

Kerr Air Quality testimony.pdf

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Position: FAV

KENNETH P. KERR, Ed.D
Legislative District 3
Frederick County

Health and Government Operations
Committee

Subcommittees

Chair, Government Operations and
Health Facilities

Insurance and Pharmaceuticals



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HOUSE BILL 900 – Occupational Safety and Health – Public buildings – Indoor Air Quality

HB 900 requires that on or before October 31, 2025, the Maryland Occupational Safety and Health Administration (MOSH) must develop and disseminate a comprehensive indoor air quality (IAQ) standard that applies to all public employers that employ individuals who are required to work in public buildings.

Modeling the best practices in occupational safety and health, HB 900 allows employees and their exclusive bargaining representatives to collaborate and engage with their employers during an annual assessment of the building's envelopes and enclosures, ventilation and systems, and their operation and maintenance. HB 900 also requires a process for tracking and logging employee complaints of signs or symptoms from building-related illnesses.

Finally, HB 900 promotes collaboration among all relevant stakeholders by establishing a technical advisory committee composed of experts and exclusive bargaining representatives who make recommendations on the comprehensive IAQ standard and consider cost-effective solutions to bring public buildings into compliance. Committee members also consider other appropriate health standards and provide guidance.

The quality of air we breathe indoors impacts our ability to live our most productive and healthiest lives. Our experiences with COVID-19 showed how important clean indoor air is in the workplace. Studies show that transmission of the virus can be reduced by 80% with improved indoor ventilation and air filtration¹. Cleaner and healthier indoor air not only reduces the spread of COVID-19 and other airborne viruses, and it is recognized that clean air improves cognition and productivity, protects against outdoor air pollutants such as smog, and decreases the number of environmental triggers for conditions like asthma and allergies².

Marylanders visit our public buildings daily. At the MVA, in our public schools, in courthouses, on universities, and when they come to the Maryland General Assembly to testify. Hundreds of thousands of workers call our public buildings their worksites everyday also. We would never tolerate them eating dirty food in our public buildings, we shouldn't tolerate them breathing dirty air in our public buildings either.

¹ Fondazione David Hume, "Data Analysis: Controlled Mechanical Ventilation (CMV) works," March 25, 2022, available at <https://www.fondazionehume.it/data-analysis/controlled-mechanical-ventilation-cmv-works/>.

² <https://www.epa.gov/iaq-schools/reference-guide-indoor-air-quality-schools>

HB 900 takes a measured and practical approach to improving indoor air quality in public buildings. By utilizing the occupational safety and health model, we ensure that every public employer has a plan to maintain healthful indoor air quality for the public and its workers. Once enacted by the Maryland General Assembly enactment, the State of Maryland would join New Jersey and California as states that currently have IAQ regulatory standards³. Let's be a leader on indoor air quality in our public settings.

³ Occupational Safety and Health Administration, U.S. Dep't of Labor, *Indoor Air Quality*, retrieved from <https://www.osha.gov/indoor-air-quality> (last accessed 1/17/2023)

HB900_MSEA_Gobel_FAV.pdf

Uploaded by: Christian Gobel

Position: FAV

**Testimony in Support of House Bill 900
Occupational Safety and Health – Public Buildings – Indoor Air Quality**

**House Environment and Transportation Committee
March 9, 2023**

**Christian Gobel
Government Relations**

The Maryland State Education Association supports House Bill 900. House Bill 900 is essential to ensure the health and safety of our students, public employees, and residents who visit and utilize public buildings in Maryland. This legislation would require the Commissioner of Labor and Industry, in consultation with the Secretary of Health, the Secretary of the Environment, and the Director of the Maryland Energy Administration, to promulgate a comprehensive indoor air quality standard for public buildings throughout the state of Maryland. To protect the health and safety of employees, the Commissioner will be required to establish evidence base standards for safe building operation and levels of contaminants and pollutants.

MSEA represents 75,000 educators and school employees who work in Maryland's public schools, teaching and preparing our almost 900,000 students so they can pursue their dreams. MSEA also represents 39 local affiliates in every county across the state of Maryland, and our parent affiliate is the 3-million-member National Education Association (NEA).

MSEA believes it is critical to ensure the air quality in schools and public buildings is healthy and safe for students, employees, volunteers, and visitors. House Bill 900 enables a collaborative process for employees and their exclusive representatives by allowing their input in a public employer's annual assessment of building envelopes and enclosures, HVAC systems, and the maintenance and operation of HVAC systems. Additionally, the legislation will require a public employer to investigate and respond to employee health complaints that may be associated with building related illness and maintain a log of health complaints.



Moreover, the bill makes certain that public employers receive assistance and guidance by requiring the Commissioner to provide comprehensive guidance to all public employers on cost-effective solutions to bring public buildings into compliance with the indoor air quality standard. The Commissioner must also provide consultation services on indoor air quality through the Maryland Occupational Safety and Health Division to public employers and provide updated guidance as new ventilation and other building technologies that promote healthy indoor air quality become available.

Poor indoor air quality impacts everyone within a building. Short-term and long-term exposure to indoor air pollution may cause a myriad of health issues, including “respiratory diseases, heart disease, cognitive deficits, and cancer.”¹ A variety of sources both inside and outside the building may contribute to indoor air pollution, such as poor ventilation, the level of humidity, recent renovations or remodeling in a building, contaminants from mold, cleaning supplies, or other airborne chemicals, and issues with temperature control may all contribute to poor indoor air quality.²

Maryland has the opportunity to lead the nation by establishing safe and healthy indoor air quality standards. To date, only New Jersey and California have taken the proactive step of establishing indoor air quality standards.³ House Bill 900 utilizes a rational, evidenced-based approach to make certain Maryland’s public buildings provide healthy indoor air for all.

We urge the committee to issue a Favorable Report on House Bill 900.

¹ National Institute of Environmental Health Sciences, *Indoor Air Quality*, <https://www.niehs.nih.gov/health/topics/agents/indoor-air/index.cfm> (last accessed, 2/22/2023).

² Occupational Safety and Health Administration, U.S. Dep’t of Labor, *Indoor Air Quality*, <https://www.osha.gov/indoor-air-quality> (last accessed 2/22/23).

³ *Id.*

HB900_FAV_Indoor Air Quality_AFSCME.pdf

Uploaded by: Cindy Smalls

Position: FAV



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Patrick Moran - President

HB 900 - Occupational Safety and Health - Public Buildings - Indoor Air Quality

POSITION: FAVORABLE

AFSCME Council 3 supports HB 900. This legislation requires the Commissioner of Labor and Industry, by Oct. 31, 2025, to promulgate a comprehensive indoor air quality (IAQ) standard for public buildings in Maryland. HB 900 requires that the standard shall establish minimum evidence-based standards for safe building operation and levels of contaminants and pollutants. Each public employer will be required to conduct an annual assessment of the building envelopes, enclosures, and HVAC systems and involve the input of employees. Public employers will also have to certify annually that their HVAC systems have been inspected and are operating as designed. Finally, public employers will need to develop written plans to annually inspect and assess building systems and make repairs where necessary. These plans must also include trainings for employees and a method to investigate, record and respond to employee complaints regarding signs or symptoms that may be associated with building-related illness.

National IAQ Momentum and Federal Funding

The time is right for Maryland to focus on indoor air quality. In 2022, the White House teamed up with the Environmental Protection Agency to issue the Clean Air in Buildings Challenge. Maryland should follow suit to guarantee the health and well-being of government employees and those they care for in densely occupied buildings like schools, long-term care facilities, juvenile institutions, prisons, etc. The Biden-Harris Administration and Congress have provided hundreds of billions of dollars in federal funds that can be used in schools and public buildings to improve indoor air quality between the American Rescue Act and Infrastructure and Inflation Reduction spending bills on energy efficient building projects. Federal OSHA also supports state-level occupational health and safety spending through matching grants.

But Won't HB 900 Cost the State Hundreds of Millions Annually?

No. HB 900 requires an annual assessment and a written plan, but it has no mechanism to force remediation. Those decisions will still ultimately be left up to the public employers and policy makers as MDL has no ability to even fine public employers who aren't in compliance. Public employers and policy makers will still be able to prioritize projects. We also often leave out of these discussions the estimated savings in health care costs and increases in productivity that can be accomplished from improving indoor quality. The COVID-19 pandemic has highlighted the important role indoor air can play in infectious disease transmission. Improvements in Indoor Air Quality can also lead to improvements in cognitive function.

Every AFSCME Maryland State and University contract guarantees a right to union representation.
An employee has the right to a union representative if requested by the employee.
800.492.1996

HB 900 is the First Step in Helping us Assess our IAQ Needs

HB 900 helps us determine our needs for improving indoor air quality in public buildings across Maryland. It also ensures that every public employer has a plan to address indoor air quality issues and maintain healthful air quality by tracking and recording employee complaints and ensuring that these complaints can be made free of retaliation. Long-term, we believe that this occupational safety and health model is the best way to sustain a measured and reasonable approach to improving indoor air quality in all our public buildings over time.

For these reasons, we urge the committee to provide a favorable report on HB 900.

Testimony March 9 HB 900.pdf

Uploaded by: Darryl Alexander

Position: FAV

Testimony

Darryl Alexander, retired director of health and safety, American Federation of Teachers.

Thank you for the opportunity to testify in support of HB 900. I have over 25 years of experience in addressing indoor air quality issues in schools and public buildings. This bill if enacted will deliver relief to public employees and benefits to public employers.

The research evidence is ample. We know that poor indoor air quality can have a significant impact on the health and performance of employees and occupants, (*see Indoor Air Quality Scientific Findings Resource bank. - <https://iaqscience.lbl.gov>*)- especially in densely populated institutions such as schools, long term care facilities and prisons. Workers have more health complaints and their productivity and output suffer (*see Allen et. al. <https://ehp.niehs.nih.gov/doi/10.1289/ehp.1510037>*

We know that deferred maintenance of HVAC (heating, ventilation, air conditioning) systems is associated with significantly higher energy costs (*see Fisk et. al. <https://eta-publications.lbl.gov/sites/default/files/lbnl-4889e.pdf>*). This bill will promote a systematic method for improving air quality in public buildings as well as energy efficiency. **Now is the time to act to address both issues as the State of Maryland and other public entities take advantage of historic federal funding to improve infrastructure and energy efficiency** These programs can be reasonably linked to improvements in IAQ as outlined by the US EPA and WH initiative on IAQ (*see - <https://www.whitehouse.gov/cleanindoorair/>*).

Finally we can be confident that compliance costs to public employers will be negligible by looking at the State of New Jersey experience with the 2007 IAQ standard (*see New Jersey Indoor Air Quality Standard (N.J.A.C. 12:100-13)*) – a standard more stringent than the one proposed by this bill. A review of state budgets indicated that there have been no appreciable increased costs over those sixteen years in public capital investments associated with compliance to the standard as well as no extraordinary New Jersey PEOSHA (Public Employees Occupational Safety and Health Administration – certified by federal OSHA) enforcement costs. The required written plans were most likely incorporated in projected retrofit, replacement and maintenance projects and operations. PEOSHA compliance officers were able to respond to complaints as well as comprehensive workplace inspections without increasing dedicated staffing for this standard.

Please feel free to contact me for more research and policy evidence. Thank you again for this opportunity to testify.

HB 900 - Occupational Safety and Health - Public B

Uploaded by: Donna Edwards

Position: FAV



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HB 900 - Occupational Safety and Health - Public Buildings - Indoor Air Quality House Environment and Transportation Committee March 9, 2023

SUPPORT

**Donna S. Edwards
President**

Maryland State and DC AFL-CIO

Chairman and members of the Committee, thank you for the opportunity to submit testimony in support of HB 900. My name is Donna S. Edwards, and I am the President of the Maryland State and District of Columbia AFL-CIO. On behalf of Maryland's 300,000 union members, I offer the following comments.

The air quality of public buildings impacts everyone in Maryland. Poor air quality can lead to allergies, asthma, headaches, congestion, and the spread of infectious diseases. The COVID-19 pandemic forced air quality issues into the spotlight. The Center for Disease Control and Prevention issued guidance, stating, "Ventilation system upgrades or improvements can increase the delivery of clean air and dilute potential contaminants. Consult experienced heating, ventilation, and air conditioning (HVAC) professionals when considering changes to HVAC systems and equipment."¹ Maryland residents and our public servants deserve safe environments.

HB 900 requires the state to develop a comprehensive Indoor Air Quality standard and test all buildings. The bill also requires a technical advisory committee to study cost-effective solutions for bringing buildings into compliance.

Federal money is available to assist with these projects. Through the Bipartisan Infrastructure Bill, over \$500 million is available through block grants issued by the Department of Energy's Energy Efficiency Conservation Program. Schools are also eligible for \$122 billion through the Elementary and Secondary Schools Emergency Relief (ESSER) Fund as part of the American Rescue Plan. This is clearly a federal priority and failure to act now will only increase the long term costs of these projects.

We urge a favorable report for HB 900.

¹ Centers for Disease Control and Prevention. "Ventilation in Buildings." June 2, 2021.

HB900_NEA_Salcedo_FAV.pdf

Uploaded by: Eunice Salcedo

Position: FAV



Testimony in Support of House Bill 900
Occupational Safety and Health - Public Buildings - Indoor Air Quality

Environment and Transportation Committee, March 9, 2023

Eunice Salcedo
NEA, Health & Safety Program

Mister Chair, Madame Vice Chair, members of the committee—thank you for the opportunity to speak on House Bill 900, which can help more than 75,000 educators and 900,000 students learn, thrive, and breathe in Maryland. My name is Eunice Salcedo and I am a Senior Health and Safety Specialist at the National Education Association, the nation’s largest union, representing more than three million teachers and school staff.

In my role at NEA, I have the privilege of working across the country to assess indoor air quality issues and advise school leaders on how to best protect their students and educators. I am here today to urge your committee to become champions for school health— and to cement Maryland as a foremost leader in protecting its students from airborne pollutants, pathogens, and disease.

To understand the depth of indoor air quality issues addressed by HB 900, it is vital to understand the breadth of the indoor air quality crisis we face across all of America’s schools. More than 14 million students and school staff are breathing polluted air every single day in our nation’s public schools.¹ Without any enforceable federal standards from the Occupational Health and Safety Administration on indoor air quality, school ventilation systems continue to deteriorate and toxic building materials remain in place, causing short- and long-term health effects while undermining students’ education.

Our students and educators deserve to feel safe and healthy. Whether it’s spiking asthma cases and respiratory illnesses or developing cancers and cardiovascular diseases, the adverse consequences of poor indoor air quality are real. These health risks are compounded even further in communities with more Black, Brown, rural, and economically disadvantaged students, due to even poorer resourcing and air quality systems.

This is a health issue with lifelong implications—but it isn’t just about health. A study of 100 U.S. schools found a direct association between student academic achievement and classroom ventilation rates, and that measurable progress in math and reading scores were observed when school indoor air quality was improved.² On the other side of the equation, more than 10.5 million school days are lost every year due to asthma, making it a leading cause

¹ U.S Environmental Protection Agency. How big a problem is poor indoor air quality (IAQ) in schools? Retrieved from <https://www.epa.gov/iaq-schools/how-big-problem-poor-indoor-air-quality-iaq-schools>

² Haverinen-Shaughnessy, U., Moschandreas, D. J., and Shaughnessy, R. J. (2011). “Association between substandard classroom ventilation rates and students' academic achievement.” *Indoor Air*. 21(2), 121–131. Retrieved from <https://doi.org/10.1111/j.1600-0668.2010.00686.x>



of absenteeism in this country.³ Our students cannot learn and our educators cannot teach when they're out sick.

According to medical science and studies on academic achievement the answer is clear, HB 900 is a bill worthy of passage and funding. I have seen firsthand how poor ventilation systems and the under-resourcing of infrastructure deeply impact students' health and ability to thrive academically. The passage of this bill would create a blueprint for states across America to end decades of under-funding air quality infrastructure with Maryland at the forefront of change.

The 3 million members of the NEA are behind this important legislation and applaud both the sponsors of this bill and the committee members here today for their willingness to invest in the students and educators of Maryland.

We urge the committee to issue a Favorable Report on House Bill 900

³ Akinbami, L.J. (2006). "The state of childhood asthma, United States, 1980–2005." Advance data from vital and health statistics; Hyattsville, MD, National Center for Health Statistics: 381.

ASHRAE President

Uploaded by: Farooq Mehboob

Position: FAV



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Farooq Mehboob
2022-2023 ASHRAE President

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March 8, 2023

The Honorable Kumar P. Barve
Chair
Environment and Transportation Committee
Maryland House of Representatives
Annapolis, MD 21401

Dear Chair Barve:

I am writing on behalf of ASHRAE regarding House Bill 900, “*Indoor Air Quality in Public Buildings*”. ASHRAE, a not-for-profit organization founded in 1894, is a professional and technical society that focuses on building systems, energy efficiency, indoor air quality, refrigeration and sustainability. ASHRAE has over 53,000 members, including over 1,000 in Maryland. **We support the bill’s inclusion of ASHRAE Standard 62.1 and Standard 55.**

ANSI/ASHRAE Standard 62.1-2022, *Ventilation and Acceptable Indoor Air Quality*, specifies minimum ventilation rates and other measures intended to provide indoor air quality that is acceptable to human occupants and minimizes adverse health effects, such as breathing difficulties, due to poor indoor air quality (IAQ). We recommend the legislation reference the most recent, up-to-date edition of Standard 62.1, which is currently the 2022 edition. This latest edition includes updates to the procedures and methods for meeting minimum ventilation and indoor air quality requirements.

ANSI/ASHRAE Standard 55-2020, *Thermal Environmental Conditions for Human Occupancy*, specifies the comprehensive analytical methods to determine thermal environmental conditions (such as temperature, humidity, air speed, and radiant effects) in buildings and other spaces that will be acceptable to a significant proportion of the occupants. It contains requirements for the design of an occupied space or building, as well as for the measurement and evaluation of existing thermal environments. The latest edition of the standard, the 2020 edition, includes new addenda with a focus on application of the standard and use of clear, enforceable language.

Again, thank you for your consideration of HB 900, including ASHRAE Standards 62.1 and 55. Please feel free to contact me with any questions or have your staff contact GovAffairs@ashrae.org.

Sincerely,

A handwritten signature in black ink, appearing to read 'F. Mehboob'.

Farooq Mehboob
2022-2023 ASHRAE President

Testimony for Maryland House Committee.pdf

Uploaded by: Kathleen McPhaul

Position: FAV

Testimony for Maryland House Environment and Transportation Committee
Kathleen M. McPhaul, PhD, MPH, RN
Associate Research Professor
University of Maryland School of Public Health

**House Bill 0900/Senate Bill 355: Occupational Safety and Health –
Public Buildings - Indoor Air Quality**

Hello, I am Dr. Kathleen McPhaul an Associate Research Professor at the University of Maryland School of Public Health. I am a registered nurse (RN) and have over 30 years' experience taking care of workers with health complaints, teaching occupational health, and conducting workplace research. I am very familiar with the health effects of poor indoor air, but more urgently I am most concerned about how difficult it is to obtain information about the air quality in buildings.

This bill reads like a home-owner's manual and includes all the things that we should already be doing such as annual HVAC assessment, air testing, maintenance, and monitoring of building ventilation. But we really need the section of the bill that calls for "employee input", "worker training", "employee health complaint log" and access to the annual inspection findings. The Bill requires the government to set building air quality standards which is something that many States, countries and building owners are also doing post-COVID.

By passing this bill Maryland will be part of a growing national movement that is being spearheaded by the White House and the EPA known as the Clean Air Challenge. The White House knows that safe buildings are a critical component of pandemic preparedness, and our buildings were not ready to not serve our economy, our school children, nor our workforce during COVID-19. Not even close. Please see the links below for these valuable resources. This issue is not going to go away.

Furthermore, as a health professional, I know there are dire human health effects of poor indoor air including cognitive impairment, respiratory and cardiovascular disease and, of course, airborne infectious diseases. But I have difficulty getting access to meaningful building information to help employees and myself make decisions about going into to certain buildings.

For example, as the University brought the students out of lock-down which I supported, I wanted to understand the status of the air inside my classroom. My building had undergone renovations to improve the ventilation which is a good thing and I want to believe it happened. I saw the contractors doing the work. But, as an indoor air and occupational health expert, I wanted to know more. How many air changes per hour? What is the CO2 level when the classroom is fully occupied? Is the air being filtered? By what type of filter? I believe that our classroom ventilation may have been upgraded, but I have no access to the information that me and my physician would like to make informed decisions about the risk of being in that classroom. No public sector employee has access to this information, but we really need it.

Finally, I will close by saying I built my own room air filter for my office and my classroom, and I carry my own CO2 monitor, to assess ventilation wherever I go. This is a little crazy, I should be able to get this information from the experts who are the building managers. Please be clear, this bill does not ask MOSH to inspect every building every year, but it requires the state to be a good “home owner” and do common sense things to take care of our buildings for the citizens and the employees and make the measurements available to the building occupants.

Clean Air Benefits Everyone:

<https://www.whitehouse.gov/ostp/news-updates/2022/12/08/clean-indoor-air-benefits-everyone/>

Fact Sheet: <https://www.whitehouse.gov/ostp/news-updates/2022/12/08/fact-sheet-departments-and-agencies-commit-to-cleaner-indoor-air-across-the-nation/>

Air filter work- EPA, CDC, OSHA, ASHRAE and more agree

<https://cleanaircrew.org/air-filters-work/>

Readout of the White House Summit on Improving Indoor Air Quality:

<https://www.whitehouse.gov/briefing-room/statements-releases/2022/10/12/readout-of-the-white-house-summit-on-improving-indoor-air-quality/>

University of Maryland Public Health and Aerobiology Laboratory

<https://sph.umd.edu/research-impact/laboratories-projects-and-programs/public-health-aerobiology-laboratory-phab-lab>

Donald Milton, Professor

<https://sph.umd.edu/people/donald-milton>

Jelena Srebric, Professor

<https://enme.umd.edu/clark/faculty/597/Jelena-Srebric>

California Aerosol Transmissible Disease Standard

<https://www.dir.ca.gov/title8/5199.html>

After three years of covering covid, I built my own air filter

<https://www.washingtonpost.com/health/2023/01/13/air-filter-diy-covid/>

IAQ Research-Practice in Action: The Corsi-Rosenthal Box Air Cleaner

<https://www.texairfilters.com/iaq-research-practice-in-action-the-corsi-rosenthal-box-air-cleaner/>

Testimony in support of safe air for public buildi

Uploaded by: Sara Anderson

Position: FAV

**Written Testimony In Favor of
HB0900: Occupational Safety and Health – Public Buildings – Indoor Air Quality**

My name is Sara Anderson. I am a long-time resident of Chevy Chase, Maryland. I am writing to express my support for HB0900: Occupational Safety and Health – Public Buildings – Indoor Air Quality.

First, I support this bill because I want all public sector workers to have access to safe workplaces. Since COVID-19 is airborne, cleaning the air is very important for preventing transmission of the virus. This is especially important for people who work in-person and who share indoor air with many other people every day. **Public sector workers do important work to support our communities, and they should be able to breathe safe air while they do so.**

Second, I support this bill because I am a senior citizen who wants to be able to safely access public buildings. **Cleaning the air in public buildings makes them more accessible to high risk groups, like senior citizens. COVID is disproportionately killing the elderly.** I am in my early seventies, and I want to be able to enjoy my retirement, take care of my grandchildren, and spend time with my husband and daughters. I do not want to face preventable COVID infection as the price for returning a library book or renewing my driver's license.

I strongly urge you to support this bill. Thank you.

Sara Anderson
301 908 1226
climbthestairs@gmail.com

HB900-FAVAmendments-Dr. Burns.pdf

Uploaded by: Dr. Richard Burns

Position: FWA

HB 900 - Occupational Safety and Health - Public Buildings
Indoor Air Quality
Environment and Transportation Committee
Favorable with Amendments

I am the economist at the Johns Hopkins Center for Health Security. I specialize in cost-benefit analysis of public health policy and was a co-author of our report on indoor air quality to protect school students from COVID. I am currently on an ASHRAE Project Committee to develop standards to reduce airborne disease transmission. The Center for Health Security is currently developing a model state law for indoor air quality, and I am part of the committee developing that model law. I have reviewed House Bill 900, and I provide these comments for your consideration.

If we had a choice between passing HB900, and never doing anything to improve indoor air quality, I would support HB900. The fiscal note estimates annual costs of about \$400 million, and there are about 100,000 Maryland state employees, so according to that estimate, the bill would cost about \$4,000 per year per state worker. I believe that the benefits of improved indoor air quality would exceed \$4,000 per year per affected worker.

In their 2017 review article (<https://core.ac.uk/download/pdf/84003595.pdf>) Wargocki and Wyon demonstrate that typical current indoor air quality reduces job performance by 5-10%. Improving ventilation rates, and using appropriate filters to trap pollutants, can improve productivity by 5- 10%. Every year, Maryland spends about \$11 billion on salaries for state workers, or about \$110,000 per worker. This means that increasing worker productivity by 5% would give the state benefits worth \$5,500 per worker per year.

In addition to those direct productivity benefits, there would be many more benefits of indoor air quality. There would be a 10% reduction in employee sick leave. School children and college students would get sick less and learn more. In the long run, employees would have fewer chronic conditions, and spend less on health care. Using standard US government methodology for valuing health-related quality of life, the value of these health improvements would also be higher than \$4,000 per employee per year, in addition to the productivity benefits.

However, it is possible to achieve the benefits of HB900 by spending much less than \$4,000 per employee every year. HB900 calls for annual inspections of all buildings, no matter what their measured air quality is, and has specific instructions on how these inspections should be done. Many of these requirements add substantial costs, while providing minimal benefits for indoor air quality. In particular, the requirement for an annual assessment of all building envelopes and enclosures is likely to drive much of the estimated cost, while providing minimal benefit. Even if no other changes are made, it should be removed from the bill.

Inspections and certifications are expensive, requiring many hours of skilled labor. By contrast, real-time sensors are cheap, and getting cheaper every year. A good sensor for measuring and

recording PM2.5, the most dangerous kind of pollution, can be purchased and installed for a few hundred dollars. To take advantage of this new technology, the bill should be rewritten to focus on constant measuring of indoor air quality and reacting to high levels of pollutants if necessary. **Instead of mandating inspections of all buildings, HB900 should mandate that sensors be placed near where employees work, to monitor their air quality.** This would cost at most \$400 per employee if building managers installed a sensor for each employee. In many places, fewer sensors would be needed.

With sensors installed, employees and building managers could then see, in real time, the quality of their air. If necessary, they could then take actions to fix it. In the buildings where air quality is good, we would not waste any money in additional inspections.

To provide the right incentive to fix problems with indoor air quality, **the bill should direct Maryland Occupational Safety and Health to set limits for exposure to indoor air pollutants, and to set a schedule of hazard pay** to be given to workers when their air is too polluted. A system of real-time sensors monitoring pollution and giving employees meaningful extra pay in compensation when they are exposed to too much pollution, is both necessary and sufficient to protect workers. With sensors and hazard pay, no other expensive mandates are necessary to fix the problem. Where the air is bad, building managers will see the problem, and then take cost-effective measures to fix it.

Richard Bruns,
PhD Economist, Senior Scholar Johns Hopkins Center for Health Security
bruns@jhu.edu

HB900 Carrier Testimony Support w Amendments.pdf

Uploaded by: Erika Scheffer

Position: FWA



To: Environment and Transportation and Appropriations, General Assembly of Maryland

From: Erika Scheffer, Associate Director, Government Relations, Carrier Corporation

Date: March 7, 2023

Re: House Bill 900 – Relating to Public Building Indoor Air Quality

Dear Chairman Barve,

On behalf of Carrier, the leading global provider of healthy, safe, sustainable, and intelligent building and cold chain solutions, **we support House Bill 900 with amendments.**

HB900 requires the creation and adoption of a comprehensive indoor air quality standard for public buildings. In addition, it requires public employers to annually certify public buildings meet the air quality standard and establish an indoor air quality (IAQ) plan that outlines procedures to validate building systems, equipment, and infrastructure are functioning as intended.

Thank you to the sponsors of this bill for taking action to establish an indoor air quality standard for public buildings and to support public employers as they work to improve Maryland's public spaces. Improved IAQ can support reduced transmission of airborne illnesses, a critical benefit following the COVID-19 pandemic, which can result in reduced absenteeism.¹ In addition, greater IAQ can increase the cognitive function of occupants; for example, occupant cognitive test scores in simulated environments with higher IAQ (low VOCs, low CO₂ and higher ventilation) vs. conventional environments were over 100% higher.² Improved occupant productivity, related to enhanced IAQ, can "result in 10% improvements in organizational profitability," or per employee productivity benefits of \$6,500 each year.³ We hope that as Maryland takes this first step toward improving its building stock and increasing public accountability to provide safer and healthier environments for occupants, it will inspire additional public and private employers to take positive steps toward a healthier and safer future for all Americans.

We recommend the following amendments to improve the feasibility of meeting bill requirements and ensuring the improvement of indoor air quality in public buildings over time:

Section 5-1302.B.2.2: We recommend including the types of personnel that are approved to conduct annual assessments of building envelopes and enclosures and HVAC systems which can be complex and require specialized training to assess. For example, the following language can be included as a requirement: "assessments must be completed by qualified personnel including factory authorized certified manufacturer service technicians for air handling equipment, Testing, Adjusting, and Balancing (TAB) technicians, or persons certified to perform assessments of HVAC systems through a certification body accredited by the America National Standards Institute National Accreditation Board."

Section 5-1302.B.2.2.3.A and B: We recommend expanding the scope of air pollutants that are monitored beyond carbon dioxide. CO₂ tracking alone does not measure overall indoor air quality, but instead measures the concentration of CO₂ in the air and can be used to infer the air ventilation rate relative to CO₂ sources within an indoor space.⁴ Indoor air quality is measured by the concentration of pollutants in the air including (but not limited to) VOCs, PM_{2.5}, and radon, as well as temperature and humidity in addition to CO₂.⁵ Choosing a sensor which considers air quality metrics in addition to CO₂



better enables public employers to take the right actions to improve IAQ and realize the full scope of IAQ benefits, which can include cognitive function. In addition, while tracking indoor air quality, it is recommended to also track changes to GHG (greenhouse gas) emissions and energy consumption. Changes made to building systems to improve indoor air can change the environmental impact of building systems. Understanding the environmental impact upfront can inform the optimal selection of potential IAQ solutions.

Section 5-1302.B.2.2.3.B: We recommend specifying the minimum frequency of “routine monitoring” for air pollutants, temperature, and humidity that are required as well as approved methodologies and tools for monitoring. Best practice is continuous monitoring of all required air pollutants, humidity, and temperature and to alert operations or facilities teams when levels fall below the standard and which actions are needed to restore the system to the minimum operating standard for IAQ. Additional monitoring details that would be beneficial to include are mounting location parameters, minimum monitor capabilities including measurement ranges and accuracy, minimum monitor quantity depending on building size and design, and monitor alert or notification capabilities. We recommend using the WELL Performance Verification Guide or a similar guideline that includes science-backed best practices.⁶

Section 5-1302.B.2.2.3.E: We recommend in addition to training employees and occupants, that IAQ be made visible to them throughout the year. For example, if IAQ is continuously monitored, results can be made public through visual displays at building entrances that indicate when IAQ parameters are in or out of desired compliance ranges.

Section 5-1302.C.1.2: We recommend that solutions not only be prioritized on cost-effectiveness but also on their ability to reduce or minimize environmental effects associated to improvements in indoor air quality.

Section 5-1302.C.1.3: We recommend including a list of example standards/guidelines to improve clarity, such as the WELL, FitWel or ASHRAE standards.

Section 5-1302.C.2.5: We would like to nominate a Carrier expert to be a contributing member to the commissioner’s committee to develop the minimum IAQ standard for Maryland’s public buildings. Carrier experts are highly familiar with existing evidence-based standards, cost-effective and sustainable IAQ solutions, IAQ solution equipment, installation lead times, and best practices, as well as new IAQ technologies. We believe this bill directly supports Carrier’s mission to help people and the planet and we would appreciate any opportunity to support this bill and its execution.

For these reasons, we support HB900 with amendments.

Sincerely,

A handwritten signature in black ink that reads "Erika Lynn Scheffer".

Erika Scheffer

Erika.Scheffer@Carrier.com



Citations

- ¹. The White House - Office of Science and Technology Policy (OSTP), [Let's Clear The Air On COVID | OSTP | The White House](#)
- ². Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and Volatile Organic Compound Exposures in Office Workers: A Controlled Exposure Study of Green and Conventional Office Environments <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.1510037>
- ³. Designing Buildings that Are Both Well-Ventilated and Green <https://hbr.org/2023/01/designing-buildings-that-are-both-well-ventilated-and-green>
- ⁴ What a Carbon Monoxide Detector Tells You <https://www.energyvanguard.com/blog/what-a-carbon-dioxide-monitor-tells-you/>
- ⁵. EPA – Introduction to Indoor Air Quality <https://www.epa.gov/indoor-air-quality-iaq/introduction-indoor-air-quality>
- ⁶. WELL Performance Verification Guide [Microsoft Word - WELL Performance Verification Guidebook Q1 2019 clean.docx \(storyblok.com\)](#)

HB 900 - UNF- MML.pdf

Uploaded by: Angelica Bailey Thupari

Position: UNF



Maryland Municipal League
The Association of Maryland's Cities and Towns

TESTIMONY

March 9, 2023

Committee: House Environment & Transportation

Bill: HB 900 - Occupational Safety and Health - Public Buildings - Indoor Air Quality

Position: Opposed

Reason for Position:

The Maryland Municipal League opposes House Bill 900, which aims to establish indoor air quality standards for public buildings in Maryland. While we appreciate the intent, this measure would be unduly burdensome for Maryland's municipalities.

This measure would require public buildings to meet certain indoor air quality standards, which may require costly upgrades to HVAC systems, building materials, and other components of public buildings. Municipalities may struggle to fund these upgrades, particularly with limited resources. Furthermore, compliance with the Department of Labor's new guidelines required under this bill may require additional staff time and resources, which could be a strain on already overburdened municipal budgets.

This measure also places significant administrative burdens on municipal governments. The proposed requirements for employers (which includes municipalities) include: annual certifications; annual inspections of HVAC, building envelopes and enclosures; annual inspections of all building systems including carbon dioxide output, temperature, and humidity; certify that windows, doors, vents, stacks, and other natural ventilation portals are in good condition; and record and respond to employee complaints regarding signs of building-related illness. While municipal employers agree that air quality is important and the health and safety of our employees is paramount, these requirements are overly proscriptive, onerous, and costly.

Overall, while the aim of the bill to improve indoor air quality in public buildings is laudable, the potential financial and administrative concerns will pose challenges for our members. As

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such, MML respectfully requests that this committee provide HB 900 with an unfavorable report.

FOR MORE INFORMATION CONTACT:

Theresa Kuhns

Angelica Bailey Thupari, Esq.

Bill Jorch

Justin Fiore

Chief Executive Officer

Director, Advocacy & Public Affairs

Director, Public Policy

Deputy Director, Advocacy & Public Affairs

HB0900-ET_MACo_OPP.pdf

Uploaded by: Brianna January

Position: UNF



House Bill 900

Occupational Safety and Health - Public Buildings - Indoor Air Quality

MACo Position: **OPPOSE**

To: Environment and Transportation and
Appropriations Committee

Date: March 9, 2023

From: Brianna January

The Maryland Association of Counties (MACo) **OPPOSES** HB 900. This bill would impose a costly and specific mandate on county governments as part of routine facility maintenance for all public buildings. Ultimately, this bill poses potentially staggering capital costs for counties on what would be duplicative routine facility maintenance that counties are already doing.

Counties prioritize the health and safety of staff and constituents who access the public buildings under their ownership. No jurisdiction wants public schools, county courthouses, or administrative buildings to have less-than-desirable air quality and filtration. Counties do not take issue with the merits of HB 900, but rather the specific means and dictates of the bill.

HB 900 would pose a costly, unfunded mandate for local governments. Under the bill, counties would be required to adhere to new air quality and filtration standards relating to HVAC and other facility systems. This would include all county courts, county jails, public libraries, and other county buildings accessible to the public. Counties would necessarily provide additional financial support to local boards of education, which each own and operate dozens of K-12 school facilities. Not only would this be a daunting operational mandate, but it would also be a costly one.

County governments appropriately manage their own facilities and strive to provide the safest public facilities for the staff they employ and the public they serve. They have managed public facilities and the health and safety within them successfully – and in many cases, have been far ahead of the State’s requirements. The specific mandates of HB 900 are duplicative of routine procedures to which local governments already adhere. Counties are already held to high standards relating to air quality systems, for both new builds and existing facilities.

Furthermore, HB 900 treats all public buildings the same, without any considerations or flexibility for older, historic buildings – a building built in 2020 is treated the same as one built in 1920. This is not practical or reasonable.

While counties appropriately bear the burden of building safety and welcome partnering with the State on these important goals, HB 900 prescribes a duplicative, specific, and expensive approach. For these reasons, MACo **OPPOSES** HB 900 and urges an **UNFAVORABLE** report.

HB 900.School Indoor Air Quality standards and Tes

Uploaded by: John Woolums

Position: UNF

BILL: House Bill 900
TITLE: Occupational Safety and Health - Public Buildings - Indoor Air Quality
DATE: March 9, 2023
POSITION: OPPOSE
COMMITTEE: Environment and Transportation
CONTACT: John R. Woolums, Esq.

The Maryland Association of Boards of Education (MABE) believes that indoor air quality standards for public schools already adequately ensure high levels of public health and safety within Maryland's public schools. However, MABE urges an unfavorable report on House Bill 900 because each local school system very recently completed extensive inspections of their buildings and this bill would therefore impose an unnecessary and duplicative burden on school facilities maintenance staff with little, in any, benefit to school facility conditions.

MABE agrees that ensuring indoor air quality in the public school setting is an important component of a school system's strategy to maintain healthy school environments. MABE has promoted the use of the U.S. EPA's Indoor Air Quality (IAQ) Tools for Schools guidelines and kit. MABE recognizes the value of these tools in helping to ensure good indoor air quality, and reduce the risks of student and employee health problems. In light of the existing breadth and depth of school facilities maintenance staff activities relating to using best practices, MABE does not believe the proposal to require school systems to participate in the extensive standard setting, inspection, and compliance system proposed by House Bill 900 is necessary to ensure high quality indoor air quality in schools or a prudent, cost-effective use of limited resources.

The COVID-19 pandemic resulted in revisions to public health and safety standards for all commercial buildings, including revised guidance from the Centers for Disease Control (CDC) for school facilities. These standards have resulted in a wide array of previously unbudgeted investments in building systems, equipment, supplies, and school maintenance and custodial personnel. Fortunately, significant federal funding was provided to local school systems to support COVID-19 responses to ensure the safe operation of school facilities, including: purchasing personal protective equipment (PPE) and supplies to sanitize school facilities; and inspection, testing, maintenance, repair, and installation of new systems to improve the indoor air quality in school facilities, including heating, ventilation, and air conditioning systems, filtering, purification and other air cleaning, fans, control systems, and window and door repair and replacement. However, in order to sustain the benefits of these one-time COVID-related expenditures local school systems are in need of increased investments by the State and local governments for school facilities maintenance personnel and maintenance budgets.

Local school systems are continuously devoting staff time and resources to efforts to provide healthy school environments, including addressing indoor air quality issues. Risk managers and facility maintenance staff recognize the need for a comprehensive preventative strategy, including educating and training staff, and providing them with the maintenance budgets to support these strategies. For example, routine cleaning and/or replacement of filters for HVAC systems is a simple yet essential component of a successful IAQ program. In addition, routine monitoring coupled with prompt responses to problems when they do occur can avoid the emergence of more serious and costly problems. These are examples of best practices that must be vigorously and continually implemented to ensure that indoor air quality does not become a negative factor for our students and teachers.

Again, MABE agrees that indoor air quality in public schools is a very important health issue, and greatly appreciates the intent of this legislation to improve conditions in all public buildings across the State. However, MABE urges an unfavorable report on House Bill 900 for the reasons outlined above.

HB900_USM_INFO.pdf

Uploaded by: Andy Clark

Position: INFO



HOUSE ENVIRONMENT AND TRANSPORTATION COMMITTEE
House Bill 900
Occupational Safety and Health - Public Buildings - Indoor Air Quality
March 9, 2023
Information

Chair Barve, Vice-Chair Stein, and members of the committee, thank you for the opportunity to testify on House Bill 900. The bill requires the Commissioner of Labor and Industry to adopt a comprehensive indoor air quality standard for public buildings on or before October 31, 2025.

The bill, as written, has potentially significant fiscal and operational impacts for the University System of Maryland's (USM's) constituent institutions, as each campus manages an extensive inventory of buildings, some of which have characteristics often associated with historic buildings and structures. House Bill 900 imposes new mandates on USM institutions that cannot be met with existing resources.

The adoption of new indoor air quality standards, as required by House Bill 900, includes a **new** requirement that each public employer conduct an annual assessment of the operations and maintenance of each public building's HVAC systems. The annual assessment must include input from employees, including the building's engineering staff, and must consider their comments and those of their exclusive representative(s). Each public employer must certify in writing that each building's HVAC systems have been inspected and are being operated as designed. With many hundreds of buildings in USM building inventories, the new requirement for institutions to conduct annual assessments of each building's HVAC systems and include the input of certain stakeholders in the assessment would be a complex undertaking.

House Bill 900 also creates a **new** requirement for mandatory training associated with indoor air quality, tailored to each building's occupants. The bill also creates the obligation for a public employer to receive, investigate, and respond to indoor air complaints; the bill is not clear whether this obligation can be met by the USM's existing employee grievance process, established in the Education Article and through USM policy, approved by the Board of Regents.

Facilities management teams across the USM already perform many of the functions the bill will require, and institutions have an effective process for prompt response to (and investigation of) employee health complaints related to their workplace. Remediation, repair, or other corrections are made when building-related issues are found, and employee health complaints and follow-up actions are documented. The bill would require the universities to hire additional staff and/or secure the services of an outside consultant to

satisfy annual assessment of all building envelopes and enclosures, HVAC systems, and the maintenance and operation of HVAC systems.

Thank you for allowing the USM to share this information regarding House Bill 900.



About the University System of Maryland

The University System of Maryland (USM)—one system made up of 12 institutions, three regional centers, and a central office—awards 8 out of every 10 bachelor’s degrees in the State of Maryland. The USM is governed by a Board of Regents, comprised of 21 members from diverse professional and personal backgrounds. The chancellor, Dr. Jay Perman, oversees and manages the operations of USM. However, each constituent institution is run by its own president who has authority over that university. Each of USM’s 12 institutions has a distinct and unique approach to the mission of educating students and promoting the economic, intellectual, and cultural growth of its surrounding community. These institutions are located throughout the state, from western Maryland to the Eastern Shore, with the flagship campus in the Washington suburbs. The USM includes Historically Black Colleges and Universities, comprehensive institutions, research universities, and the country’s largest public online institution.

USM Office of Government Relations - Patrick Hogan: phogan@usmd.edu

'23 HB 900 Indoor Air DGS E&T LOI 3-9-23.pdf

Uploaded by: Ellen Robertson

Position: INFO

BILL: House Bill 900 - Occupational Safety and Health - Public Buildings - Indoor Air Quality

COMMITTEE: House Environment and Transportation

DATE: March 9, 2023

POSITION: Letter of Information

Upon review of House Bill 900 Occupational Safety and Health - Public Buildings - Indoor Air Quality, the Maryland Department of General Services (DGS) provides these comments for your consideration.

This bill requires the Commissioner of Labor and Industry, the Maryland Department of the Environment, the Maryland Department of Health, and the Maryland Energy Administration to adopt comprehensive indoor air quality standards for public buildings by November 2025. Establishing minimum evidence-based standards for safe building operations and levels of contaminants and pollutants determined to pose a risk to the health and safety of employees working in public buildings would be accomplished. Units of state government would be required to conduct an annual assessment of building envelopes and enclosures, HVAC systems, and the maintenance and operation of HVAC systems.

DGS owns 52 facilities and additionally supports 1,354 State-owned facilities, totaling 1,406 facilities of 26 million gross square feet. House Bill 900 would require all 1,406 DGS-owned and supported facilities to be inspected. Additionally, DGS would be required to complete the initial indoor air quality analysis, any necessary remediation, recurring maintenance, and required reporting. Currently, DGS does not have the necessary expertise or staff for these complex requirements. DGS would require external consultants with subject expertise and would also have to procure the necessary equipment for the required inspections, maintenance and repairs. **The initial inspection and remediation cost estimate for all DGS-operated facilities will be approximately \$962,000,000 while annual recurring maintenance will total approximately \$390,000,000.**

DGS met with the bill's sponsor and have provided the following suggestions:

- Implement a study, effective October 1, 2023 through October 31, 2025, to determine the most cost-effective and comprehensive means to achieve safe indoor air quality for public buildings, including private industry representatives with subject matter expertise.
- Include DGS as a member of the study as an agency that owns 52 facilities and supports 1,354 state-owned facilities with over 26 million square feet.
- Create a non-lapsing fund for public employers to use in order to comply with the standards established. Include funds for the temporary relocation of building tenants that may be necessary to address building deficiencies.
- For the initial inspection and assessment, establish a 3-year window for public employers to comply with the standards established.
- For recurring annual inspections, alter the requirement to biennial inspections.

For additional information, contact Ellen Robertson at 410-260-2908.

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Uploaded by: State of Maryland (MD)

Position: INFO



Wes Moore, Governor · Aruna Miller, Lt. Governor · Laura Herrera Scott, M.D., M.P.H., Secretary

March 9, 2023

The Honorable Kumar P. Barve
Chair, Environment and Transportation Committee
Room 251, House Office Building
Annapolis, Maryland 21401

**RE: HB 900 - Occupational Safety and Health - Public Buildings - Indoor Air Quality –
Letter of Information**

Dear Chair Barve and Committee Members:

The Maryland Department of Health (MDH) respectfully submits this Letter of Information regarding House Bill (HB) 900 - Occupational Safety and Health - Public Buildings - Indoor Air Quality. HB 900 will require public employers that employ individuals who are required to work in public buildings to bring their buildings into compliance with certain evidence-based standards for safe building operation and levels of contaminants and pollutants.

MDH understands the importance of indoor air quality for employees statewide. MDH notes that the state of the science regarding indoor air quality still leaves many questions unanswered about the concentrations at which chemical mixtures may induce irritation or allergic reactions in sensitive individuals.¹ Therefore, it will be challenging to create comprehensive, evidence-based health standards other than measures like carbon dioxide that represent overall quality of ventilation within a building.

MDH appreciates that indoor air quality (IAQ) can have a significant impact on the health and productivity of building occupants, and recognizes that HB 900 closely parallels the recommendations and structure of the Environmental Protection Agency's (EPA's) IAQ management plan for office buildings, as well as the 2002 report of the Maryland Task Force on Indoor Air Quality.^{2,3} MDH notes that its maintenance and architectural staff are not trained to complete and conduct an annual assessment of building envelopes and enclosures and HVAC systems, nor are staff trained to annually certify building HVAC systems. Staff are not trained to

¹ Mitchell CS, Zhang JJ, Sigsgaard T, Jantunen M, Liyo PJ, Samson R, Karol MH. Current state of the science: health effects and indoor environmental quality. *Environ Health Perspect.* 2007 Jun;115(6):958-64. doi: 10.1289/ehp.8987. Epub 2007 Jan 25. PMID: 17589607; PMCID: PMC1892137. Accessed February 7, 2023 at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1892137/>

² "Building Air Quality: A Guide for Building Owners and Facility Managers." December, 1991. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 91-114. Accessed February 7, 2023, at: <https://www.epa.gov/sites/default/files/2014-08/documents/iaq.pdf>

³ "Maryland State Task Force on Indoor Air Quality: Final Report." Submitted to the General Assembly July 1, 2002. Accessed February 9, 2023 at: <https://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/004000/004171/unrestricted/20071008e.pdf>

develop and regularly revise written comprehensive indoor air quality plan(s). To comply with the requirements of this bill, MDH will likely need to retain, on an ongoing basis, consultants to perform these assessments and develop the required plan, as MDH does not have these subject matter experts on staff.

If you would like further information please contact Megan Peters, Acting Director, Office of Governmental Affairs, at 410-260-3190 or megan.peters@maryland.gov.

Sincerely,



Laura Herrera Scott, M.D., M.P.H.
Secretary