

# Overview of the Clean Air Strategic Alliance (CASA) Project on Non-Point Air Emission Sources

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# Outline

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- **Non-point sources (NPS) of air emissions**
- **Air emissions context**
- **Clean Air Strategic Alliance (CASA)**
- **Overview of the CASA NPS Project**



# Non-Point Sources (NPS)

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- **Variety of NPS and associated air pollutants (e.g. PM, NO<sub>x</sub>, VOCs, SO<sub>2</sub>, NH<sub>3</sub>, CO)**
  - **Area sources** - forest fires, tailings ponds, agriculture
  - **Volume sources** - blown dust from piles of materials, industrial fugitive emissions
  - **Line sources** - roadways
  - **Mobile sources** - automobiles, non-stationary construction equipment
- **Multiple sectors (multi-stakeholder)**
  - **Residential, Commercial, Transportation, Industrial, Agriculture, Construction, Biogenic (naturally-occurring)**

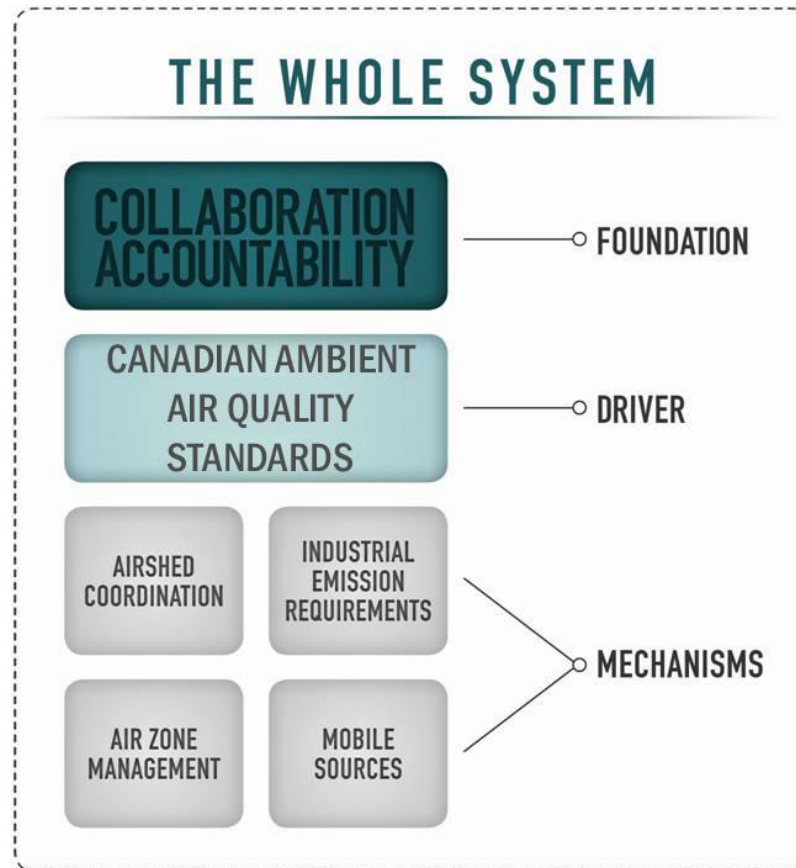
# Alberta's Renewed Clean Air Strategy

- **Focus on cumulative impacts**
- **Need to manage both point source and non-point source (NPS) emissions**

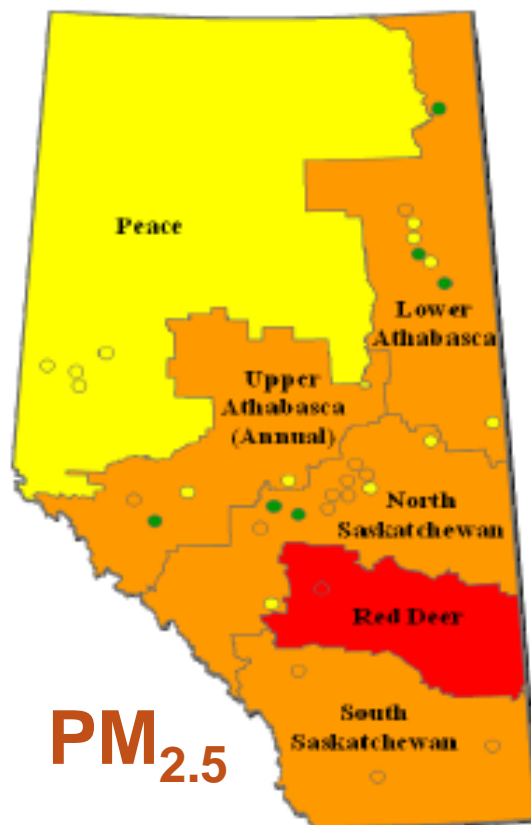


# National Air Quality Management System

- **Objective:**
  - **Protect human health and the environment through continuous improvement of air quality**



# Results of 2011-2013 Air Zones Report for Alberta

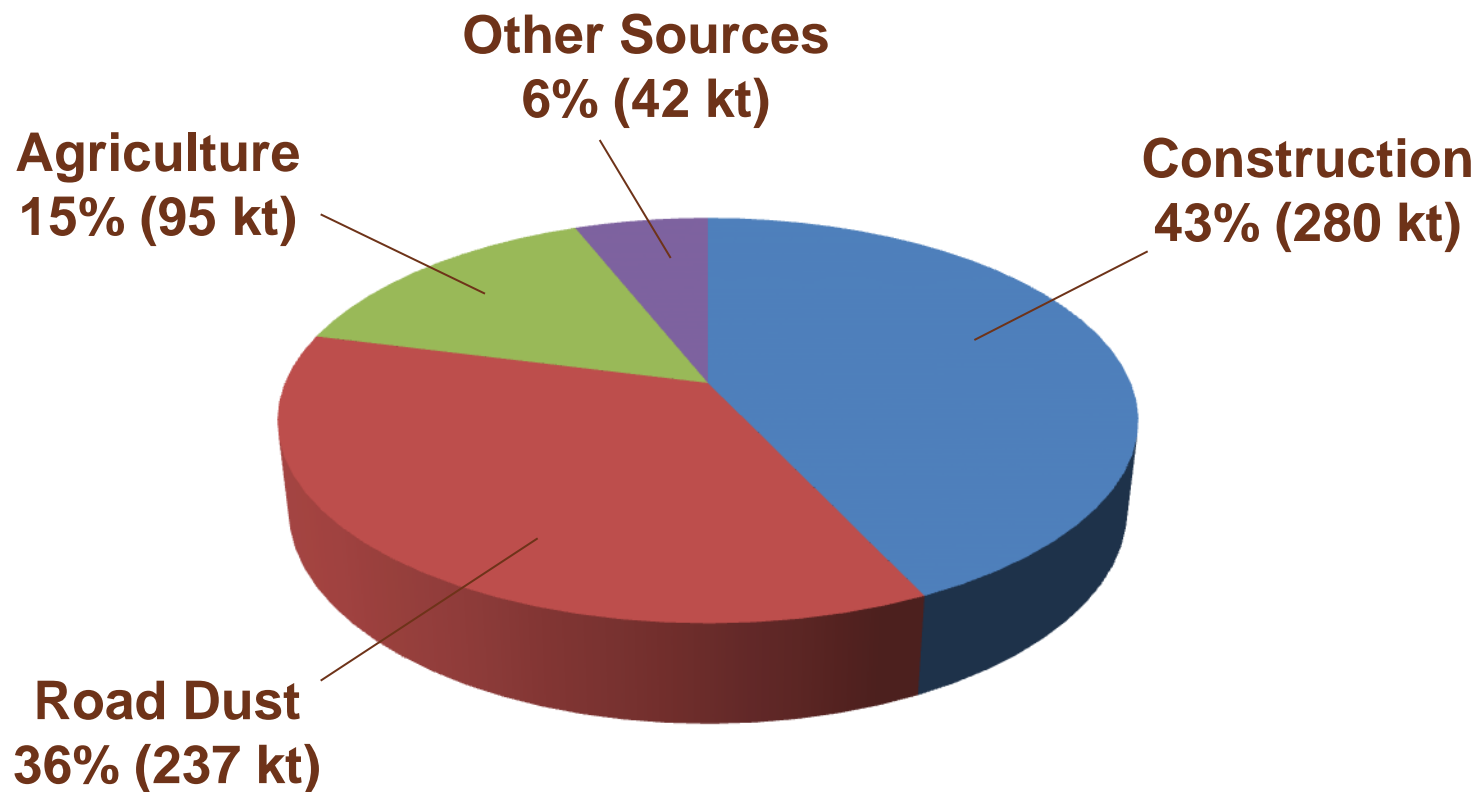


- Air quality management levels for PM<sub>2.5</sub> and O<sub>3</sub> based on air quality assessment with CAAQS
- Air emission reductions are needed

# **NPS emissions in relation to total air emissions in Alberta**

# Total Provincial Emissions – PM<sub>2.5</sub>

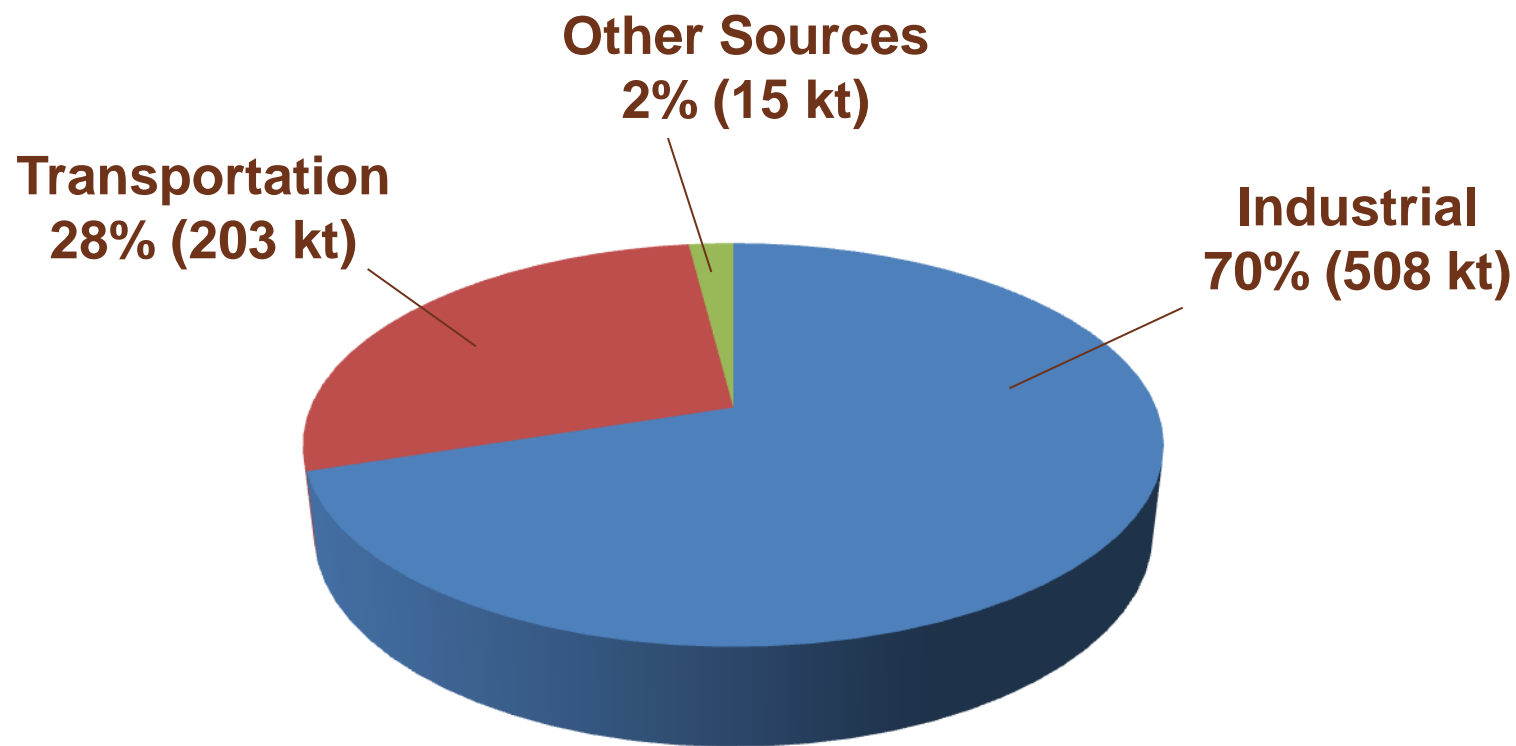
- 2014 Alberta PM<sub>2.5</sub> Emissions by Major Source





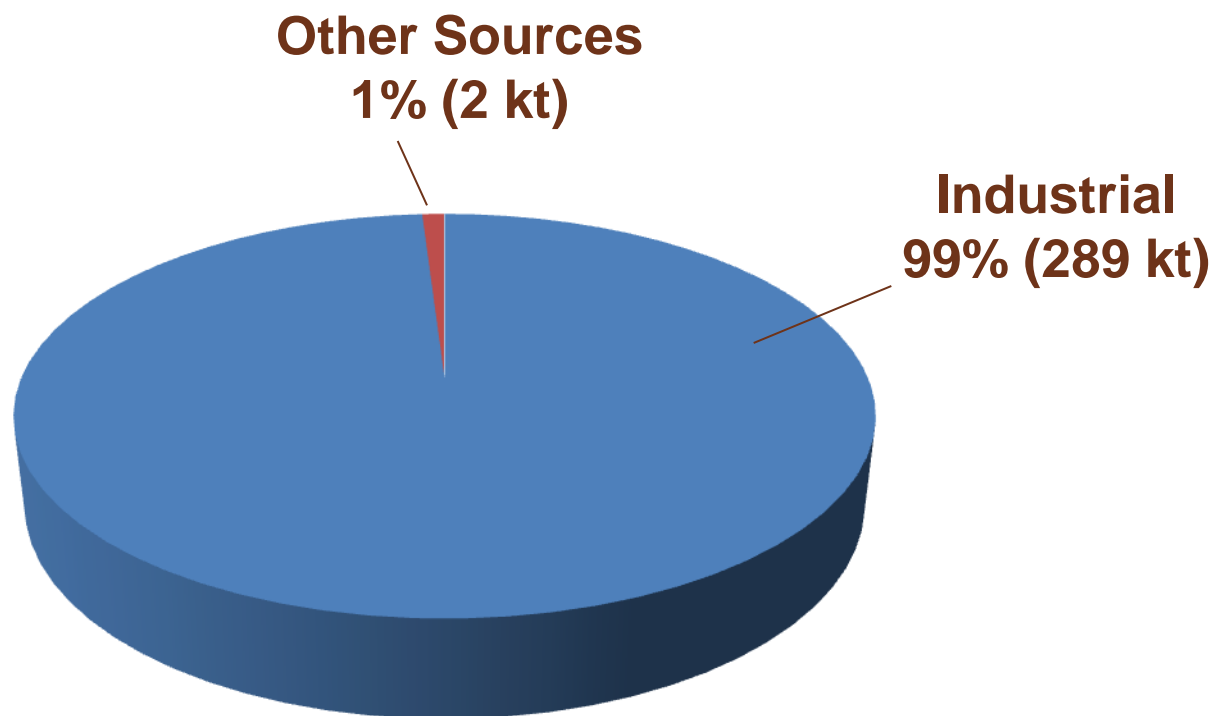
# Total Provincial Emissions – NO<sub>x</sub>

- 2014 Alberta NO<sub>x</sub> Emissions by Major Source



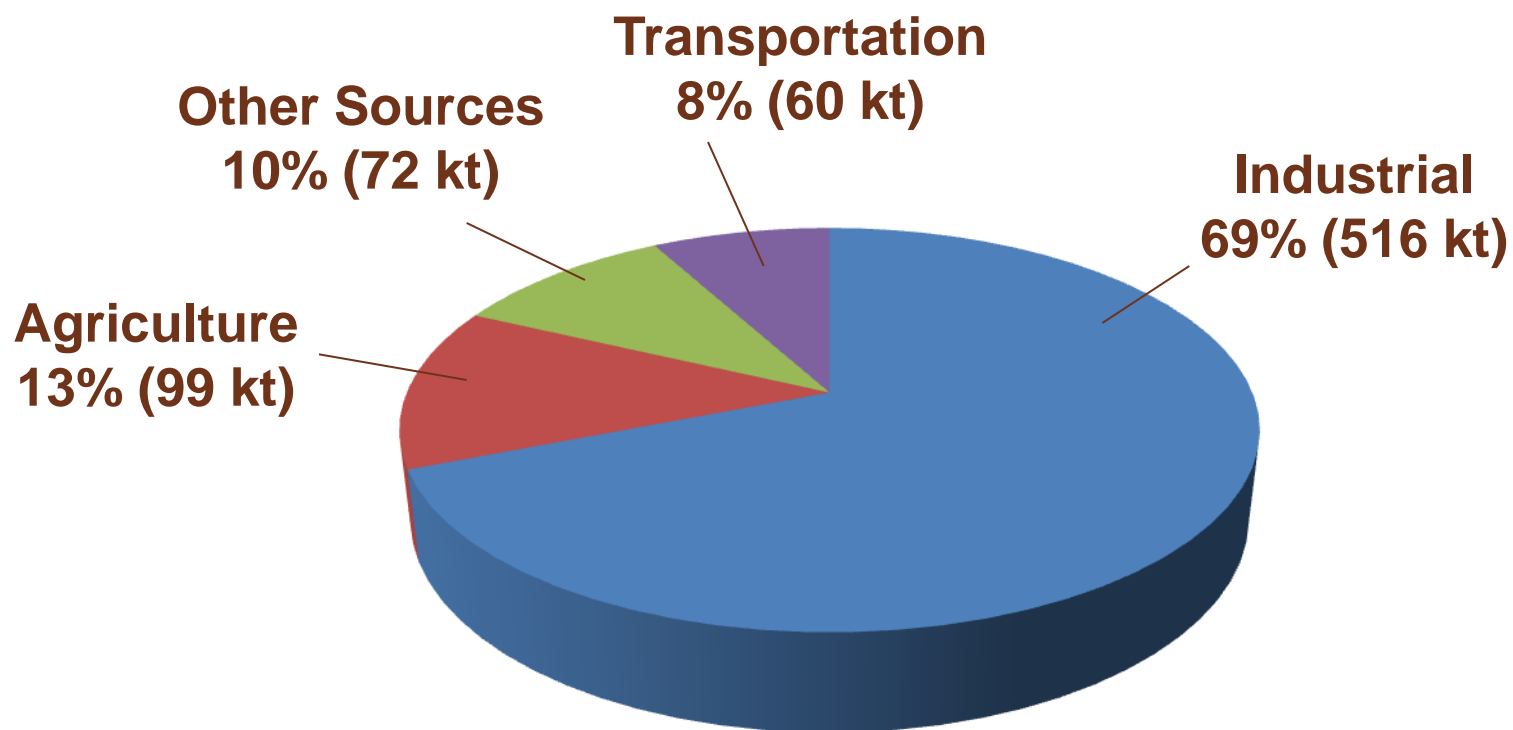
# Total Provincial Emissions – SO<sub>2</sub>

- 2014 Alberta SO<sub>2</sub> Emissions by Major Source



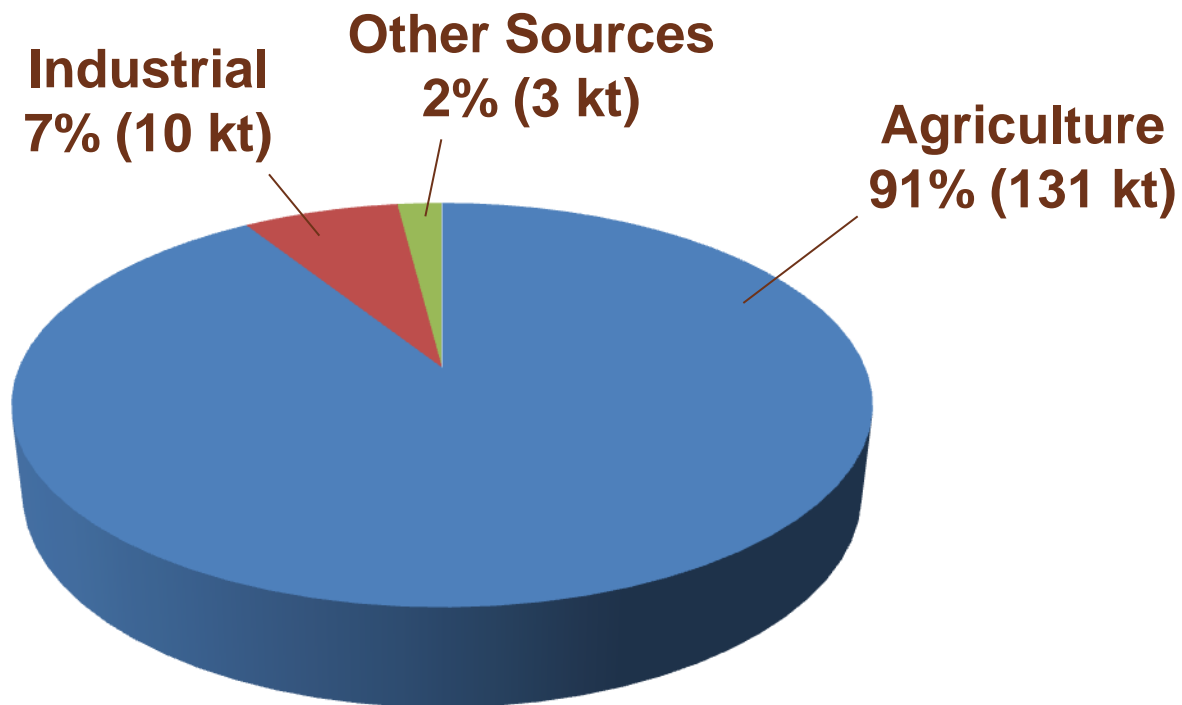
# Total Provincial Emissions – VOCs

- 2014 Alberta VOC Emissions by Major Source



# Total Provincial Emissions – NH<sub>3</sub>

- 2014 Alberta NH<sub>3</sub> Emissions by Major Source



# CASA and the CASA NPS Project

# Clean Air Strategic Alliance (CASA)

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- **Multi-stakeholder partnership established in 1994**
  - Committed to air quality management system for Alberta
- **Composition**
  - Small secretariat led by an executive director
  - Board of Directors represent government, industry, and non-government organizations
  - Project teams are responsible to the Board
- **Consensus-based decision making**
  - Interest-based negotiations
  - Provide recommendations to government



# Clean Air Strategic Alliance (CASA)

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- **Examples of past CASA Project topics**
  - Flaring and Venting
  - Ambient Monitoring Strategic Plan
  - Vehicle Emissions
  - Confined Feeding Operations
  - PM and Ozone Management Framework
  - Electricity Framework Review
  - Odour Management
- **CASA information at [www.casahome.org](http://www.casahome.org)**



# History and Timelines of the CASA NPS Project

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- June 2013 NPS Statement of Opportunity
- October 2013 NPS Workshop
- March 2014 Board meeting
  - The Board approved the formation of a multi-stakeholder working group to further screen and scope the issue and develop an NPS Project Charter.
- September 2014 Project Charter approved
- November 2015 Project started with funding
- \*September 2017\* Project completion planned
  - Aggressive timeline





# Purpose of the CASA NPS Project

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- **Project Goal:**
  - Goal to help address NPS air emissions contributing to non-achievement of PM<sub>2.5</sub> and O<sub>3</sub> CAAQS
  - Focus on areas in Red or Orange management levels of CAAQS Framework (5 of 6 air zones)
- **Project Scope:**
  - Includes NPS emissions of PM<sub>2.5</sub> and precursors of ground-level ozone and secondary PM<sub>2.5</sub>
  - I.e. PM<sub>2.5</sub>, NO<sub>x</sub>, VOCs, SO<sub>x</sub>, and NH<sub>3</sub>
- **Key Deliverable:**
  - Recommended management actions to address NPS in particular areas or province-wide

# Overall Approach of the CASA NPS Project

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- **Synthesized what is known about NPS in Alberta from existing information (Technical Task Group)**
  - Ambient air quality monitoring
  - Emission inventories
  - Air quality simulation models
  - Receptor models
- **Reviewed and conducted jurisdictional scans**
  - Considered what is happening in Alberta and elsewhere
- **Identified opportunities for emission reductions from the larger NPS**
  - Discussions on potential management actions in progress
  - Seeking input through conversations with stakeholders
- **Communicating the project work**
  - Ongoing



# NPS under discussion

- **Transportation (NO<sub>x</sub>, VOCs)**
  - Main focus
  - Light-duty vehicles and heavy-duty vehicles
  - Management actions may be regulatory and non-regulatory
- **Residential fuel wood burning (PM<sub>2.5</sub>, VOCs)**
  - Wood burning appliances (wood stoves, fireplaces)
  - Management actions may include restricting wood burning during periods of poor air quality
- **Urban Planning (transportation, heating)**
  - Actions may include promoting and identifying opportunities for designing urban form to help improve air quality



# NPS under discussion

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- **Prescribed Burning ( $PM_{2.5}$ , VOCs,  $NO_x$ )**
  - Current legislation focuses on fire hazard and safety management
  - Actions may include applying best practices to also manage air quality impacts where possible
- **Agriculture ( $NH_3$ ,  $PM_{2.5}$ , VOCs)**
  - Agriculture and Forestry encourages many environmental Beneficial Management Practices
  - Actions may include addressing research needs for improvements



# NPS under discussion

- **Gasoline Distribution (VOCs)**
  - VOCs released at terminals and service stations when loading and unloading fuel from tanker truck (integrated system) unless vapour recovery/destruction
  - Large capital costs would be required to upgrade terminals
- **Construction Operations and Road Dust (PM<sub>2.5</sub>)**
  - Dust from construction sites and paved/unpaved roads
  - Reviewing current practices for improvement opportunities



# Summary and Next Steps

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- **Comprehensive air quality management includes management of point source and non-point source (NPS) emissions**
  - **Emission reductions are needed to achieve CAAQS**
- **Wide variety of NPS**
  - **Multiple sectors, multi-stakeholder**
- **CASA NPS Project to recommend management actions for NPS**
  - **Developing recommendations for management actions and future work**
  - **Report to CASA Board by Fall 2017**
- **Next steps after project completion**
  - **Implementation/follow-up**
  - **Continued communication on NPS**
  - **Further management actions may be required**

**Thank you!**

**Questions?**