Title: Urban Forestry as Public Health Infrastructure

Introduced by: Firas Askar for the Medical Student Section

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Referred to: Reference Committee D

House Action: **APPROVED AS AMENDED**

Whereas, there is an 8 percent increase in lung cancer mortality, a 9 percent increase in cardiopulmonary mortality and a 14 percent increase in all-cause mortality for each 10 μg/m^3 increase in exposure of particulate matter less than 2.5 microns (PM2.5)[1,2,3], and

Whereas, the deleterious health consequences of these particles led to their regulation by the U.S. Environmental Protection Agency (EPA) over the last few decades, resulting in a reduction of 22,000-60,000 premature mortalities between 2000-2007 in the U.S.[4], and

Whereas, the American Medical Association (AMA), medical specialty societies (e.g., the American Academy of Pediatrics, the American College of Cardiology) and patient advocacy groups (e.g., the American Lung Association, the American Heart Association, the American Cancer Society) all support stricter National Ambient Air Quality Standards (NAAQS) than those currently regulated for PM2.5 (H-135.946, D-135.983)[5], and

Whereas, the concentration of nitrogen dioxide (NO2) is strongly correlated with other toxic pollutants, is often used as a surrogate for the pollutant mixture as a whole and is a major fraction of the ambient PM2.5 air mass[6], and

Whereas, the AMA believes that attaining the NAAQS standards for nitrogen oxides is necessary for the long-term benefit of the public's health, and endorses a more effective hazardous pollutant program to reduce serious health hazards posed by airborne toxic pollutants (H-135.991), and

Whereas, urban forestry is the planning and management of trees, forests and related vegetation within communities to create or add value[7], and

Whereas, trees, and by extension, urban forestry, directly affect particulate matter in the atmosphere by removing particles such as PM2.5[8], and

Whereas, a 2013 study documented urban forestry-related reductions of PM2.5 in ten major U.S. cities, which was associated with an average annual reduction of 7,270 cases of acute respiratory symptoms and 4,650 cases of asthma exacerbation across the ten cities studied[9], and

Whereas, air pollution removal by urban forestry prevented more than 850 premature mortalities and 670,000 incidences of acute respiratory symptoms[10], and

Whereas, the prevalence of childhood asthma in the United States increased by 50 percent from 1980 to 2000, with similar trends seen in pediatric hospitalization and mortality[11], and

52   Whereas, an increase of 343 trees/km2 was associated with a lower prevalence of childhood
53 asthma, even when controlling for potential confounders such as proximity to pollution sources,
54 sociodemographic characteristics and population density[12], and
55
56   Whereas, the nationwide loss of 100 million trees from 1990-2007 by the invasive emerald ash
57 borer pest, including millions of trees in Michigan, was associated with an additional 6,113 deaths
58 related to respiratory system illnesses and 15,080 cardiovascular-related deaths[13,14], and
59
60   Whereas, living near urban forestry has demonstrated additional public health benefits beyond
61 the well-documented cardiopulmonary benefits including enhanced immune responses, increases in
62 intracellular anti-cancer proteins, and increases in weekly physical activity[15,16], and
63
64   Whereas, urban forests have demonstrated additional biophysical benefits beyond improved air
65 quality including reduced building energy, reduced storm water runoff, reduced soil erosion, carbon
66 sequestration, avoided carbon emissions, and reducing the "urban heat island" effect[17,1819,20,21], and
67
68   Whereas, urban forests consistently demonstrate to be a cost-effective means by which to
69 provide both public health and biophysical benefits[10,15,1617,18,1920,21], and
70
71   Whereas, a 2015 assessment of Grand Rapids' urban tree canopy found a reduction in tree
72 coverage from 2005-2014 to 34 percent tree canopy coverage, with the City Center Zone (downtown
73 area) having only a 4 percent tree coverage[22], and
74
75   Whereas, a study of various southeast Michigan counties from 1991-2002 found that both
76 Monroe and Wayne Counties each saw a 7 percent decrease in tree canopy cover, while Macomb
77 County saw a 17 percent decrease[23], and
78
79   Whereas, tree canopy cover in three Southeast Michigan watersheds (Ecorse, St. Claire and
80 Rouge) have declined significantly between 1991-2002, contributing to the increased storm water
81 runoff and decreased air and water quality also observed[23], and
82
83   Whereas, surveys of U.S. urban residents have consistently found that residents overall have a
84 positive perception of urban forestry, believe government plays at least a key role in funding and
85 managing urban forestry, and that residents are more likely to value urban forestry if they understand
86 the associated social, biophysical and public health benefits[24,25,26,27], and
87
88   Whereas, cities such as New York City and Los Angeles each have a decade-old million-tree
89 reforestation initiative citing the documented public health and biophysical health benefits, which
90 dwarf Detroit's recently announced 10,000-tree program[28,29,30], and
91
92   Whereas, Detroit's 10,000-tree planting initiative also includes removing 10,000 trees, which will
93 result in no net gain of trees and will likely reduce the overall tree canopy of Detroit in the near future
94 due to the replacement of mature trees with saplings[31], and
95
96   Whereas, urban forestry is managed at the state level by the Michigan Department of Natural
97 Resources, which partners with the federal U.S. Forest Service's Urban and Community Forestry Division,
98 departments that are unrelated to public health[32,33], and
99
100   Whereas, Detroit's urban forestry program is managed at the municipal level by the Ground
101 Maintenance Division, which is unrelated to public health[34], and
102
103   Whereas, the benefits of trees in urban forestry initiatives are often viewed through the lens of
104 biophysical benefits without providing adequate weight to the public health benefits, which

105   underestimates the total value of trees and leads to inefficiently designed urban-forestry programs[35],
106   and
107
108   Whereas, experts argue that associating public health outcomes with urban forestry will
109   prioritize urban forestry-related programs for resource allocation and improve their efficiency, as
110   exemplified in urban forestry projects carried out in Toronto[35,36,37,38]; therefore be it
111
112   RESOLVED: That MSMS recognizes the positive impact of urban forestry on air quality and
113   related respiratory conditions, and supports the need for state and national policy to expand funding
114   for urban tree-planting and maintenance programs; and be it further
115
116   RESOLVED: That MSMS promotes urban forestry as public health infrastructure in recognition of
117   the public health and biophysical benefits of urban forestry-related programs.
118
119
120   WAYS AND MEANS COMMITTEE FISCAL NOTE: NONE

Relevant MSMS Policy:

Air and Water Pollution
Reasonable and scientific study should be directed toward the sensible control of the major problems of air
and water pollution, whether it is the dusts and wastes of industry, the products of combustion of gasoline
or oil (automobiles), the combustion products of home heating and burning equipment, or of smoking
tobacco. (Prior to 1990)
– Edited 1998
– Reaffirmed (Res02-16)

Air Pollution and EPA Clean Power Plan Policies
MSMS supports:
- The Environmental Protection Agency's authority to promulgate rules to regulate and control
  greenhouse gas emissions in the United States;
- Increased physician participation in regional and state decision-making regarding air pollution
  across the United States;
- State legislation and regulations that meaningfully reduce power plant emissions of carbon dioxide
  and nitrogen oxide;
- Efforts to limit carbon dioxide emissions through the reduction of the burning of coal in the state's
  power generating plants, efforts to improve the efficiency of power plants, and continued
  development of alternative renewable energy sources; and,
- National enactment of the U.S. Environmental Protection Agency's Clean Power Plan and the
  implementation of the Plan's policies in Michigan.
(Res77-16)

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