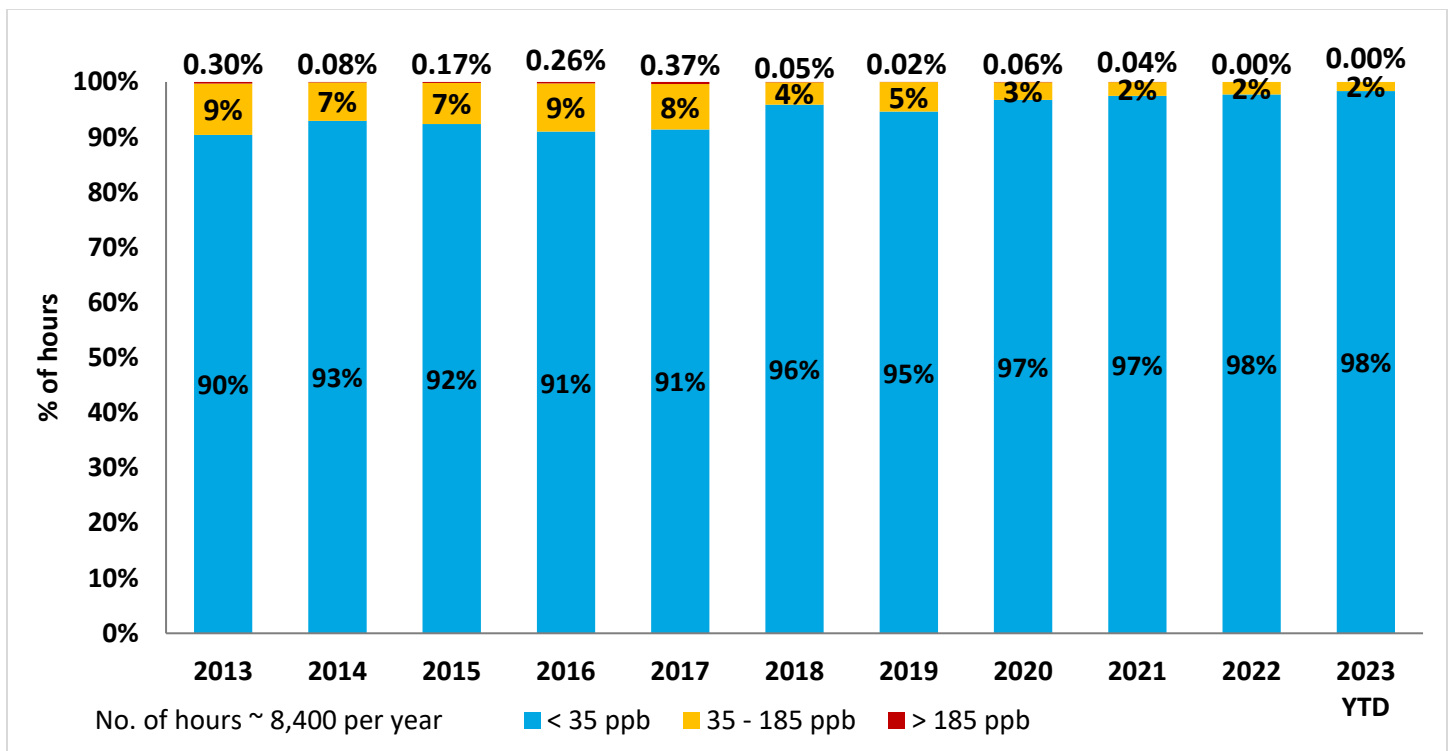


Figure 2: Distribution of Hourly SO₂ Levels at Butler Park

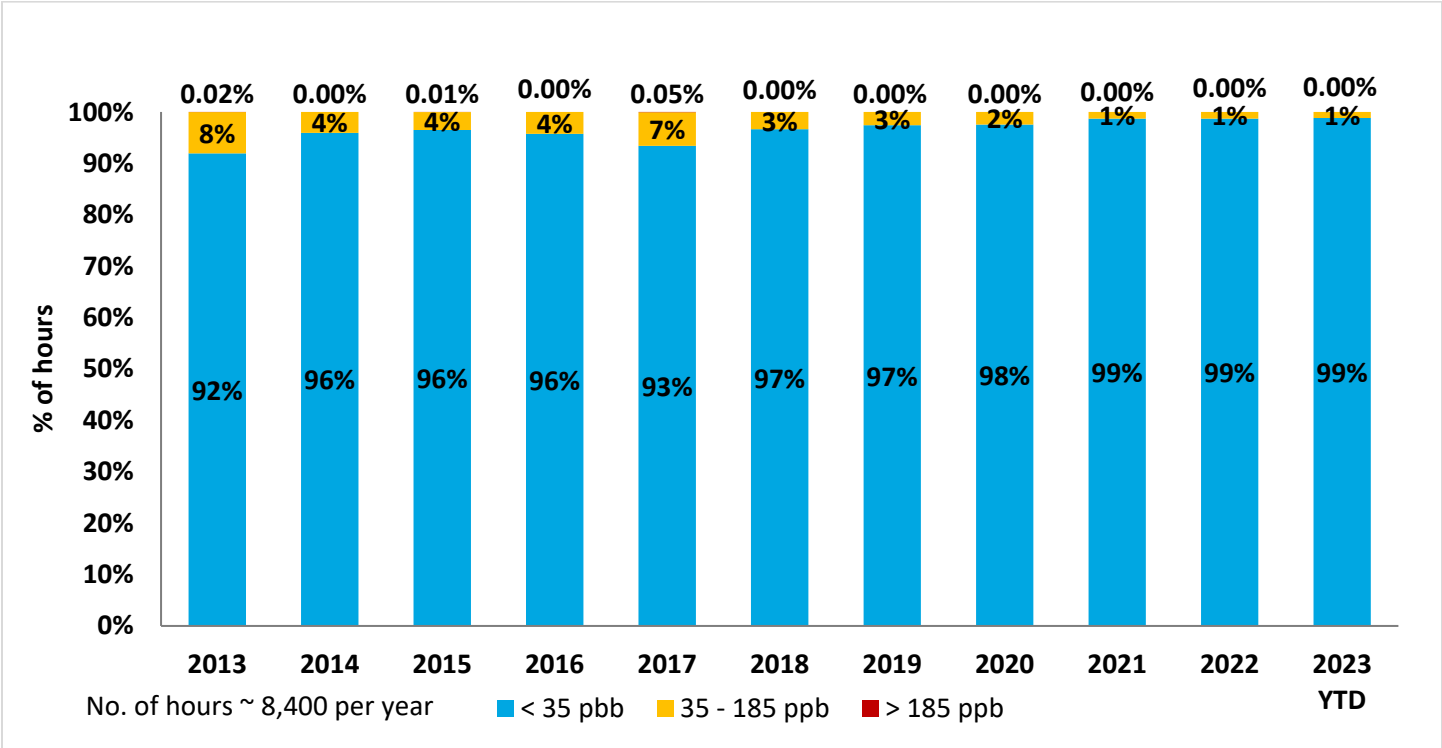


Figure 3: Distribution of Hourly SO₂ Levels at Birchbank

Questions or concerns about Air Quality?
 Call Teck's Community and Environment Feedback line at (250) 364-4817

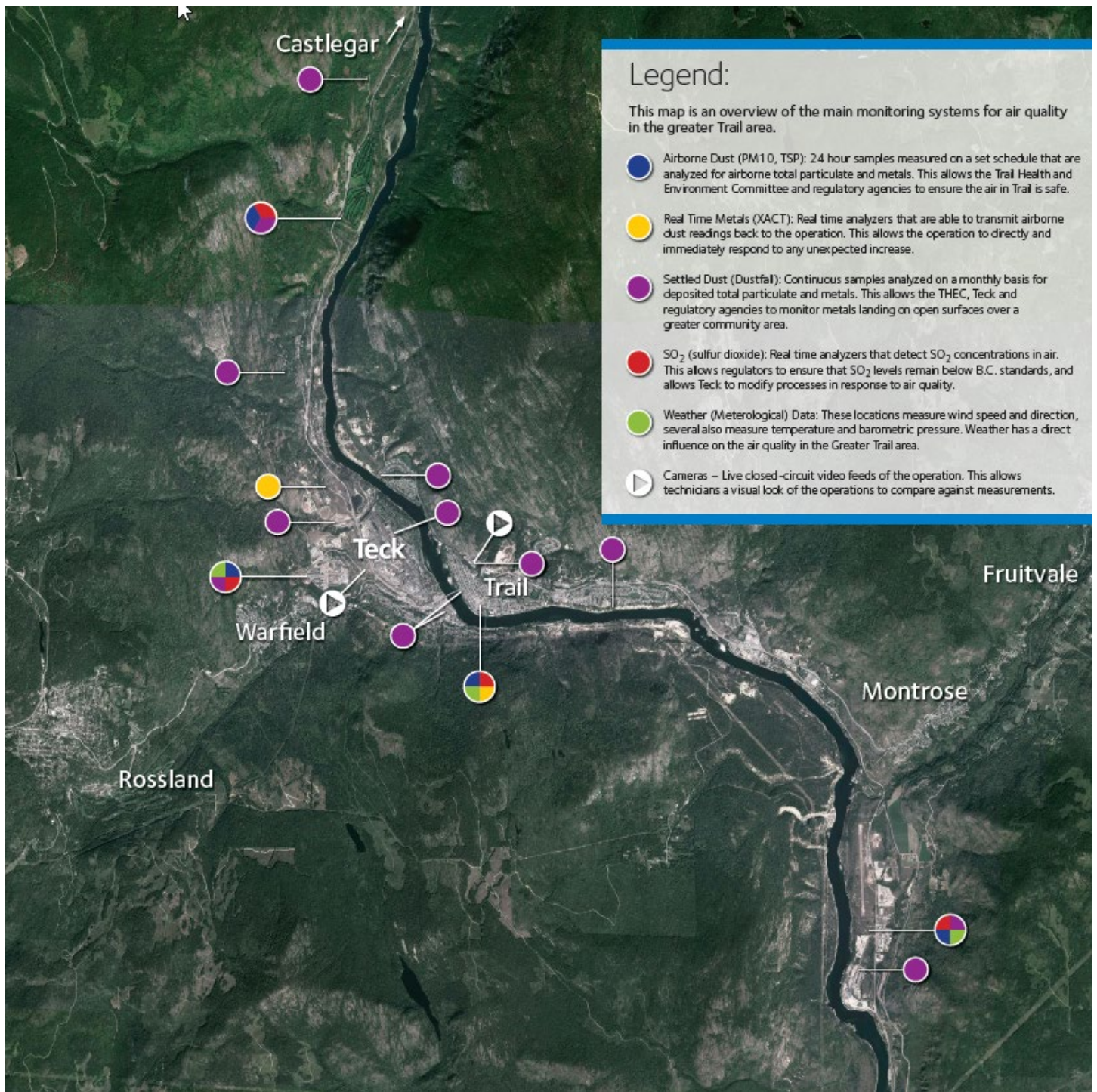


Figure 4: Teck Community Air Monitoring Stations

Questions or concerns about Air Quality?
 Call Teck's Community and Environment Feedback line at (250) 364-4817



FAMILY HEALTH REPORT

December 6, 2023

RECENT HIGHLIGHTS

1. Healthy Family Visits
2. Community Outreach
3. Blood Lead Clinic Updates

ADDITIONAL DETAILS

1. Healthy Family Visits
 - 84 Healthy Family visits completed so far in 2023
 - 4 visits declined- 3 of 4 received previous visits with older children. One family did engage with CPO for refresh of Healthy Home supports
 - Increased PHN capacity has enabled us to catch up
2. Community Outreach
 - Meghan attending Building Beautiful Babies monthly
 - Cecilee attending Muffins and Munchkins monthly
 - Meghan and Wendy attended Seniors Fair in October
 - Meghan and Wendy attended Tiny Tots Cooking in November
3. Blood Lead Clinic
 - Winter Blood Lead Clinic dates confirmed for February 26th & 27th
 - Enhanced Support Conference complete. Ongoing support being provided to families



COMMUNITY PROGRAM OFFICE REPORT

December 6, 2023

The Community Program Office (CPO) team is concluding the 2023 year feeling positive. The team completed soil management at a record number of yards, launched three pilot activities (Pilot Block Initiative, post-soil management lawncare, exterior paint testing), and continued to engage with many families through the Healthy Homes Program. The team will be shifting focus to winter activities including reviewing feedback from residents who participated in Soil Management and Healthy Families Healthy Homes programs.

1 Soil Management Program:

- › Yard Improvement
 - Ground Cover Improvements: 6 deliveries of ground cover materials have been completed to support qualifying DIY projects.
 - Soil Pick-ups: 8 soil pick-ups have been completed to support qualifying DIY projects; 1 soil pick-up remains on the list.
 - Lawn Care: 17 Healthy Homes properties were on the lawn care list this year. All properties received two rounds of fertilizer and a final round is scheduled for the fall.
 - 56 post 2022-soil management (pilot) properties were also on the lawncare list. All received two rounds of fertilizer.
 - 12 post-soil management properties received weed control.
- › Soil Assessment:
 - Soil testing: 173 properties and 2 gardens were completed; 24 properties remain on the list.
 - Ground Cover Evaluations: 74 properties have been completed; 5 properties remain on the list.
- › Soil Replacement:
 - Full soil replacement has been completed at 86 properties.
 - 42 of those properties were part of the Pilot Block Initiative (4 blocks)
 - 3 vegetable garden replacements have been completed.
 - 1 part-yard soil replacement was completed in 2023.
 - Completing soil replacement at some tough access properties has successfully occurred this year. Innovative equipment for access and contractor staffing challenges for these sites are being addressed.
- › Paint Testing¹:

¹ Paint testing is a term used in lieu of paint screening for public communications purposes. Paint testing requires sending paint chips to a laboratory and results are more precise. For the purpose of THEP, paint testing means THEP screened viable paint in a home using XRF technology on-site. The XRF provides an immediate reading for lead levels in a painted surface.



- Exterior paint testing has been completed at 229 properties that received full soil management or soil assessments this year.
- Data collection procedures have been re-evaluated and staff have been re-trained on these.

2 Healthy Homes:

- › Healthy Homes:
 - 57 home visits to-date completed for 2023.
 - For comparison, 54 home visits were completed in 2022.
 - 1 interior paint testing for Healthy Homes (HH) families was completed in 2023.
 - Interior paint testing will be offered to participating HH families program this winter.
- › Enhanced Support (ES):
 - The HH team has been working in collaboration with IH to support families with children identified as ES following the fall lead clinic.
 - 4 Residential Lead Inspections (RLIs) completed in 2023. Results will be verbally reported to families in mid-December. All remaining RLI's will be scheduled in the new year.
 - On Dec 5th the Program team and the Medical Health Officer met to review all consented ES families and children and to discuss potential risk exposure factors, offered services and supports, follow-up action and new ideas.

3 Lead (Pb) Safe Renovation:

- › A total of 50 residents have accessed free supplies in 2023.

4 Fall Outreach and Engagement:

- › Amazing & Aging Wellness Fair (Oct 4) – Wendy Goodrich and Meghan Morris provided information on THEP history, SO₂, and soil assessments.
- › Met with Remax realtors to share THEP information and answer questions (Oct 17) – Michelle & Cindy.
- › Building Beautiful Babies (Nov 2) – Answer families' questions about children's lead testing clinic and share Program messaging.
- › Tiny Tots Cooking (Nov 15) – Wendy Goodrich and Megan Morris encouraged healthy eating, handwashing, and review of exposure pathways.
- › Participation with Community Navigator meetings (Oct 30)
- › Early Years meeting (Nov 27)
- › Family Action Network board meeting (Nov 20, Dec 4)
- › Ending Working Poverty leadership table (Nov 6).

2023 Community Survey Results Summary



Soil Management of Residential Yards in Trail

The Trail Area Health & Environment Program (THEP) undertook a survey of community members to understand their perceptions of the soil management program in 2019, and again in 2023.

The 2023 survey was administered online through Survey Monkey and open from October 23 to November 5. It was shared by social media and email lists via City of Trail, Village of Warfield, RDKB, Family Action Network, FAIR, Trail and District Chamber of Commerce, THEC community members, internal networks at Teck, Interior Health and THEP’s Community Program Office, and advertised in the Trail Times (three paid print ads between October 26 and November 5). An independent consultant was engaged to analyze the results.

In total, 158 individuals completed one or more survey questions in 2023. After data cleaning, 142 eligible responses remained, an increase of 32% over the 2019 survey response (108).¹

While respondents remained overwhelmingly supportive of the soil management program in 2023, the share of supportive individuals was slightly below 2019 results. In 2023, 92% of respondents said they were either very supportive or supportive of increased soil management of yards in Trail. 8% were either neutral or did not know enough about the program to answer, while 1% (1 person) was opposed to soil management. In contrast, 96% of respondents in 2019 were supportive of soil management, 4% were either neutral or did not know enough about the program to answer, and none were opposed to the program. Notably, the share of *highly* supportive individuals in 2023 (59%) was considerably lower compared to 2019 (81%).

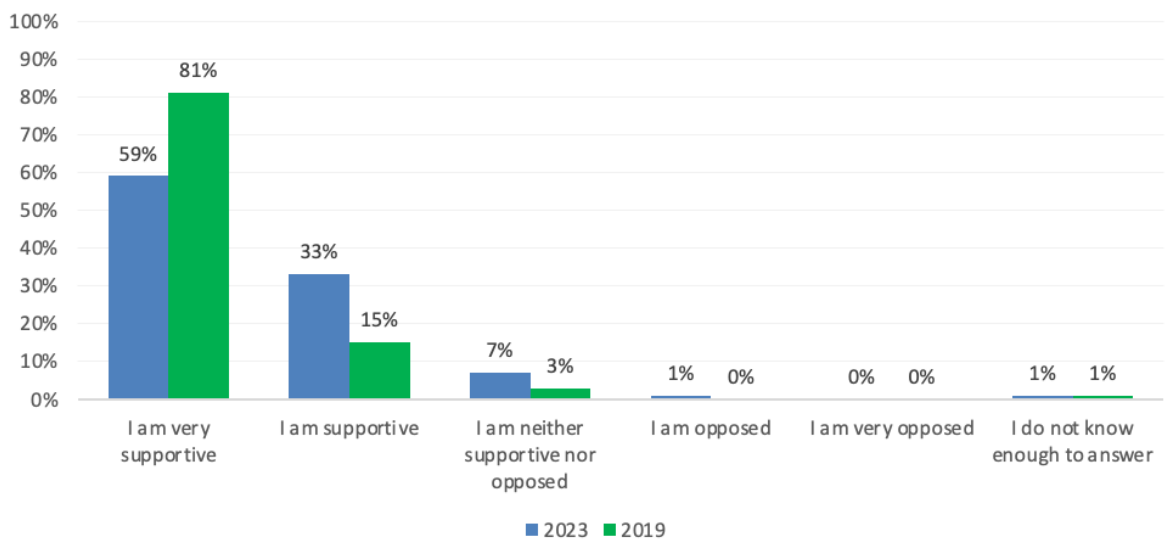


Figure 1: Respondent answers to “How supportive or opposed are you to increased soil management of yards in Trail?” (2023 vs. 2019)

¹ Data cleaning is a process to remove “ineligible” responses to improve the integrity of survey results. 16 responses were removed – 15 answered an insufficient number of questions (one or two questions only) and there was one duplication.

General reasons mentioned by 2023 respondents for supporting the program include a reduction of lead in the soil ensures the community is safe for both people (with particular concern for children's health) and animals including wildlife, it improves land and yard ecosystems which promotes healthy plants, and soil management beautified the community which enhances property values.

There were some concerns around noise (16% reported noise was a big concern or somewhat of a concern), dust (30% reported dust was a big concern or somewhat of a concern), and increased traffic (16% reported increased traffic was a big concern or somewhat of a concern). These concerns were all higher than those reported by 2019 respondents, which were 5%, 10% and 11% respectively.

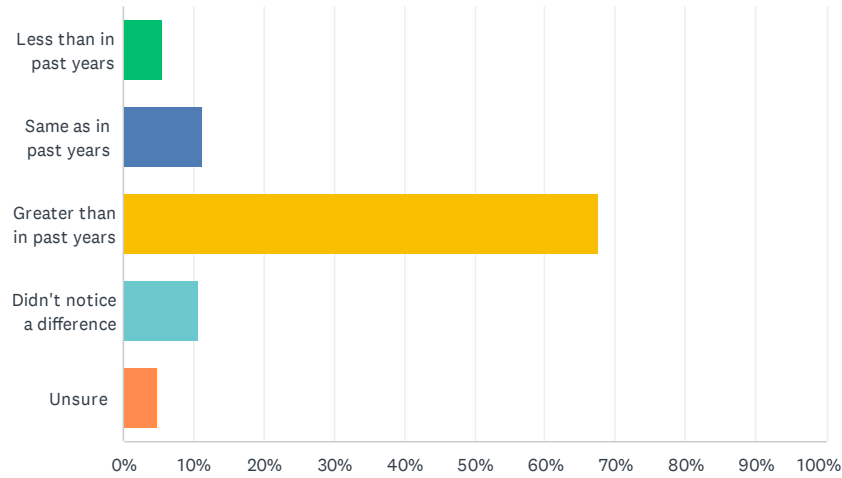
Most respondents (67%) noticed safe practices of contractors and workers for the soil management program in 2023, while 12% said they did not. In 2019, safe practices were noticed by the majority respondents (69%) and very few (5%) did not notice safe practices. 95% of respondents said that they never felt unsafe when passing properties undergoing soil management work in 2023, which is on par with the 2019 response.

Most responses and comments were positive and supportive of the program in 2023. While many respondents were impressed by the work being done, some individuals expressed disappointment at being excluded from program. There were some suggestions for improvement such as scheduling of work times, controlling types of vehicles that enter the community, notifying residents ahead of time, supervision by safety personnel, and opening the program to all residents.

A summary of survey results follows with comments removed to protect anonymity of respondents.

Q1 From my perspective, I noticed that soil management work in residential yards in Trail this year was:

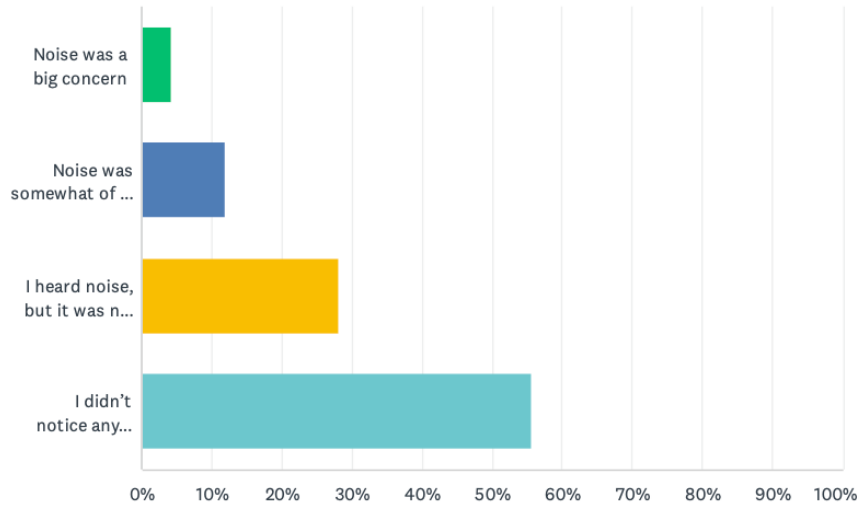
Answered: 142 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than in past years	5.63%	8
Same as in past years	11.27%	16
Greater than in past years	67.61%	96
Didn't notice a difference	10.56%	15
Unsure	4.93%	7
TOTAL		142

Q2 Related to noise from soil management, please check the answer that best applies.

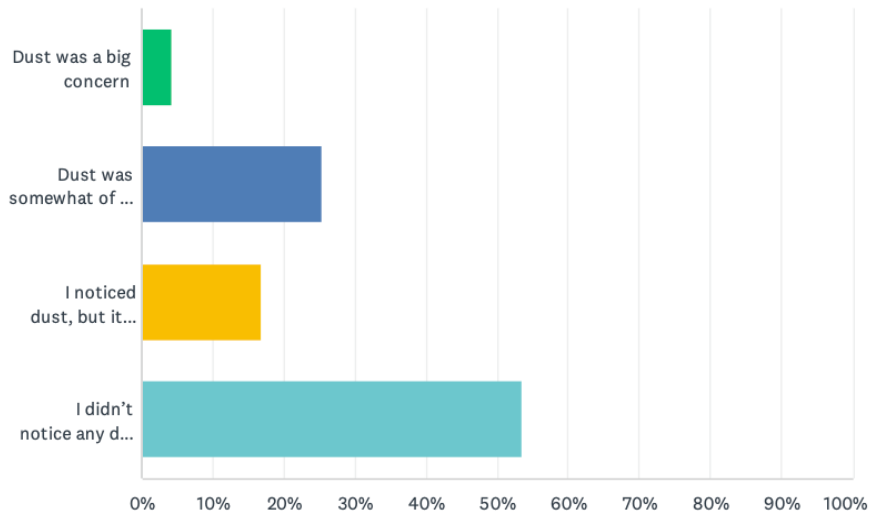
Answered: 142 Skipped: 0



ANSWER CHOICES	RESPONSES	
Noise was a big concern	4.23%	6
Noise was somewhat of a concern	11.97%	17
I heard noise, but it was not a concern	28.17%	40
I didn't notice any noise related to soil management in yards	55.63%	79
TOTAL		142

Q4 Related to dust from soil management, please check the answer that best applies.

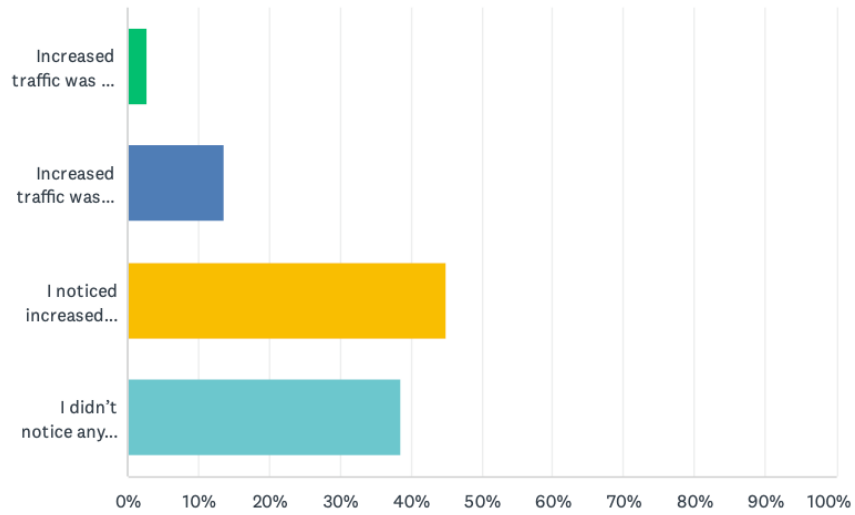
Answered: 142 Skipped: 0



ANSWER CHOICES	RESPONSES	
Dust was a big concern	4.23%	6
Dust was somewhat of a concern	25.35%	36
I noticed dust, but it was not a concern	16.90%	24
I didn't notice any dust related to soil management in yards	53.52%	76
TOTAL		142

Q5 Related to traffic from soil management, please check the answer that best applies.

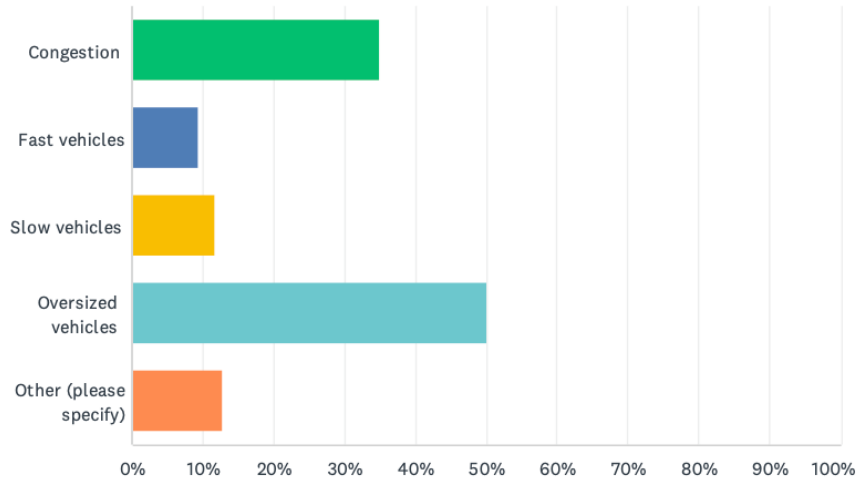
Answered: 140 Skipped: 2



ANSWER CHOICES	RESPONSES	
Increased traffic was a big concern	2.86%	4
Increased traffic was somewhat of a concern	13.57%	19
I noticed increased traffic, but it was not a concern	45.00%	63
I didn't notice any increased traffic related to soil management in yards	38.57%	54
TOTAL		140

Q6 What were some of the biggest issues related to traffic from soil management?

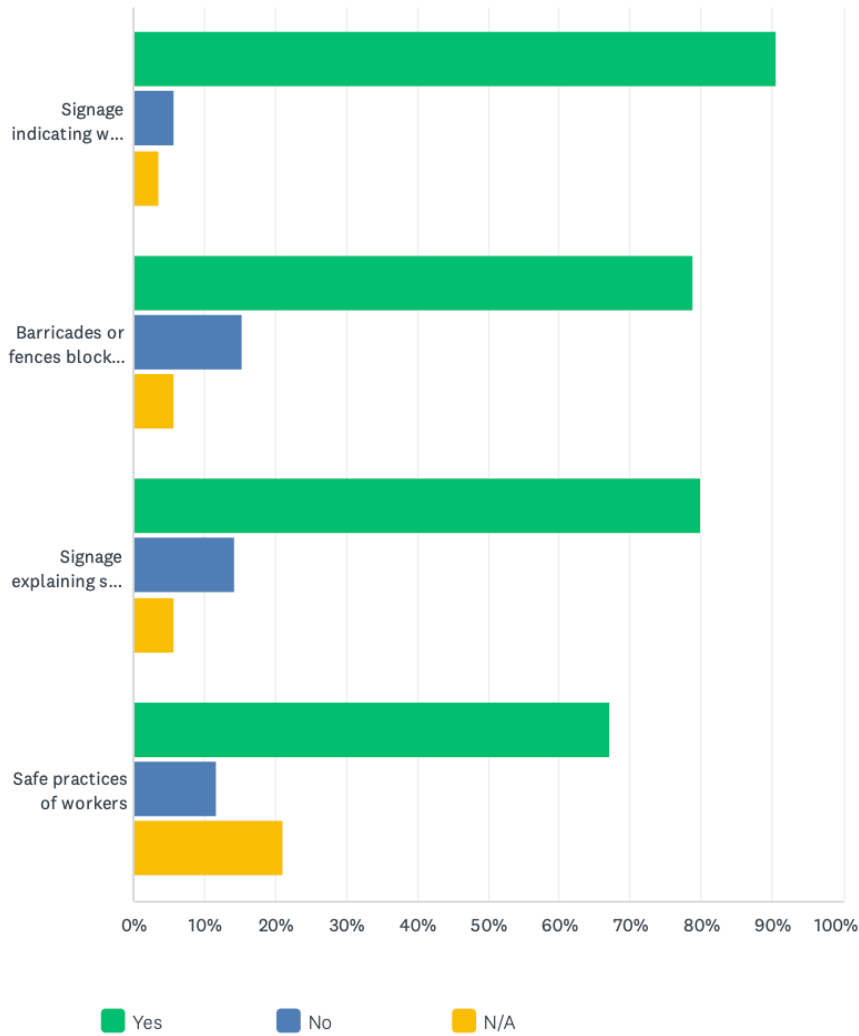
Answered: 86 Skipped: 56



ANSWER CHOICES	RESPONSES	
Congestion	34.88%	30
Fast vehicles	9.30%	8
Slow vehicles	11.63%	10
Oversized vehicles	50.00%	43
Other (please specify)	12.79%	11
Total Respondents: 86		

Q7 When passing properties undergoing soil management, please indicate if you have noticed any of the following:

Answered: 139 Skipped: 3



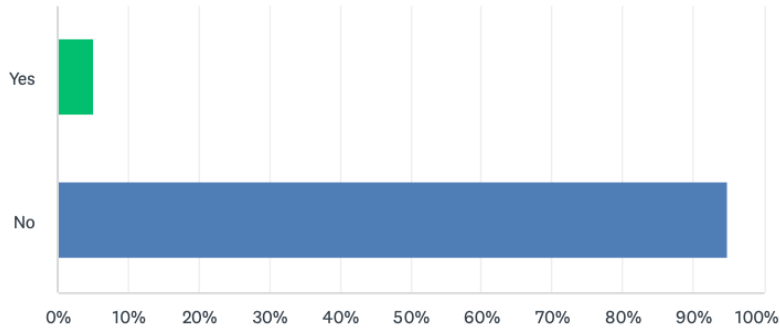
2023 Community Survey: Soil Management of Residential Yards in Trail

SurveyMonkey

	YES	NO	N/A	TOTAL	WEIGHTED AVERAGE
Signage indicating work site	90.58% 125	5.80% 8	3.62% 5	138	1.06
Barricades or fences blocking off work site	78.83% 108	15.33% 21	5.84% 8	137	1.16
Signage explaining soil management	79.86% 111	14.39% 20	5.76% 8	139	1.15
Safe practices of workers	67.15% 92	11.68% 16	21.17% 29	137	1.15

Q8 Have you ever felt unsafe when passing properties undergoing soil management work?

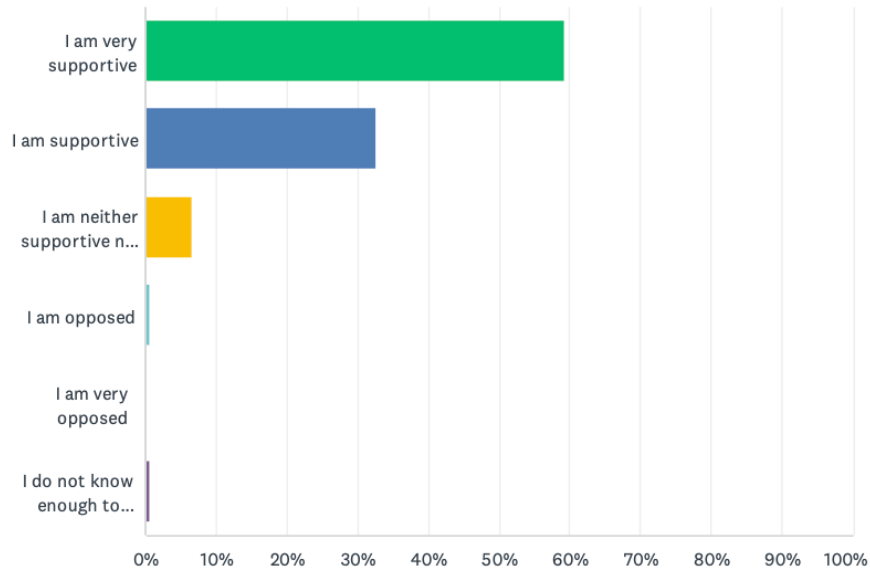
Answered: 139 Skipped: 3



ANSWER CHOICES	RESPONSES
Yes	5.04% 7
No	94.96% 132
TOTAL	139

Q10 How supportive or opposed are you to increased soil management of yards in Trail?

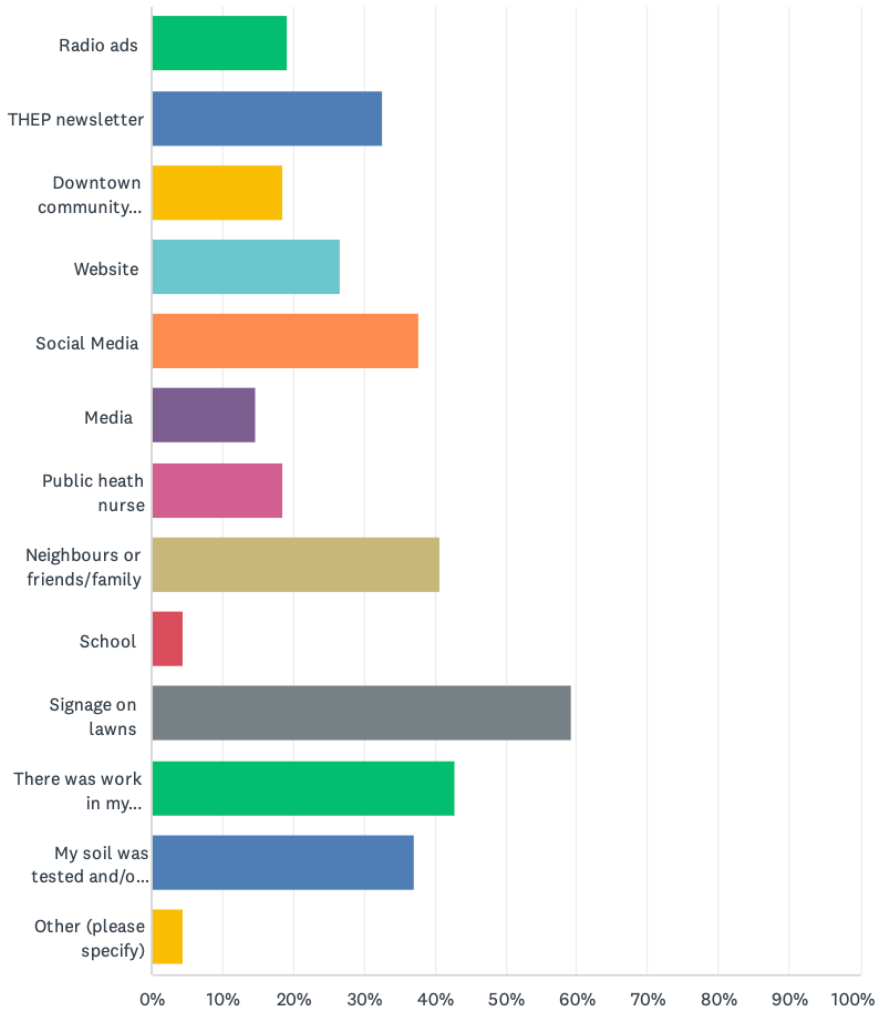
Answered: 135 Skipped: 7



ANSWER CHOICES	RESPONSES	
I am very supportive	59.26%	80
I am supportive	32.59%	44
I am neither supportive nor opposed	6.67%	9
I am opposed	0.74%	1
I am very opposed	0.00%	0
I do not know enough to answer	0.74%	1
TOTAL		135

Q12 Where have you seen or heard about the soil management program of the Trail Area Health & Environment Program?

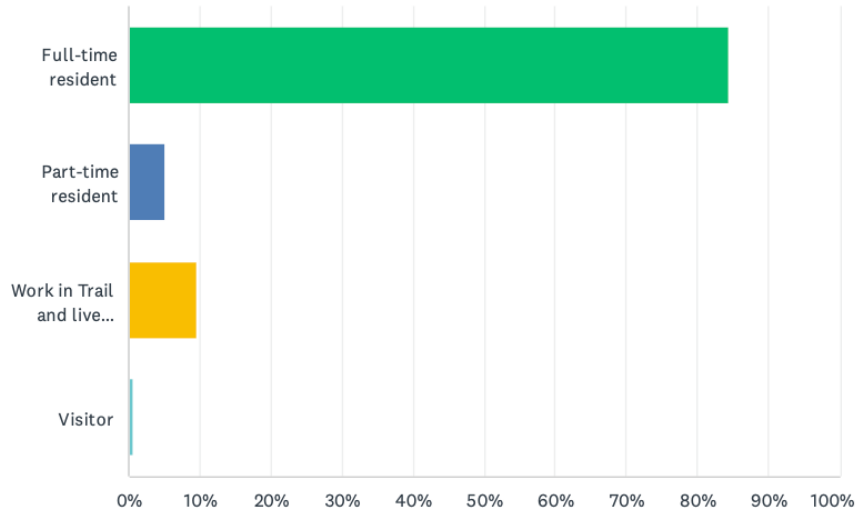
Answered: 135 Skipped: 7



ANSWER CHOICES	RESPONSES	
Radio ads	19.26%	26
THEP newsletter	32.59%	44
Downtown community program office	18.52%	25
Website	26.67%	36
Social Media	37.78%	51
Media	14.81%	20
Public health nurse	18.52%	25
Neighbours or friends/family	40.74%	55
School	4.44%	6
Signage on lawns	59.26%	80
There was work in my neighbourhood	42.96%	58
My soil was tested and/or remediated	37.04%	50
Other (please specify)	4.44%	6
Total Respondents: 135		

Q13 Which option most applies to you?

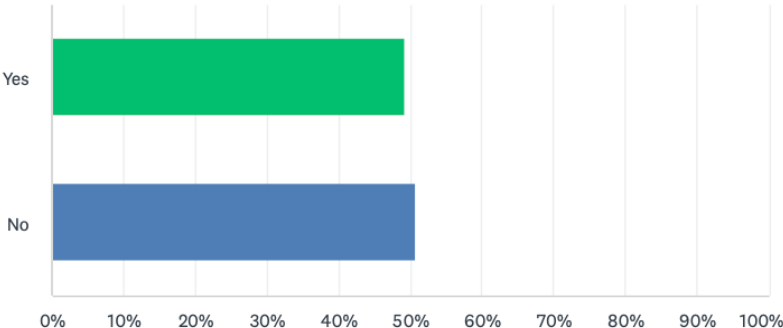
Answered: 135 Skipped: 7



ANSWER CHOICES	RESPONSES	
Full-time resident	84.44%	114
Part-time resident	5.19%	7
Work in Trail and live elsewhere	9.63%	13
Visitor	0.74%	1
TOTAL		135

Q14 Would you be willing to participate in a follow up interview?

Answered: 132 Skipped: 10



ANSWER CHOICES	RESPONSES	
Yes	49.24%	65
No	50.76%	67
TOTAL		132

THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

THEP Website Analytics (thep.ca)

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Overview

Key dates for annual THEP activities leading to spikes in website traffic:

Spring (May – June):	Soil testing sign up
September:	Blood Lead Clinic
November (end):	Release of Annual Blood Lead Report

Table 1. Overview of active users and average engagement time showing similar website user traffic during both reporting periods.

	October 1, 2021 to September 30, 2022	October 1, 2022 to September 30, 2023
Active users (or just "users") is the number of people who engaged with the THEP website	3,500	3,600
Average engagement time for all users	1m 41s	1m 50s

The source for the information presented in this report is Google Analytics.

THEP Website Analytics

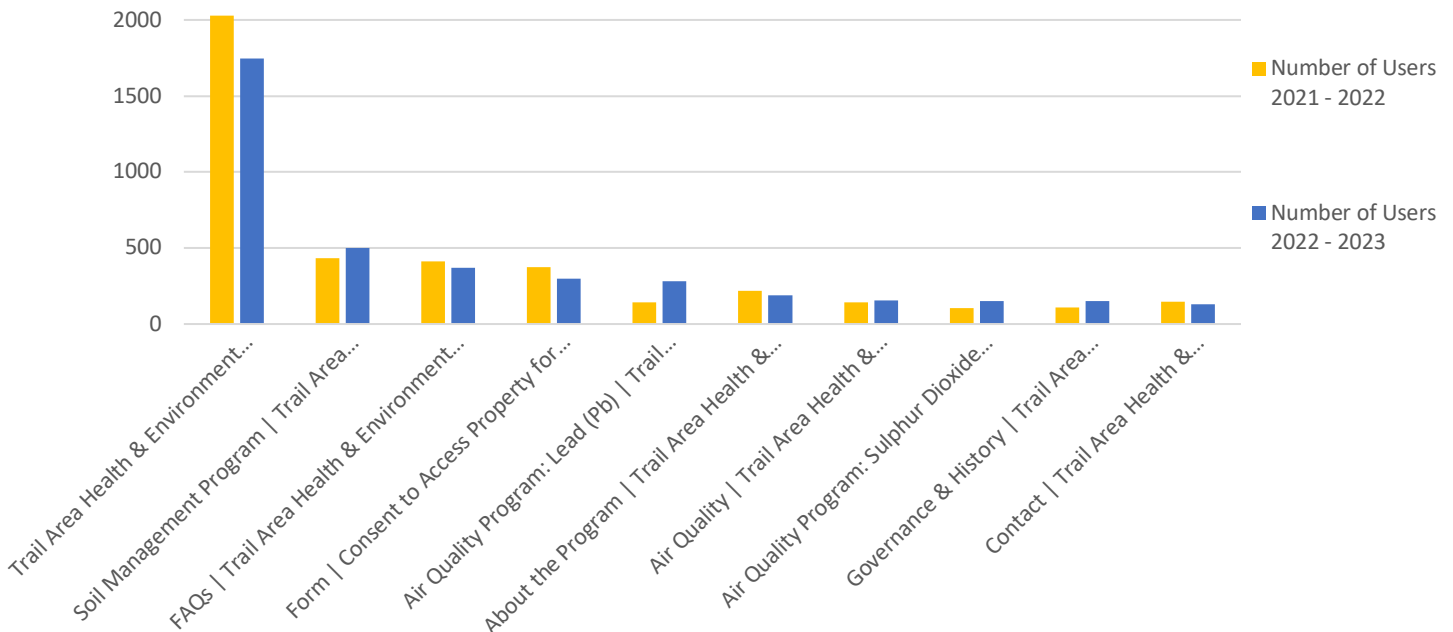
Reporting Period: October 1 2022 to September 30 2023

Top THEP Pages

Table 2. Top ten THEP pages for 2022-2023 by number of users with 2021-2022 data included for comparison.

Page Title	2021 - 2022		2022 - 2023	
	# of Users	Views per User	# of Users	Views per User
Trail Area Health & Environment Program Welcome to THE Program	2029	1.9	1747	2.3
Soil Management Program Trail Area Health & Environment Program	435	1.4	500	1.5
FAQs Trail Area Health & Environment Program	410	1.4	369	1.4
Form Consent to Access Property for Residential Yard Assessment Trail Area Health & Environment Program	376	1.8	298	2.3
Air Quality Program: Lead (Pb) Trail Area Health & Environment Program	144	1.8	280	1.6
About the Program Trail Area Health & Environment Program	219	1.5	189	2.0
Air Quality Trail Area Health & Environment Program	143	2.1	154	1.6
Air Quality Program: Sulphur Dioxide (SO2) Trail Area Health & Environment Program	105	2.0	150	1.5
Governance & History Trail Area Health & Environment Program	109	1.7	149	1.9
Contact Trail Area Health & Environment Program	145	1.3	132	1.3

Figure 1. Top ten THEP pages for 2022-2023 by number of users showing a small overall decrease in traffic from 2021-2022 to 2022-2023.



THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

Reports

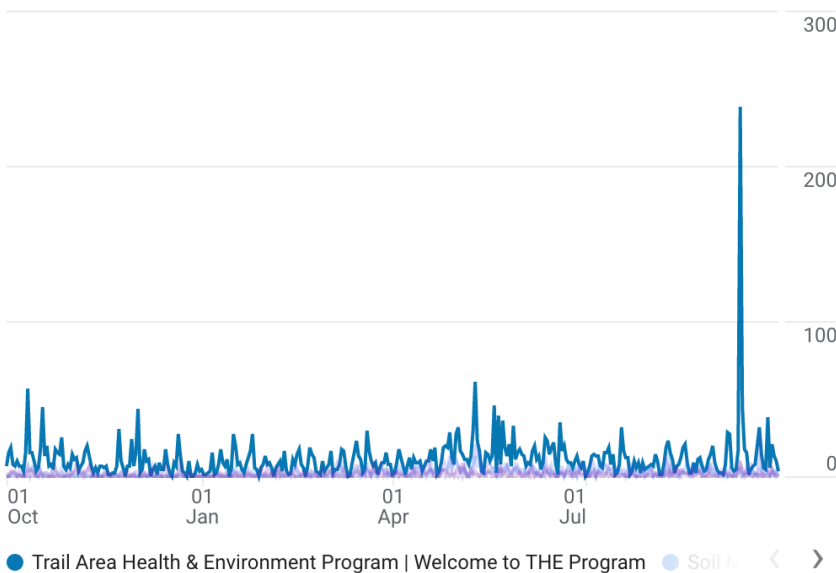
Table 3. Reports to highlight from 2022-2023 including number of users and views per user.

Report page title and screen class	# of Users	Views per user
THEP Strategic Directions Plan 2022 Trail Area Health & Environment Program	105	1.6
Cancer Patterns in Trail and Area (1992) Trail Area Health & Environment Program	81	1.2
Fall 2021 Blood Lead Report Trail Area Health & Environment Program	25	1.8
Teck Trail Operations Fugitive Dust Project Update 2022 Trail Area Health & Environment Program	28	1.6
Trail Area Health & Environment Program Document (2014) Trail Area Health & Environment Program	16	2.6
INTERVIEW with Dr. Nelson Ames Trail Area Health & Environment Program	37	1.1
Teck Trail Operations Fugitive Dust Project Update 2021 Trail Area Health & Environment Program	19	1.7
Trail Area Soil Management Program 2019 Annual Report & 2020 Soil Management Plan Trail Area Health & Environment Program	12	2.6

Note that the Fall 2022 Blood Lead Report was not online when during this time period. See a more comprehensive list of reports and their web traffic in Appendix A.

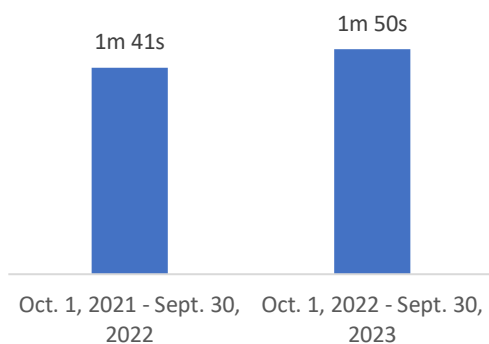
Website Traffic Over Time and Access Per Channel Group

Figure 2. Website user numbers between October 1st, 2022 and September 30th, 2023.



There was a significant increase in traffic to the THEP website around Sept. 12th when the annual Blood Lead Clinic took place. There were smaller increases in October and late November/ early December when THEP posted news releases, and in May, and June during soil testing promotions.

Figure 3. Average engagement time per user.



Regardless of whether users came to the THEP site from a link or a search, they spent 1 minute and 50 seconds on the website on average. This is a 9 second increase from the previous year.

THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

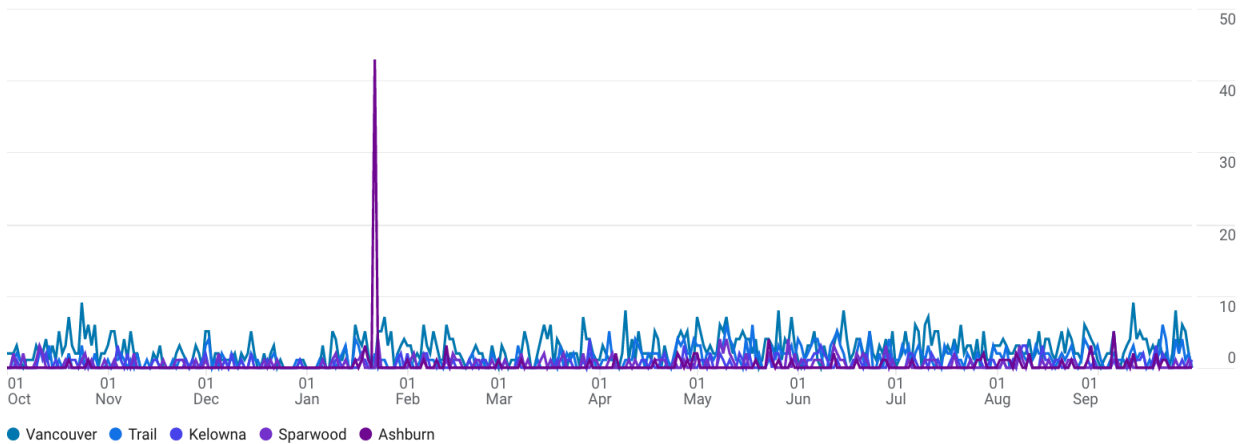
Table 4. Users per channel group.

Session default channel group ▾ +		↓ Users	Sessions	Engaged sessions
		3,636 100% of total	6,238 100% of total	3,221 100% of total
1	Direct	1,762	3,023	1,337
2	Organic Search	1,729	2,825	1,758
3	Referral	111	229	124
4	Unassigned	56	56	0
5	Organic Social	45	47	16

Website Visitors by City

Figure 4. Users by city over time showing that most users were from Trail or Vancouver, with lesser users from the Wider Region (Kelowna, Sparwood and Castlegar) and some from Toronto.

Users by City over time



Users in Ashburn were generally only engaged in January, and did not spend time on the site, indicating that perhaps they were linked from a specific group or event which may not be relevant to them.

Table 5. Number of users per city and average engagement times in seconds. Cities with more than ten users are included. Locations that are listed but show that users spent less than ten seconds on the site are in grey. Table 5 continues on the next page.

Town/City	2021-2022		2022-2023	
	# of Users	Average engagement time (sec)	# of Users	Average engagement time (sec)
Vancouver	437	164.1	574	139.6
(not set)	374	74.1	413	59
Trail	588	196.8	394	203.8
Ashburn	157	8	116	1.3

THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

Columbus	113	0	109	0.2
Kelowna	89	126.2	94	319.7
Toronto	79	55.7	92	70.9
Boardman	221	0	84	1.3
Sparwood	87	129.8	84	200.6
Castlegar	63	142	78	108.2
London	17	47.5	78	11.7
Cardiff			56	0.9
Surrey	41	59.7	55	99.2
Nelson	61	328.4	51	343.1
Salmon Arm	na	na	49	68.2
Calgary	61	71.7	41	99.1
Des Moines	21	0.3	36	9.2
Powell River	na	na	36	63.1
San Antonio	18	0	36	5.6
Cheyenne	19	0	33	1.6
Prince George	23	101.7	33	74.8
Quebec City	na	na	33	32
Chilliwack	na	na	32	46.3
Burnaby	23	35.7	31	62.6
Smithers	na	na	31	43.8
Vanderhoof	na	na	31	45.5
Adelaide	42	274.6	30	254.5
Gibsons	35	79.1	27	34.4
New York	16	52.6	27	9.5
Edmonton	24	113.6	26	137.3
Osoyoos	na	na	26	66.6
Abbotsford	14	132.9	25	220.4
Montreal	23	39.3	25	54.6
Moses Lake	na	na	25	3.4
Nanaimo	11	126.6	25	30.6
Whistler	na	na	24	20.8
Kamloops	na	na	23	163.5
Ottawa	24	47.9	23	112.9
Terrace	na	na	22	132.1
Victoria	25	78.4	21	65.2
Courtenay	na	na	18	26.3
Delta	na	na	18	43
Dublin	19	51.6	17	17.8
Penticton	17	145.9	16	156.5
Seattle	na	na	16	88.1
Grand Forks	16	111.7	15	131.2
Kitimat	na	na	15	154.5
Forest City	na	na	14	3.3
Hialeah Gardens	na	na	14	0
Washington	na	na	14	12.2

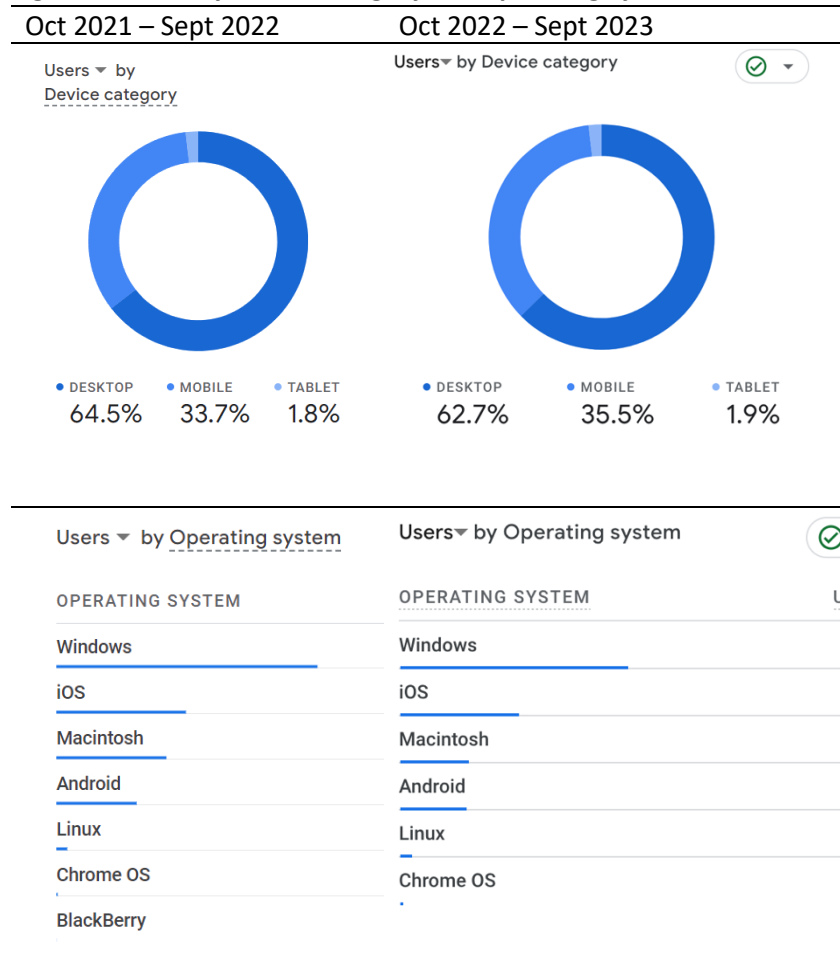
THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

Williams Lake	na	na	14	154.2
Ladysmith	na	na	13	26.8
Los Angeles	34	18.2	13	17.9
Roberts Creek	na	na	13	102.7
Bamfield	na	na	12	111.2
Boise	na	na	11	92.8
Boydton	na	na	11	23.3
Houston	na	na	11	8.3
Sydney	23	46	11	177.3
Campbell River	na	na	10	53
Halifax Regional Municipality	na	na	10	164.7
Parksville	na	na	10	1.4
Port Alberni	na	na	10	76.4
Prince Rupert	na	na	10	61.6
Squamish	na	na	10	77.6
Vernon	14	123.9	10	42.9

Users By Device Category and Operating System

Figure 5. Users by device category and operating system.



A majority of users accessed the THEP website from desktop computers and mainly on Windows operating systems. About a third of users visited from a mobile device, with less than 2% of users visiting from a tablet. This data is similar to the 2021 – 2022 data, the only notable differences are 100 more users are accessing the site from Windows operating systems and more than double the amount of people are using Chrome (8 users to 20 users).

THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

APPENDIX A

Table 1A. Blood Lead Report engagement data shows a small number of users viewing historic Blood Lead Reports, with 25 users viewing the most popular, 2021 Blood Lead Report. The number of viewers went down from 2021-2022 to 2022-2023. Note that the 2022 report was missing for the time of this analysis report.

Page Title	2021-2022		2022-2023	
	# of Users	Views per User	# of Users	Views per User
Fall 2021 Blood Lead Report Trail Area Health & Environment Program	33	1.5	25	1.8
Fall 2020 Blood Lead Report Trail Area Health & Environment Program	3	1.3	8	2
Fall 2019 Blood Lead Report Trail Area Health & Environment Program	3	1	4	1.3
Fall 2018 Blood Lead Report Trail Area Health & Environment Program	3	2	1	7
Fall 2017 Blood Lead Report Trail Area Health & Environment Program	4	1.5	3	1.3
Fall 2016 Blood Lead Report Trail Area Health & Environment Program	2	1	0	0
Fall 2015 Blood Lead Report Trail Area Health & Environment Program	2	2	1	1
Fall 2014 Blood Lead Report Trail Area Health & Environment Program	4	2.3	2	1
Fall 2013 Blood Lead Results Trail Area Health & Environment Program	3	2.3	2	1
Fall 2012 Blood Lead Report Trail Area Health & Environment Program	2	3	1	1
Fall 2011 Blood Lead Report Trail Area Health & Environment Program	2	2	1	1
Fall 2010 Blood Lead Report Trail Area Health & Environment Program	1	1	1	1
Fall 2009 Blood Lead Report Trail Area Health & Environment Program	2	2.5	1	1
Fall 2008 Blood Lead Report Trail Area Health & Environment Program	0	0	1	1
Fall 2007 Blood Lead Report Trail Area Health & Environment Program	2	4.5	2	1

Table 2A. Engagement data for Forms comparing 2021-2022 with 2022-2023 show a significant number of users are filling in forms on the THEP website. Most forms saw a similar amount of traffic from 2022-2021 to 2022-2023 with the Lead Safe Renovation Online Registration form dropping slightly in traffic from 2022-2021 to 2022-2023.

Page Title	2021-2022		2022-2023	
	# of Users	Views per User	# of Users	Views per User
Form Consent to Access Property for Residential Yard Assessment Trail Area Health & Environment Program	376	1.8	384	2.1
Form Lead Safe Renovation Online Registration Trail Area Health & Environment Program	89	2.3	66	1.8
Form Book a Home Visit Trail Area Health & Environment Program	58	1.4	62	1.2
Form Contact Wendy Trail Area Health & Environment Program	31	1.3	29	1.1

THEP Website Analytics

Reporting Period: October 1 2022 to September 30 2023

Table 3A. Engagement data for top two Media Releases comparing 2021-2022 with 2022-2023.

Page Title	2021-2022		2022-2023	
	# of Users	Views per User	# of Users	Views per User
Media Release "2022 Children Lead Levels Continue to Decline" Trail Area Health & Environment Program	3	1.0	34	1.2
Media Release "Trail Area Health & Environment Program Leading the Way!" Trail Area Health & Environment Program	17	1.2	12	1

Table 4A. Engagement data for the THEP newsletters comparing 2021-2022 with 2022-2023. There are a small number of newsletter subscribers that likely contribute to newsletters read online. Less people viewed older newsletters in 2022-2023 with one outlier, Spring 2020 with 56 views. Due to the reporting period ending September 30th, it is possible that a higher number of users viewed the Fall 2023 newsletter, after the reporting period.

Page Title	2021-2022		2022-2023	
	# of Users	Views per User	# of Users	Views per User
Fall 2023 Newsletter Trail Area Health & Environment Program	-	-	20	2.1
Spring 2023 Newsletter Trail Area Health & Environment Program	-	-	64	1.2
Fall 2022 Newsletter Trail Area Health & Environment Program	13	1.8	49	1.2
Spring 2022 Newsletter Trail Area Health & Environment Program	84	1.4	15	1.5
Fall 2021 Newsletter Trail Area Health & Environment Program	46	1.2	6	1.2
Spring 2021 Newsletter Trail Area Health & Environment Program	17	1.7	13	1.2
Fall 2020 Newsletter Trail Area Health & Environment Program	11	1.4	5	1.2
Spring 2020 Newsletter Trail Area Health & Environment Program	19	1.2	56	1.1
Fall 2019 Newsletter Trail Area Health & Environment Program	6	1	4	1.3
Spring 2019 Newsletter Trail Area Health & Environment Program	3	1.3	1	1
Fall 2018 Newsletter Trail Area Health & Environment Program	4	1.8	1	1
Spring/Summer 2017 Newsletter Trail Area Health & Environment Program	3	2	1	1

Learning & Sharing between communities with active lead smelting and mining:
A conference proposal for May 2024 (DRAFT Nov 27, 2023)

Conference Purpose:

To gain understanding of the current status of health & environment in communities with active lead smelting and mining with the intent to establish a global community of practice.

Background:

Communities that live in close proximity to active lead smelting and mining facilities share unique challenges when working toward the goal of thriving families, environment and economy. Acknowledging that no one group or organization can address the complex situation on their own, a diverse network of local and regional actors may come together to collaboratively reduce exposure to smelter and mining specific emissions such as Pb (lead) and SO₂ (sulphur dioxide) in addition to providing community-based education and programs to reduce children's blood lead levels, and ultimately improve peoples' health.

Desired conference outcomes:

- Participants learn what is taking place elsewhere and gain ideas and insights for their work.
- Relationships fostered; participants meet people to contact in the future to share /learn with.
- A core group steps forward to help establish a formal community of practice (CoP) on this topic.

Questions we may ask each other?

- What challenges do you face?
- Are the challenges you face the same or different from mine?
- What resources do you have that can be shared?
- What ideas do you have about how to move ahead?
- How can we be mutually supportive?

Methods of exchange:

- Topical panel discussion
- Round table
- Case specific sharing (pre-work to find out case information needs)
- Open space (topics decided in the moment, you go to the session that speaks to you)

Participants would include active members of industry, government, health from:

- Trail, BC, Canada
- Port Pirie, Broken Hill, Mt. Isa in Australia
- Hoboken, Belgium
- Torreon, Mexico

Proposed Date and Timing:

- May 2024; 2-3 days; 2-3 hours per session

Contact for more information:

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