

Central Okanagan Clean Air Strategy

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Air Quality Results 2015-2021

Outline

- Sources of pollution
- Clean Air Strategies Results
- Next steps



Sources of pollution

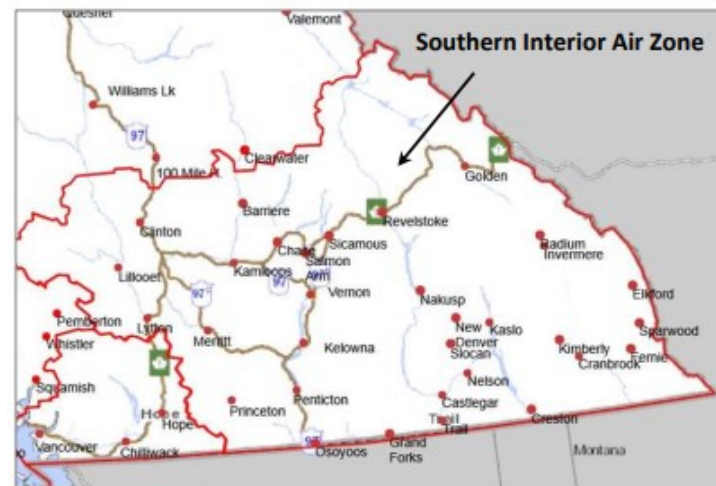
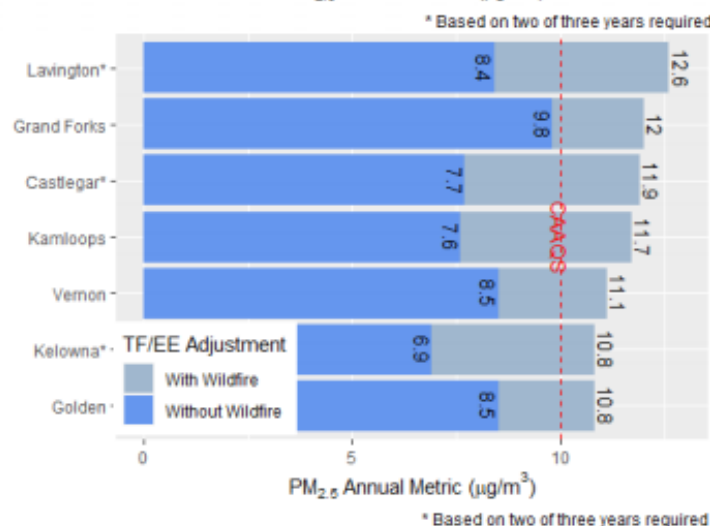
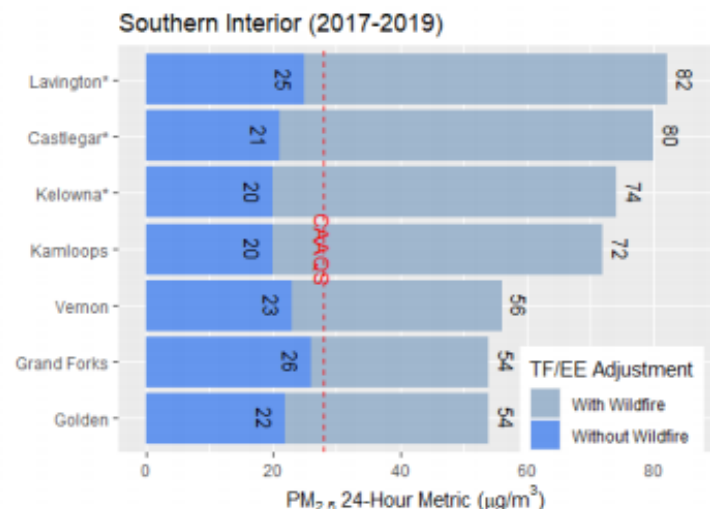
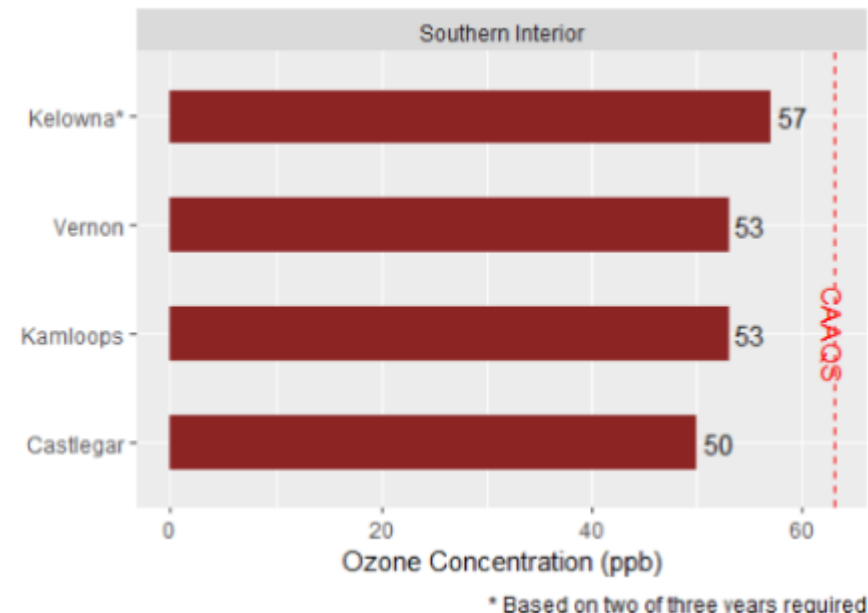


Figure 1. Southern Interior Air Zone.

PM_{2.5} concentrations in Southern Interior Air Zone. Upper plot based on 24-hour concentration (annual 98th percentile, averaged over 2017-2019). Lower plot based on annual mean concentration (averaged over 2017-2019). Red dashed lines identify CAAQS of 28 µg/m³ (upper plot) and 10 µg/m³. (lower plot).

Source- [BC Southern Interior Air Zone Report 2017-2019](#)



Ozone concentrations in the Southern Interior Air Zone, based on annual 4th highest daily 8-hour maxima, averaged over 2017-2019. Red dashed line identifies the CAAQS of 63 ppb

Source- [BC Southern Interior Air Zone Report 2017-2019](#)

Sources of pollution

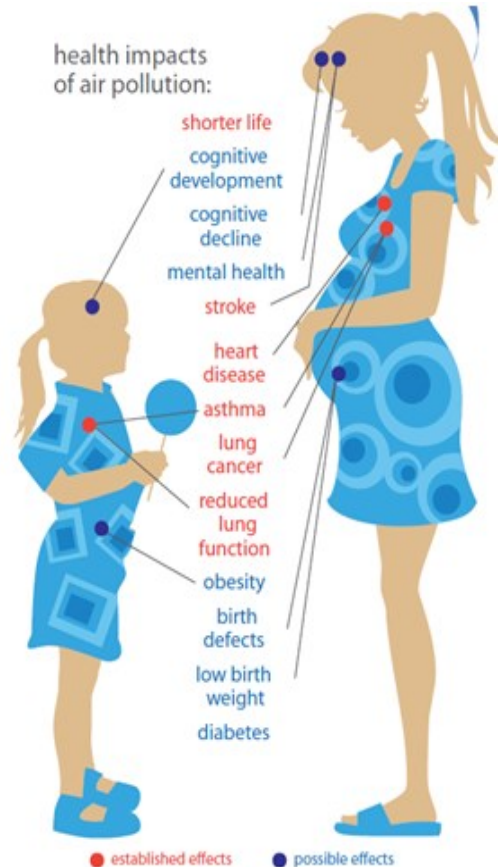
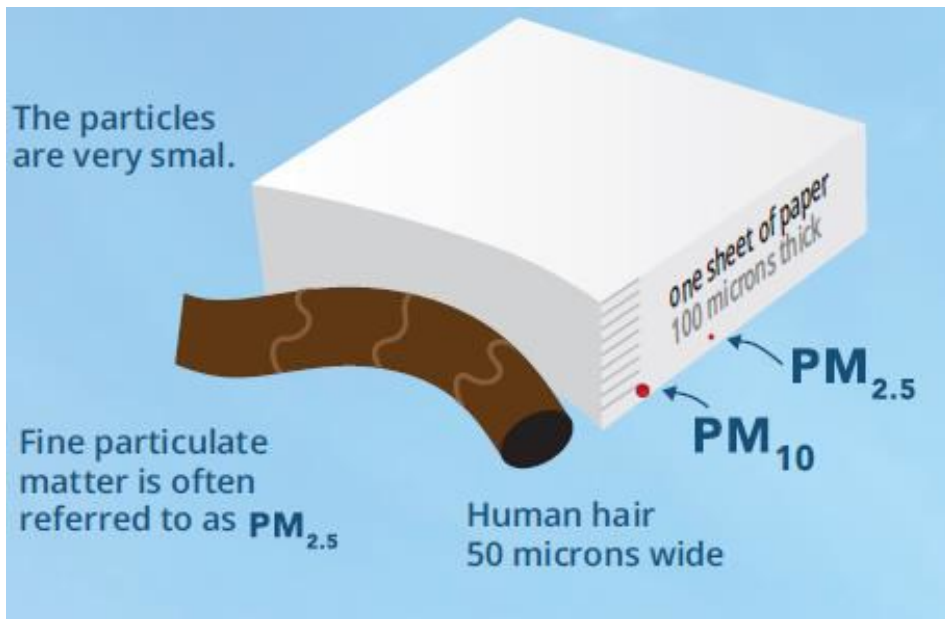


80% of health effects come from **long term** exposure

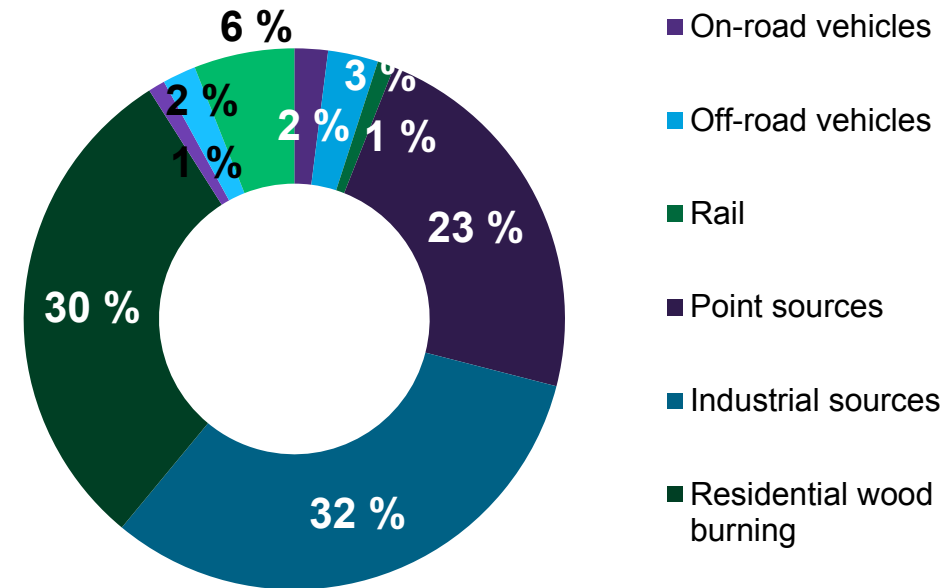


PM2.5 and Health

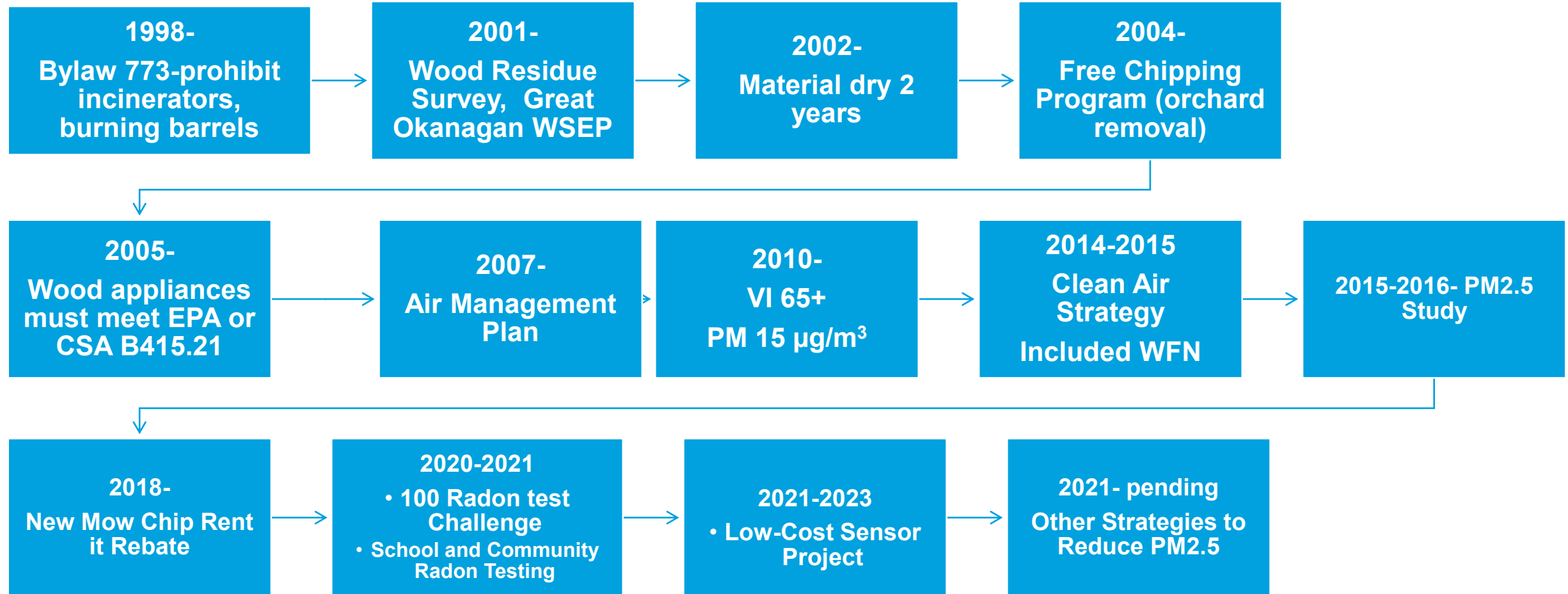
- WHO 2013
 - PM- classified as **carcinogenic to humans**



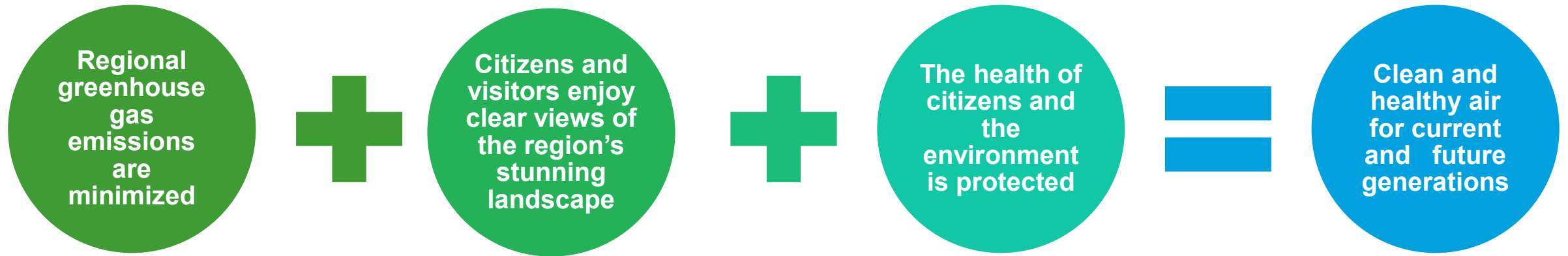
Sources of Fine Particulate Matter (PM_{2.5}) in the Central Okanagan, 2006



Air Quality Service 1998-



Clean Air Strategy 2015



- Municipal Official Community Plans (OCPs)
- Regional Growth Strategy
- 40+ Actions

Agricultural Chipping Program

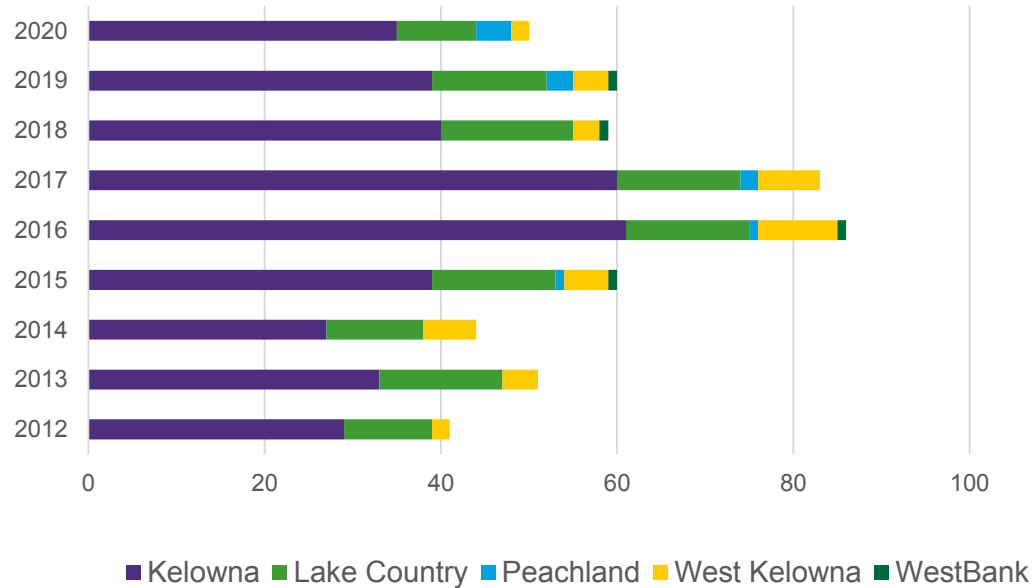
Orchard removal
-Large Volume

-\$60,000 budget
-For 2021 +\$40,000

-Free

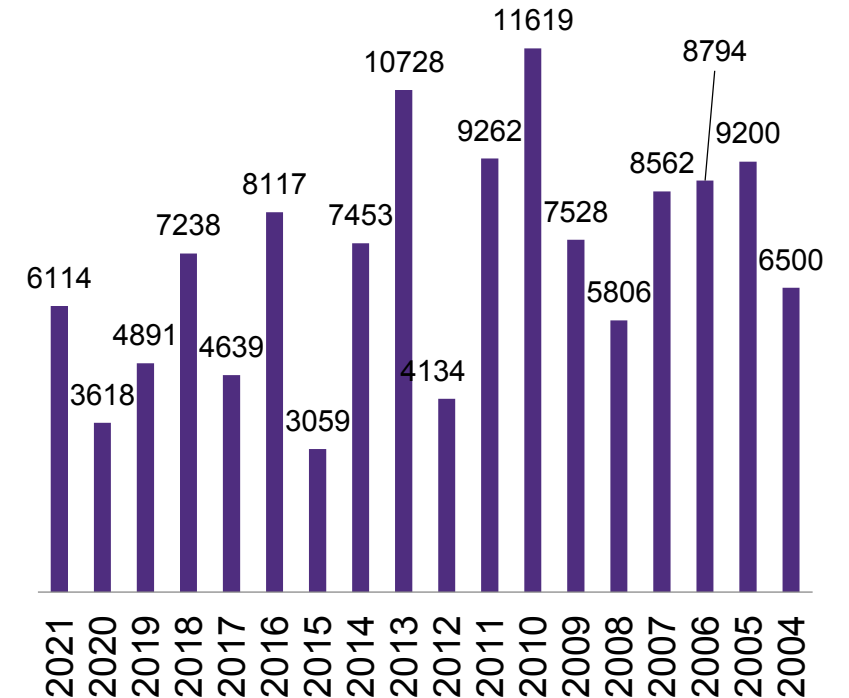
Average:
-59 register/year
-27 completed/year

Orchards registered by Municipality
2012-2020



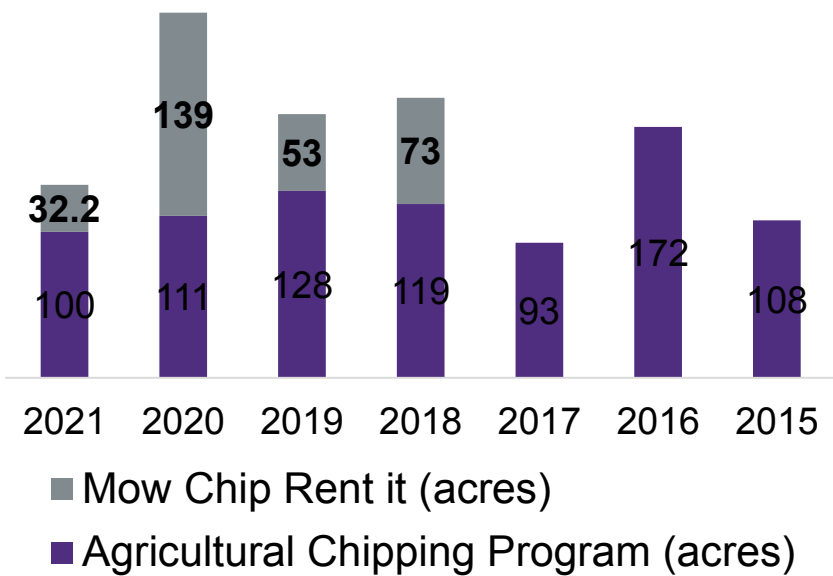
Volume of Wood Chips (m3) from Agricultural Chipping Program (2004-Sep 2021)

■ Volume of Wood Chips (m3)



Mow/Chip/Rent it Program

Total number of acres cleared through Alternatives to Burning (2015- September 2021)



Small Volume

-Since 2018
 \$20,000 budget

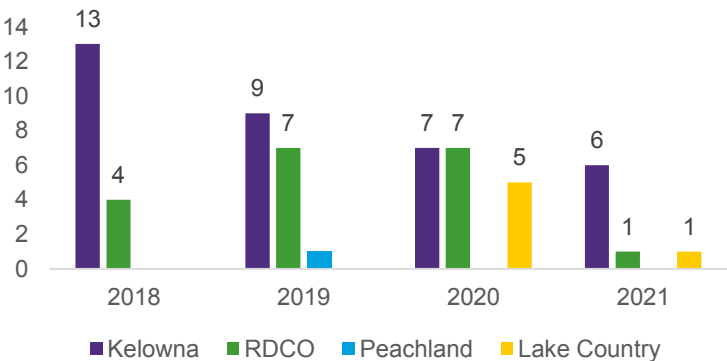
-80% of rental/service cost up to \$500
 -[Online Rebate Application](#) (invoice required)

-17 residents/farmers 1ha+ per year

Pollutants avoided-both Waste reduction programs

Pollutants	Average (Tonnes/year)
PM10	87.1
PM2.5	87.1
CO	370.2
NOx	2.8
SOx	0.3
VOC	31.3

Mow Chip it Rebate per Municipality 2018-Sep 2021



Best Burning Practices

•2019- RDCO created [Setback Map](#)

2020-Updated

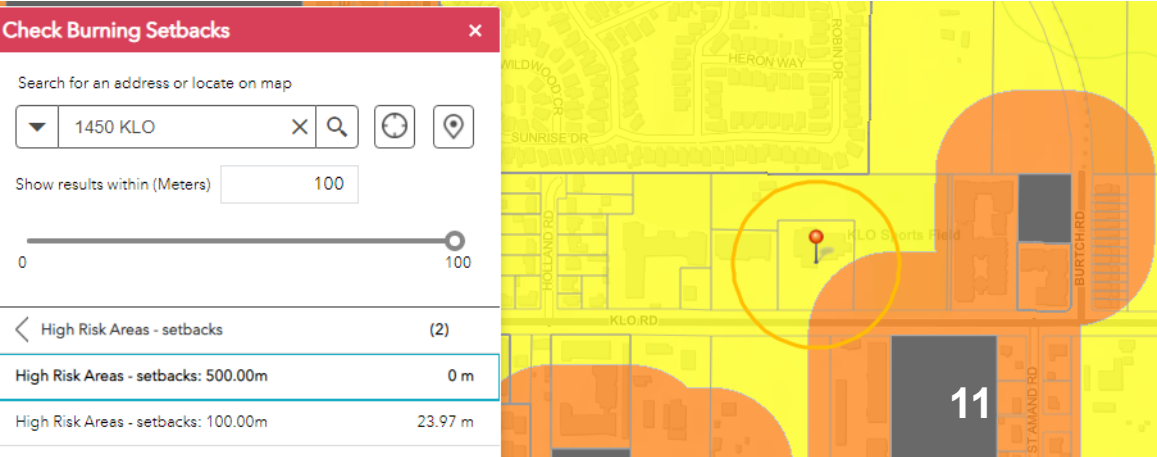
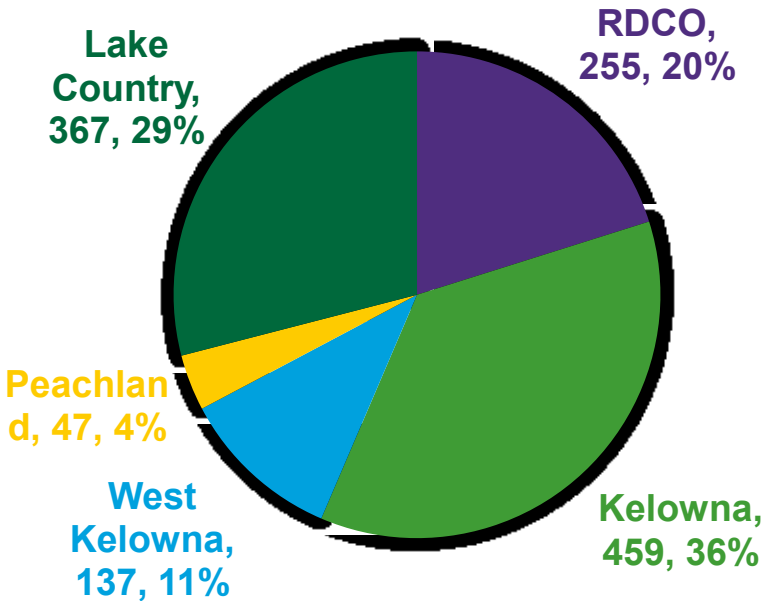
Burning Permits reduction

2020-New Brochures

• Open Burning Line (toll free) [1-855-262-2876](tel:1-855-262-2876)

• 51% from 2010 / 10% reduction from 2019
• 1,266 permits issued/year (average 2015-2020)

Burning Permits Issued/year
(average 2015-2020)



Woodstove Exchange Program (WSEP)

2001-2021
1978
exchanges

\$300,000+
Provincial funding to all RD

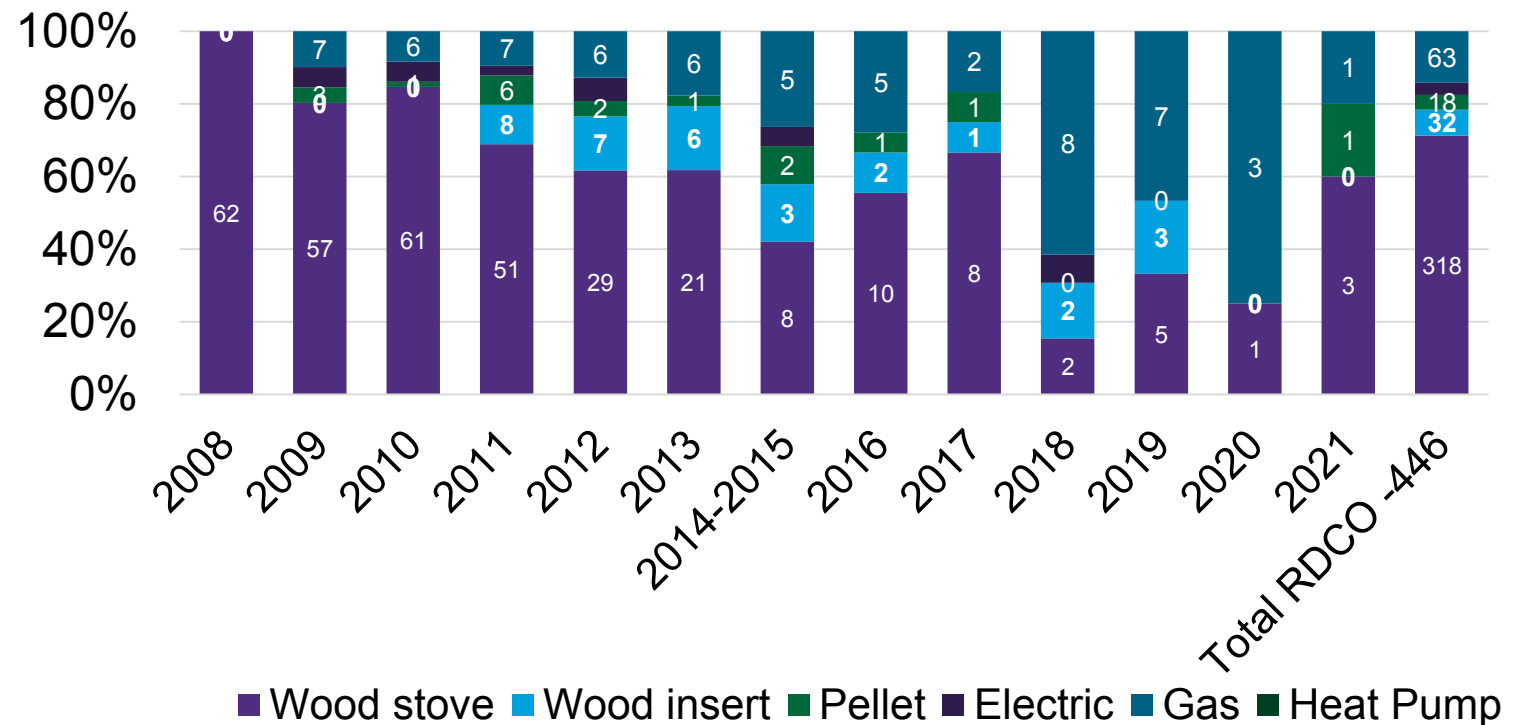
RDCO-746 (2001-)
RDOS-735 (2001-2016)
RDNO-305 (2001-2011)

2017- new incentives levels
\$250-\$400
As of Sep 15, 2021 new
incentive levels (\$300-\$1500)

2020 – New online [Burn It Smart Tool](#) & [Woodstove troubleshooting guide](#)
2021-Program evaluation
survey

- 4000-12,000 uncertified wood appliances in-use (248-1,060 tonnes/year)

Type of Exchanges in RDCO (2008-2021)



Emission reductions (Kg/year)

Woodstove	Insert/ pellet	Natural gas/electric
62.2	79	88.6

WSEP- Burn it Smart

WE'VE GOT A
PURR...FECT
IDEA FOR YOU



FREE GIFT
FOR THOSE WHO
PRE-REGISTER BY
PHONE OR EMAIL

FREE WOOD HEATING WORKSHOP
APRIL 11, 6:00 - 8:00PM
LAKE COUNTRY MUNICIPAL HALL - 10150 BOTTOM WOOD LAKE RD

LEARN ABOUT:
Planning an effective woodheat system
Purchasing & preparing your wood
Loading the firebox & chimney care tips
Proper burning techniques

To pre-register or for more information call 250 469-8408,
email airquality@kelowna.ca or visit regionaldistrict.com/airquality



**Breathe Easier
Burn Responsibly**

Wood Stove Exchange Program

Exchange your old wood stove for a new certified appliance and earn a cash rebate of \$250 (plus dealer discounts may apply).

Burning Best Practices

- Burn only clean, dry wood
- Never burn garbage
- Never burn green, painted or treat wood
- Properties greater than 1 hectare may apply for an open burning permit (Oct. 1 - April 30).

Contact Fire Dispatch if you suspect someone is burning without a permit, 250-469-8577.

For more information:
www.regionaldistrict.com/airquality
250-469-8408 | airquality@kelowna.ca



CLEAN AIR & COMFORT FOR YOUR HOME

CASH REBATE OF UP TO \$1,500
Rebate money depends on type of exchange. Money is limited.

EXCHANGE YOUR OLD WOOD STOVE FOR A NEW CERTIFIED APPLIANCE

For more information visit rdco.com/airquality.
To find participating retailers call (250) 469-8408 or send an email to airquality@kelowna.ca



rdco.com/airquality

TIPS FOR CLEAN BURNING



- Wood should be split, stacked and properly covered at least 6 months before using.
- If your wood hisses or moisture is released when burning, your wood is not yet dry enough. The wood moisture content should be 20% or less. You can find moisture meters in local stores.
- Never burn green, painted or treated wood.
- Burn only clean, dry wood.
- Never burn garbage.

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Clean Air and Safe Routes 4 Schools

Goal

- Increase participation in active transportation, reduce the number of motorized vehicles used for travel to and from school and reduce school emissions

Collaboration

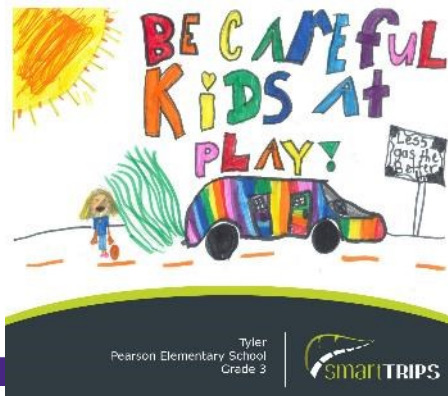
- 8- participant Schools
- Municipal Committee
- School Committee

School programming

- 5-year Action Plan

Infrastructure

- Minor/major infrastructure improvements



Radon awareness

2020-2022
55 schools
will be
screened

+20,000
School Screening
Health Canada funding

2020:
23-Public schools
8- Independent schools
2021:
22- Public schools
2- Independent schools

2020: 100 Radon Kit
Community Challenge:
1200+ free radon
detectors delivered
2021: 300 free radon
detectors available

Collaboration

Strategies



WHO
Guideline
100Bq/m³

Canadian
Guideline
200Bq/m³

- Health Canada- Interior Health –Canadian Association of Radon Scientists and Technologists (CARST)
- Take Action on Radon-SD23- BC Lung Association-Local Governments
- [Community Report 2020](#)- West Kelowna 207 kits delivered 36% above guidelines

- Radon campaign 2020&2021
- Newsletter/Social media
- Online pre-registration
- November- Radon Month Awareness

Radon awareness

BC Radon Repository

•West Kelowna
63% of houses tested are above WHO guidelines

A Radon guide for local governments is coming

Table 2: BC Radon Repository Compilation of Radon Data as of September 1, 2021

Community Health Service Area	No. of Buildings tested	Total No. of Buildings (and percentage) over 100Bq/m ³	Total No. of Buildings (and percentage) over 200 Bq/m ³	No. of Buildings (and percentage) over 600 Bq/m ³	Total No. of Buildings (and percentage) over 1000 bq/m ³	Dates
Central Okanagan Rural	103	75, 73%	49, 48%	16, 16%	7, 7%	2007-03-20 to 2021-03-22
Downtown Kelowna	179	41, 23%	7, 4%	2, 1%	1, <1%	2001-05-26 to 2021-03-24
Glenmore	304	174, 57%	70, 23%	4, 1%	1, <1%	1999-02-03 to 2021-04-26
Lake Country	241	183, 76%	114, 47%	21, 9%	9, 4%	2002-10-26 to 2021-06-16
Okanagan Mission	298	164, 55%	72, 24%	6, 2%	1, <1%	2001-11-20 to 2021-07-01
Rutland	96	45, 47%	13, 14%	0	0	2001-09-27 to 2021-04-03
West Kelowna	308	193, 63%	101, 33%	16, 5%	4, 1%	1999-02-19 to 2021-04-30
TOTAL	1529	875, 57%	426, 28%	65, 4%	23, 2%	

1- BC Radon Repository Compilation of Radon Data as of September 1, 2021:

- Total radon home tests completed in BC -**12,626**
- Total test results at or over 100 Bq/m³ -**6,021**
- Total test results over 200 Bq/m³ -**3,194**

2- For more information: [Health Canada Survey Report 2012](#)

PM2.5 Study

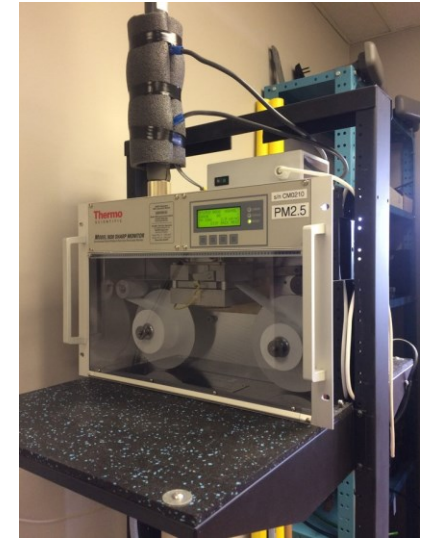
2015-
2016

Stationary and
Mobile Project

Ministry of
Environment/BC
Clean/ Environment
Canada /UBC/UNBC...

Project Cost \$111,000:
BC Clean-\$15,000
RDCO-6,500
In-Kind- 89,500

- Stationary monitoring with E-BAM
 - Kelowna City Hall
 - Johnson Bentley Memorial Aquatic Center



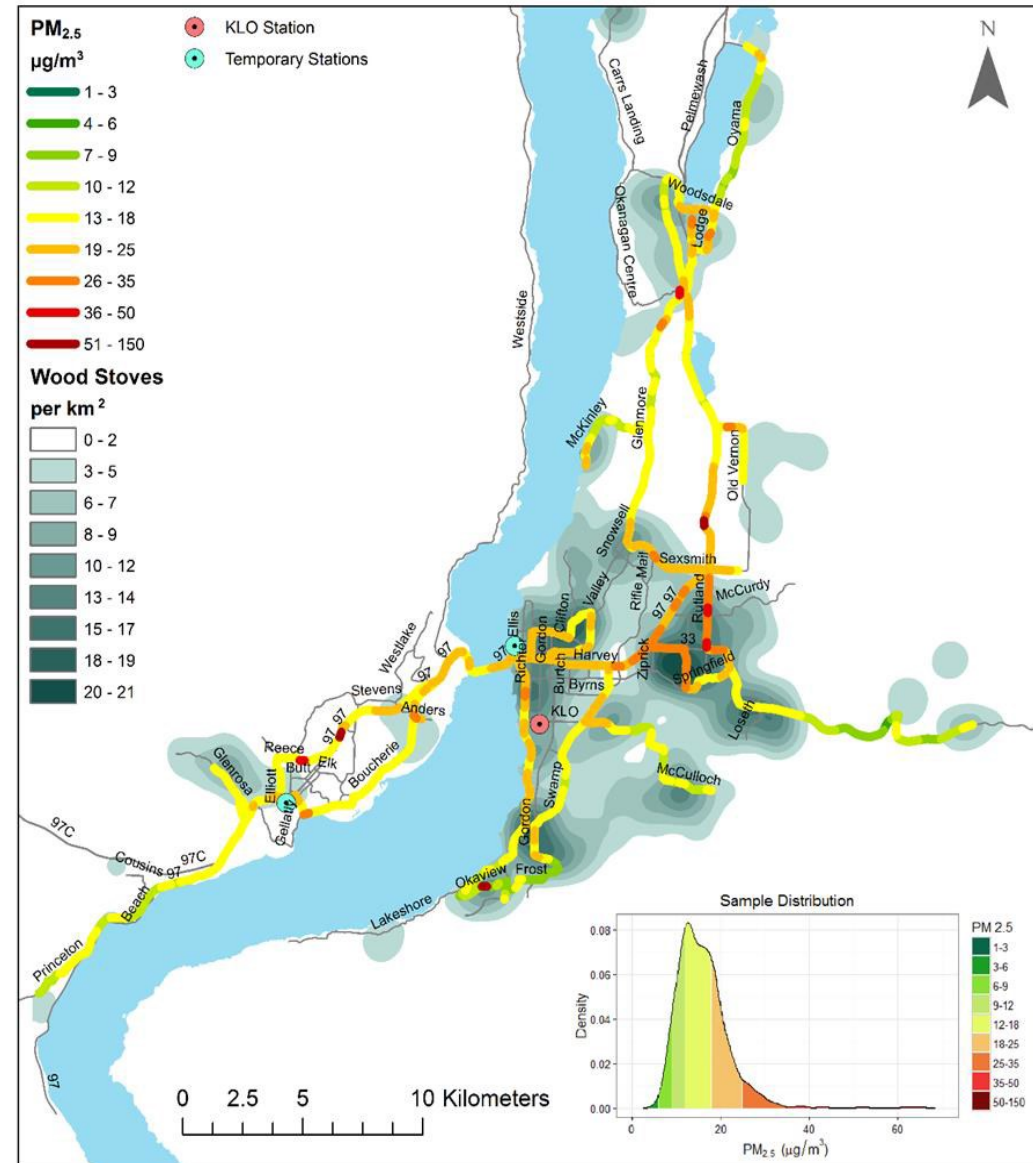
- Mobile monitoring with DustTrak & GPS
 - Route -213 Km
 - 26 trips



PM_{2.5} Study Results

- Stationary monitoring
 - Differences in meteorology and concentrations
 - Two BC objective exceedances
 - WK-20 hrs.
 - Kelowna 35 hrs.
- Mobile Monitoring
 - Hotspots were found

Central Okanagan PM_{2.5} Concentrations and Wood Stove Density for the entire period. (November 2015 - April 2016)



Monitoring Station Relocation

2019
to RDCO

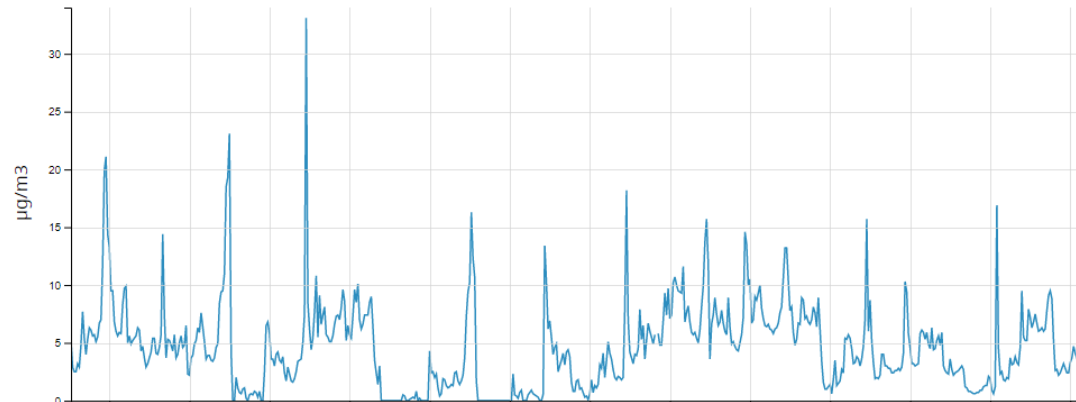
Since 1994
Okanagan College

Several sites
evaluated

New location
RDCO building

Latest data at: **Friday 30 April 2021 11AM (PDT)**. Current data is displayed below and you can select each one to view a 30-day graph.

PM2.5 5.7 µg/m3	PM2.5 (24hr) 5.85 µg/m3	PM10 17.5 µg/m3	PM10 (24hr) 14.99 µg/m3	O3 21.4 ppb	O3 (8hr) 7.06 ppb	NO2 5.1 ppb	NO2 (24h) 5.88 ppb	SO2 0 ppb	SO2 (24h) 0 ppb
Humidity 63 %	Wind Speed 1.2 m/s	Wind Direction 185 Degrees (°)							



Small Low-Cost Air Quality PM Sensor Pilot Project

2021-
2023
8
sensors

3 sensors at:

-Peachland

- Fire Station 101
in NWFR

-Fire Station 51 in
Joe Rich

5 sensors - SD23
buildings (TBD)

Collaboration

- Environment and Climate Change Canada (ECCC) SD23. -Local Governments

Objective

- Investigate the benefit of using emerging low-cost sensor technologies to measure Particulate Matter (PM)

Map

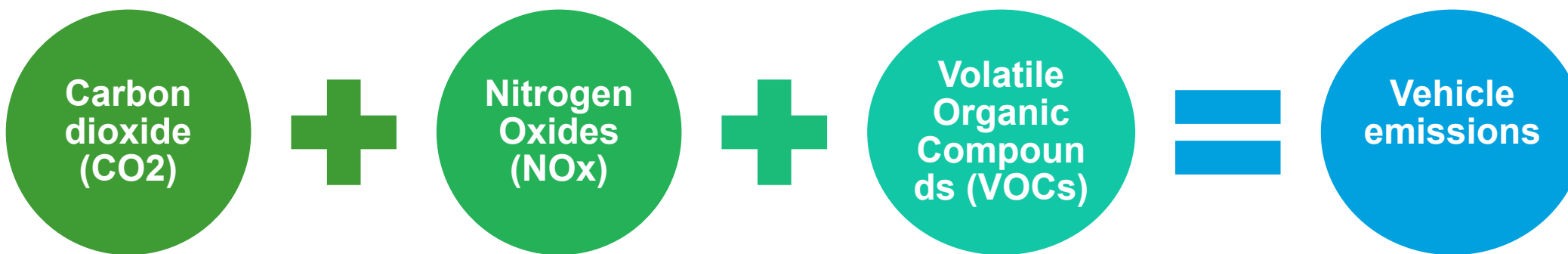
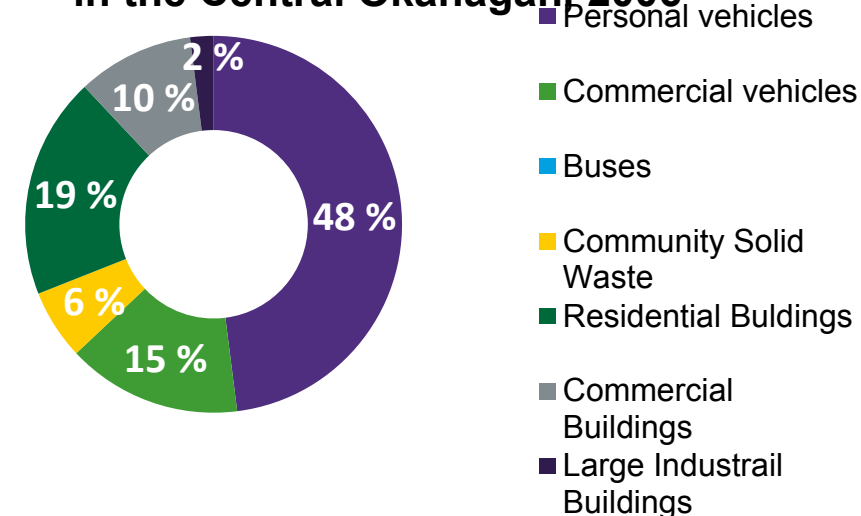
- Real-time PM_{2.5} data is available to the community via a map product:
(<https://cyclone.unbc.ca/aqmap>).



Idling awareness

- Occurs when a vehicle is in operation but not in motion.
- Idling Control Bylaw & Educational Campaign
Potential CO₂ reductions:
Central Okanagan -2,506 to 15,037 tonnes CO₂/year-
 - Kelowna-1,580 to 9,482 tonnes CO₂/year
 - Lake Country, Peachland and West Kelowna-920 to 5,519 tonnes CO₂/year-

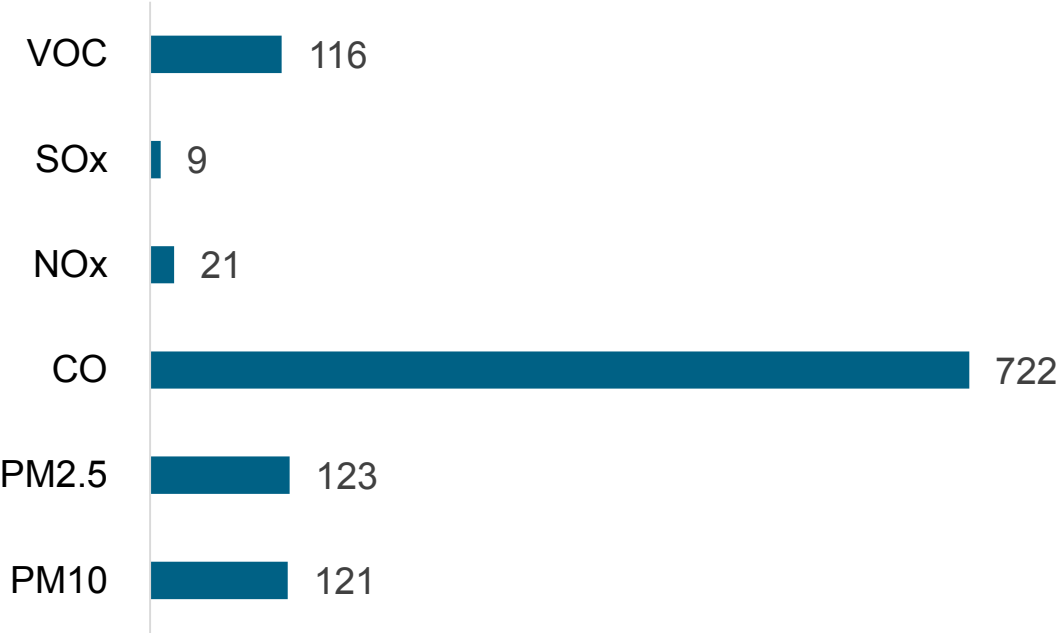
Major Sources of Community GHG emissions
in the Central Okanagan, 2006



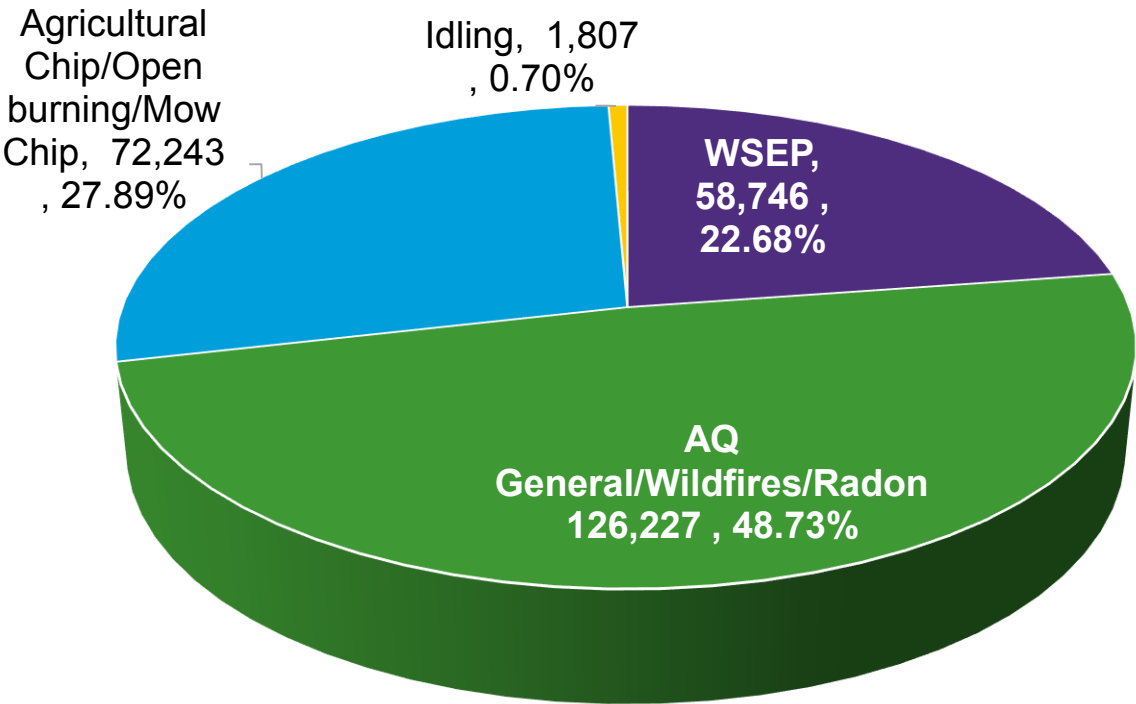
60 second rule

Pollutant reductions/outreach

Pollutant Reductions
Average tonnes/year (2003-Sep 2021)

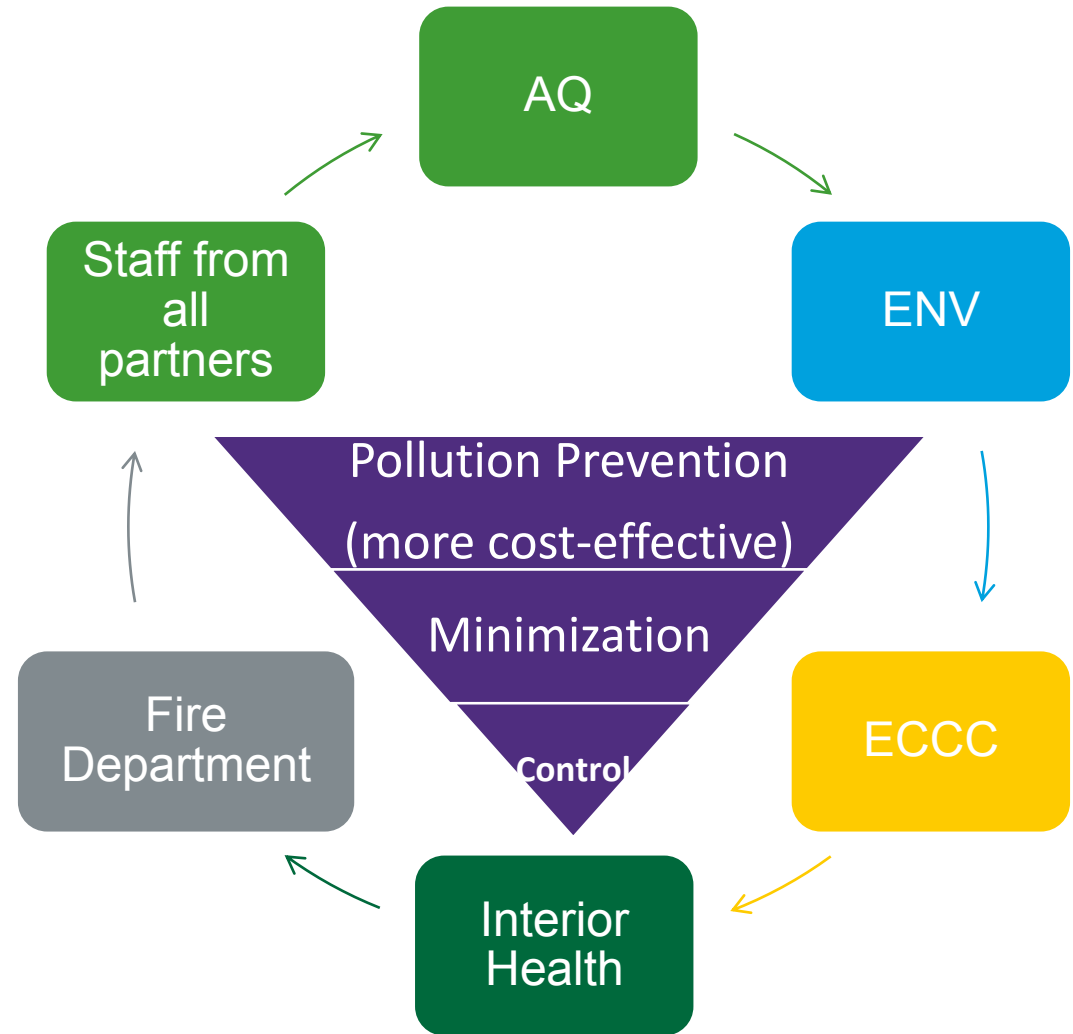


People reached through social media -
Average 2017-2020

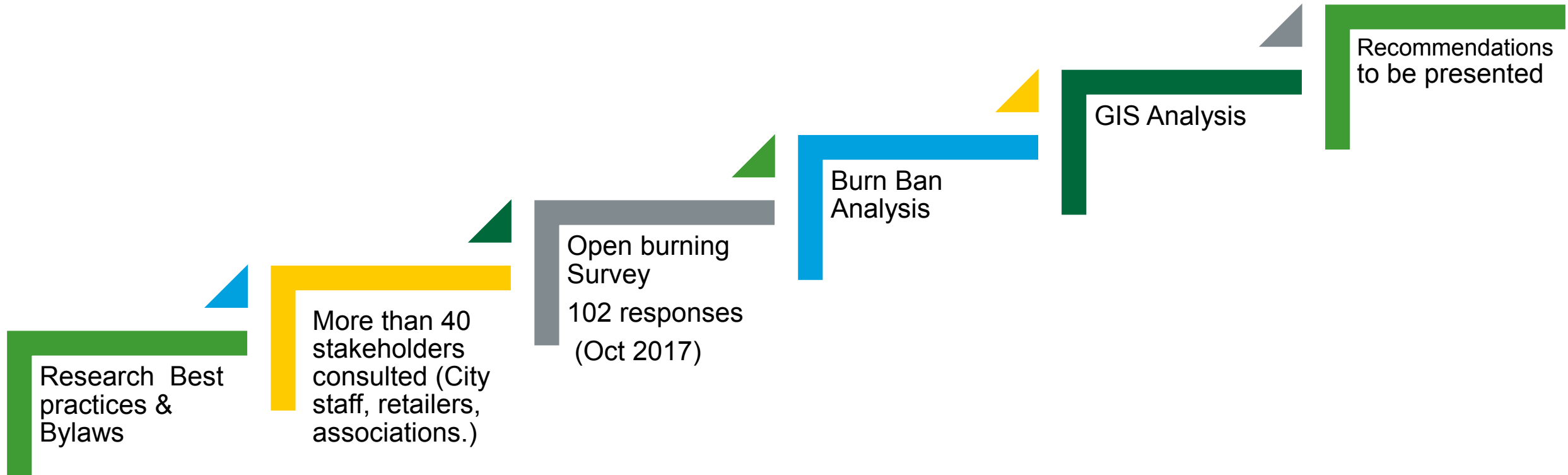


Air Quality Technical Committee

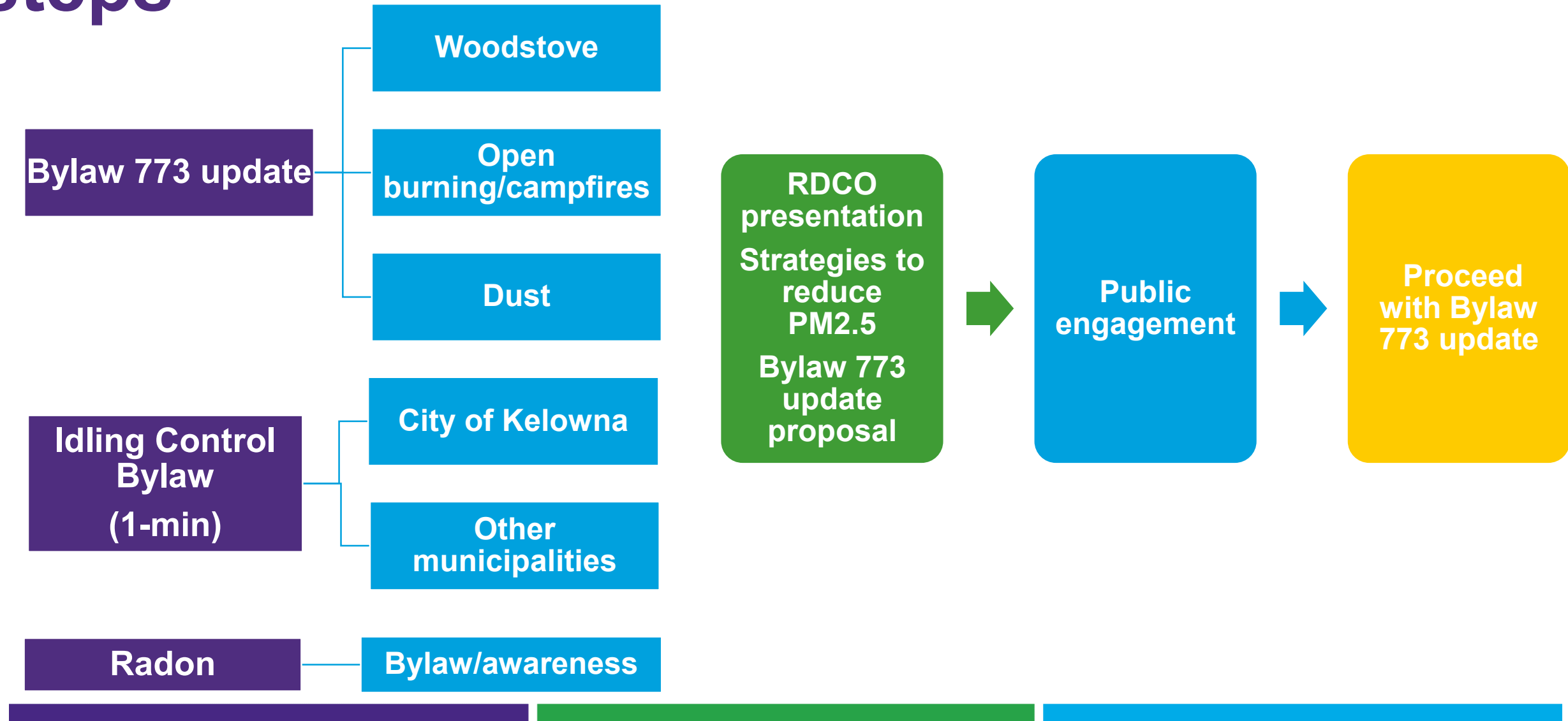
- Active since July 2015
- Idling Control Model Bylaw
- Guides:
 - Green Fleet
 - Dust Management
 - Sustainable Procurement
- Strategies to Reduce PM2.5



Strategies to reduce PM2.5 Process



Opportunities and next steps





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