Agenda
Community Health Commission
City Of Edina, Minnesota
Edina City Hall - Community Room

Monday, July 8, 2019
6:30 PM

I. Call To Order

II. Roll Call

III. Approval Of Meeting Agenda

IV. Approval Of Meeting Minutes

A. Monday, June 10th Community Health Commission Minutes

V. Community Comment

During "Community Comment," the Board/Commission will invite residents to share relevant issues or concerns. Individuals must limit their comments to three minutes. The Chair may limit the number of speakers on the same issue in the interest of time and topic. Generally speaking, items that are elsewhere on tonight's agenda may not be addressed during Community Comment. Individuals should not expect the Chair or Board/Commission Members to respond to their comments tonight. Instead, the Board/Commission might refer the matter to staff for consideration at a future meeting.

VI. Reports/Recommendations

A. Appointment to Human Services Task Force

VII. Chair And Member Comments

VIII. Staff Comments

IX. Adjournment

The City of Edina wants all residents to be comfortable being part of the public process. If you need assistance in the way of hearing amplification, an interpreter, large-print documents or something else, please call 952-927-8861 72 hours in advance of the meeting.

Draft MINUTES
Community Health Commission
June 10, 2019 at 6:30 PM
City Hall, Community Room

I. Call To Order

II. Roll Call

Present: Amanda Herr, Julia Selleys, Greg Wright, Dena Soukup, Christy Zilka
Absent: Anushka Thorat, Om Jahagirdar, Andrew Johnson-Cowley, Britta Orr, Alison Pence.

III. Approval Of Meeting Agenda

Motion by Greg Wright to approve meeting agenda. Seconded by Dena Soukup. Motion Carried.

IV. Approval Of Meeting Minutes

Motion by Dena Soukup to approve meeting minutes. Seconded by Christy Zilka. Motion .

A. May 13, 2019 Draft Community Health Commission Minutes

V. Community Comment

Freeway pollution information shared by resident Steve Lundberg, 4801 Hilltop Lane. Article to be attached to minutes.

VI. Reports/Recommendations

A. Human Services Task Force

B. Work Plan Review & Next Steps

Review of work plan items:
-Bloomington Public Health SHIP staff to attend August meeting to discuss options for additional tobacco/vaping prevention at City level.

-Member Soukup volunteered to contact AARP staff to get additional information regarding City designation process.

VII. Chair And Member Comments

VIII. Staff Comments

IX. Adjournment

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May 23, 2019

To Whom it May Concern,

This letter contains expert opinion regarding the potential impacts of heavily travelled roadways on nearby neighborhoods in the Edina area. It contains (1) a brief summary of the evidence that roadway pollution is associated with adverse health impacts, including a summary of what those health impacts are, (2) and which demographic groups are most sensitive; (3) the distances over which roadway pollutant concentrations are elevated and factors determining which neighborhoods are impacted and when; (4) useful mitigation strategies, including sound walls and filtration; (5) policies directed at this problem in California; and (6) a brief narrative considering local factors in the specific areas of interest.

Roadway vehicles emit a suite of air pollutants including ultrafine (UFP/ $PM_{0.1}$; particle diameter less than 0.1 μm), fine ($PM_{2.5}$; particle diameter less than 2.5 μm) and coarse ($PM_{10-2.5}$; particle diameters between 10-2.5 μm) particles; carbon monoxide (CO); carbon dioxide (CO_2); nitrogen oxides (NO_x); black carbon (BC); polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs). Air quality studies conducted near heavily trafficked roads show that many of these pollutant concentrations are elevated on-and near-roads. The degree of pollutant elevation depends on emissions in comparison to the urban background of that pollutant however, such that some pollutants are only slightly elevated ($PM_{2.5}$, volatile organic compounds, CO_2), while others are highly elevated relative to the urban or rural background (ultrafine particles, carbon monoxide), and others fall in between (nitrogen oxides, PM_{10}, black carbon).[1]

(1) Roadway pollution is associated with adverse health impacts

Epidemiological studies have attributed a modest increase in the rates of a long list of adverse health effects to exposures to air pollution around roadways.[2] These include increased incidence of cardiac and pulmonary events,[3, 4] diabetes-associated mortality,[5] asthma and other respiratory symptoms,[6-8] pre-term birth and other adverse birth outcomes[9,10] and general mortality.[11] The effects of living near a roadway can be more marked in areas with better overall air quality; recently Urman et al.[8] found marked increases in bronchitic symptoms among children living near roadways with lower regional particulate matter.

Epidemiological studies have used proximity to roadways to estimate exposure. This is because monitoring data for specific traffic-related pollutants has not generally been available on a sufficiently wide scale to accurately estimate exposures of the large populations required for epidemiological studies. As a result, evidence pointing to any specific pollutant in the mix of traffic emissions as the causative agent for health effects is inconclusive. However, ultrafine

particles have been specifically implicated in several adverse health effects including respiratory and cardiovascular diseases and adverse birth outcomes.[12-14]

(2) Demographic groups most impacted by air pollution

Significant health impacts accrue to children, the elderly and those with pre-existing conditions including acute and chronic respiratory and cardiovascular and other conditions, such as those recovering from cancer or other major illnesses. Children are at elevated risk because they inhale more air per body mass due to higher levels of activity, spend more time outside, and because developing tissues are more sensitive to toxins. While measurable physiological changes are observed in healthy adults exposed to elevated levels of air pollution, in most cases these changes do not result in measurable increases in illness and mortality in this demographic group.

(3) Typical distances over which roadway pollutant concentrations are elevated, and which neighborhoods are impacted and when

The distance that is impacted by roadways varies from about 100 yards up to well over a mile. The impact area is on the downwind side and is controlled by local meteorology, which controls the rate at which pollutants are mixed with background air. The mixing is strongest when windspeeds are high and the ground is strongly warmed by the sun. Mixing can be very weak when the ground is colder than the air above it, such as at night, and when windspeeds are low.

An estimated 30-45% of people in large North American cites live within zones highly impacted by traffic emissions, covering up to 300-500 yards from a highway or a major road.[15] Impact areas can extend significantly farther, well beyond a mile depending, on local meteorology.[16]

(4) useful mitigation strategies

There are four effective approaches to reducing pollutant exposures around roadways: (i) physical barriers, including soundwalls and vegetation; (ii) filtration/air purification, for indoor spaces in impacted buildings; (iii) changes to use schedules, such as moving physical education classes to times of day when pollutant concentrations are lower, and (iv) cleaning up the emissions of the vehicle fleet. Here we address the first two in more detail. (iii) Can be very effective but is very site-specific. (iv) Tailpipe emissions are declining as newer vehicles with lower emissions and more durable emissions controls replace older vehicles. However, turnover is slow and very dirty vehicles can remain in service for a decade or more. The vehicle fleet and fleet turnover is generally outside the policy purview of local or state governments and are not discussed further here.

(i) Solid physical barriers (soundwalls) impact pollutant concentrations by increasing turbulence and initial mixing of the emitted pollutants.[17] Roadside solid sound walls force pollutants to move up and over the barrier, creating the effect of an elevated source and enhancing vertical dispersion of the plume. The dispersion is further enhanced by a highly turbulent shear zone characterized by low velocities and a recirculation cavity created on the lee side of the barrier. These effects contribute to a well-mixed zone with lower pollutant concentrations downwind behind the barrier.[18]

Vegetation barriers have potential to alter flow as well, but with several differences. Here, vegetation refers to stands of trees with significant coverage; viewed from the roadway trees should block most or all of the view. Bushes, vines on solid barriers and bare deciduous trees in winter have little impact. Vegetation imposes a drag on the air moving through the leaves

and branches. This flow obstruction causes some air to move up and around the canopy, increasing vertical mixing and in turn reducing pollution concentrations downwind of the barrier. Vegetation can also remove some gaseous pollutants by absorption and particulate matter by deposition from the air flowing through the vegetation.[19] On the other hand, the imposed drag on the airflow creates a windbreak effect behind the vegetation barrier, characterized by lower wind speeds and lower turbulence in the wake of the canopy.[20] This windbreak effect decreases both dispersion and the rate at which traffic-related pollutants can be advectively transported away, potentially increasing the pollutant concentrations downwind of the barrier. However, most studies indicate that that the factors that lead to reductions outweigh those that increase it, making vegetation a moderately positive mitigation strategy.[21, 22]

(ii) Effective technology is available to remove the particulate component of roadway emissions. Strategies to remove gaseous pollutants are less effective, however some evidence indicates that the particulate component may have more health implications. Typical HVAC air handling systems remove some particles and gasses from outdoor air, mostly as a result of deposition of pollutants on the surfaces within the system. Effectively cleaning the tiny particles from roadways requires the addition of high efficiency filters, rated MERV (minimum efficiency reporting value) 11 – 16.* Filter systems should be selected carefully to minimize noise production and energy consumption, as performance can vary widely. Readers are referred to the report from a study conducted in several impacted schools in the Los Angeles area for a practical discussion of effective filtration technology, listed under further reading (item i).[23]

(5) Policies directed at this problem in California

Recognition of the health impacts associated with exposure to emissions from roadway emissions has led to several regulatory policies in California, briefly summarized below. In many but not all ways, California's roadways should have lower pollution impacts per vehicle than those in other states. California's roadways are characterized by having 1) a relatively clean fleet: CA leads the nation in implementation of clean power trains such as electric and compressed natural gas, has relatively strict emissions testing and has implemented several buy-back programs to remove the highest emitting cars from the roads. It has also implemented an effective clean trucks program for much of the goods transport sector associated with high volume activity in the ports. At the same time, California has very high truck traffic due to goods transport, and high passenger vehicle volumes on many roadways.

Guidelines and regulations specifically aimed at reducing exposures to roadway pollutants date to at least to 2003 and have been updated several times since. Many regulations are directed at "sensitive" uses, usually defined as homes (single- and multi-family), hospitals,

* Surprisingly, very small (ultrafine) particles are easier to filter than somewhat larger $PM_{2.5}$ particles. Coarse particles are also easier to filter than $PM_{2.5}$. This is because the technique necessary to filter ultrafine, $PM_{2.5}$ and PM_{10} differs from conventional filtration. Particles are removed not because they are larger than holes in a filter; rather they diffuse out of the main flow of the airstream and stick to the fibers of the filter (most effective for ultrafine particles) or are captured when the main air flow goes around a bend, and the particles do not make the bend due to inertia (most effective for particles, larger than ~ 1 μM in diameter). The most difficult particles to remove are ~0.4 – 0.5 μM in diameter. Particle filter ratings are usually based on their ability to remove particles that are ~0.5 μM, and thus generally remove ultrafine and coarse particles even more effectively.

daycare and other care facilities and schools. Some of the major laws, guidelines and practices are as follows.

(i) State law prohibiting siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles with some exceptions.
Section 17213 of the California Education Code and section 21151.8 of the California Public Resources Code (2003).

(ii) Land use guideline, state of California (2005) recommends siting all sensitive uses in accordance with the school guidelines, including residences, day care centers, playgrounds, or medical facilities. https://www.arb.ca.gov/ch/handbook.pdf

(iii) (Various dates) Many municipalities and air pollution control agencies in California have issued policies or guidelines against siting sensitive uses within ~500' of roadways with more than 50,000 to 100,000 average vehicles per day, and 164' to 1000' of roadways with as few as 10,000 vehicles per day.

(iv) Construction of solid soundwalls is standard for new and rebuilt highways where they pass through residential or commercial areas although the initial intent of the structures was to protect people nearby from noise. Implementation of the technology is currently widespread.

(v) Los Angeles City ordinance 184245: new developments within 1000' of a freeway are required to install filtration rated at MERV 13 or higher.

(6) Local factors in the Edina area

Factors that tend to create pollution "hot spots" and increase impacts of roadways on nearby communities, in general, are:

1. At-grade roadways;
2. Roadways without barriers;
3. Areas that experience low windspeeds and
4. Areas that experience temperature inversions (a layer of cold air near the ground surface; these layers commonly form at night, persist in the early morning and on some winter days.[†])
5. Roadways that create conditions for persistent accelerations or high engine loads, such as up hills.
6. Stop and go traffic, especially when it coincides with low windspeeds and/or temperature inversions and experience stop-and-go conditions during sometimes of day.
7. High levels of truck traffic. Truck emissions can be many times those of gasoline powered vehicles

(7) Recommendations for Edina

Edina, as noted above, is crisscrossed with several roadways with high volumes of traffic, including Highway 100, Highway 62, and Highway 169. If Edina continues to increase density along with other outlying areas, these traffic volumes will continue to increase. Each of these roadways are thus a growing source of air pollution that, as noted above, presents health risks to adjoining residential areas, particularly for vulnerable segments of the population including

[† †] Stable, slightly stable and neutral temperature profiles are all problematic.

young children and the elderly. With this in mind, I recommend that Edina adopt policies and practices such as those adopted in California, as noted above. These policies include:

1. Prohibiting siting of new sensitive uses (e.g., schools, senior housing, playgrounds, day care centers) within ~500' of Highways 62, 100 or 169.
2. Construction of solid soundwalls where Highways 62, 100 and 169 pass through residential or commercial areas.
3. Requiring new developments within 1000' of a freeway to install filtration rated at MERV 13 or higher.

Sincerely,

Suzanne E. Paulson
Professor

Further reading:

i. https://www.documentcloud.org/documents/3521470-Performance-evaluation-of-air-filtration-devices.html
ii. https://www.latimes.com/local/california/la-me-freeway-pollution-what-you-can-do-20171230-htmlstory.html
iii. https://www.latimes.com/local/lanow/la-me-ln-freeway-pollution-filters-20170709-story.html

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CITY OF EDINA

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Date: July 8, 2019

Agenda Item #: VI.A.

To: Community Health Commission

Item Type:
Report and Recommendation

From: Amanda Herr, Chair

Item Activity:
Action

Subject: Appointment to Human Services Task Force

ACTION REQUESTED:
Approve Member Christy Zilka as Community Health Commission representative on Human Services Task Force.

INTRODUCTION: