



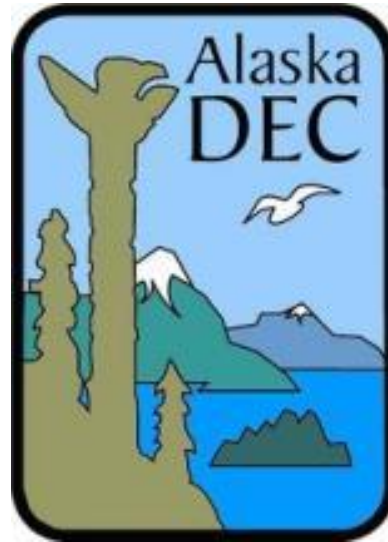
# Sharing Community Experiences

*ITEP Road Dust Management Series: Webinar 4 of 4*



November 5, 2020

# Acknowledgments



ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM





# Facilitator

## Mansel Nelson

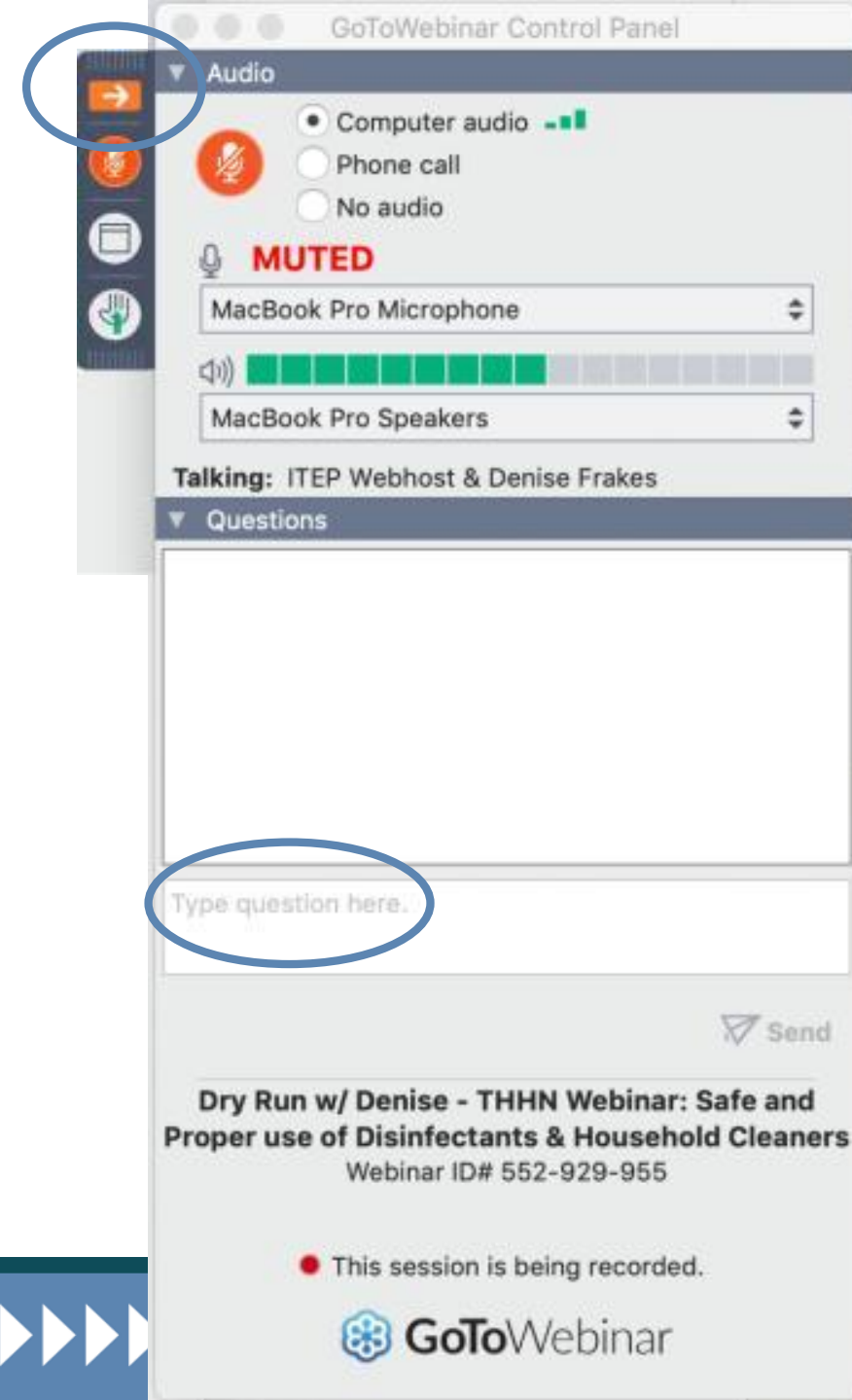
Institute for Tribal Environmental Professionals (ITEP)

[mansel.nelson@nau.edu](mailto:mansel.nelson@nau.edu)



# Welcome to Today's Webinar

If your webinar control panel on the upper right side of your screen is minimized, you can click on the orange arrow on the grab tab **to access the audio and questions box.**



The screenshot shows the GoToWebinar Control Panel interface. At the top, the title bar reads "GoToWebinar Control Panel". Below it, the "Audio" section is expanded, showing options for "Computer audio" (selected), "Phone call", and "No audio". A red "MUTED" indicator is visible. The microphone is set to "MacBook Pro Microphone" and the speakers to "MacBook Pro Speakers". Below the audio section, the "Questions" section is visible, featuring a large text input area with the placeholder text "Type question here." circled in blue. A "Send" button is located to the right of the input area. At the bottom of the panel, the webinar title "Dry Run w/ Denise - THHN Webinar: Safe and Proper use of Disinfectants & Household Cleaners" and the ID "Webinar ID# 552-929-955" are displayed. A red dot indicates "This session is being recorded." and the GoToWebinar logo is at the bottom right. A blue circle highlights an orange arrow icon on the left side of the control panel, which is used to maximize the panel.



# Webinar Logistics



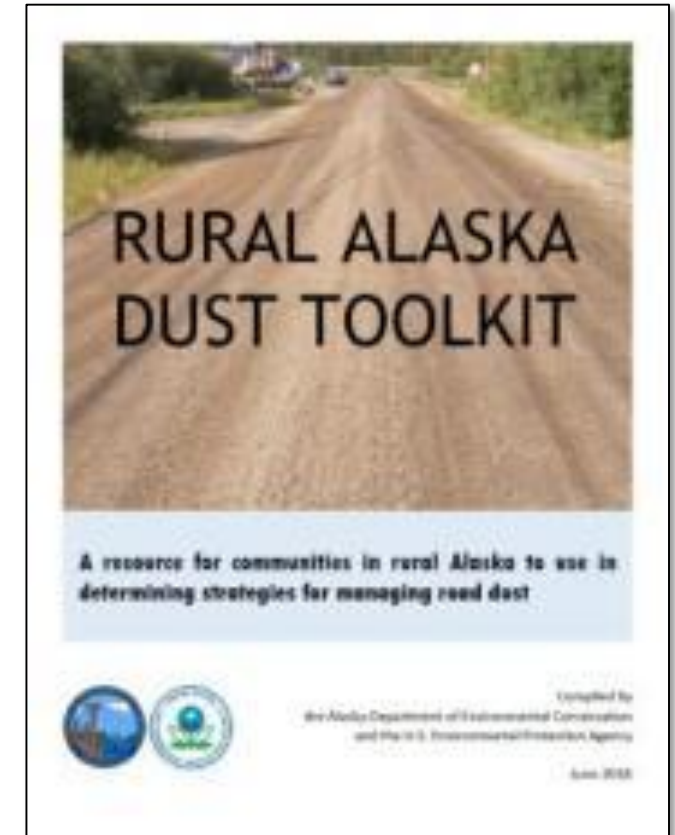
- Webinar is being recorded
  - URL for the recording will be in post-webinar email and posted at <https://bit.ly/RoadDust>
- Questions
  - Use the Question box in the control panel to submit questions any time
  - You can email [Krauss.Kayla@epa.gov](mailto:Krauss.Kayla@epa.gov) with any further questions
  - We will pause after each presenter for questions on their section only
  - There will be time for all remaining questions at the end of the webinar
- Please complete the webinar feedback survey
  - Link for the feedback survey will be in post-webinar email
- Training Certificates are available for everyone who completes all 4 webinars
  - Webinars #1-3 have been recorded and are available to watch online



# Webinar Materials

The following materials from the webinar will be available via a URL that will be sent in the post-webinar email:

- Slides from Webinar #4
- Presenter Bios
- Rural Alaska Dust Toolkit





# Presenters



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Grants Coordinator

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**Paul Goodfellow**

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**Billy Connor**

University of Alaska, Fairbanks  
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# Poll 1

**Which of the following best describes your role?**

- a) IGAP or other Environmental Staff
- b) Transportation Coordinator
- c) Community or Tribal Leader
- d) Federal or State Partner
- e) Other





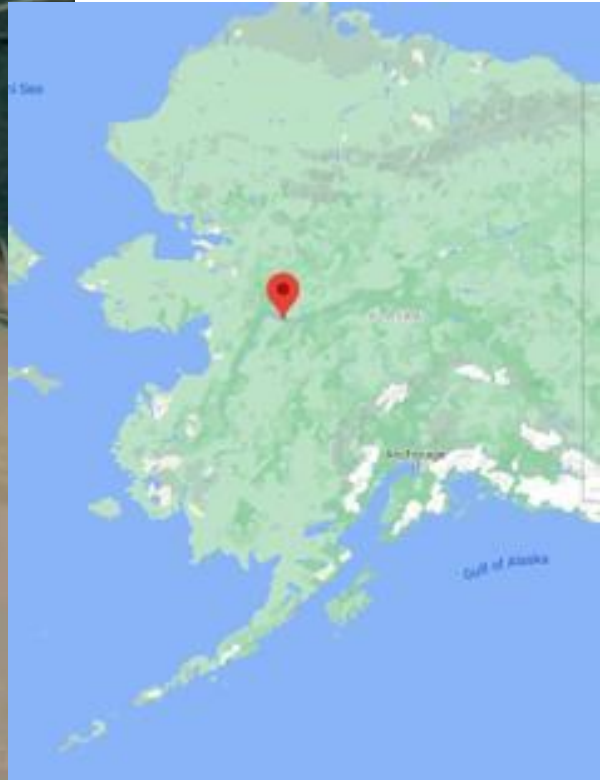


# Road Dust Control Experience in Galena, AK

The Good, the Bad, and the Ugly

# Geographical Situation

- About 500 year-round residents
- 250 extra students during school year, thanks to boarding school
- 300 miles West of Fairbanks on the Yukon River
- Off the road system; accessible by small passenger planes year-round
- Barge accessible on the Yukon between late May to mid September for bulk transportation







Galena

Image © 2020 CNES / Airbus  
Image © 2020 Maxar Technologies  
Image Landsat / Copernicus

Google Earth





Galena

Image © 2020 CNES / Airbus  
Image © 2020 Maxar Technologies  
Image Landsat / Copernicus

Google Earth







# Geographical Situation

- Galena lies in an alluvial floodplain
- Thick deposits of sediments (6-60 ft deep)
- Mostly fine silt with some sand, gravel, and minor quantities of clay
- Very fine dust
- Gravel is relatively scarce on surface

# Collaborating Agencies

- Galena is a First Class City
- Roads are owned and/or maintained by both the State and City
- Tribe supports efforts through FHWA/TTP program
- State: 15 miles total, 4.3 miles in residential sensitive areas
- City of Galena: 6.5 miles

# The Problem

- Galena is a small hub for surrounding villages with relatively high amount of infrastructure per capita. (~20,000 sq miles)
- Heavy summer activities for contractors, agencies, etc.
  - FWS
  - BLM
  - Construction projects
  - Air Force Base remediation projects
- Very fine dust during Dry Season (May - October)
- Low winds during dry season; high dust suspension
- Typical dust related health issues
- Clinic, two schools, Headstart, and Elder Center serving the surrounding villages



# What We Do for Dust

1. Dust Control with Palliatives
2. Slow Down Program
3. Air Monitoring

# 1. Road Palliatives



# The Previous Situation

- Paving/sealing was not affordable
- Just watering the roads was not sufficient and costs were elevated
- State provided sporadically Calcium Chloride for their roads, but this was funding dependent and unreliable
- City didn't have funds to purchase CaCl
- Remoteness makes CaCl transportation costs very expensive
- >40% of total cost is transportation

# Actions Taken

- In 2017 the Tribe decided to participate, purchasing some CaCl to supplement State provided
- In 2018, an MOU was signed between the Tribe and City of Galena to set the basis for collaboration
- Louden Responsibilities:
  - Purchase Calcium Chloride
  - Provide administrative support
  - Provide technical assistance regarding application, ratios, prioritization, etc.
- City Responsibilities:
  - Logistics (transportation from Barge landing, storage, etc)
  - Application labor and equipment

# Amounts and Costs

- In 2018 and 2020 tribe purchased 30 supersacks per year (66,000 lbs) of CaCl for a cost of \$35,000/yr.
- In 2021, funds are secured to increase this amount to \$42,000
- This amount should be enough for treating up to roughly 6 to 7 miles
- Prioritizing was necessary, so most sensitive areas were identified (Elder Center, Clinic, schools, higher traffic areas)



# Challenges

- Inter-organization coordination
- Incorrect application
- Insufficient staff
- Inadequate equipment
- Insufficient funding for all roads
- Unreliable participation from State
- Elevated costs of transportation (\$0.25/lb - \$550/sack)

## 2. Slow Down Program

# Slow Down Program

- The Slow Down program was intended to have 3 parts:
  1. Street signs
  2. Radio ads, posters, community outreach via newsletter
  3. Schools education
- Due to high turnover, only 1) and partially 2) have been implemented



# Slow Down Program: Street Signs

- In 2018 we placed 100 plus signs all over town, using mostly electric poles owned by City
- Some mobile signs were created for events, tricky locations, etc.
- Signs were corrugated plastic (36x24) @ \$7/each and aluminum (36x24) @\$23/each, shipping included
- It has been three years for some, and still holding up well
- Signs are placed in April and removed in October/November to increase impact
- Wind is an issue
- Usually takes 1-2 days to set them up and take them down
- Labor charged to IGAP grant and youth programs conducted by Tribe







# Slow Down Program: Posters

- Posters 24x36 printer @ \$2/each
- Engage locals to produce images
- 100 posters posted around town
- Same flier was intended to be part of the mail newsletter
- Funding from EPA/IGAP

*Same vehicle, same road, same day.  
Can you find the differences?*

	<b>15 MPH</b>
	<b>25 MPH</b>
	<b>35 MPH</b>
	<b>45 MPH</b>

*Respect the right of others to  
breathe clean air.  
Please **SLOW DOWN***

**SLOW  
DOWN**  
HELP KEEP  
DUST DOWN

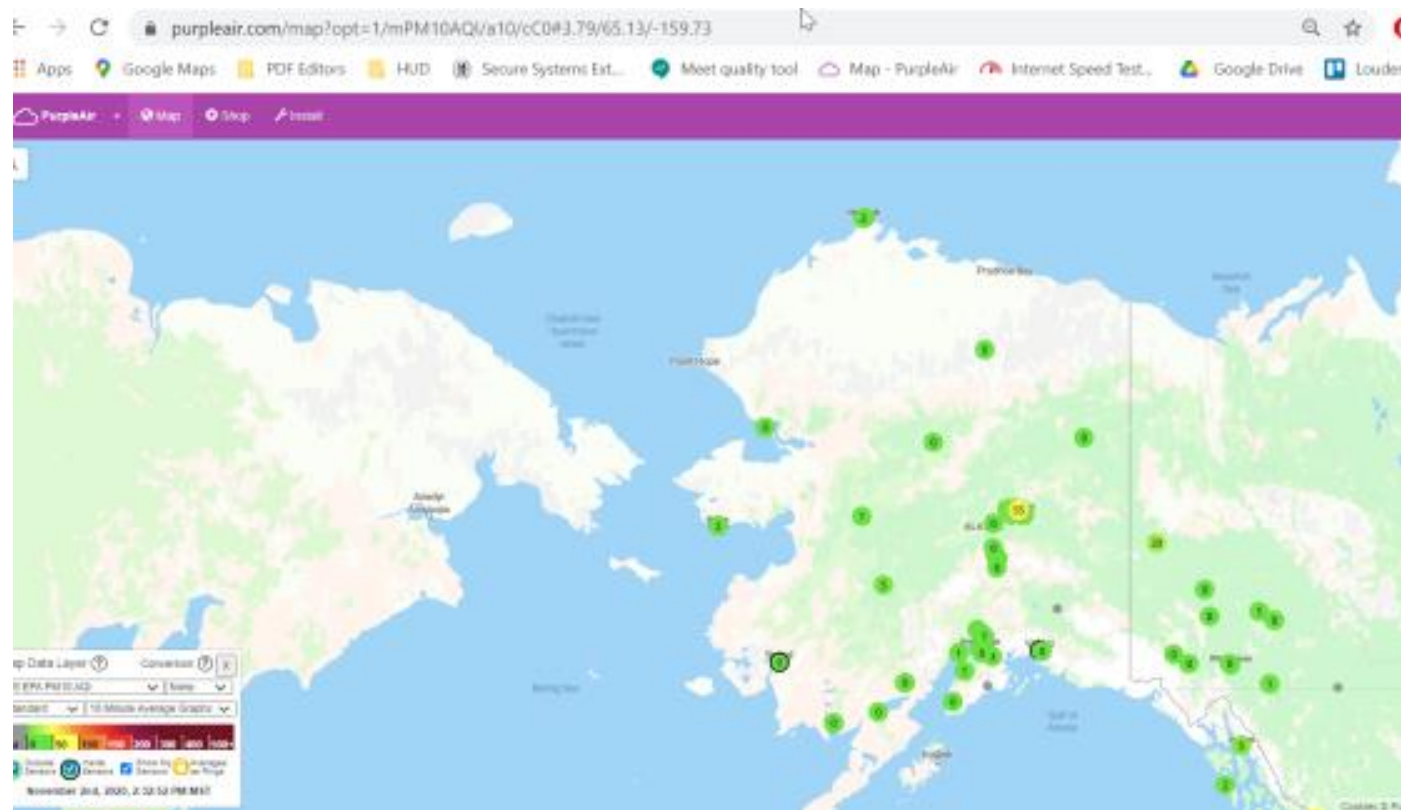
# Slow Down Program: Work in Progress

- Local radio campaign
- Dedicated newsletter to each PO Box for Dust Control
- Re-post in Social Media
- Coordination with School District to make presentations in schools

# 3. Monitoring

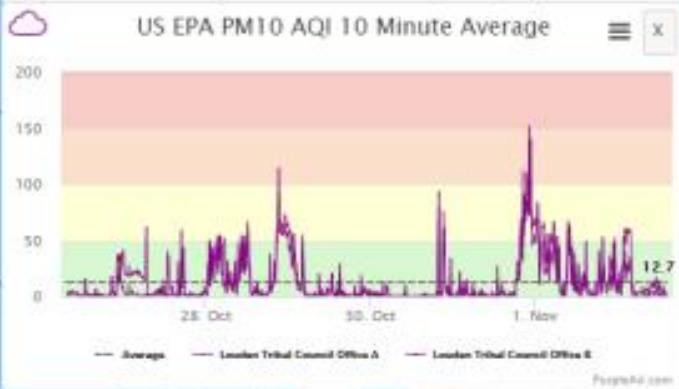
# Air Quality Monitoring

- Borrow equipment from NAU/TTP to generate Air Quality baseline
- Installed a PurpleAir monitor, with live online reporting capabilities





Click and drag to zoom in. Hold down shift key and drag to pan.



On November 2nd, 2020, 2:32:10 PM MST

Real Time US  
EPA PM10  
AQI is now **1**

0-50 Air quality is considered satisfactory, and air pollution poses little or no risk

Sensor: Louden Tribal Council Office

1 5 10 25 50 100 200

Get This Widget

Map Data Layer Conversion

US EPA PM10 AQI None

Standard 10 Minute Average Graphs

0 50 100 150 200 300 400 500+

Outside Sensors Inside Sensors Show My Sensors Averages as Rings

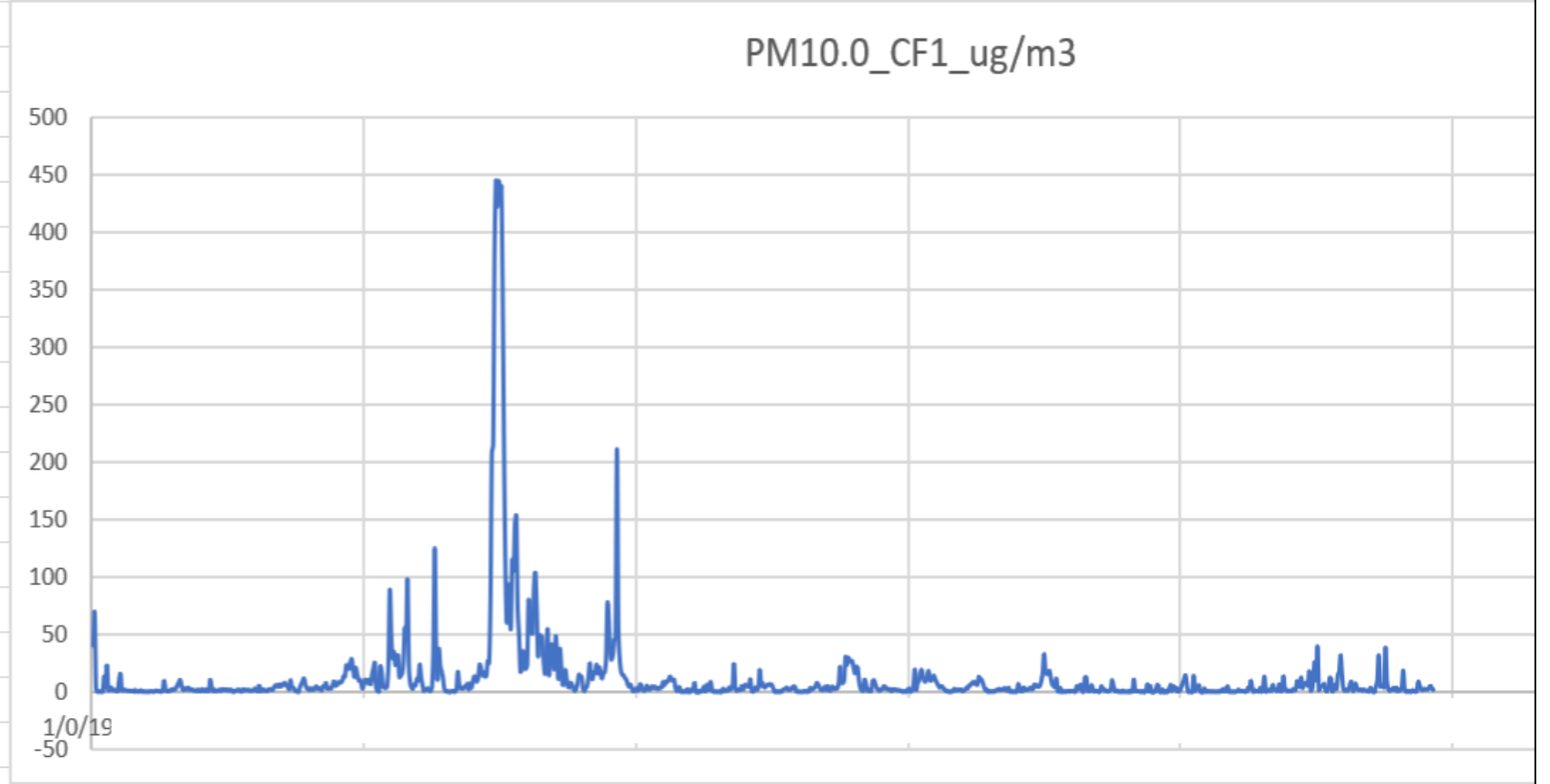
November 2nd, 2020, 2:32:10 PM MST

ALASKA

Fort Yukon



created_at	PM10.0_CF1_ug/m3
2019-05-01 16:00:00	40.33
2019-05-01 20:00:00	68.63
2019-05-22 00:00:00	2.98
2019-05-22 04:00:00	0.18
2019-05-22 08:00:00	0.18
2019-05-22 12:00:00	0.17
2019-05-22 16:00:00	0.21
2019-05-22 20:00:00	0.38
2019-05-23 00:00:00	13.38
2019-05-23 04:00:00	3.93
2019-05-23 08:00:00	22.82
2019-05-23 12:00:00	1.5
2019-05-23 16:00:00	1.89
2019-05-23 20:00:00	3.61
2019-05-24 00:00:00	1.63
2019-05-24 04:00:00	1.67
2019-05-24 08:00:00	1.41
2019-05-24 12:00:00	0.61
2019-05-24 16:00:00	0.85
2019-05-24 20:00:00	10.38
2019-05-25 00:00:00	15.23
2019-05-25 04:00:00	1.4
2019-05-25 08:00:00	1.40



# PurpleAir Monitor in Galena

- Not intended to be a high precision measure, just a relative estimation
- Extremely convenient: PM2.5, PM10, Temperature, Humidity, etc.
- Reporting online 24/7
- Placed outside the Tribal Office, 50ft from a relatively busy street  
Installed as recommended by manufacturer
- Very affordable (\$250/each)
- It has shown to be very reliable 20 months up with almost no interruptions
- Worked well during extreme winter

# Contact:

Luis Echenique

[luis.echenique@loudentribe.com](mailto:luis.echenique@loudentribe.com)

Louden Tribal Council

Galena, AK 99741

## Poll 2

**What kind of dust monitoring have you done in your community? (select all that apply)**

- a) Visual/observation-based monitoring
- b) Monitoring using an air quality sensor (ex. PurpleAir, Wynd, etc.)
- c) Monitoring with an air sampler (ex. DustTrak)
- d) Monitoring with a reference method (ex. BAM, hi-vol, etc.)
- e) None



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# Port Heiden Road Dust

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**Presented by:** Paul Goodfellow

Alaska Department of Environmental Conservation,  
Division of Air Quality



# Outline

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- Introduction
  - Background: Port Heiden and the Rural Alaska Dust Survey
- Overview of Dust Teleconference and Community Response
- City Council Response to Briefing
- Dust Control Policy Outcomes

# Port Heiden

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# Introduction

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- Port Heiden reached out to ADEC in Fall 2018 for assistance with road dust planning
- City reported long-standing problems with road dust:
  - Submitted information to ADEC through multiple years of dust surveys
  - Area of AK Peninsula undergoing climate change; more severe dust season

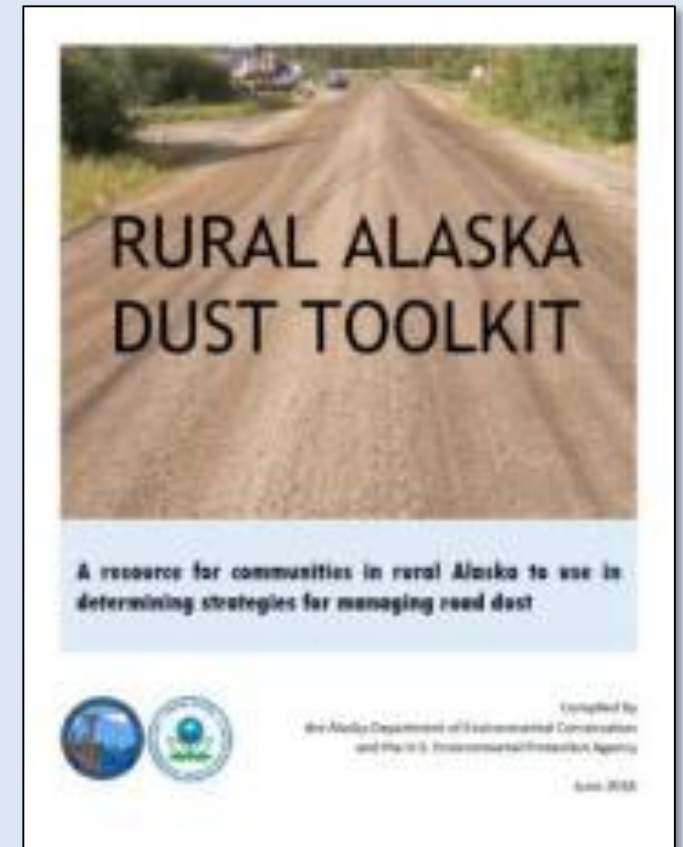




# Introduction

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- Early engagement with Environmental Officer soon after; phone calls to discuss dust planning and environmental strategy
- Forwarded Road Dust Toolkit to Environmental Officer, City Council as primer on dust planning and mitigation
- Leaders expressed interest in further discussion with ADEC



# Introduction

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- ADEC was already planning a webinar/teleconference series to discuss dust control strategies
- Meeting was originally scheduled for 30 minutes; ended up running for two hours
- City Council was extremely interested in long-term strategies and mitigation

# Overview of Teleconference and Community Response

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- Most of the teleconference consisted of a general overview of the Road Dust Toolkit; different strategies community could take to controlling and managing dust
- Large review of non-scientific monitoring and non-palliative control strategies



# Overview of Teleconference and Community Response

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- Port Heiden is a small, rural community located off the road system
- Transporting Calcium Chloride palliative is prohibitively expensive
- Focus was on use of speed limits and driver education as an inexpensive alternative
- Use of local dust observations in place of traditional monitoring



# Overview of Teleconference and Community Response

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- Additional questions about local Brownfield site
- Concerns regarding PCB exposure from contaminated roadbed
- ADEC Air Quality held meeting with the Army Corps of Engineers, ADEC-Contaminated Sites to get clean-up status update for Town Council, Tribal Council



# City Council Response to Briefing

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- City Council and Environmental Officer began planning dust surveys of local roads
- Most significant change: identification of a source of gravel to replace pumice on roadbeds
- Combined with speed limits, new roadbed material likely to reduce dust significantly





# Dust Control Policy Outcomes

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- Environmental Officer reported that staff turnover had resulted in a temporary pause to road surveys
- Roadbed material changes over the last year; road dust reduction
- Summer 2020 weather mild across Western AK; fewer dust complaints overall
- Not likely to be permanent given ongoing trends in Western AK towards drier, dustier weather during summer
- Contact should be maintained to ensure local dust situation does not degrade again

# Thank you!!

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*State of Alaska, Department of Environmental Conservation  
Air Quality Division  
Non-Point Mobile Sources*

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## Poll 3

**Who is your target audience for road dust awareness, education, and outreach? (select all that apply)**

- a) Students
- b) Teenagers
- c) Drivers
- d) Community or Tribal leaders
- e) Elders





# Summary and Review

Key Takeaways



An aerial photograph of a residential neighborhood. The image shows a network of roads, including a prominent road on the right side. There are numerous houses with various roof colors (white, grey, blue, green) scattered throughout the area. The houses are surrounded by green trees and grass. The overall scene is a typical suburban or rural residential area.

## Assess Your Roads and Capacity

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- Identify heavy use roads and streets
- Estimate speed on primary streets
- Locate areas where people gather
  - Store, Post Office, School, Church
- Locate sensitive population
  - Elderly
  - Respiratory conditions
- Inventory road condition
- Prioritize and focus
- Learn and evolve



# Reduce Dust, Stay Healthy by Walking

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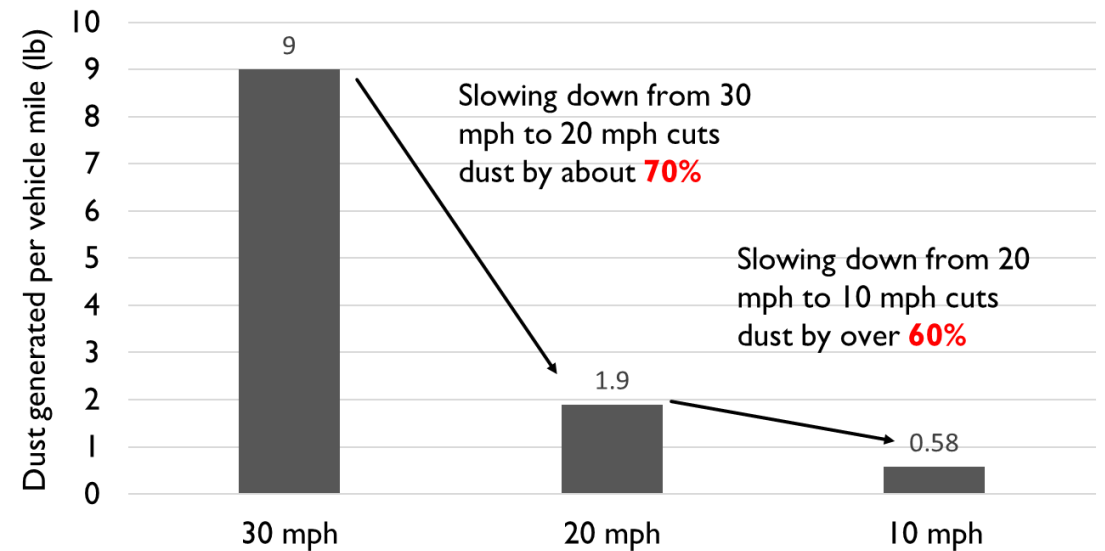




## Reduce Unnecessary Trips

- Combine trips when possible
- Think about why you are making the trip
- Park and walk

# Slow Down and Breathe





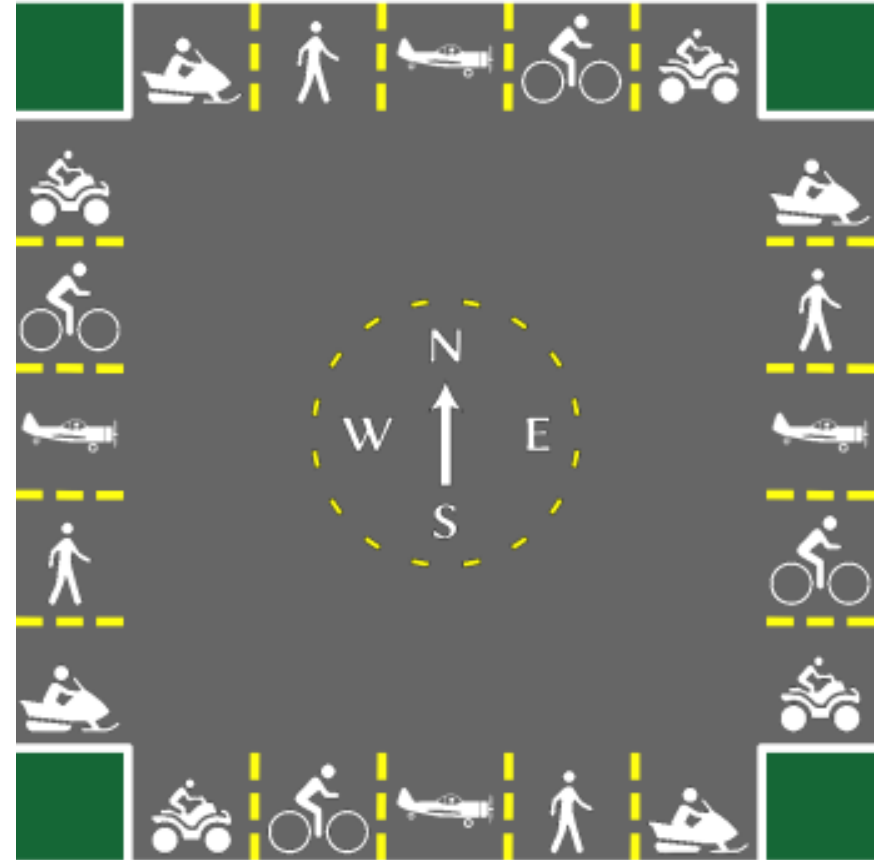


# Apply Dust Palliatives

- Plan, Plan, Plan
- Start with a good road, i.e. good drainage, good surfacing
- Select the right palliative application rate
- Acquire equipment capable of uniform application
- Inform residents
- Apply when the weather is right
- Watch performance and reapply before dust gets bad

# UAF Traffic App

- Traffic counter for villages
- Simple
- Can identify ATV's, autos, pedestrians, aircraft, even dog sleds
- FREE on the Apple App Store



Total Counted: 0



## Coming Next

- Calcium Chloride Application Manual
- New educational materials
- Educational materials for K-12
- Other?

## Poll 4

**What additional tools or resources would help you in managing dust in your community? (select all that apply)**

- a) Cost calculator to estimate the cost of dust management
- b) Prioritization worksheet to help identify the areas in the community most in need of dust control
- c) Occupational endorsement for dust control, palliative application, road grading, etc.
- d) Calcium chloride application guide
- e) More webinars like these





**Questions?**





# Rural Alaska Dust Partnership

*Working together to implement sustainable solutions for dust management*