

# White Bear Lake Area Safer Automotive Chemicals

**Melody Markert**

**MnTAP Advisor: Jane Paulson**

**Site Supervisor: Maureen Francis**



UNIVERSITY OF MINNESOTA  
**Driven to Discover<sup>SM</sup>**



UNIVERSITY OF MINNESOTA

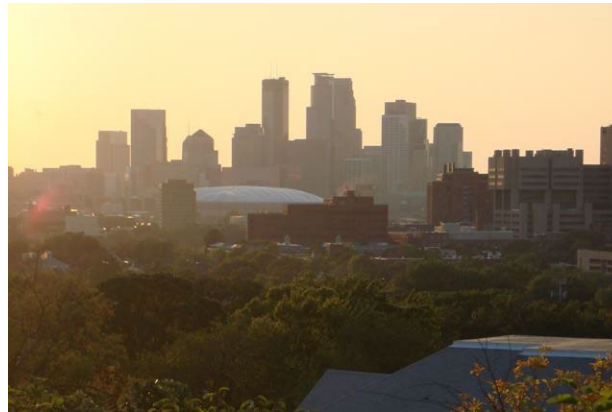
# Project Partners



## Automotive Shops in White Bear Lake Area

# Air Quality & Human Health Improvement

- Reduce hazardous air pollutant (HAP) and volatile organic compound (VOC) emissions that degrade local air quality.
- Reduce worker and community exposure to hazardous chemicals that impact human health



# Project Overview

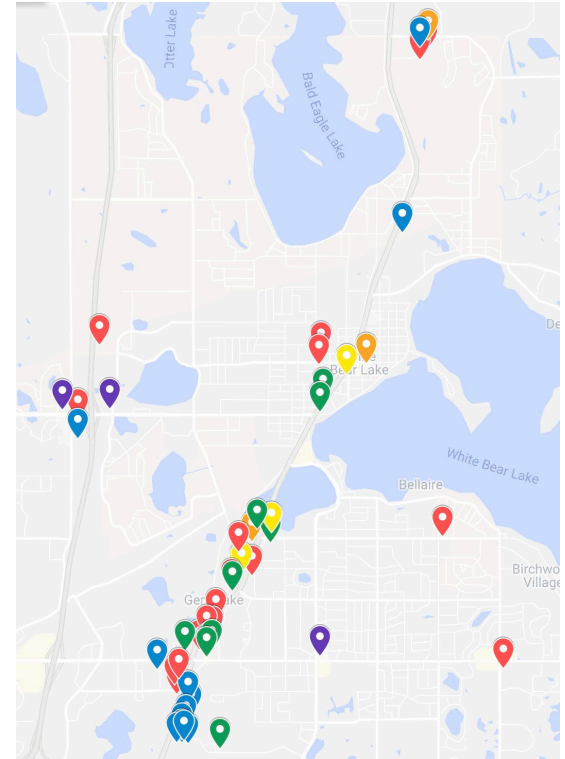
**Goal: Area Source Emissions Reductions**



- Model of previous project
- Local businesses
- Easy & accessible
  - Free samples

# Approach

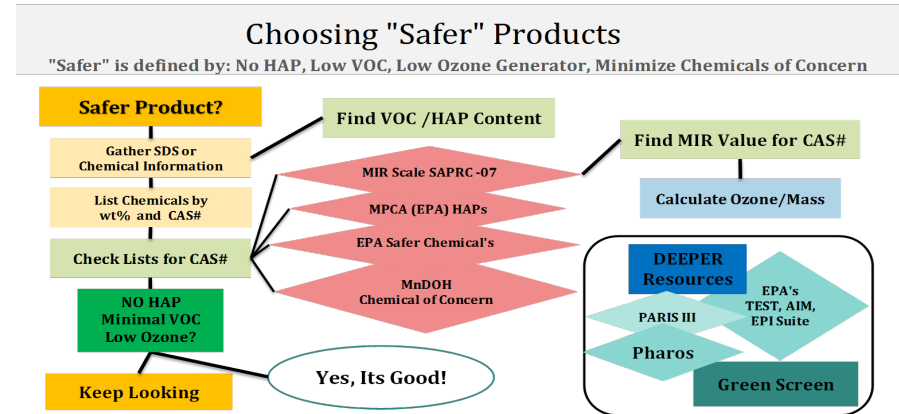
1. Community Outreach & Engagement
2. Gather Product Information
  - Product name
  - Part number
  - Usage
  - Preferred retailer
3. Analyze Automotive Chemicals
4. Sample Safer Alternatives



# Safer Alternatives

- **Does not contain HAPs**
  - **Minimizes VOCs, Chemicals of Concerns**
  - **Generates less than 1 pound ozone per pound of product**
  - **Available at current supplier**
- Choosing "Safer" Products

"Safer" is defined by: No HAP, Low VOC, Low Ozone Generation, Minimizes Chemicals of Concern



# 1. Community Outreach & Engagement

36

businesses  
reached

18

participants

1

newspaper  
article

## 2. Gather Product Information

Wide range of products & suppliers

- 74 products assessed
- 28 products met the criteria for safer products

Common products:

- Brake cleaners
- Carburetor cleaners
- Penetrants



Carburetor Cleaners



### 3. Analyze Automotive Chemicals

#### 3M Non-Chlorinated High Power Brake Cleaner #08880

**HAP: 35%**

**VOC: 100%**

**Ozone Number: 2.50**

Ingredients	CAS#	<u>wt%</u>	MIR	Notes
Naphtha	64742-49-0	30-60	1.41	
Xylene	1330-20-7	10-30	7.76	HAP, COC
Propane	74-98-6	10-30	0.49	
Methyl Alcohol	67-56-1	7-13	0.67	HAP, COC
Ethylbenzene	100-41-4	2-8	3.04	HAP, COC

#### Gunk Non-Chlorinated Brake Cleaner M710

**HAP: 0%**

**VOC: 0%**

**Ozone Number: 0.34**

Ingredients	CAS #	<u>wt%</u>	MIR	Notes
2-Propanone	67-64-1	90-100	0.36	
Carbon Dioxide	124-38-9	5-10	0	

# Results

## Business Engagement

- 18/36 shops participated
- 32 safer alternatives sampled

## Air Emissions Reductions

- 570 lbs. possible HAPs removed per year
- 1870 lbs. possible VOCs removed per year
- 2890 lbs. possible Ground-level ozone reduced per year

## Community Engagement

- Presentation
- Newspaper

# Personal Benefits

- Communicated & coordinated with multiple people
- Increased awareness of products
- Enjoyed working in the community
- Inspired by the receptiveness to change

