

# **AIR QUALITY ASSESSMENT**

Oltman Middle School /  
Proposed Nuevas Fronteras Spanish Immersion School

1020 3<sup>rd</sup> Street, St. Paul Park, MN



# Air Quality Experience

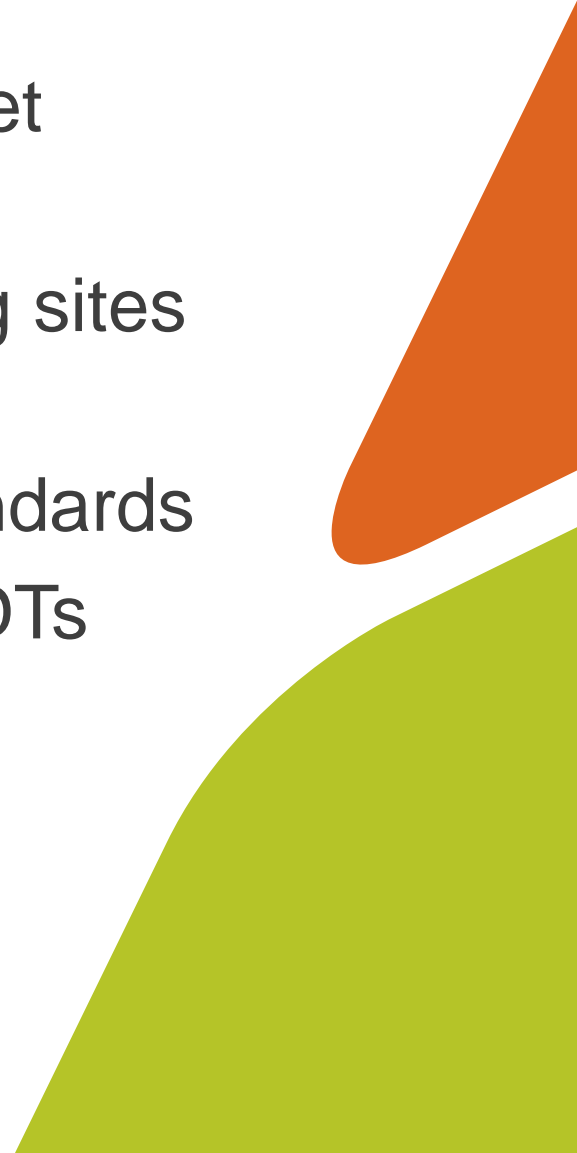
- John Crawford, P.E., PTOE:
  - 25 years of transportation modeling, including air quality, noise and traffic
  - Experience with numerous transportation projects describing air quality pollutants
  - Completing Mobile Source Air Toxics Analysis (MSATs) for 35W lane addition North of TH 36
  - Currently updating carbon monoxide screening procedure for MnDOT
    - Modeling CO, PM and NO<sub>x</sub> at 10 highest volume intersections in Twin Cities

# Site Background



- Proposed redevelopment of site for Spanish Immersion School
- BNSF proposed transfer site with capacity for 6,000 cars.
- The cars will be transferred from rail to trucks
- Projected 260 additional trucks per day on 3<sup>rd</sup> Street

# Methodology

- Identified traffic volume on 3<sup>rd</sup> Street
    - ADT = 3,450 vehicles per day
  - Identified representative monitoring sites
    - ADT range 4,200 to 277,000 VPD
  - Compare monitoring results to standards
  - Compare site ADTs to 3<sup>rd</sup> Street ADTs
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# Definitions

- Point Source:
  - Stationary sources:
    - Refineries
    - Power Plants
- Mobile Source:
  - On Road Vehicles (cars and trucks)
  - Off Road Vehicles (airplanes, agriculture, construction)

# Air Toxics

- EPA issued a Mobile Source Air Toxics (MSATs) Rule in 2001
  - Identified 21 MSATs for regulation
  - A subset of six MSATs were identified as having an influence on health, including:
    - Benzene
    - 1,3-butadiene
    - Formaldehyde
    - Acrolein
    - Acetaldehyde
    - Particulate Matter

# Air Toxics

- Of the six MSATs listed by EPA, MPCA has specifically observed three pollutants near *recommended* health benchmarks:
  - Formaldehyde
  - 1,3-butadiene
  - Benzene
- Benzene and 1,3-Butadiene measurements show levels below recommended benchmarks.
- Formaldehyde levels are above the recommended benchmarks at several locations within the Twin Cities area.

# Air Toxics Summary


- Tools for assessing potential health risks of MSATs remains limited.
- Each of these pollutant levels are similar on a metro-wide basis.
- Formaldehyde is a minor component of diesel exhaust
- Formaldehyde is a region-wide issue, generally not directly associated with localized emissions.



# Air Quality Criteria Pollutants

- Six Criteria Pollutants regulated by EPA. Four are transportation-related:
  - Carbon Monoxide (CO)
  - Nitrogen Dioxide (NO<sub>2</sub>)
  - Sulfur Dioxide (SO<sub>2</sub>)
  - Particulate Matter
    - PM<sub>2.5</sub> (Also referred to as Fine Particulates)
    - PM<sub>10</sub>

# Criteria Pollutant Measurements

- Carbon Monoxide:
    - Ranges between 6-16% of national standard
  - Nitrogen Dioxide:
    - Ranges between 26 – 46% of national standard
  - Sulfur Dioxide:
    - Ranges between 7-16% of national standard
  - Fine Particulate Matter:
    - Ranges between 49% and 63% of national standard
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# MnDOT CO Screening Method


## INTERSECTION BENCHMARK CRITERIA

### Twin Cities CO Maintenance Area

ID	DESCRIPTION	2007 AADT*
<b>Top 7 Intersections</b>		
1	TH 169 at CSAH 81	79,400
2	TH 7 at CSAH 101	66,600
3	TH 252 at 85 <sup>th</sup> Avenue	66,800
4	University Avenue at Snelling Avenue	59,700
5	TH 252 at Brookdale Drive	61,300
6	Cedar Avenue at County Road 42	75,100
7	TH 7 at Williston Road	54,900
<b>3 MPCA Monitored Locations</b>		
8	University Avenue at Lexington Avenue	59,700
9	TH 252 at 66 <sup>th</sup> Avenue	72,500
10	Hennepin Avenue at Lake Street	37,000

- Highest traffic volume intersections in Twin Cities meet CO standards

# Criteria Pollutant Summary

- Each of the four transportation-related criteria pollutants are well below the national standards.
  - 260 trucks will not significantly contribute to these pollutants.
    - Background air quality below standard
    - Low volume, free flowing traffic
    - Relatively small increase in traffic
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# Contacts / Future Questions

Questions:

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