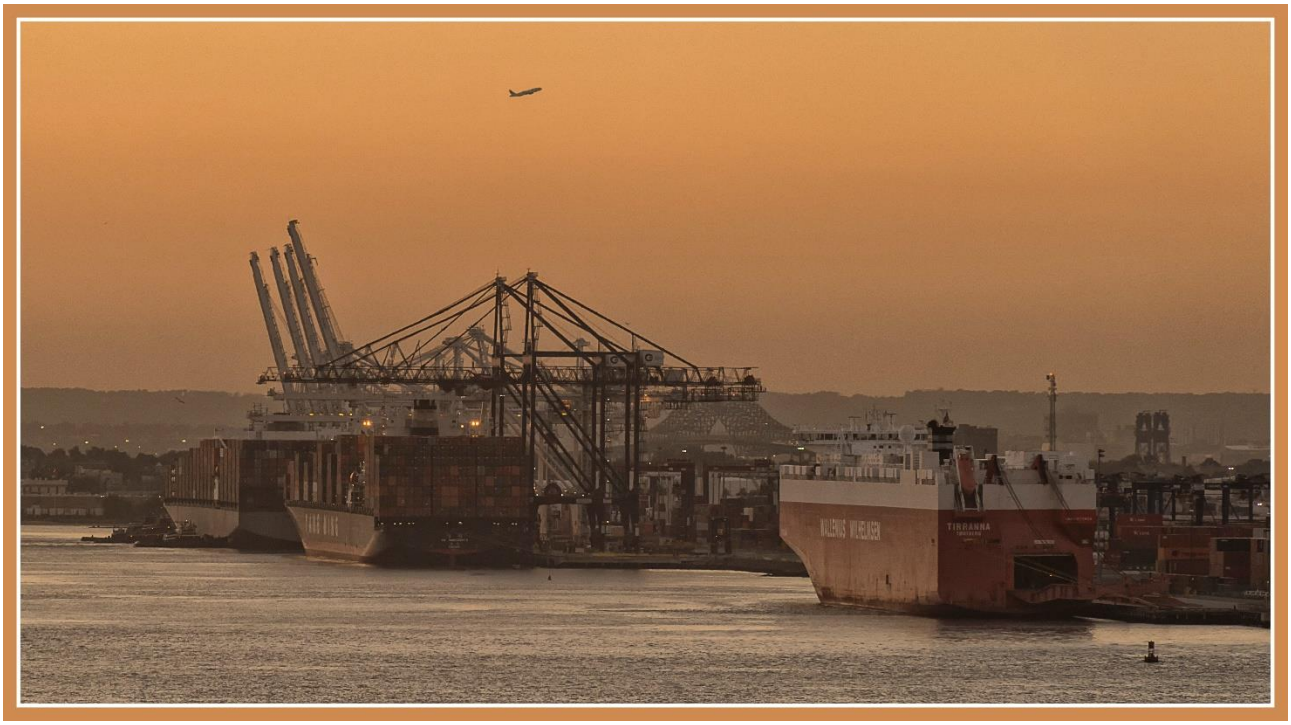
Past, Present, and Future:
Air Quality Around Our Ports and Airports



New Jersey Clean Air Council
Public Hearing July 30, 2020

STATE OF NEW JERSEY
CLEAN AIR COUNCIL

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The New Jersey Clean Air Council wishes to acknowledge the New Jersey Department of Environmental Protection on its 50th anniversary, protecting the State's fragile and diverse ecosystems and the environment for all New Jerseyans to enjoy and entrust to future generations of this great Garden State.

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***Editor's note**: Supporting documents for this report can be found at the following URL: https://www.nj.gov/dep/cleanair/hearings/ph_2020.htm*

EXECUTIVE SUMMARY

The New Jersey Clean Air Council (CAC or the "Council"), as an advisory body to the Commissioner of the New Jersey Department of Environmental Protection (DEP), has undertaken a public hearing to provide recommendations to the Commissioner to help better understand the extent of air pollution and greenhouse gas emissions around ports and airports and their surrounding communities in the State of New Jersey. This year, the Council has taken a look back at the progress our ports have made in improving air quality and offers recommendations in light of the State's bold decarbonization goals. In 2008, the CAC convened a public hearing to examine how emissions from our marine ports and airports impacted both local and regional air quality. At that time, the Council offered recommendations as to how new emission control technologies, idling reduction strategies, use of cleaner fuels, transitioning to green technologies, better land use and container management, and better vehicle route planning could lead to reduction in air emissions and adverse health impacts within the surrounding port communities.

This year, the Council has reviewed the progress of our port industries in light of the vision of decarbonizing and utilizing clean energy as outlined in the 2019 Energy Master Plan (EMP). In that context, the Council has learned much about the improvements that have been made through the efforts of our port industries and how seriously those industries have taken our past recommendations. While much of what was recommended in 2008 has led to significant air quality progress, there is still more work that is necessary to continue to improve air quality around our ports, provide additional protections to our citizens that live in the vicinity of our port areas, and achieve the goals of the EMP. To that end, the following report summarizes the testimony and data received during the CAC's July 30, 2020 public hearing and the Council's recommendations on this important issue. The Council is pleased to present this report in an effort to better understand and appropriately prioritize air quality issues surrounding port and airport communities.

The Council's recommendations focus on the following areas:

- Ongoing activity and commitment for clean energy and energy efficiency at the ports and airports;
- Progressing the plans for late model vehicle replacement, traffic control, vehicle electrification and other improvements that would benefit air quality and local communities;
- Commitment and follow through on evolving legislative, regulatory and policy actions related directly and indirectly to improving air quality around ports and airports, and
- Various cross-cutting actions that affect a variety of sectors within New Jersey, including ports and airports.

RECOMMENDATIONS

Based upon the testimony received and questions asked at the public hearing, the Council has developed the following recommendations for the DEP to address issues of air quality that are still problematic in and around our ports and airports.

A. Airports
   i. Expand the use of electrified ground support equipment,

ii. Expand solar electricity generation and LED lighting projects,
iii. Install electric vehicle charging stations at parking areas for taxis and passenger vehicles,
iv. Expand electrification of shuttle buses at all airport terminals,
v. Develop and incentivize production and use of renewable and low carbon aviation fuel in this region.

B. Marine Terminals
i. NJDEP should adopt current and proposed California regulations for cargo handling equipment (https://ww2.arb.ca.gov/our-work/programs/cargo-handling-equipment), spark-ignition marine engines, and commercial harbor craft.
ii. NJDEP should encourage the development of policies to transition from use of 1997 model year and older trucks in and around the ports and incentivize older model year truck replacement programs, ultimately leading to electrification of drayage trucks as per the UCLA study. Similarly, NJDEP should consider the suite of rulemaking being undertaken by the California Air Resources Board: Advanced Clean Trucks rule; Zero Emissions Fleet rule; and Low NO_x Omnibus rule. These rules would require companies to manufacture electric trucks; require fleets to buy those electric trucks; and ensure that non-electric trucks produced in the interim meet stringent NO_x standards.
iii. DEP should work with the ports and the freight industry to examine opportunities to expand upon the popular PA's Truck Replacement Program and incentivize truck replacement with electric or hybrid vehicles, in addition to newer diesel engines, to continue aiding truck owners to invest in newer technology vehicles with lower emissions. On July 14, 2020, New Jersey joined 15 states and the District of Columbia in signing a joint memorandum of understanding (MOU), committing to continue to work collaboratively to advance and accelerate the market for electric medium- and heavy-duty vehicles, including large pickup trucks and vans, delivery trucks, box trucks, school and transit buses, and long-haul delivery trucks (big-rigs). The goal is to ensure that 100 percent of all new medium- and heavy-duty vehicle sales be zero emission vehicles by 2050 with an interim target of 30 percent zero-emission vehicle sales by 2030. The CAC supports this undertaking and recommends that New Jersey follow through on its commitments to this MOU.
iv. Port facilities should optimize traffic routing into and out of port facilities,
v. Expand solar electricity generation and LED lighting projects,
vi. Develop and incentivize production and use of renewable and biodiesel diesel fuel in this region,
vii. Encourage the use of hybrid and fully electric tugs and other marine workboats, passenger ferries and car ferries,
viii. Reduce further idling motor vehicles and ships at berth through shore power or air pollution control systems.
ix. Lead by example by upgrading diesel engines/electrifying state-owned equipment and medium- and heavy-duty vehicles.

C. Cross-Cutting Issues

i. NJDEP should continue to enforce anti-idling regulations for all vehicular traffic in and around port facilities.. As part of this effort, NJDEP should create an anti-idling campaign similar to New York City's recent public awareness Anti-Idling campaign. This $1 million campaign includes 12 high-profile billboard locations, gas station TV, radio and social media ads, as well as LinkNYC and TaxiTV exposure and placement on City fleet vehicles. In addition, New York City created a Citizens Air Complaint Program, where members of the public can receive an award for submitting a complaint on trucks or buses idling for longer than three minutes adjacent to a school.

ii. NJDEP should encourage and promote port facilities to work closely with community stakeholders and environmental justice organizations. The Camden Collaborative Initiative, launched seven years ago, is an example of a forum where government, citizens, and other stakeholders can discuss issues of concern to the community. The South Jersey Port Corporation should consider actively engaging in the group's discussions. Similarly, the Port Authority of NY/NJ's Clean Air Strategy Committee should be expanded to include community representation. Giving community members an official seat at the table that will ensure that their concerns are heard, and solutions can be collaboratively developed. In working with community stakeholders, environmental or public health stressors that contribute to adverse cumulative impacts affecting the overburdened community should be considered.

iii. DEP should regulate black carbon and other short-lived climate pollutants contributing to climate change, particularly related to emissions from traffic and equipment in and around ports and airports. Under Governor Phil Murphy's Executive Order 100 and Commissioner McCabe's January 27, 2020 Administrative Order, the DEP is reforming regulations that will help reduce GHG emissions while making our natural and built environments more resilient to the impacts of climate change. The Protecting Against Climate Threats (PACT) initiative will include including short lived climate pollutants in its GHG inventory and enacting new air pollution regulations that will reduce carbon dioxide and short-lived climate pollutants (methane, hydrofluorocarbons, perfluorocarbons, and black carbon).

iv. Evaluate the creation of low emission or zero emission zones in and around port facilities which prioritize improved air quality in certain areas. As an example: https://tfl.gov.uk/info-for/boroughs-and-communities/zero-emission-zones. This could be accomplished by giving priority for grants, loans and other funding sources to reduce emissions in those areas, developing model ordinances or other policies that would promote emission reduction strategies, etc.

v. DEP/other state agencies should use incentive funding from Volkswagen, RGGI, and other funding sources to transition port and airport sources of mobile and non-mobile emissions to electric and hybrid resources as listed in above recommendations.

vi. Renewable and low carbon intensity fuel availability will be critical to several of the CAC's port and airport recommendations. The CAC recommends that New Jersey support the in-state production and logistics (transportation and storage) of these next generation clean fuels.

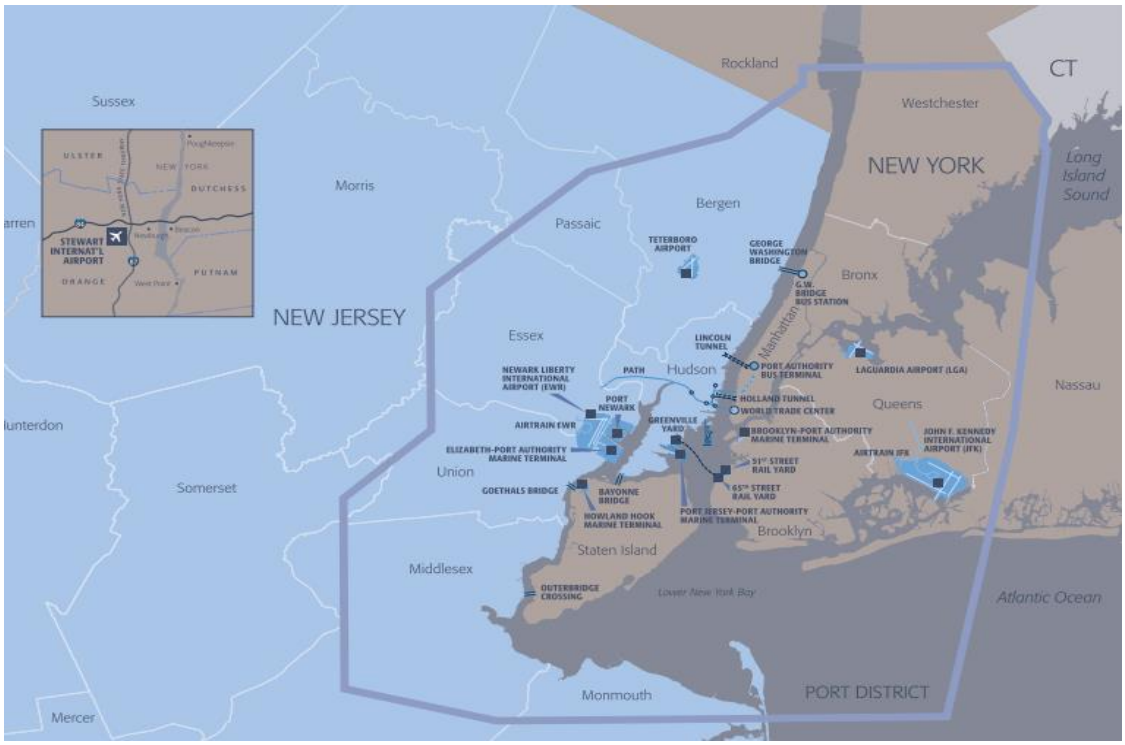
We recognize that several commenters, many of whom were from out-of-state, testified regarding the Trenton-Mercer Airport (TTN). The review of the many individual general aviation airports was beyond the scope of this year's public hearing, which is focused on the airports associated with our port system. In particular, comments regarding concerns on the impact on clean water and waste issues generally, and specifically related to general aviation airports, need to be addressed with other areas of the NJDEP or the Clean Water Council. We note that New Jersey's general aviation airports are a significant part of reducing the feed from our major airports and are an important part of our transportation system. We believe that recommendations associated with our port-operated airports can and should be taken into consideration by New Jersey's general aviation airports, particularly our larger general aviation airports.

BACKGROUND AND RECENT ACHIEVEMENTS

In 2008, the CAC convened a public hearing to examine how emissions from our marine ports and airports impacted both local and regional air quality. Port operations were discussed, as was the impact from commercial truck traffic servicing the ports to deliver and offload cargo. Recommendations were made as to how new emission control technologies, idling reduction strategies, use of cleaner fuels, transitioning to green technologies, better land use and container management, and better vehicle route planning could lead to a reduction in air emissions and adverse health impacts within the surrounding port communities. Many of these recommendations were implemented by stakeholders. However, the most recent (2019) version of New Jersey's Energy Master Plan (EMP) outlines a bold vision for decarbonization and clean energy, including strategies to use at our ports and airports. Coupled with advances in technology and other recently announced initiatives, now is the time to think about future opportunities for collaboration, innovation, emission reduction, and community engagement. We hope that our 2020 CAC hearing will result in updated plans and approaches to further the gains made since our work in 2008.

Port Authority of New York and New Jersey

The Port Authority of New York and New Jersey (PA or PANYNJ) was established in 1921 between the states of New York and New Jersey. Its initial purpose was to promote economic growth between the two states. In the 99 years since its establishment, the PA's mandate has expanded to also improve the regional transportation infrastructure, maintain and improve tunnels and bridges connecting both states, maintain and expand port and airport facilities in both states, maintain the rail connections between both states, and also promote trade around the region. A map of the port district can be seen below.



Map from 2018 PANYNJ Annual Report found at:
https://www.panynj.gov/corporate/en/financial-information/annual- report.html

The PA manages the operation of airports, air trains, tunnels, bridges, ferries, bus terminals and stations, as well as the operation of seven cargo terminals in the New York - New Jersey area. In New Jersey, the PA operates the Port Newark and Elizabeth-Port Authority Marine Terminal. These terminals work as one integrated marine terminal creating the largest group of maritime cargo handling facilities; Auto Marine Terminal handles vehicle imports and exports; and Global Marine Terminal is the closest container terminal to the harbor entrance. In New York, the PA manages Howland Hook Marine Terminal, Brooklyn Port Authority Marine Terminal and Red Hook Terminal. The PA has the largest cargo capacity of the ports in the eastern United States.

According to the Port Authority's 2019 annual report, 138 million passengers went through the region's four major airports in 2018 (see Table 1 – Airport Passenger Volume). The ports of New York and New Jersey handled over 7 million TEUs (Twenty-foot equivalent units), a 7% increase in container movement since 2017. Traffic at the region's bridges and tunnels saw 120 million vehicles traveling eastbound in 2018, almost a 1% increase over 2017 traffic. A combined total of over 158 million passengers used PATH service and the Port Authority Bus Terminal. A detailed 4-year comparison listing of Port Authority facility traffic, passenger and goods movement can be found in Appendix A. Key pollutants of concern in and around both airports and ports include oxides of nitrogen, carbon monoxide, hydrocarbons, particulate matter, sulfur oxide and carbon dioxide. Exhaust emissions from aircraft (NOx, SOx, CO, PM, HCs) both at ground level and at altitude, adversely contribute to air quality. The gases and particles emitted from aircraft engines can cause harmful effects in different stages of the flight, from the ground to higher altitudes.

Table 1: Airport Passenger Volume

Airport	Passenger Volume in 2018 and Comparison
Newark Liberty International	46 million (6.1% increase since 2017)
John F. Kennedy International	62 million (3.6% increase since 2017)
LaGuardia	30 million (1.8% increase since 2017)
New York Stewart International	690,411 (53.9% increase since 2017)

In an effort to reduce its carbon footprint, the PA has taken steps to help reach its greenhouse gas reduction goals. From 2009 to 2019, the PA largely achieved its goal of reducing emissions from good movement operations by 3% each year. In October 2018, the PA became the first public transportation agency in the U.S. to embrace the Paris Climate Agreement, setting aggressive interim greenhouse gas reduction targets that call for a 35% reduction by 2025 and reaffirming the agency's commitment to an 80% reduction by 2050. The PA has committed to electrifying 100% of its airport shuttle bus fleet by mid-2020 and 50% of its light-duty vehicles by 2025. As of the writing of this report, their initiatives to meet these goals included:

1. Converting shuttle busses at three of the four airports to all-electric;
2. Converting the light-duty vehicle fleet to electric;
3. Installing fast-charging stations at John F. Kennedy International Airport;
4. Initiating a pilot study to test electric cargo handling equipment at ports and airside equipment at airports;
5. Dedicating $100 million to improve energy efficiency facility-wide;
6. Upgrading lighting at bridges, tunnels, airports, and other properties to LED;
7. Incorporating solar and fuel cell power across several PA facilities;
8. Creating a 5Mw community solar project at John F. Kennedy International Airport which offers low-cost renewable energy to the local neighborhood;
9. Investing $25 billion into new airport facilities;
10. Extending the Clean Vessel Incentive Program at area ports to incentivize both container and passenger vessels to make voluntary enhancements to equipment that would reduce emissions in and around port facilities;
11. Investigating offshore wind facility opportunities;
12. Developing and strengthening partnerships with local and regional environmental coalitions;
13. In early 2019, the U.S. EPA awarded Port Authority a $2 million grant to revive its Truck Replacement Program, which pays up to $25,000 to replace aging drayage trucks with trucks made in Engine Model Year 2013 or newer. Port Authority has also allocated millions of dollars from its own budget to support this program. The state will work with Port Authority and the freight industry to examine opportunities to expand upon the popular Truck Replacement Program and incentivize truck replacement with electric or hybrid vehicles, in addition to newer diesel engines; and
14. As of August 1, 2020, the PA will require trucks to have engines built no earlier than 1998 and newly registered trucks must have model year engines in 2007 or later through its tariff agreement.

The PA is the third largest port in the United States and is ranked 11th in the world in the amount of container traffic. Thirteen percent of all container traffic in the U.S. passes through this port, which accounts for 3.8 million containers from 5,000 ships. Over 16 million tons of cargo move through the port each year, with major imports being beverages and vehicles and major export being wood (from: http://njseagrant.org/wp-content/uploads/2014/03/FactsandFiguresof_the_PortofNYandNJ.pdf). In 2018, 84,962 metric tons of cargo were handled by the port, an increase of 4.8% from 2017(https://www.panynj.gov/port/en/our-port/facts-and-figures.html). A total of 7,179,788 TEUs were handled by the port and 4,095,454 total containers.

South Jersey Port Corporation

In Southern New Jersey, the Camden port along the Delaware River is managed by the South Jersey Port Corporation (SJPC). The SJPC was created in 1968 to operate marine shipping terminals in the South Jersey Port District which consists of seven counties: Burlington, Camden, Gloucester, Salem, Cumberland, Mercer and Cape May. The SJPC operates the Joseph A. Balzano Marine Terminal and Broadway Terminal facilities in the City of Camden and the Port of Salem in the City of Salem. In addition, the SJPC recently completed development of a marine terminal in Gloucester County, New Jersey. In conjunction with the Gloucester County Improvement Authority (GCIA), the Port redeveloped the former 130-acre British Petroleum (BP) Oil Terminal and an adjacent 60-acre former Essex Industrial Chemicals, Inc. (Essex) into a new, deep-water marine terminal. The SJPC is a quasi-state agency, which reports through the Department of the Treasury to the Governor of New Jersey. The marine terminal facilities of SJPC handle wood products, coil steel, slabs, wire rod, and pipe, as well as cocoa beans, fruit, nuts, sand, gravel, apparel, and other bulk cargo (see Table 2 for tonnage moved). Approximately 4.32 million tons of cargo passed through the SJPC facilities in 2017, as per their 2016/2017 audit report, the most currently-available audit report on their website (https://www.southjerseyport.com/wp-content/uploads/2018/11/2017-South-Jersey-Port-Corporation-Audit-Report-for-the-Years-Ended-December-31-2017-and-2016.pdf).

Table 2: SJPC Tonnage Moved by Type in 2017

Cargo	4,320,185 Tons	(88.4% increase since 2016)
Breakbulk	Tonnage NR†	(160% increase since 2016)
Dry Bulk	1,987,188 Tons	(42% increase since 2016)
Containers	0 Tons	(value unchanged from 2016)

† Not Reported - 2017 Audit Report does not provide tonnage value

The SJPC is a member of a coalition of three maritime-related organizations from two neighboring states, Pennsylvania and Delaware, that partnered to develop "green" initiatives and facilities to reduce the impact of port activities on their surrounding communities. As of the writing of this report, their green port initiatives over the last decade included:

1. Repowering of cargo handling equipment with lower emission engines;
2. Installing an all-electric cargo handling crane;
3. Tree planting along terminal property;
4. Building a green buffer to help reverse the urban heat zone effect in the local community; and

5. Organizing a community-wide cleanup day involving their own employees and local businesses.

Airport Areas of Concern

Some of the main environmental and sustainable development concerns associated with airport operations are noise, exhaust and fugitive emissions, and energy consumption. The PA must develop a balanced approach to maximize the transportation capacity of the four major area airports and future growth while minimizing negative impacts on the local communities.
In addition to noise from aircraft movement and cargo and support vehicle movement, as well as the constant presence of passenger traffic, degradation of local air quality is a key issue related to airports. The most significant source of air pollution is generally associated with aircraft, airside and landside vehicles, ground support equipment, fuel storage, various point sources, engine testing, fire training and road traffic. The most commonly applied measures to control air pollution include air quality monitoring systems, air traffic management, vehicular traffic management, use of green technology where applicable (e.g., solar panel installation, EV charging, etc.) and promotion of green transportation. As mentioned previously, although general aviation airports, which are not associated with our ports, were beyond the scope of review of this public hearing, we believe that many of our recommendations should be considered by our larger general aviation airports to the extent applicable to their operations.

Marine Terminal Areas of Concern

At marine terminals, cargo ships are unloaded and the usually diesel-powered cargo handling vehicles offload goods to trucks or railroad cars for transport to warehouses or distribution centers. While moored dockside, ships require power for crew activities and loading equipment, so their auxiliary diesel engines often remain running. Crews at the dock use diesel-powered forklifts to move the cargo or containers onto trucks and train cars.

Rail Areas of Concern

The U.S Environmental Protection Agency data demonstrate that delivery of freight by rail improves the overall emission profile for the delivery of goods to and from our ports. USEPA's data show freight railroads account for only 0.6% of total U.S. greenhouse gas emissions and only 2.0% of the transportation-related sources, while accounting for well over one third of intercity freight ton-miles. A single train takes approximately 280 trucks (the equivalent of 1,100 cars) off local roadways and highways.

While the use of trains is more energy efficient and produces lower emissions than the equivalent use of automobiles, trains do have some negative effects on the environment, including producing nitrogen dioxide, carbon dioxide, and particulate matter that can contribute to air pollution. While many freight and passenger trains servicing New Jersey ports and communities still run on diesel fuel, technological advancements throughout the last decade have made the engines cleaner burning and more fuel efficient. Fuel management systems have adapted cutting-edge software to provide real-time recommendations to engineers on how to operate the locomotive to maximize fuel efficiency. Tier 4 locomotives (the cleanest engines certified by USEPA) use hundreds of

sensors to produce data that help railroads prioritize maintenance, minimize the impact of poor locomotive performance and emit less emissions. Anti-idling technologies have begun to be installed in newer locomotives to reduce the amount of fuel wasted during down periods and limit pollution. In our ports, zero-emission electric cranes can transfer goods among ships, trucks and trains in ports and rail facilities. The electric cranes recharge their own batteries each time they lower a load. Finally, the use of renewable diesel will help in reducing the overall emissions profile of diesel trains as the fleet eventually transitions to electrification.

In order to increase fuel efficiency, freight railroads have increased the distance between interchanges, purchased more fuel-efficient locomotives, reduced idling time, and are using innovative equipment such as aluminum freight and double-stack cars.

Health Concerns/Impacts

Asthma is a common chronic illness in the United States. For children, it is considered one of the most serious chronic illnesses. Diesel exhaust can exacerbate asthma. The rate of children hospitalized with asthma is higher than the rate for adults. Children under the age of 5 years have the highest rate of hospitalizations from asthma. Most recently available data from the New Jersey Department of Health (2016) State Health Assessment Database (NJSHAD) indicated the rate for Camden County is 40.4; Essex County is 47.8 (per 10,000 New Jersey residents).

Particulates from diesel exhaust combining with SO_2 and NOx have been linked to respiratory and cardiovascular illnesses, lung cancer, and premature death. Other health issues from exposure to diesel exhaust are hospitalizations, lost workdays and decreased activity days. Noise pollution can be harmful to the cardiovascular system. According to USEPA, diesel emissions are a source of pollution, a likely human carcinogen, and a risk to human health. Diesel exhaust particles (often called particulate matter or PM) can be so small (less than 10, 2.5 or 1 micron in diameter) they can enter the small air sacs in lungs and cause health problems, such as lung damage and premature death. They can also exacerbate asthma and bronchitis. People with a history of cardio and pulmonary problems, or asthma are the most sensitive to experiencing health effects from fine particles. Diesel pollutants can contain carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), volatile hydrocarbons, and polyaromatic hydrocarbons (PAHs).

Although New Jersey has met its interim goal to reduce the level of greenhouse gas emissions in the State to 1990 levels by 2020, meeting the 2050 goal has become even more critical for the health and well-being of New Jersey's residents. Beyond efforts to reduce fossil-fuel power plant emissions through its participation in RGGI, New Jersey is also focused on developing and implementing non-carbon-emitting energy sources, such as renewables, and improving and transforming the transportation sector, including port and airport-related transport equipment. Over the last decade, black carbon (BC) has also emerged as a major contributor to global climate change, perhaps second only to CO_2. BC particles, a component of particulate matter, or soot, that comes from the burning of fossil fuels and plant materials, has a strong warming effect both in the atmosphere, and when it lands on snow, ice caps and glaciers, where it absorbs the sun's heat, reduces reflectivity and causes widespread and faster melting. BC is produced both naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass. The primary source of BC throughout New Jersey and the surrounding region is emissions from

diesel engines and slightly less from wood burning fireplaces and forest fires. Control technologies that reduce BC from transport equipment include retrofitting diesel vehicles with filters to capture BC emissions and fuel switching (e.g., from diesel to natural gas in buses). A more comprehensive discussion of diesel emission reduction strategies and cleaner fuel alternatives can be found in previous Clean Air Council recommendations (see: NJ CAC 2008 Public Hearing Report, NJ CAC 2012 Public Hearing Report, NJ CAC 2018 Public Hearing Report).

SUMMARY OF TESTIMONY

(Note: Summaries are listed in order of speaker testimony.)

Catherine R. McCabe, Commissioner, NJDEP and Olivia Glenn Deputy Commissioner, NJDEP - Welcome and Opening Remarks

Greeting

Welcome and thanks to everyone for attending today's virtual session to discuss the critical and timely issue of air pollution around ports and airports, and its disproportional effects on our State's environmental justice communities.

The Clean Air Council first tackled the challenge of reducing air pollution from New Jersey's ports and airports more than a decade ago; the state has since worked to curb idling, better manage traffic flow, and encourage fuel switching and equipment retrofits.–Despite our progress on cleaning and protecting New Jersey's air, emissions from ports and airports continue to create public health concerns, particularly for vulnerable EJ communities often located near such facilities. The good news is that we are making headway in protecting New Jersey's public health and environment. This is an important part of the Murphy Administration's goal of making New Jersey stronger and fairer for all. But we still have a long way to go to achieve that vision. Together, I am confident we can do so by keeping in mind New Jersey's most vulnerable communities in all of our decision-making about clean air.

Clean air is an Environmental Justice issue, especially in New Jersey

The DEP is working to listen to and amplify voices of people of color and do better to further the promise of equality for all.

The cumulative effect of pollution from too many polluting facilities concentrated in marginalized neighborhoods contributes to significantly higher incidences of asthma and other respiratory illness among residents of overburdened communities; the same communities with higher numbers of residents with underlying health conditions (in part, the result of environmental stressors) have made them inordinately impacted by COVID-19.

Today, the state Assembly is considering A2212 (identical to Senate bill S282), which requires consideration of the potential for disproportionate cumulative health impacts on local communities when new or expanded facilities, such as waste incinerators and transfer stations, are proposed in an overburdened neighborhood; also would give members of the community greater notice and opportunities to be heard; bill was passed by Senate (6/29) and out of Assembly committee (7/20).

Clean air is a climate issue

New Jersey is at the forefront of the global climate crisis fight, working to reduce greenhouse gas emissions, and to protect residents and resources from unavoidable climate impacts highlighted in the state's first Science Report on Climate Change.

New Jersey released a comprehensive Energy Master Plan in 2019, establishing the framework to achieve 100 percent clean energy production and 100 percent clean transportation by 2050; it includes the State's Global Warming Response Act's mandate of an 80 percent reduction in statewide greenhouse gas emissions from 2006 levels by 2050. The transportation sector continues to dominate greenhouse gas emissions, producing 42 percent of such emissions in 2018; mobile sources, including medium- and heavy-duty trucks and equipment, support ports and airports and contribute to air emissions. The Energy Master Plan assumes significant electrification of New Jersey's transportation sector, including 50 percent of all heavy-duty vehicles and 75 percent of all medium-duty vehicles by 2050.

Progress on clean air and Environmental Justice issues

A federal court on Tuesday ruled in favor of New Jersey in a multistate lawsuit alleging that the EPA has failed to abide by its legal responsibility under the Clean Air Act to ensure that upwind sources of pollution do not continue to create unhealthy ground-level ozone pollution harmful to Garden State residents.

The DEP disbursed $24 million from the Volkswagen settlement for electric school buses, transit buses, garbage trucks, and port and airport equipment; an additional $37 million will be disbursed shortly, prioritizing projects in EJ communities. The Regional Greenhouse Gas Initiative, or RGGI, Strategic Funding Plan focuses $80 million of proceeds per year over the next three years on achieving medium- and heavy-duty electrification, with priority given to overburdened communities. The DEP and its sister agencies, including the DOT, the BPU and the EDA, hope to leverage these funding sources and directives toward ports and airports to help decarbonize their primary emission sources and reduce their overall emissions.

The landmark Electric Vehicle Law directs the DEP to develop goals for medium- and heavy-duty vehicle electrification and associated charging infrastructure. New Jersey, along with 14 other states and the District of Columbia, signed a Memorandum of Understanding committing to a collaboration to accelerate electrification of the medium- and heavy-duty truck sector in the region.

Conclusion

Pursuing environmental justice continues to be one of Governor Murphy's priorities. More than 40 years of implementing environmental laws also has uncovered shortcomings; the DEP must deliver on promise of environmental justice for all. The Governor has noted during COVID-19 crisis that there is an inextricable link between public health and economic health; efforts to support and promote health, equity and environmental protection will build a stronger and fairer New Jersey.

Introduction of Deputy Commissioner Olivia Glenn

It is now my great, great, great pleasure to introduce our new Deputy Commissioner Olivia Glenn.

As Deputy Commissioner, she is responsible for prioritizing advancement of environmental justice and equity goals. Most recently, Olivia was director of the DEP's Division of Parks and Forestry; she previously served as division's Urban Initiatives and Outreach Coordinator; she also was a member of the DEP's Environmental Justice Advisory Council, leading efforts in outreach, education and land management. Olivia was honored with the Camden Environmental Hero Award by the Camden Collaborative Initiative in 2018 for her work with New Jersey Conservation Foundation to make outdoor spaces and trails more readily available to Camden residents. She holds a bachelor's degree in environmental studies from Dartmouth College and a master's degree from Yale School of the Environment (Her thesis: park revitalization in Camden).

Good morning everyone. I am Olivia Glenn, and I am delighted to serve as the newly appointed Deputy Commissioner with a focus on environmental justice and equity. I want to echo the Commissioner's remarks to applaud the Clean Air Council for the work they have done over the past sixty years, and more specifically in the last decade, to help improve New Jersey's air quality.

Today's topic addressing air quality around our ports and airports is very timely and relevant; it is also wonderful to have representation from environmental justice advocacy groups and other states showcasing their concerns and highlighting their examples of successes. I will listen in iterations throughout the full course of the day's agenda, and I look forward to working with you in the coming months ahead.

In closing, please do not hesitate to reach out to me at any time to discuss how we can work together to advance this work.

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Bethann Rooney, Deputy Director, Port Department, Port Authority of New York and New Jersey - Port of New York and New Jersey: Committed to Clean Air

The Port Authority of New York and New Jersey (Port Authority) has a longstanding commitment to environmental sustainability and reducing the emission of Greenhouse Gases (GHG) in the New York/New Jersey region. In 2018, we became the first public transportation agency to embrace the GHG emission reduction targets of the Paris Climate Accord.

Leading by Example and Accelerating Industry Decarbonization and Focus on Air Quality

The Port Authority feels strongly that it is critical to protect the health and safety of the residents in the communities we operate in, as well as the thousands of people who work at and visit our facilities every day. For this reason, the Port Authority has taken steps to move toward a cleaner, greener fleet. We are leading by example in electrifying our entire airport shuttle bus fleet, which we have recently completed, and continuing to advance our goal of electrifying 50 percent of our light duty fleet. The Port Authority has installed electric vehicle charging infrastructure at our public parking facilities, and are in the process of constructing a fast-charging hub for public and for-hire vehicles at John F. Kennedy International Airport (JFKIA), which we intend to be a model for similar hubs at all of the airports we operate.

Through this leadership, we lay the groundwork for collaborating with our partners at our seaports and airports to transition to cleaner vehicles and equipment. At our seaports, we incentivize cleaner ships and the slowing down of ocean-going vessels through our Clean Vessel Incentive Program, and we have been working diligently to replace old cargo handling equipment and aging trucks through our Cargo Handling Fleet Modernization Initiative and Truck Replacement Program.
At our airports, we are working to accelerate the transition to zero-emissions ground support equipment and supporting other environmental efforts of our partners. We have already enabled the conversion of more than 40 percent of JetBlue Airlines' motorized vehicles at JFKIA to electric and are working with United Airlines at Newark Liberty International Airport on a similar effort.

Importance of Balanced Policy Addressing all Emissions Sources

According to the New Jersey Department of Environmental Protection's 2018 Statewide Greenhouse Gas Emissions Inventory, the Transportation sector accounted for a net 41% of the GHG emissions in New Jersey (Page 4, State of New Jersey Department of Environmental Protection 2018 Statewide Greenhouse Gas Emissions Inventory: https://www.nj.gov/dep/aqes/oce-ghgei.html), trailed by the Electricity Generation sector at 18%.
The Port Authority, as a bi-state agency, shares the same GHG reduction goals as New Jersey's stated goals in its "Global Warming Response Act" (N.J.S.A 26:2C-37). We believe the growing trend of emissions from the transportation sector under the current vacuum of regulation represents an opportunity to create effective policy that addresses emissions from all transportation sources so that the entire sector can work collaboratively to protect the health and safety of New Jersey's residents. Regulation that focuses only on narrow subsegments of air and seaport emission sources or even more narrowly on emissions from the Port Authority's air and sea facilities, will not

adequately address the monumental challenge of meeting the State's GHG reduction goals. It is not practical to single out critical industries that serve as a junction for many users from different industries and transportation modes and/or a single node in a much larger transportation, logistics and distribution supply chain in order to adequately address air emissions and GHG. As an example, "attracted travel" to our airports, or the on-road vehicles that bring passengers to and from the airport, are actually the second greatest source of airport emissions, after aircraft movements.

Seaport Initiatives

Without regulatory mandates that focus on the entire transportation sector, the Port Authority has taken action to dramatically reduce the port facilities' contribution Criteria Air Pollution emissions and move us closer toward our zero-emissions goal. Through voluntary programs, efficiency improvements, fuel mandates, and collaboration with our tenants, terminal operators and other port stakeholders, we have taken steps to move toward a cleaner, greener fleet and have realized measurable success. For example, in partnership with our marine terminal operators, all of the port's ship to shore cranes have been successfully upgraded from diesel fueled to electric - a significant first step in getting to zero-emissions for our seaport operations.

We are continually working to incentivize or partner with our tenants and port stakeholders, encouraging them to pilot zero-emission equipment when available. Our Fleet Modernization Program provides incentives for terminal operators to replace old equipment with clean, electric or renewable fuel source equipment. While the technology available to the maritime industry is slowly changing, we are not waiting until tried-and-true zero-emission equipment is commercially ready. We are continuing to test and verify the operability of new technology that can provide clean and financially sustainable operations, but there is simply not enough of a critical mass just in the Port of New York and New Jersey to have a major influence with these manufactures on our own so we are working with ports from across the globe to influence equipment manufacturers.

Without more stringent statewide regulations, it is difficult for us to require port users and tenants to commit to specific emissions reduction measures that will make substantive progress. The Truck Replacement Program, implemented through a series of changes in our tariff over the last decade, has incrementally phased out and banned trucks with the oldest engine model years from doing business in the Port. As of July 2019, any new truck operator seeking to do business in the Port is required to have an engine model year of 2010 or newer - the latest EPA clean diesel standard. Next, as of January 2021, all drayage trucks equipped with an engine model year 1997 or older will not be able to service the Port of New York and New Jersey—the third phase-out of older and "dirtier" equipment we have instituted. According to 2018 data released by the Federal Highway Administration however, there are approximately 37,000 heavy duty diesel trucks registered in the State of New Jersey. Of those, only 16% or 6,000 have any affiliation with the Port of New York and New Jersey. This leaves 31,000 trucks that are transporting goods between warehouses and distribution centers, traversing the NJ Turnpike, or driving in and around our residential communities every day that are not being phased out or incentivized to upgrade to cleaner diesel, let alone considering a new zero or zero emissions replacement. These trucks all continue to operate in New Jersey because they are perfectly legal, to do so, passing the annual emissions tests associated with the age of the vehicle. Long after the Port Authority helps to upgrade all of the trucks serving the Port, 31,000 other heavy duty diesel trucks operating in the State will transport goods in and

around the State to their final destination in our communities with the same, older and dirtier trucks that they are operating today and are part of the 41% of the Transportation Sector's contribution to Statewide emissions.

Although these programs and initiatives to reduce emissions related to seaport activities are voluntary, they have been successful. Based on our annual air emission inventories, which are prepared by an outside contractor in accordance with US Environmental Protection Agency guidance, of the various sources of port-related emissions such as ocean-going vessels, harbor craft, trucks, cargo handling equipment, and rail locomotives, we have seen an overall reduction in port-related emissions since the Port Authority launched the Clean Air Strategy in 2009. The 2018 report showed for example that seaport-related emissions contributed an average of less than 4 percent of all criteria air pollutants and GHGs emitted in Essex County; meaning that 96% of the CAP are from non-port sources. Port drayage trucks specifically contributed less than 2 percent of all CAP. Port-related emissions continued to decrease, despite a 41% growth in cargo volume. We saw decreases of 70 percent and more for fine particulate matter and decreases of nearly 40 percent for oxides of nitrogen comparing 2018 to 2006.

The seaport also employs over 1,100 pieces of specialized Cargo Handling Equipment (CHE) of various types, size, function, energy source and cost. 57% of this equipment meets or exceeds Tier 4 standards and 9% is completely electric including all ship to shore cranes. There are over a dozen different types of CHE employed in the Port, each with just a handful of manufacturers around the world. The current state of the global CHE industry is such that not all types of CHE are available in a Near Zero or Zero Emission model. Just like the Port Authority's better-known Truck Replacement Program, our Cargo Handling Equipment Modernization Program provides incentives to voluntarily upgrade CHE to a Tier 4 or better. We are also planning to put tariff requirements in place starting in January 2021 to require all new CHE brought into the Port be Tier 4 or better and for all new ship to shore cranes to be electric. We will continue with new phases of the restrictions as NZE or ZE models of certain CHE types become available. Of note, the same types of Cargo Handling Equipment are employed throughout the State in warehouses, distribution and logistics centers, chassis and empty container depots, truck stops and more that all support the broader domestic and international supply chains that are a critical component of both the State's economic activity and larger transportation sector.

Finally, for the seaport it is important to briefly address the Ocean-Going Vessels (OGV). While OGVs represent the Port Authority's second highest mobile source of emissions, they are still a relatively small source of overall emissions in the region. For example, according to the Port Authority's 2018 Multi Facility Emissions Inventory, OGVs represent less than 1% of the fine particulate matter ($PM_{2.5}$) in Union, Essex and Hudson Counties where the vast majority of the ships tie up. Under International law, all OGV must now burn Ultra Low Sulfur fuel within 200 nautical miles of the coastline. Those vessels that excel in environmental performance and voluntarily comply with a speed reduction of 10 knots or less within 20 nautical miles of the territorial sea line are rewarded with a financial incentive. Slowing down contributes significantly to the overall reduction in particulate matter emissions from our port operations. Given that these ships are part of a massive international fleet that crisscross the globe several times a year, it is critical that any regulatory scheme for OGVs closely consider international programs and goals for all vessels operating under the International Maritime Organization's framework. At this point, ports in

California and Germany are the only ones in the world that require any type of cold ironing or stack emissions capture while OGVs are in port so it is essential to consider the benefit cost of additional mitigation measures as well as operational feasibility in the New Jersey region. In 2019, there were over 4,300 international OGV arrivals in the Port, half of which were container ships calling Port Authority facilities. Close to 1,000 of those voyages were oil, fuel and chemical tankers that predominately call at the dozens of privately-owned port facilities lining the New Jersey side of the Kill van Kull and Arthur Kill waterways. The other 1,000 voyages were a mix of automobile carriers, cruise vessels and general freighters.

Airport Initiatives

The Port Authority has embarked on massive redevelopment programs across its major airports, which will modernize these facilities and significantly improve their environmental performance. All new terminals are required to achieve a minimum of LEED Silver certification, and infrastructure will be designed to the Envision sustainable infrastructure framework developed and managed by the Institute for Sustainable Infrastructure. In addition to working with our partners to accelerate adoption of zero emissions ground support equipment (GSE), all new terminals are required to have electric GSE charging infrastructure, and gates will have pre-conditioned air and ground power to minimize use of aircraft engines for supporting ground operations. The Port Authority has also convened stakeholders through a Sustainable Aviation Fuel Working Group to collaborate on advancing adoption of lower-carbon aviation fuel.

The Port Authority's sustainable airport standards support complementary efforts of our partners. Most commercial airlines have adopted their own sustainability goals and are implementing strategies to achieve those goals. Generally, commercial airlines are seeking to cut their emissions of greenhouse gases and criteria air pollutants through the following strategies (among others):

- Integrating sustainable aviation fuel;
- Enhancing fuel efficiency by transitioning the fleets to newer, more fuel-efficient aircraft;
- Replacing fossil fuel-powered ground support equipment with zero-emissions models;
- Limiting aircraft taxiing to a single engine;
- Reducing use of aircraft auxiliary power units to power and cool/heat aircraft at the gates by connecting to fixed electrical ground power and preconditioned air; and towing aircraft between gates instead of running the jet engines;
- Revising flight procedures where possible to reduce fuel consumption on approach;
- Designing buildings in compliance with LEED standards.

In addition to commercial airlines, other airport users are pursuing emissions reductions and other sustainability initiatives (e.g., freight and cargo operators, fixed base operators in the general aviation sector).

Need for External Funding

In addition to a balanced, broadly focused clean transportation policy and regulatory framework, there is an urgent need for external funding to support the Port Authority and seaport/airport partner initiatives described in these comments. New Jersey has been a leader in designing effective

incentives for the decarbonization of the power sector, especially as it relates to supporting the growth of solar power production in the state and has made a bold commitment to passenger vehicle electrification and developing related financial incentives. Heavy transportation, including heavy-duty on-road vehicles, specialized seaport and airport equipment, and aircraft and ocean-going vessels require tailored financial incentives to move to cleaner technologies.

For example, increased grant funding for zero-emissions GSE and the charging infrastructure is needed. Grants from the Volkswagen Settlement and from the Federal Aviation Administration's Voluntary Airport Low Emissions (VALE) program are helpful in making electrification of GSE more affordable, but funds are limited and fleet owners are deterred from pursuing Volkswagen grants due to the need to scrap the GSE that are being replaced with zero-emissions models even if those older GSE still have value and useful life left. In addition, the cost of installing charging stations in existing terminals can be very expensive due to the need to run new conduit, and in some cases, build new substations to handle the increased load.

The amounts not covered by grants can also be a burden on fleet owners and the Port Authority, especially given the aviation sector's economic crisis associated with the COVID pandemic. Greater involvement from regulated utilities to support deployment of charging infrastructure would be impactful and effective. On-bill financing from the electricity supplier, such as PSE&G would be a convenient way for grantees to cover their matching shares and would allow them to spread out their costs over time. At present, PSE&G does not have the authority to offer on-bill financing for electrification projects.

Use of sustainable aviation fuel at Newark Liberty International Airport could significantly cut greenhouse gases associated with aircraft. The Port Authority's own research indicates that commercial airlines are very interested in sustainable aviation fuel, but that the cost premium over conventional jet fuel is simply too high in the northeastern United States. At present, all sustainable aviation fuel in the U.S. is directed to California where demand is driven by state regulation. Supportive policies for low carbon fuel adoption are critical.

Another example from California of how grant or incentive funding can work effectively with regulation is the Carl Moyer Memorial Air Quality Standards Attainment Program. The California Air Resource Board has adopted many fleet rules that effect on-road heavy-duty vehicles. The Carl Moyer Program provides incentive grants for cleaner-than-required engines, equipment, and other sources of pollution providing early or extra emission reductions.

Conclusion

The Port Authority commends the New Jersey Clean Air Council's focus on developing effective policies, projects, and programs that can balance the need for expanded movement of goods and people with the need to further reduce local air pollution and related health impacts around ports and airports. Our airports and seaports play a critical role in moving supplies, food, and equipment throughout the region and are an important part of economic and social recovery. In 2019, our airports handled a record number of 140.5 million passengers and moved approximately 2.2 million tons of freight. Any cargo that comes in through our seaports can reach 134 million people within 36 hours. That means Port Authority facilities provide critical goods and services well beyond the

Northeast, into Canada and the Midwest. We remained the region's lifeline during the COVID pandemic when the New York-New Jersey area was the global epicenter. The Port Authority remains steadfast in our focus moving forward to further reduce our emissions contribution and its impact on the local communities , and our sustainability commitments reflect that. We are eager to collaborate on shaping effective policies and funding programs to decarbonize hard to abate transportation segments such as aviation, maritime and heavy-duty vehicles within a broad-based transportation focused framework. It is with this broad focus that New Jersey, the Port Authority, and our partners in private industry can effectively achieve our collective climate action and air quality improvements goals.

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Shawn Kiernan, Environmental Manager, Maryland Port Administration and Rupert Denney, Baltimore Port Alliance - Community Engagement at the Port of Baltimore

Over the past several decades, the Maryland Department of Transportation Maryland Port Administration (MDOT MPA) has fostered strong relationships with many neighborhoods and community organizations throughout the Port of Baltimore. Unique partnerships have also been established that have produced highly successful outcomes, resulting in the reduction of diesel and other air emissions in the region. The presentation by representatives of MDOT MPA and the Baltimore Port Alliance introduced these partnerships, and explained the process that MDOT MPA uses to inform, engage and invest in Port neighborhoods and communities to enhance the environment and quality of life around Baltimore.

The presentation described the Inter-Agency Air Quality Workgroup, a unique partnership between the Maryland Department of the Environment, Maryland Department of Transportation, and MDOT MPA to collaborate on projects that will reduce emissions and increase energy efficiency. MDOT MPA's formal and informal stakeholder engagement initiatives were also discussed. Finally, examples of the successful stakeholder engagement that the Baltimore Port Alliance supports, including port tours, community volunteer events, and hiring expos, highlighted the commitment of the entire Port of Baltimore to building strong and lasting relationships with its neighbors.

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Andrew Saporito, Executive Director & CEO, South Jersey Port Corporation - The South Jersey Port Corporation Environmental Initiatives – Past, Present, and Future

Hello, my name is Andrew Saporito and I am the Executive Director and CEO of the South Jersey Port Corporation (SJPC). SJPC and its new executive team are expanding upon the Port's past efforts to be good neighbors and environmental stewards by deploying emission-reducing technology, innovation, and best practices to operate in a more environmentally friendly and

efficient manner. We are committed to these environmental actions while continuing to build and operate the port infrastructure to support the development of the offshore wind energy industry that will power New Jersey's transition to 100% clean energy by 2050. Our partnership with NJDEP and NJDOT has yielded great strides to reduce emissions at our marine terminals and we look forward to continuing that partnership. While I am new to SJPC, I am not new to ports. I worked at the PANYNJ for 38 years where we had success in reducing emissions. Learning about the history of Camden's air pollution motivated me to continue the progress of my predecessors and capitalize on green port programs. We know that a quarter of the emissions that ports generate stem from cargo handling equipment. That is why during my first year, we spent over $2 million on new equipment that reduces pollution. This includes replenishing our fleet with fuel-efficient Tier 4 cargo movers, cranes, and vehicles that reduce pollutants.

Our Mission

Our mission is to attract cargo and maritime-related activity to foster economic development and create jobs. We want to be environmental stewards while creating those jobs. SJPC is a pivotal job-creator in the tri-state area, but we must be good neighbors to our fellow residents.

South Jersey Port History

Here are some of the key dates in the evolution of the South Jersey Port Corporation which began in 1926 with the creation of the South Jersey Port Commission. In 1926, the State Legislature created the South Jersey Port Commission. In 1931, the Camden Marine Terminal (Beckett Street) opened. In 1968, the State Legislature revamped the Port Commission into the South Jersey Port Corporation (SJPC). In 1971, Broadway Terminal opened at the former New York Shipbuilding Corporation. In 1994, SJPC took over the Port of Salem. In 2005, SJPC issued bonds to develop Paulsboro Marine Terminal. In 2017, the Paulsboro Marine Terminal opened for business and SJPC handles record-breaking 4.3 million tons of cargo
Today, 50 years after its birth, the South Jersey Port Corporation is a key part of the tri-state Delaware River maritime complex. Our Port District covers 7 South Jersey counties, including Camden, Gloucester, Salem, Burlington, Mercer, Cumberland, and Cape May.

Our Facilities

We have four marine terminals. The Balzano terminal, which was originally named Beckett Street, opened in 1931 and sits on 122 acres. The Broadway terminal, which is the former home of the NY Shipbuilding Yard, became part of the Port in 1971. This is where America built many of its ships during World War II. The Salem terminal became part of the Port in 1994. It is one of the oldest ports of entry, dating back to 1682. Salem mainly moves sand and gravel. Lastly, the Paulsboro terminal which is our newest addition. The Paulsboro terminal opened in 2017 as an omni-port. We will discuss Paulsboro in greater detail later.

Economic Benefits

SJPC provides crucial economic benefits to the region. We are a pillar of the tri-state Delaware River maritime complex. Along with other ports on the Delaware River, we generate $77.8 Billion

of economic activity. This economic activity supports 191,000 jobs. At our Camden terminals, SJPC supports 40+ port-related businesses. SJPC is among Camden City's largest taxpayers and employers. SJPC's economic activity generates 3,400 jobs, $500 Million in payroll and business income, and $46 million in local, state, and federal taxes. Construction of our Paulsboro Marine Terminal generated hundreds of thousands of manhours for local building trades. At Paulsboro, we created 100 full-time jobs of an anticipated 850. Paulsboro is poised to become a hub of wind energy in New Jersey and invaluable to the new green economy.

Products We Handle

Cargoes that we handle include plywood, wood products, cocoa beans, steel slabs, recycled metals, and steel coils used for the manufacturing of cars and consumer goods. During this pandemic, our foremost focus has been on the health and safety of our employees, customers, and tenants who populate our terminals. Just as important to us is the health and safety of residents of our host communities. Therefore, we are following all recommended health and safety guidelines while operating unabated to keep the critical supply chain fed.

Environmental Initiatives - Past

NJDEP's analysis of the air quality in Camden Waterfront South released in 2005 served as a wakeup call for us and the community. That analysis was a call to action to make our community better. It was estimated that 77,000 trucks were using local roads to access the ports. SJPC took immediate action to combat the poor air quality in Camden. In 2006, using a grant from Clean Air Communities, a non-profit subsidiary that focuses on pollution reduction, we upgraded our 2 cranes at the Balzano Terminal to transition them from diesel to electric. We also retrofitted and repowered some of our old forklifts.
In 2008, we received federal and state grants to install filters that scrub emissions from cargo-moving equipment. In 2009, we planted 25 maple trees near our Broadway Marine Terminal. In 2010, we received a $1.1 million grant from the EPA to reduce engine emissions by replacing old, inefficient diesel engines with cleaner ones. We partnered with "Heart of Camden" to build a green buffer which helps filter out pollutants while discharging fresh oxygen. Our Paulsboro Marine Terminal was built to handle the heavy loads which is necessary for a growing offshore wind industry.

Environmental Initiatives – Present

Today, we continue our goal to make Camden's air cleaner. This year, we are utilizing the Congestion Mitigation and Air Quality Improvement grant for our Fleet Modernization Program, a program to modernize the vehicles we use to support sustainability. Some of our old forklifts were built in 1965 and were not environmentally friendly. However, the new forklifts will yield lifetime emission benefits of 96% reduction in Promethium emissions, 95% reduction in Nitrogen Oxide emissions, 95% reduction in Hydrocarbon emissions, 97% reduction in Carbon Monoxide emissions. We are partnering with Camden County to develop a plan to redirect truck traffic around the ports. This will lead to less idling, more efficient fuel consumption, and a reduction in air pollution.

We are embarking on a $500,000 LED bulb and fixture replacement program. This LED retrofit project will save over 213,000 Kilowatts in electrical demand and save at least 443,000 Kilowatt hours annually in energy consumption. Our purchase of 250 LED fixtures will contribute an additional 77.5 Kilowatts in demand reduction and 161,000 Kilowatt hours in energy savings. When this project is completed, it will lead to a total reduction of 600,000 Kilowatt hours in electricity consumption helping to reduce the demand on the electric grid. This is enough energy savings to offset the usage of 73 homes and the equivalent of eliminating 275 tons of carbon dioxide.

We were awarded a $6 million rail assistance grant to expedite offloading of cargo and efficient rerouting of trucks. This project will reduce pollution and fuel consumption by creating direct ship-to-rail routes. We also began to replace pickup trucks with eco-boost engines. Specifically, we are transitioning from using V8 engines to V6 engines.

Environmental Initiatives – Future

SJPC will continue to support the environment in our future initiatives. We are continuing our Fleet Modernization Program. So far, we upgraded half of our cargo handling fleet to either 2009 standards or Tier 4 engines. 25% of which is Tier 4 engines and 25% of which meets 2009 standards or better.

We hope to secure $5.5 million in Volkswagen settlement grants to electrify another 25% of our fleet. Our grant application to electrify our fleet has received the support from the City of Camden, and the legislators from the 3rd and 5th Legislative Districts. This grant is critical because securing it will mean that 75% of our fleet is up to 2009 standards or better. This standards upgrade will help the State reach one of its goals for ports in the Energy Master Plan.

Electrification of diesel-powered transportation and equipment at ports is imperative. We electrified several of our cranes at our terminals and plan to electrify more. We have a plan to put solar panels on our buildings to reduce our carbon footprint, which is another way we are helping the State reach its Energy Master Plan goals. We have a solar array potential of 1.1 million square feet and could generate 10 million Kilowatt hours of electricity.

Finally, we fully support the growth of the offshore wind industry. Paulsboro will be the site of New Jersey's wind energy future. Phase II on the Paulsboro terminal finishes in 2021. We are in serious discussions with the wind energy companies to make Paulsboro the epicenter of building and maintaining our nation's off-shore wind-powered energy farms. Combined with the New Jersey Wind Port that EDA announced recently, New Jersey (under the leadership of the Governor) is positioned to be the epicenter of the entire offshore wind industry and help the state reach 100% clean energy by 2050.

Paulsboro Marine Terminal

Our journey and vision for the Paulsboro Marine Terminal began over a decade ago. In 2008, we partnered with Paulsboro, Gloucester County, the Gloucester County Improvement Authority, and BP to transform a fallow petrochemical tank farm on the Delaware River into a world-class, deep-

water port. Paulsboro will become indispensable to the building and maintenance of offshore wind energy.

Instead of being in the "drill, drill, drill," sector of energy production, we're in the "build, build, build" clean-energy job-creating business. With the support of Governor Murphy and Senate President Sweeney the state has invested hundreds of millions of dollars into Paulsboro to create jobs and support South Jersey's wind-energy platform.

Construction of Phase II will be completed next year, which entails a $400 million project to support the growth of the port but also the development of the offshore wind industry. Our decks were built to handle the heavy loads. Heavy loads are indispensable to wind energy production. Therefore, Paulsboro is indispensable to wind energy production.

Paulsboro has a dockside rail access point which reduces our cargo handling emissions. Paulsboro also has direct access to the highway which allows for efficient movement of goods without going through local streets.

But Paulsboro is more than a platform for wind-energy. Since it opened for business in March of 2017, millions of tons of imported steel slabs have flowed through this terminal. Economic benefits are good but being a member of the community is even better. We have been a good corporate citizen and neighbor because we operate with a great sensitivity to the tranquility, safety, and health of our host community.

Operations at Paulsboro created 100 full time jobs – the first installment of an anticipated 850. When that is completed by the end of 2021, Paulsboro will be able to handle three ships on the Delaware and barges along the Mantua Creek simultaneously.

We designed Paulsboro to handle the massive weight of wind turbines, the massive blades that turn them, and the huge monopoles that hold them up. It is reminiscent of that Field of Dreams quote, "if you build it, they will come" but with a lot more research and stone-sober reality. We built it and now they are coming. The question is no longer if they will come, but rather when they will come. The answer is sooner than one would think.

Closing

We at SJPC are dedicated to better air in Camden City and the communities we serve. We have worked with the federal government, state government, county government, and city government to make that happen. While we have made progress, we have more to do. Securing the additional grants, we need will help SJPC reach its goal of becoming a green port.

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Nicky Sheats, Esq., Ph.D., Director, Center for the Urban Environment, John S. Watson Institute for Public Policy at Thomas Edison State University, Member of the New Jersey Environmental Justice Alliance - Cumulative Impacts, Environmental Justice and the Ports

The presentation talked about the following: 1) cumulative impacts in the context of current events; 2) cumulative impacts in the context of environmental justice (EJ) and the Ports; 3) cumulative impacts in the context of EJ, the Ports and climate change; and 4) several policy suggestions.

A definition for cumulative impacts that the New Jersey EJ community often uses is: the risks and impacts caused by multiple pollutants, both individually and through their interaction with each other and with any social vulnerabilities that exist in the community. The multiple pollutants are usually emitted by multiple sources of pollution sited in the community.

There are several problems encountered when attempting to address this issue. One is that our nation attempts to regulate pollution by setting standards for individual pollutants. However, there can be detrimental health impacts to community residents due to the total amount of pollution in a community even if no individual pollutant standard is violated.

A second problem is that fact that there appears to be a strong correlation between race, income and cumulative impacts in New Jersey neighborhoods. Figures produced by a cumulative impacts screening tool created by the New Jersey Department of Environmental Protection show that as the number of either Of Color or low-income residents in New Jersey neighborhoods increase so do the levels of cumulative impacts. This violates standards of justice that are professed to be tightly held in the nation.

There is also evidence that the death rate due to the COVID-19 virus is increased by long term exposure to fine particulate matter air pollution and that the death rate is elevated among people Of Color in the U.S. This supports warnings from EJ advocates that cumulative impacts is not only a current problem for EJ communities but also makes them more vulnerable to a variety of future environmental and public health threats.

An important context for EJ, cumulative impacts and the Ports is that Ports related truck traffic passes through local EJ communities and presents a public health threat due to diesel air pollution emissions. The Coalition for Healthy Ports was organized to address Port related air pollution.

An important context for EJ, cumulative impacts, the Ports and climate change is that diesel emissions from Ports related truck traffic present both a public health and climate change threat. This is true because various components of diesel emissions are linked to a variety of health problems, and black carbon in diesel emissions is a climate change causing agent. The New Jersey Environmental Justice Alliance (NJEJA) and its allies have developed an EJ climate change mitigation policy which advocates that power plants located in EJ communities should be required to reduce their air pollution emissions. This type of policy would ensure that air pollution emissions are reduced in these communities that are often overburdened with pollution and in that way, improve the health of community residents. NJEJA believes that similar policies should be

developed for air pollution connected to mobile sources. However, NJEJA is opposing the implementation of the Transportation and Climate Initiative, which is a multi-state program that is being proposed in order to address greenhouse gases emitted by mobile sources. From an EJ perspective, the Initiative is problematic because it utilizes a carbon trading system as its core emissions reductions policy and this market-based strategy does not ensure emissions reductions in EJ communities.

There are several ports related environmental polices currently implemented by California that could benefit New Jersey and therefore should be considered for adoption by our state. These include:

- The current requirement that drayage trucks have diesel engines constructed in 2007 or later. Beginning January 1, 2023, 2010 or later model diesel engines will be required. (As of August 1, 2020, the NY/NJ Ports will require trucks to have engines built no later than 1998 and newly registered trucks must have model year engines constructed in 2007 or later.)
- Any container vessel, passenger vessel, or refrigerated cargo vessel at berth in a port must limit the use of auxiliary diesel power, connect to on-shore power or use equivalent alternative pollution control technology";
- Performance standards for cargo-handling equipment (they would be stricter than NY/NJ Ports current voluntary standards);
- CARB 2009 emission standards for spark-ignition marine engines;
- CARB 2011 emissions standards for commercial harbor craft.

New Jersey should also consider developing indirect source review rules that involve regulating facilities which attract vehicles but do not themselves pollute.

(Note: The source of information for the California measures and indirect source review suggestion was a memorandum by attorneys Jonathan Smith and Jasmine Jennings of Earthjustice and a report by Sustainable Systems Research)

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Tim Sullivan, CEO, NJ Economic Development Authority - COVID-19 Recovery Programs and Initiatives

- Get funding into the market as soon as possible
  - Where possible, adjust existing NJEDA programs to address crisis needs,
  - Utilize multiple channels / partners to maximize marketing of programs and minimize processing capacity constraints
  - 300-400M Green infrastructure investment
  - 1,500 permanent jobs, hundreds of construction jobs

    - $500 M in new annual economic activity
- Leverage private, federal, and philanthropic capital where possible to scale impact
- Provide a suite of compatible offerings to help address varied marketplace needs (e.g., grants, no-cost loans, low-cost loans, loans through intermediaries, technical assistance)
- Drive projects that boost clean energy
- Protect health of residents in EJ communities
- Increase resiliency of coastal communities
- Wind ports
- MHDVs electrification funding ($80M from RGGI)

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Allen Schaeffer, Executive Director, Diesel Technology Forum - Diesel Technology and New Jersey: Delivering Immediate Air Quality and Greenhouse Gas Benefits Through New Technology, Large Engine Replacements and Renewable Biofuels

Allen Schaeffer, executive director of the Diesel Technology Forum presented to the NJAC July 30. The DTF is a not for profit educational group representing diesel engine and equipment manufacturers, fuel suppliers, and presented results of joint research with the Environmental Defense Fund and other information.
In its overview, the Forum noted that since 2010 (highway vehicles) and 2014 (off road vehicles) that all new diesel engines achieve near zero emissions for nitrogen oxides and particulate matter.

Focusing on marine engines in harbor craft, DTF noted that according to the USEPA Port Strategy Assessment, harbor craft account for 47 percent of all nitrogen oxide emissions (2011 data), and about 25 percent of particulate matter emissions. Port communities seeking immediate clean air benefits would benefit greatly from modernizing and upgrading older engines that serve the ports.

For some segments – such as large marine vessels – the emissions benefits from modernizing and upgrading the engines can be substantial, and far overshadow the benefits from other strategies at far lower costs, and as available solutions that deliver emissions reductions immediately. For example, repowering a single older marine engine with a new 4th generation clean diesel ("Tier 4") model can reduce emissions of NOx by 30 tons of NOx annually, an amount equivalent to replacing 96 drayage trucks or removing 26,000 cars from the road. The cost for these benefits is on the order of 1 ton of NOx removed for a $5,000 investment.

The benefits, need and case for the for repowering are magnified given that the vessel service lives far exceed that of existing EPA models by a factor of 2, lasting twice as long as EPA models predict.

DTF also highlighted the substantial benefits from using renewable biodiesel fuels that are suitable for use in all existing engines. The California experience was presented and showed that from 2011-2018, reductions in GHG emissions from the use of renewable diesel and biodiesel accounted

for over 25.5 million tons of reduction while all battery electric vehicles accounted for 7.2 million tons; 3 times greater reductions in GHG emissions from diesel engines using renewable biodiesel fuels. In Texas, the TERP program yielded similar benefits were shared noting that the repowering of 5 marine vessels at a cost of $4.5 million yielded 388 tons of NOx reduction.

Highlighting the future for diesel technology it was noted that pathway for all future diesel technology involves achieving greater energy efficiency, reducing emissions even further, utilizing renewable biodiesel fuels and hybrid

In conclusion the DTF disagreed with New Jersey's strategy on the Transportation Climate Initiative, where the state's "cap and invest" strategy presently excludes consideration of all non-electric alternatives should be reconsidered and expanded to a fuel neutral approach. The renewable diesel fuel benefits across a wide existing fleet were noted. Electrification of some aspects of the transportation system are envisioned but could be decades away from fruition. On the other hand, diesel engines using low-carbon renewable biodiesel fuels can deliver substantial reductions in greenhouse gas emissions, up to 80 percent compared to conventional fuels, across the entire fleet of existing vehicles and fueling infrastructure. Providing incentive funds that encouraged vessel owners to upgrade and repower their diesel engines would yield substantial NOx and clean air benefits toward ozone attainment far faster and cheaper than other options.

The opportunity to make meaningful reductions in carbon emissions from diesel-powered transportation sources of all kinds would be constrained by the current New Jersey "electric only" approach, delaying clean air and climate benefits to disadvantaged communities.
The Port of New York and New Jersey's truck replacement program is a success and should be boosted in funding and expanded to continue aiding truck owners to invest in newer technology vehicles with lower emissions, that has accelerated clean air progress in the port and surrounding communities.

The DTF expressed its support the state's efforts to step up enforcement against tampering with emissions controls on diesel engines. It is important that we work together to raise awareness of the importance of ensuring emissions integrity and educate truck and vehicle owners about proper maintenance.

*****

Jay Ruble, Senior Vice President & General Counsel, Maher Terminals, LLC - Maher Terminals' Sustainability Vision and Goals

As a Port Authority tenant, Maher Terminals LLC operates the largest marine container terminal in North America. In order to assist the Port Authority in its GHG reduction efforts, Maher has assessed and measured its GHG reductions beginning in 2006 (which is the same measurement start point as the Port Authority). Maher has reduced its diesel consumption per container by 43% between 2006 and 2019 and reduced its gas consumption per container by 22% for the same period. While reducing all of its scope 1 emissions is Maher's goal, diesel emissions constitute a much larger share of Maher's GHG profile, and reductions to diesel consumption has greater benefits

for those communities surrounding the port. Maher recognizes that reducing electric consumption, scope 2 emissions, has an effect on the nearby communities because peaker plants are located in those communities, and reducing electric consumption contributes to less usage of those peakers. Through the installation of a solar array, energy efficiency measures in Maher's buildings, and other means, Maher has reduced its electric consumption per container by 27% between 2006 and 2019.

Maher has implemented multiple initiatives to further reduce its fossil fuel and utility consumption by 2025 – during the July 30 presentation, Maher noted: (1) its emphasis on growing rail volume, which allows Maher's business to grow but does not require additional truck transits to warehouses; (2) the high mast lighting retrofit to eliminate the high-pressure sodium fixtures and replace with LED fixtures; (3) installation of state of the art truck processing systems to expedite turn times and greatly reduce truck idling and queuing; (4) transitioning the cargo handling equipment from diesel to diesel/electric hybrids and all electric (where feasible), and (5) the oily water separator Maher is installing in its maintenance garage that will save over one million gallons of water annually. Through these and other initiatives, by 2025 Maher will reduce its carbon per container (measured in tCO2e) by 60%, when compared to 2006.

Maher's sustainability efforts are not limited to GHG reductions. Over half of Maher's management employees participate in one of seven sustainability subcommittees. Maher donates its used crane cables (over 45,000 feet) to a charity that incorporates those cables into pedestrian bridges in rural African regions. Also, Maher worked with the NJDEP's Division of Fish & Wildlife for Maher to soon deploy nearly 3,000 tons of reinforced concrete platforms about 3 miles offshore east of the Manasquan Inlet to create an artificial reef.

*****

Melissa Miles, Environmental Justice Manager, Ironbound Community Corporation - Trucks, Rail and Warehouses: The Cumulative Impacts of Logistics on Communities

The neighborhoods adjacent to the Port of Newark are the recipients of diesel emissions from the shipping, handling, hauling, warehousing and last mile distribution of goods along the logistics chain. Not enough has been done to mitigate the air pollution that assails the people who live in these neighborhoods. Part of the issue is that communities are rarely if ever consulted about these processes that impact their health and lives. There will never be a true solution that does not include those most impacted.

- Need to evaluate the transportation-related pollution burden in EJ communities
- Look at total emissions and relative impact of different sources
- Population centers are most impacted
- Non-roadway sources are responsible for most $PM_{2.5}$
- Roadway vehicles produce more NO_x and CO_2
- Locomotives and marine vessels have highest air quality impact in port area

*****

Ryan Stege, Director, Locomotive Operations, Norfolk Southern Corporation - Reducing Locomotive Fuel Burn

- Rail moves 40% of the freight ton miles in the U.S. but only produces 8% of all freight emissions
- Rail has 75% less emissions than trucks
- Reduce locomotive fleet size (down 22% to 2801 locomotives since 2018)
- Got rid of legacy engines
- Maximize energy management systems (e.g., automate throttle control)
- Do not overpower trains (# of engines required to move a specific tonnage)
- Throttle limiting based on speed
- Optimize locomotive run for fuel burning and route
- Distributed power (engines strategically distributed throughout train)
- Interesting insights on how fuel efficiency is managed in trains. No recommendations for us though.
- In certain areas of the country can use renewable diesel

*****

Amy Goldsmith, NJ State Director, Clean Water Action - Clean Air Regulations – A Path Towards Electrification

- Establish "Zero Emission Zones and Corridors" - allow only electric vehicles to move goods through the port and adjacent communities
- Mandate truck ban on older fleet of trucks via PANYNJ Tariff Agreement
- Regulate the port through "indirect source review", as if a stationary source
- Adopt CA Advanced Clean Trucks "ACT rule" for medium and heavy-duty trucks in state and region
    - More ZEVs
    - Must produce and sell a minimum percentage of medium and heavy-duty ZEVs (Class 4 through Class 8 vehicles)
- Fast track Black Carbon rule, adoption by 2021
- Create "State Implementation Plan" that gets NJ into "attainment" for ozone
- Adopt mandatory emission reductions in EJ communities
- Require diesel engine upgrades/electrification of equipment and vehicles utilized under state contract or construction
- Engage and collaborate, community, policymakers, workers and freight stakeholders, to facilitate development and use of zero-emission technologies and other means to significantly improve local air quality, health and quality of life.
- Advocate for environmental justice, community mitigation and transparency.
- Retain and utilize NEPA process for major freight infrastructure projects, especially for projects proposed in communities disproportionately impacted by freight and/or in

nonattainment areas.

- We need community accountability – all stakeholders must have a voice in setting standards for development, expansion and mitigation measures
- Need to modernize goods movement (e.g., electrify truck fleets and port operations)
- Must incentivize, mandate and regulate people protection zones

*****

Gary Van Tassel, Director of Operations Planning CSX Intermodal Terminals - Reducing Carbon Emissions from Intermodal Operations

- 37% GHC emission intensity reduction by 2030
- Investing in operational improvements and technology investment
- Smaller footprint terminals
- Reduce dwell time and idling
- Eliminate unnecessary stops
- Eliminated truck queuing with in-house developed XGate technology
    - Reduces labor intensity at the gate
    - Removes manual touch points
- Drivers use app to plan all routes and at gate wait times are measured in seconds
- Touchless entry systems at terminals
- Process automation
    - All terminal equipment electric
    - Traffic control chooses next optimal crane move
    - Crane equipment chooses optimal path
    - 70% of crane cycle in fully automated
    - Significant reduction in crane idle time
- System automation
    - Increased capacity, productivity and throughput
    - More work done at non-peak hours
    - 80% reduction of wasteful moves
    - Maximize railcar utilization
- Terminal configuration change
    - Minimize horizontal transport within terminals and make more efficient use of space
    - Trucks out of terminal within 30 minutes (most conventional terminals 1-hour)
- First train company to certify a science-based target for GHGs

*****

Ken Adler, Senior Contributing Scientist, Environmental Defense Fund - Zero Carbon Ports: Regulations, Trust Funds, and Free Trade Agreements

Ports process freight just like refineries process oil and power plants process coal. And like refineries and power plants, ports produce a tremendous amount of air pollution. Port emissions, unlike refineries and power plants, are largely unregulated. The existential threat posed by climate change requires a set of regulations and financial incentives to support the transition to zero-carbon port vessels, locomotives, equipment and trucks that can reliably and cost-effectively meet consumer demands for goods. As the point of entry into the US, electrifying ports provides a launch pad for zero-carbon freight transportation nationwide.

Recommendations

- Drayage
    - Implement differentiated drayage fees based on compliance with emissions standards,
    - Electric infrastructure incentives (utility-level incentives to install charging Infrastructure),
    - Electric drayage truck demonstration projects
- Marine Vessel
    - Continue vessel speed reduction program,
    - Evaluate compliance with EPA regulations to rebuild old tug engines with "certified upgrade kits",
    - Evaluate preferential contracts for harbor workboats that have at least a Tier 2 engine,
    - Evaluate feasibility of Norway's marine vessel tax on NO_x emissions, which generated 35,000 tons of NO_x reductions since 2008 and $440 million for vessel engine upgrades,
    - Evaluate feasibility of shore power and bonnet control systems to capture/reduce hoteling emissions
- CO_2 reduction target for Port Authority of NY&NJ
- Reducing $PM_{2.5}$ National Ambient Air Quality Standard to 9 or 10 ug/m^3 would generate major health benefits for communities
- Need to tighten $PM_{2.5}$ standard from 12 to 9 ug/m^3
- Follow UCLA drayage study recommendations for electrification by 2035

*****

Pamela Frank, CEO, ChargeEVC - Medium & Heavy-Duty Electrification; Preliminary Results Review

Public Law 2019, c. 362 requires that By December 31, 2020, the Department of Environmental Protection, in consultation with the Board of Public Utilities, shall establish other goals for

vehicle electrification and infrastructure development that address medium- duty and heavy duty on-road diesel vehicles and associated charging infrastructure, similar to the State goals for light duty vehicles and consistent with the technology and plug-in electric vehicle markets for those vehicle types.

We offer the following recommendations regarding goal setting in the medium and heavy duty on-road diesel segment (M/H-duty). We recognize that goal setting may be influenced by strategic factors that include equity and public health priorities:

First, given the significant diversity in this category of vehicles, goal setting in the M/H-duty segment would benefit from the following four stages:

- Baseline characterization per segment (there May Be "sub-segments" within the traditional vehicle groupings);
- Electrification schedule planning per segment (see below);
- Electrification pathway planning per segment;
- Segment and pathway prioritization.

Second, with regard to planning for a transition to electrification, establishing an electrification schedule will depend on several factors including:

- Vehicle readiness;
- Natural retirement rate;
- Market adoption rate (once readiness achieved);
- Other gating factors, especially infrastructure availability.

Third, to establish an adoption profile, the factors above can be combined into an aggregate "percent of new sales per year" adoption profile.

Fourth, it should be recognized that some segments are MUCH more mature than others, and this will be reflected in an electrification schedule.

Fifth, incentive needs will vary widely.

Last, as mentioned during my testimony, ChargEVC will release its final study of the M/H-duty segment early this fall. We look forward to sharing and reviewing those findings with the Department of Environmental Protection.

*****

Christopher M. Lutick, Director, State Government Affairs, United Parcel Service - No More Business as Usual – Surviving and Thriving in a Low Carbon Economy

- In UPS' view, no medium or heavy duty EV trucks are available today that meet our requirements for deployment at scale in the U.S.,
- Once available, the EVs must penetrate the fleet over 10 to 20 years as older trucks are replaced,
- Incentives matter for commercial fleets
    - Fleets are generally centrally fueled, so range anxiety and need for remote charging are less critical,
    - Financial incentives work with commercial fleets because fleet owners are very sensitive to costs,
    - Vehicle tax credits might accelerate availability,
    - Relief from congestion fees, special parking incentives,
- Federal or State incentives to help address climate change
    - Jump start electrification: heavy/medium duty trucks with tax credits, including FEIT exclusion,
    - Incentivize renewable fuels for existing trucks, jets
- Consolidated package delivery reduces carbon emissions
- Optimize delivery routes
- Fill empty backhauls
- Use electric trikes for las mile of delivery
- Solar arrays on distribution center and other rooftops
- LED upgrades in buildings,
- Drone use for urgent deliveries

*****

Gail Toth, Executive Director, New Jersey Motor Truck Association - Heavy Duty Trucking Today and Tomorrow

The trucks serving the Port Authority of New York and New Jersey (PANYNJ) have been getting greener. The PANYNJ plan to reduce truck emissions is and continues to be a success.

The PANYNJ implemented a plan to reduce truck emissions by systematically reducing the access of 2006 and older trucks serving the port. This was accomplished by annually restricting truck access by the oldest year and to assist truck owners to upgrade to a clean truck they provided grants. This allowed for the shrinking of the older fleet and upgrading the fleet to newer cleaner trucks.

Along with the efforts by the PANYNJ, many fleet and truck owners opted to replace their older trucks with more efficient cleaner trucks.

As of the latest fleet report in June 2020, 66% of the drayage trucks servicing the port were 2007 engine model year or newer. Even more impressive is that 3,976 trucks servicing the port are 2011 or newer, with 3,134 having 2007-2010 engines.
The 2010 model year engine reduces 98 percent of emissions of particulate matter and nitrogen oxide emissions.

Prior to July 2019, trucks had to be 2007 model year or newer. Since July 2019 to register a truck for access to the port, trucks had to meet the 2010 model year standards.
The PANYNJ has also changed the replacement truck requirement from a 2007 engine model to a 2014 or newer engine model. The current systematic replacement of older trucks and truck owners investing in new equipment will result in a port fleet compliant with the latest near-zero emission standards in less than a decade. With more funding this timeline can be expedited.

These are exciting times for the trucking industry. There is currently an enormous amount of innovation by truck manufacturers to design equipment that has near-zero emissions, are efficient and affordable. These new heavy diesel trucks produce near-zero emissions and are widely available. Currently, 41% of all the diesel trucks in New Jersey are near-zero emissions.

Nationally according to the Diesel Technology Forum's analysis of 2018-2019 U.S. vehicles in operation data (Class 3-8) provided by IHS Markit, 43 percent of the nearly 11 million diesel-powered commercial vehicles on U.S. roads – from box delivery trucks to 18-wheelers – are now powered by the newest generation of diesel technologies (MY 2010 and newer). Over just four years, the percentage of new-generation diesel trucks on America's roads has nearly doubled – up from just 25.7 percent of the fleet in 2015.
As New Jersey is placing a focus on electrified trucks as our future, the reality is that electric class 8 trucks for heavy-duty trucking are not available yet in any significant way. There are many pilot programs but issues concerning power that cannot exceed 250 miles, the weight of the batteries, the cost per truck and the lack of charging infrastructure remain as obstacles. Not to mention what to do with batteries that only last 10 years and if the power grid can handle the increased demand.

At this point in time, the investment in electric class 8 – drayage truck day cab is prohibitive. The cost to purchase an electric 2019 drayage day cab is $436,296, plus $95,629 for fast charging equipment, plus Federal Excise Tax (FET – 12%) $52,320 and delivery cost of $12,000 or a total investment of $596,000 per truck. Note range per charge is 125 miles and the battery would have to be replaced in approximately 10 years – cost unknown. The average cost for a new near-zero emission class 8 truck is $150,000, plus FET which is $18,000 – for a total investment of $168,000.

The trucking industry has been requesting relief even if only temporary from the FET to encourage the purchase of new equipment especially during these poor economic times due to the pandemic.

In conclusion, nationally the trucking industry has been rapidly replacing older trucks for new near-zero emissions trucks. The PANYNJ's plans to reduce truck emissions at the port have been successful and will continue until they fully convert the fleet to near zero emission trucks in less than a decade.
Recommendations:

Recommend grants of $35,000 towards purchase of 2014 or newer truck to help accelerate the replacement of the remaining older trucks especially during these poor economic times. This investment would have an immediate impact on reducing emissions as opposed to electric heavy-duty trucks that are not going to be a viable option for many years to come. These trucks are also loaded with many new safety features.

Continue grants for electric yard jockeys to help offset the huge cost for equipment and charging stations. These are vehicles that do not leave the port district. The current average cost is $371,500 for the yard jockey and charging station. The NJDEP VW Consent Order provides 75% of the costs.

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PUBLIC COMMENTS

Berenice Tompkins - New Jersey Work Environment Council and the Jersey Renews Coalition

Representing the Jersey Renews coalition of more than 60 environmental, labor, faith and economic justice organizations, we thank you for your service on the Council and for inviting input on the critical and timely issue of ports. Below please find our recommendations on measures to clean up our air and advance health equity in port-adjacent communities, as well as to put New Jersey on track to fulfill truck electrification commitments laid out in the recent multi-state MOU.

Focusing the recent Clean Air Council hearing on our ports could not be more timely in the wake of a respiratory pandemic with risk directly correlated to air pollution exposure. A nationwide study from the Harvard School of Public Health found that someone who lives for decades in a county with high levels of $PM_{2.5}$ -- a pollutant concentrated in port-adjacent communities -- is 8% more likely to die from COVID-19 than someone in a county with just one unit (one mg/cubic meter) less. Given that New Jersey's port-adjacent communities are majority Black, brown and low-income, maximum reduction of pollutants such as $PM_{2.5}$ and black carbon, as well as greenhouse gas emissions, is an essential step to correcting a long legacy of environmental racism. For this reason, wherever possible our ports should transition to electric trucks and equipment -- which emit no tailpipe pollution -- rather than those powered by diesel or compressed natural gas (CNG).

Electrifying our ports is supported by New Jersey's participation in a 15-state MOU committing to achieve 100% electric medium to heavy-duty vehicles by 2050, with an interim benchmark of 30% by 2030. This effort must begin with the dirtiest sources of truck pollution: ports. New Jersey ports should begin by incentivizing direct replacement where clean engine and electrification technologies are already proven and rapidly advancing, i.e. ship to shore electric power or "capture and control" ship stack options; drayage (container) truck replacement with electric vehicles for shorter hauls and 2010 or newer diesel model engines as necessary; cargo handling equipment (CHE – cranes, container straddlers and hustlers); as well as anti-idling shut-offs and electric plug ins for both trucks and equipment, particularly at rest stops, warehouses and on the docks.

Establishing electric anti-idling infrastructure is especially important for trucks hauling refrigerated units as they cannot stop idling.

According to a 2017 report, we could have achieved a 92% in diesel reductions almost immediately if the above investments were made in tandem with the Port Authority's previously adopted, but not fully implemented, ban on pre-2007 engine model trucks. Most goods that enter the Port of NY&NJ stay within the metropolitan region, and 75% of all goods in the region are moved by trucks (18,000 truck trips per day). So, the Port's truck entry requirements have a significant impact on overall regional pollution. The state should also pass complementary legislation establishing "dirty" container fees along with a clean truck (i.e., cleanest diesel engine model or electric) exemption to incentivize dirty diesel truck replacement and fund fleet modernization at the port.

*****

Doug O'Malley, Director, Environment New Jersey

- Air pollution serves as a vector of disease
- Black and brown communities most heavily impacted by pollution and COVID-19
- We are moving toward an electrification future and cannot rely solely on the private sector
- Look at California mandates for electrifying diesel trucks
- Need to take into consideration the huge public health costs
- Need to electrify NJ Transit buses

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Benjamin Saracco, Camden Shade Tree Advisory Board Member, Camden for Clean Air Member

- DEP should have more resources and funding to do public outreach in EJ communities
- People do not know about what DEP is doing, do not know about monitors, do not know about ways to get information or contact DEP to make a complaint, etc.
- Cumulative impacts are important
- NJDEP should stop subsidizing trash incinerators
    - Proposed microgrid in Camden is reliant on trash incinerator. This is not the way to do it
- Is disappointed that Council is all white men and women – need more diversity
- More health representatives need to be on the Council
    - Does not like the representation of the Clean Air Council; too many men and representatives of power plants

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Susan Herman, Residents for Regional Traffic Solutions, Inc.

Ed. note: Supplemental material referenced in Ms. Herman's testimony can be found on the NJ Clean Air Council's website.

I am Susan Herman, President of Residents for Regional Traffic Solutions, Inc. (a.k.a. RRTS), P.O. Box 285, Newtown, PA 18940.

Our comments are about Trenton-Mercer Airport (a.k.a. TTN). Our organization, along with BRRAM (Bucks Residents for Responsible Airport Management) and Mercer County -based grassroots groups, has been concerned with the expansion of TTN for over
20-plus years. TTN expanded "under the radar" throughout the past 20-plus years, by approving & implementing numerous individual projects, whose whole equaled large-scale expansion. By dividing the expansion into "segments", TTN has avoided having to do the Cumulative & Expansive Environmental Impact Statement (EIS) that would measure its **true negative impacts** on all affected Mercer County (NJ) and
Bucks County (PA) municipalities.

Recently, residents are increasingly alarmed about the large number of projects that TTN has sought approvals for, without regard to **cumulative impact** on the environment, surrounding New Jersey & Pennsylvania communities, and public health. There are at least twenty-five (25) in-process individual projects that we can list that have either been approved, are in the process of seeking approval, or are planned in the near future as "unrelated" or "independent" improvements.

*****Residents for Regional Traffic Solutions, Inc. (RRTS) is a non-profit organization founded in August 2001. Its purpose is to engage in public awareness as to traffic issues in the Central Bucks County area. RRTS focuses on issues related to transportation, infrastructure and the impact of transportation-related decisions on regional populations. In the case of Trenton-Mercer Airport, the impacted regional populations are in Mercer County, New Jersey and Bucks County, Pennsylvania.

All of these segmented, individually- considered projects are **outlined and proven to be related & interdependent in the Master Plan of 2018.** The Mercer County Website describes the Master Plan as such: "*the Airport Master Plan is essentially a facility planning study that sets forth a conceptual framework for possible future airport development*". The **Airport Layout Plan (ALP),** part of the Master Plan, clearly identifies a proposed terminal expansion, the runway protection zone, and development of Parcel A of the Naval Air Warfare Center where there are known PFOS, VOC's, mercury and other contaminants.

The residents who have been, and will continue to be, hardest hit by the airport's success in skirting around doing a Cumulative & Expansive EIS [of all affected New Jersey and Pennsylvania municipalities], are those residing in Ewing Township and the City of Trenton. In Dr. Nicky Sheats' earlier presentation, he described the vulnerability of communities such as these and our obligation to study cumulative impacts and practice Environmental Justice & Social Justice.
It is unconscionable that New Jersey politicians - from the local up through the Federal level - ignored RRTS's September 30, 2019 letter which stated that residents are worried that the

continued reckless, unchecked expansion of TTN will cause irreparable harm to our health, safety and welfare. The harm will include, but not be limited to, potential PFOS contamination of our water supply.*****

Today, presenters have talked about the health impacts of air pollution around our ports and airports. Researchers are equating unregulated airplane exhaust to an urban freeway network & are warning that the air quality impacts have been seriously underestimated. PFOS contamination of drinking water is linked to harming children's neurological development, kidney cancer, and testicular cancer. The health impacts of the coronavirus - combined with those caused by air pollution and contaminated drinking water - will be devastating.

We implore the New Jersey Clean Air Council to vigorously oppose the expansion plans of the Trenton-Mercer Airport (including all individually considered projects) that will potentially increase air and water pollution in New Jersey and Pennsylvania.
***** RRTS's September 30, 2019 letter will be included in our written testimony, along with a written version of this oral testimony. The subject of our September 30, 2019 letter is
RE: <u>IMMINENT PROPOSED EXPANSION OF TRENTON-MERCER AIRPORT (TTN):</u> New Jersey & Pennsylvania residents living in municipalities surrounding TTN, worry that it will cause irreparable harm to their health, safety & welfare. The harm is likely to include, but not be limited to, irreparable damage to the water supply.

<u>Written Testimony</u>

**<u>BEFORE IT IS TOO LATE: Our "ASKS" of the NJ Clean Air Council & the NJ Department of
Environmental Protection (NJ DEP)</u>**

1.) We implore the NJ Clean Air Council and the NJ DEP to vigorously & formally oppose all current and proposed expansion plans of Trenton-Mercer Airport (TTN), including the **Master Plan of 2018** that calls for:

- …building a Passenger Terminal that is five (5) times the size of the current terminal,
- …the **Runway Protection Zone & Obstruction Mitigation Project,** and
- …twenty-five (25) individually considered, segmented-out projects

These expansion plans will result in toxic air & water pollution that will cause irreparable harm to affected residents in Mercer County, NJ and Bucks County, PA.

TTN continues to recklessly move forward with plans to expand the airport substantially, with no regard for the water, air, wildlife, and other environment impacts on its citizens in the surrounding region. The former Naval Air Warfare Center in West Trenton, NJ (NAWC) is known to have groundwater polluted with PFAS***** and other toxic chemicals. TTN's expansion plans will increase the water run-off through the former NAWC site and into the Delaware River, which is the drinking water supply for thousands of Mercer County and Bucks County citizens. **PFAS contamination of drinking water is linked to harming children's neurological development, kidney cancer and testicular cancer.**

***** *PFAS- per-and polyfluoroalkyl substances – are a class of man-made chemical compounds used in producing products such as non-stick cookware coatings, fire retardant furniture, and foam used in firefighting. PFOA, once used to make Teflon, and PFOS, once used in Scotchgard, are among the most widely known, yet there are hundreds more still being used in manufacturing.*

2.)We also implore the NJ Clean Air Council and the NJ DEP to develop an actionable response to meaningfully address the toxic air & water pollution that *ALREADY EXISTS TODAY*. TTN has *already* experienced large-scale expansion over the past 20 years, while skirting around having to do a Cumulative & Expansive Environmental Impact Statement (EIS) to measure the **cumulative impacts** on affected Mercer and Bucks County municipalities. The airport avoided having to do the EIS by breaking expansion into smaller projects, so that they were only subjected to narrow, isolated Environmental Assessments (EAs). This is segmentation, this is disingenuous, and this *already* threatens the health, safety & welfare of affected NJ and PA citizens.

SUMMARY

Residents in Mercer County (NJ) & Bucks County (PA) ask you to vigorously & formally oppose TTN's current & proposed expansion plans because…

1.) …the airport's continued reckless, unchecked expansion will harm them & their families, as explained in the VIDEO at below link:

https://www.youtube.com/watch?v=ZHU7m1Rzvyw&feature=youtu.be

2.)…**Health**

- Airport plans will change storm drainage; there is known PFAS & other toxic chemical contamination of groundwater on airport property & the NAWC site, which could make TTN the next Flint [Michigan]. PFAS contamination of drinking water is linked with harming children's neurological development, kidney cancer and testicular cancer. (See attached Philadelphia Inquirer article titled *PFAS testing planned for 2 counties: Adults and children from Bucks and Montco are being sought for a national study on the chemicals.*)
- U.S. Senators Bob Menendez (NJ) & Bob Casey (PA) are amongst 19 senators who want the U.S. government to find out if exposure to PFAS chemicals can make people more vulnerable to coronavirus.
- The particles in airplane exhaust are directly tied to heart disease and asthma. The dangerous, invisible, microscopic exhaust particles travel up to ten (10) miles outside the flight path. Even if residents cannot see the planes, they are at risk.
- Eat Locally? Thousands of residents depend on fresh fruits, vegetables & meats grown in Lawrence & Hopewell Townships. Heavy metals & organic compounds in airplane exhaust put our food at risk of contamination.
- There is a wealth of data about the negative impact of noise on learning, which is compounded by both vibration and by exhaust, as well as noise on hearing loss, particularly in children.

Environment

- Researchers are equating unregulated airplane exhaust to an urban freeway network & are warning that the air quality impacts have been seriously underestimated.
- Toxic emissions from planes flying below 900 feet endanger joggers, cyclists, and wildlife at Mercer Meadows Park & the Pole Farm Bird Sanctuary.
- Mercer & Bucks County residents are already subject to a record number of overflights & vehicular through-traffic; local airport expansion will further degrade our poor air quality. [Mercer County (NJ) is rated "F" in Air Quality by the American Lung Association.]
- The long-term effects of ongoing, increased emissions in close proximity to residential areas and watershed tributaries cannot be ignored.

Financial

- Home values are estimated to decrease up to 30% near an airport.
- Mercer County has invested ?$$$ in the airport over the last 20 years. What financial benefit has accrued and/or is flowing to the county and its citizens?

Irresponsible Government

- Past & current expansion has been divided into smaller projects to avoid doing a Comprehensive & Expansive Environmental Impact Statement (EIS) that measures the ***cumulative impacts*** on **ALL** affected NJ and PA municipalities.
- The residents who have been, and will continue to be, hardest hit by the airport's success in skirting around doing the EIS, are those residing in Ewing Township (NJ) and the City of Trenton (NJ). Environmental Justice & Social Justice <u>are not</u> being practiced.
- There has been (a) a history of blatant disregard for authentically including the public in the decision-making process for airport projects, (b) an unconscionable lack of transparency and (c) an **intentional neglect** on the part of New Jersey politicians & the airport to do whatever it takes to protect the health, safety & welfare of affected NJ and PA citizens.
- Annual flight volume through early 2019 has already exceeded the 2035 flight estimates presented to the community by 17,238 take-off/landings, 16 YEARS EARLY & PRIOR TO TERMINAL EXPANSION
- Mercer County Freeholders just authorized a $54,000 contract to market the airport in the middle of a pandemic, when the future demand for air travel is completely uncertain and many airlines may go out of business
- During the unprecedented pandemic with unemployment and decreased tax revenues, why are much-needed county $ being spent on the airport?

<u>BACKGROUND</u>

1.) RRTS, along with BRRAM (Bucks Residents for Responsible Airport Management) and Mercer County - based grassroots groups, has been concerned with the expansion of TTN for over 20 years. TTN expanded "under the radar" throughout the past 20 years, by approving and

implementing numerous individual projects, whose whole equaled large-scale expansion. By dividing the expansion into segments, TTN has avoided having to do the Cumulative & Expansive Environmental Impact Statement (EIS) that would measure its **cumulative impacts** on ALL affected Mercer County, NJ & Bucks County, PA municipalities.

2.) Recently, residents are alarmed by the large number of projects that TTN has sought approvals for, without regard to **cumulative impact** on the environment, surrounding NJ & PA communities, and public health. There are at least twenty-five (25) in-process individual projects that we can list that have either been approved, are in the process of seeking approval, or are planned in the near future as "unrelated" or "independent" improvements.

All of these segmented, individually- considered projects are *outlined and proven to be related & interdependent in the* **Master Plan of 2018.** The Mercer County Website describes the Master Plan as such: "*the Airport Master Plan is essentially a facility planning study that sets forth a conceptual framework for possible future airport development*". The **Airport Layout Plan (ALP),** part of the Master Plan, clearly identifies a proposed terminal expansion, the **Runway Protection Zone & Obstruction Mitigation Project (RPZ Project)**, and development of Parcel A of the Naval Air Warfare Center (NAWC) where there are known PFOS, VOCs, mercury and other contaminants.

The danger of considering these projects separately was demonstrated at the Mercer County Freeholder Board Webex meeting on 4/23/20 when the development of Parcel A of the NAWC was discussed. Airport attorney, Mr. Markind, referred to the remediation barrier on Parcel A as being "in total disrepair" several times. There are known PFOS, VOCs, mercury and other contaminants on Parcel A and the adjacent Parcel B. Both groundwater and surface water contamination have been reported. While Parcel B continues to be managed by the Navy, it appears that Parcel A is going to be cleaned up privately as part of the Flightserv lease agreement. It was not clear, and the Freeholders did not seem to know, who was overseeing & responsible for the project.

Residents are concerned that the **Parcel A FONSI** indicates that there is "no impact, due to no changes in storm water run-off", ignoring the fact that the adjacent, massive **RPZ Project** changes are anticipated to affect storm run off by nearly 1.5 million (1, 500,000) gallons/year, as estimated by the Watershed Institute during the public comments portion of the **Environmental Assessment for the RPZ Project** (pg. P-200-202). This estimate relates only to **RPZ Project –associated** changes to landscape, and did not account for climate-change related
increases in precipitation or the additional massive airport build-out, as described above.

It makes sense that the Parcel A remediation barrier should be repaired. It also makes sense that its ability to withstand both **RPZ Project – caused** and climate-related increases in storm drainage, be addressed well in advance of any **RPZ Project** structure removal. This is but one example of why these projects MUST be considered together.

3.) The attached 11/12/19 letter from PA Congressman Brian Fitzpatrick to the U.S. Department of Transportation **RE: the RPZ Project** states,

"*…I continue to be concerned that TTN has chosen to segment these projects to reduce the level of environmental study required. Additionally, I am greatly concerned that TTN has overlooked potential existing groundwater contamination while conducting their Environmental Assessment (EA). Therefore, I am requesting that the FAA review the mechanisms used by TTN to complete their Environmental Assessment to ensure that all environmental impacts, including threats to the safety of ground and drinking water be evaluated……Although several contaminates are listed in the EA, there is no mention of the presence of PFOS/PFOA. However, according to a 2018 Congressional Brief by Maureen Sullivan, Deputy Assistant Secretary of Defense, the DoD monitored groundwater wells around the Naval Air Warfare Center Trenton and found that the majority tested near above the EPA LHA for PFOS/ PFOA…Given the health risks associated with PFOS/PFOA exposure, it is critical that the environmental assessment for any project at TTN take these risks into account…"*

RRTS has provided the Mercer County Freeholders with this letter several times during Public Comment at their meetings. Despite Congressman Fitzpatrick's repeated communications regarding his concern that segmentation has occurred (and that there has not been appropriate environmental scrutiny of TTN's cumulative impacts), it is the Federal Aviation Administration (FAA) who **routinely** responds that segmentation has not occurred. The problem is that the FAA is like the fox guarding the hen house. The agency has demonstrated that it is driven by a self-interested agenda that DOES NOT include protecting the safety & welfare of citizens. (See attached 2/21/20 Buchalter article titled *Quiet Skies Congressional Caucus Gets Brush Off from FAA.*)

4.) The Mercer County Freeholders maintain that the **RPZ Project** is motivated purely by safety concerns and will not change airport operations. *This is bogus and disingenuous*. Aviation Professionals have advised that IT DOES NOTHING to change the safety margin. WHAT IT DOES is enable more operations and better fleet mixes.

In Mercer County's own EA, in Chapter 4, it states,

"The existing runway length needs to be maintained or it will result in a loss of operations and/or operational restrictions for the Airbus 320/320neo and the Gulf stream IV/V during wet and slippery runway conditions."

We experience wet and slippery conditions right now – should those planes be operating from this airport now? If the Mercer Co. Freeholders truly thought that this project was purely for safety concerns (which they learned about in March 2015), they would be curtailing those operations right now. It is blatantly obvious that a key purpose for this project is to effectively lengthen the runway so that TTN can have the big jets safely fly in all conditions, move lower flying & heavily laden planes, and significantly increase airport operations.

5.) More than eighteen (18) months ago, TTN promised that there would be a Public Meeting held in Bucks County, PA for New Jersey & Pennsylvania residents to review the EA and the status of the multiple current & planned projects associated with the **Master Plan of 2018**. Recently, BRRAM formally gave public comment at a Mercer County Freeholder meeting to request that

the meeting be held. BRRAM also sent a formal letter to Freeholder Chairman, Andrew Koontz, requesting same. Below is the 8/3/20 email response that BRRAM received from Chairman Koontz & Mercer Co. Administrator Lillian Nazzaro: *"We forwarded your communication to the County Administrator. Please see their response below.*

> ***LAURENTI, Mario***
> *Confidential Aide to Freeholder Andrew Koontz*
>
> ---
>
> ***From:*** *Nazzaro L. Lillian, Esq. <lnazzaro@mercercounty.org>*
> ***Sent:*** *Monday, August 3, 2020 9:28 AM*
> ***To:*** *Koontz, Andrew <akoontz@mercercounty.org>*
> ***Subject:*** *RE: Mercer Freeholders Public Comment July 16 follow up - Request for Virtual Meeting on Trenton Mercer Airport*
>
> *Chairman,*
> *As previously discussed in Freeholder meetings, a public meeting will take place in Pennsylvania as soon as the EA is approved by the FAA. The County has every intention of going forward with the public meeting and residents of Pennsylvania will be advised accordingly. Finally, the meeting will most likely be a Tele Town hall meeting.*
>
> *Thank you,*
>
> ***Lillian L. Nazzaro, Esq.***
> ***Mercer County Administrator"***
>
> **This is unacceptable. It ignores the concerns of PA citizens and is not acting in good faith.**

6.) At the 10/24/19 meeting of the Delaware Valley Regional Planning Commission (DVRPC) Board, RRTS gave public comment expressing the serious concerns that affected New Jersey & Pennsylvania residents have with the continued, unchecked expansion of TTN. The 11/17/19 GUEST OPINION that appeared in the local paper, THE ADVANCE OF BUCKS COUNTY, summarized our public comment. (See Guest Opinion titled *An open letter to the DVRPC on Trenton-Mercer Airport* in the attachment labeled **DVRPC-related communications**.)

In the 11/4/19 letter from Barry Seymour, DVRPC Executive Director, to Jennifer Solomon of the FAA (See 11/4/19 letter in attachment labeled **DVRPC-related communications**), it states,

> *"…As TTN continues to advance their improvement plans for the facility, residents of both Mercer County, NJ and neighboring Bucks County, PA have expressed concerns about potential environmental and social impacts created by any changes in facility operations. We strongly support the continued examination and consideration of these impacts and potential mitigation strategies, in accordance with the FAA guidelines…"*

The DVRPC is disingenuous in its expression of concern for the health, safety & welfare of NJ and PA residents. **The following disturbing quotes are from DVRPC's July 2014 publication titled *2040 Regional Airport System Plan (RASP)*, a plan that calls for expanding TTN far beyond an appropriate-sized local airport:**

> **On page 32**, there's a section titled "Trenton-Mercer (TTN), New Jersey" and the first sentence of the second paragraph states, *"The airport is marketing itself as an alternative to PHL [Philadelphia International Airport] and EWR [Newark's Liberty International Airport], offering less hassle".*
>
> **Page 1** is the "Executive Summary" which states this half way down the page, *"Therefore, the objectives for the 2040 RASP took these factors into account, and the following priorities were agreed upon by the RASP subcommittee: 1. Expand commercial air service capacity within the region…3. Sustain and improve infrastructure to attract more users…This report is being prepared with the support of the Federal Aviation Administration (FAA) …"*
>
> **Page 3** states this in the first paragraph, *" 'Aviation' to most people in the region will likely be associated with Philadelphia International Airport (PHL), the 11th busiest airport in the world (in terms of aircraft operations), but the Delaware Valley is also served by two other commercial service airports, Trenton-Mercer (TTN) and Wilmington (ILG)…"*
>
> **Page 4** is "Figure 1: Regional Airport System Map". TTN has the same icon as Philadelphia International Airport (PHL) and Wilmington (ILG).
>
> **Halfway down page 5** it states, *"One specific economic aid for the region comes with the availability of U.S. Customs and Border Protection facilities at the region's airports. All three commercial service airports – PHL, TTN, and ILG- have these facilities."*
>
> **On page 7**, it states this in the third paragraph, *"Commercial service airports serve scheduled service airlines, corporate aviation, and in the case of ILG and TTN, some military operations."*

The DVRPC's plan to expand TTN into a "booming airport" (as referenced on page 43 of DVRPC's 2014 publication titled *[resilience]*), is inconsistent with its stated vision on its website Home Page on 2/19/20 which stated,

> *"The **Delaware Valley Regional Planning Commission** is the federally designated Metropolitan Planning Organization for a diverse nine-county region in two states: **Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania**; and **Burlington, Camden, Gloucester, and Mercer in New Jersey**.*
>
> ***DVRPC's vision** for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural*

resources while creating healthy communities; and that fosters greater opportunities for all."

*(*See attachment labeled **DVRPC-related communications**: DVRPC's Vision on 2/19/20 website Home Page)

The DVRPC should re-examine its plans to make TTN a "booming airport" and re-prioritize the importance of clean water to the region as one of the primary goals.

7.) It is unconscionable that New Jersey politicians, from the local level up through the Federal level, ignored the attached 9/30/19 letter from RRTS titled:

RE: IMMINENT PROPOSED EXPANSION OF TRENTON-MERCER AIRPORT (TTN): New Jersey & Pennsylvania residents living in municipalities surrounding TTN, worry that it will cause irreparable harm to their health, safety & welfare. The harm is likely to include, but not be limited to, irreparable damage to the water supply.

Our 9/30/19 letter is a formal, integral part of this written comment that we are submitting. We respectfully request that the NJ Clean Air Council & Commissioner McCabe read it in its entirety. If it is a problem that it is in pdf format, note that Commissioner McCabe received a hard copy of it via FedEx (signature required).

8.)Attached is our ORAL TESTIMONY given at the 7/30/20 Public Hearing (in Microsoft Word).

9.) FOR RRTS's USE ONLY, we have also attached a pdf comprised of our written and oral testimony for the 7/30/20 NJ Clean Air Council Public Hearing.

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Paula Rogovin, Coalition to Ban Unsafe Oil Trains

- Stop NJ Transit power plant being built in the Meadowlands Coppers Coke Site
- Bakaan crude is hazardous and should not be coming through our area
- Railroad crossings are in dangerous disrepair

*****

Samantha DiFalco, Clean Water Action

- We need to promote clean air throughout NJ
- Asthma and COPD is high in areas where residents live in high pollution burden
- Need to focus on renewable alternatives

- Stop NJT's proposal for microgrid power plant. 576,000 tons of pollutants

*****

Joe Basralian, Public volunteer

NJ Transit is proposing a giant new poisonous air source -- TransitGrid proposal, a 140 MW gas fired power plant. Even worse, it is a racist policy by NJ Transit. NJT does not intend its policy to be racist, but its intention is meaningless, because the policy result IS racist.

The plan will poison the air in the places where the air is already dirtiest in New Jersey: much of Hudson County and Essex County, including Newark. As you know, in both counties the population is predominantly Hispanic and Black: Hudson County (Hispanic 43%, Black 15%) and Essex County (Hispanic 24%, Black 42%). As you also know, the dirty air here is sickening people, especially children, disproportionately to the rest of whiter New Jersey and the nation at large.

Adding such a massive pollution source here is, therefore, a form of racist violence. Let us not be squeamish about the terminology. Facts are facts. All of the CAC's talk today of "environmental justice," "electrification of transportation" and so on rings hollow if Governor Murphy allows this unnecessary, obscene "TransitGrid" proposal to go forward.

The poisonous effects of the nitrous oxides, ground level ozone and other pollutants from this plant will inflict bodily violence to human beings in this area for a lifetime. The plant would emit 576,000 tons of greenhouse gases every year, but I am focused on its terrible local impacts. It will run 24/7 and pump noxious fumes into our region constantly for at least 30 years.

Governor Murphy has complete control over this! He appoints the NJT board and can veto the minutes. It is morally imperative for them all to create a new proposal based predominantly on clean energy. The EmpowerNJ coalition has shown in a 26-page report that a clean, electric-hybrid, more efficient and reliable power solution is entirely possible, and it is being ignored in substance by NJ Transit. DEP Commissioner McCabe spoke repeatedly this morning of needing to electrify transportation many speakers discussed "environmental justice," so NJ Transit's proposal is a smack in the face to all these speakers and these goals.

We cannot stand for NJ Transit's stubbornness and disgraceful policy to negate years of efforts by the people working on the Clean Air Council. As we sit here, NJ Transit is making a mockery of the goals of the Clean Air Council and Governor Murphy himself. Please tell them to dig in as solution-seekers. Please tell them to stop over-estimating the costs of clean power and storage and do a genuine hybrid proposal analysis. The costs have come way down since NJT's six-year-old, cursory analysis. Please tell them to stop turning a blind eye to the world's progress, where train travel is being electrified as the U.S. falls behind. Governor Murphy needs to know the truth before this stain appears on his record and in the lungs of a million people whom he wants to fight for.

Despite the good that NJ Transit normally does, its air pollution plant proposal will not stand. It will leave a filthy legacy. Please tell them to go back to the drawing board on clean power, or its policy will end in disgrace for disgrace for Governor Murphy and undo the Clean Air Council's work, and more importantly, will harm the million people who would suffer from this racist policy proposal and who can't stand another massive, unnecessary new pollution source, on top of everything else.

- Against NJ Transit power plant
- Is disappointed that Council is all white men and women – need more diversity

*****

Matthew Smith, NJ Director, Food & Water Watch and Food & Water Action

Food & Water Action and The Don't Gas the Meadowlands Coalition have analyzed NJ TRANSIT's Combined Final Environmental Impact Statement/Record of Decision Appendix D – Scoping Alternatives Analysis. In their appendix, NJ TRANSIT attempts to demonstrate that renewable energy and energy storage technologies are not capable of providing the power, resilience and other attributes required for the NJTRANSITGRID TRACTION POWER microgrid. The NJTRANSITGRID project currently includes a proposal to construct and operate a full time, gas burning power plant along the Hackensack River in Kearny, NJ. This power plant would be another major source of toxic air pollution in the port of Newark air-shed, increasing the disproportionate pollution burden on the surrounding low-income communities of color that Governor Murphy's administration has committed to alleviate. Attached is our detailed analysis effectively disputing NJ TRANSIT's claims that they cannot do this project with a clean energy and energy storage solution that would not increase the air pollution burden for Kearny, Newark, Jersey City and the surrounding communities. NJ TRANSIT's analysis suffers from many flaws. A summary of our major conclusions is presented below:
Overall, it does not utilize an engineered total solution that combines the synergies of multiple types of energy/storage to develop an optimal solution. Instead, it looks at each renewable energy technology in a "stove-pipe" fashion in order to find ways to demonstrate it is not feasible. Stove-pipe approaches produce much higher costs than necessary as they rely on single technology solutions to provide peak power.

It does not consider any hybrid mix of renewable energy sources or a hybrid solution comprised of renewable energy with emergency backup fossil fuel generation. Such hybrid microgrids are state-of-the-art in the industry and have been demonstrated to be highly cost-effective solutions that provide reliable and resilient solutions when commercial power is not available. As stated in our analysis paper, hybrid design "makes it more feasible and profitable to use renewable energy and storage while offering better economics than traditional gas-only power generation."

It ignores recommended techniques for reducing step loads and power peaks. As recommended by NJ TRANSIT's own consultant, Jacobson, reducing peak power demands is an extremely effective means of reducing costs by avoiding the need to build excess capacity.

These three flaws (stovepipe use of technology, no consideration of a hybrid approach and a lack of peak power reduction techniques), produced a worst-case scenario that no engineer would ever design. Apparently, this is the only way NJ TRANSIT can disprove the viability of renewable energy and storage technologies. This is not a professional, best practice approach and must be rejected by NJ TRANSIT management and Governor Murphy.

In addition to this fatally flawed approach, other problems with the analysis include:
Its costs for solar power generation are based on data from 2012 and prior years for estimating the efficiency and cost of solar power when it is widely acknowledged that these factors are improving every year. As a result, it grossly overestimates both the space required and cost of solar panels. In addition, these costs are based on averages across diverse projects whose conditions may or may not apply to a solution specific to this project.

It utilizes cost studies for storage that include only stand-alone systems instead of using lower costs from the synergies of co-located integrated storage and power systems which are stated in NJ TRANSIT's source reference to be more effective. It also ignores recent improvements in storage costs due to containerization efficiencies.
It ignores real estate it currently owns as viable locations for solar panels as well as large open areas and lagoons just north of the Koppers Coke peninsula as potential sites for solar panels. The hybrid model solution proposed in our paper shows much less need for space as well as much less need for battery capacity than NJ TRANSIT's estimates.

It makes false statements indicating the size of the potential PV-plus-energy-storage system required would be larger than any others in existence, while one is being constructed now that would be 65% larger than the size required by NJ TRANSIT.
NJ TRANSIT tries to demonstrate it will use renewable energy by citing the potential to burn bio gas, which is much dirtier than natural gas, will not reduce greenhouse gas emissions and would be even worse for the health and welfare of local residents.

It ignores the potential to use tidal power from the adjacent Hackensack River.
In short, we believe that design of the optimal solution, (a hybrid microgrid using renewable energy, storage technologies and backup emergency fossil fuel or tidal power) is simply an engineering and economic challenge to determine the best mix of these capabilities. NJT's approach clearly has not been to look for an engineered solution to maximize the use of renewable energy. Instead, it has used "worst engineering practices" to find ways to demonstrate it is not feasible. This is clearly not a professional, best practice approach.

Instead of undertaking futile unprofessional efforts to prove what cannot be done, NJ TRANSIT must undertake a feasibility study (similar to the Sandia study of 2014) of a hybrid microgrid primarily utilizing renewable energy and storage technologies, current best-cost estimates and best energy system design practices. Without such a comparative analysis, and even setting aside all environmental concerns, NJ TRANSIT is not acting as a good steward of its Federal and NJ grant monies. The public must also have ample opportunity to provide input into the parameters of the study. Governor Murphy must order a halt to all work on the NJ TRANSITGRID project until such a study has been completed.

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Robin Karpf, M.D., President, Trenton Threatened Skies, Inc.

Trenton Threatened Skies, Inc. is a non-profit 501(c)3, led by a group of concerned Mercer County residents, who have lived here for decades, loving, enjoying, and contributing in many ways to our community, with its beautiful green spaces, caring residents, peaceful atmosphere and organic farms. Our mission is to gather, review, analyze, and disseminate information regarding the Trenton-Mercer Airport, in Ewing, New Jersey, with respect to the environmental, public health, safety, and economic impacts of the proposed and future operations of the airport.

Emerging health data links aviation emissions and noise to heart attacks, asthma, pregnancy complications, learning, behavioral and psychiatric issues. Our home values can be expected to decrease up to 30% with increased commercial flight volume and our air and water quality will certainly deteriorate.
We have become increasingly alarmed because our local Mercer County authorities have been unresponsive to our concerns. Trenton Mercer Airport continues to seek and win approvals for a number of projects without regard to the cumulative impact on the environment of surrounding Mercer County communities and our public health. There are at least twenty-five (25) in-process individual projects that have either been approved, are in the process of seeking approval, or are planned in the near future as "unrelated" or "independent" improvements. All of these individually considered projects are outlined and proven to be related & interdependent in the Master Plan of 2018. The Airport Layout Plan (ALP), part of the Master Plan, clearly identifies a proposed terminal expansion, the runway protection zone, and development of Parcel A of the Naval Air Warfare Center where there are known PFOS, VOC's, mercury and other contaminants.

Prior to the COVID 19 Pandemic, Trenton Mercer Airport's annual flight volume had already exceeded the 2035 estimates used to gain approval from the FAA for expansion and presented in public hearings in 2018. Mercer County residents are already subjected to a record number of overflights & vehicular through traffic and this local airport expansion will further degrade our already failing air quality.

The particles in airplane exhaust are directly tied to heart disease and asthma. Heavy metals and jet soot exhaust will put our local food at risk for contamination. Toxic emissions from planes flying below 900 feet are endangering visitors and wildlife at Mercer Oaks and Rosedale Park. Unregulated airplane exhaust impacts on our air quality has been seriously underestimated and the citizens of Mercer County implore the New Jersey Clean Air Council to vigorously oppose the expansion plans of the Trenton-Mercer Airport.

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Holly Bussey, President, Bucks Residents for Responsible Airport Management

For over 25 years, BRRAM** has expressed concern about the environmental impacts of the Trenton-Mercer Airport on the health and well-being of the residents of the surrounding areas.

The newest health data links aviation emissions and noise to heart attacks, asthma, pregnancy complications, learning, behavioral and psychiatric issues.

Ultrafine particle exposure, produced from aircraft emissions, has been linked with adverse cardiovascular and respiratory health effects (and even possibly the risk of dementia (https://deohs.washington.edu/hsmblog/trac-pollution-and-dementia)). Studies have shown that airports can increase particle number concentrations up to 4-fold at 10 km downwind.

According to an article published in the Guardian, "New research has linked air pollution nanoparticles to brain cancer for the first time… Environmental risks like air pollution are not large in magnitude – their importance comes because everyone in the population is exposed," said Scott Weichenthal, at McGill University in Canada, who led the study. "So when you multiply these small risks by lots of people, all of sudden there can be lots of cases, which is meaningful, particularly given the fact that these tumors are often fatal."
When airports expand it is documented that home values can be expected to decrease up to 30%. Studies clearly show that air and water quality also deteriorate with airport expansion and increased air traffic.

Currently, the Trenton-Mercer Airport is doggedly pursuing a Master Plan to expand the airport, over the public outcry about health, noise and property value impacts.

Residents are increasingly alarmed about the large number of projects that TTN has sought approvals for, without regard to cumulative impact on public health and the environment in surrounding New Jersey & Pennsylvania communities. There are at least twenty-five (25) in-process individual projects

that have been identified that have either been approved, are in the process of seeking approval, or are planned in the near future as "unrelated" or "independent" improvements.

BRRAM opposes any form of expansion or renovation of TTN until the environmental issues of noise, pollution and safety are first identified and resolved. BRRAM believes that Trenton-Mercer Airport should perform a full Environmental Impact Statement (EIS) that would include not only the grounds of the airport, but the surrounding 10-mile radius that is impacted by the airport in both Pennsylvania and New Jersey.

Members of BRRAM from NJ and PA urge the New Jersey Clean Air Council to vigorously oppose the expansion plans (all projects) of the Trenton-Mercer Airport (TTN). Additionally, we implore that TTN be required to undergo rigorous environmental review (EIS).

**Bucks Residents for Responsible Airport Management (BRRAM) is a non-profit volunteer organization comprised of over 1,000 concerned citizens. BRRAM works with other organizations

in both Pennsylvania and New Jersey, as an advocate for our residents, to help demand accountability from TTN and that TTN be a "good neighbor" respecting the environmental health, safety and well-being of all its neighbors.

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Perry Warren, PA State Representative, 31st Legislative District

I represent the 31st Legislative District in Bucks County, Pennsylvania, the communities of Lower Makefield Township, Morrisville, Newtown Borough, Newtown Township and Yardley. Thank you for accepting comments in connection with the 2020 New Jersey Clean Air Council Public Hearing – Past, Present and Future: Air Quality Around Our Ports and Airports. I submit these comments specifically with respect to the Trenton-Mercer Airport.

The Trenton-Mercer Airport is located adjacent to a residential neighborhood, across the Delaware River, two to three miles from the suburban residential communities that I represent. In recent years, a growing number of commercial flights have flown daily from and to Trenton-Mercer Airport, following flight patterns above our communities. Notwithstanding the recent increase in flights, the Trenton-Mercer Airport has proposed further expansion.

Many of our residents' air quality is impacted by the operations of the Trenton-Mercer Airport, and the air quality in our communities may be negatively impacted if the airport expands without comprehensive air pollution control measures.

A substantial concern in our communities is that studies and analyses of the environmental and pollution impacts of airport expansion have been "segmented" by virtue of the airport's separate expansion plans. I have received and reviewed letters from the Lower Makefield Township Board of Supervisors, the Residents for Regional Traffic Solutions, Inc., and the Bucks Residents for Responsible Airport Management. Each of these entities raises in their respective letters the issue of the "segmentation" of what appear to be "connected," or at the least "similar," actions, with respect to what amounts to a substantial expansion of the Trenton-Mercer Airport and its operations. The cumulative impact of the past and future Trenton-Mercer Airport expansion may adversely affect the air quality of our residents.

The "segmentation" of the proposed expansion is evidenced by the separate public meetings conducted by the Trenton-Mercer Airport. Indeed, the Notice of the Trenton-Mercer Airport's November 27, 2018 "Public Meeting Environmental Assessment for the Runway Protection Zone and Obstruction Mitigation Project for Trenton Mercer Airport" included the parenthetical "(This is not the Terminal EA or Airport Master Plan Project.)" The assessment of the air quality currently emitted by the airport and its future construction projects should not be conducted in a vacuum. Rather, the assessment ought to be of all of the proposed expansion project(s) without segmentation. Our residents are affected by the entirety of the past, present and proposed future expansion of the airport and its operations and by the off-airport projects.
Accordingly, I join the Lower Makefield Township Board of Supervisors and the stakeholder organizations and other members of our community in requesting a more holistic evaluation, such as an Environmental Impact Statement, with respect to the totality of the past, present and future

expansion of the airport and the airport's operations and of the off-airport projects. Only through such a holistic lens and examination can the actual cumulative impact of the Trenton-Mercer Airport upon our community and its residents be accurately assessed and any negative impact mitigated or eliminated.

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Steven J. Santarsiero, PA State Senator, 10th Senatorial District

I am concerned about the planned expansion of the Trenton-Mercer Airport (TTN) and the impact that it will have on the health and well-being of surrounding area residents. Over the past twenty years, the Trenton-Mercer Airport (TTN) has succeeded in its desired expansion efforts through various segmented projects and to date, it continues to pursue large scale expansion under those same segmented methods. Regrettably, in doing so, the Trenton-Mercer Airport (TTN) has been able to bypass having to complete a cumulative and expansive Environmental Impact Study (EIS) that would have likely measured the impacts on all affected Mercer County (NJ) and Bucks County (PA) municipalities. All of the segmented and individually considered projects currently being pursued are outlined and appear to be related and interdependent of the Trenton-Mercer Airport's (TTN) Master Plan of 2018. The Mercer County Website describes said Master Plan as such, "the Airport Master Plan is essentially a facility planning study that sets forth a conceptual framework for possible future airport development." The Airport Layout Plan (ALP), which is part of the Master Plan, identifies a proposed terminal expansion, the runway protection zone, and development of Parcel A of the Naval Air Warfare Center where there are known PFOS, VOCs, mercury, and other contaminants. Our concerns include, but are not limited to:

• Release of contaminants to surrounding tributaries and the Delaware River, which is a primary source of residential drinking water for millions of people;
• Increased aviation emissions and noise, which can cause heart attacks, asthma, pregnancy complications, learning, behavioral and psychiatric issues; and,
• Overall decreased quality of life and home values for nearby residents.

The Trenton-Mercer Airport (TTN) is currently pursuing a large number of projects individually, yet their cumulative impact should be considered rather than independent of one another. To date, there are roughly twenty-five projects that have either been approved, are in the process of seeking approval, or are planned in the near future. Without a cumulative Environmental Impact Study (EIS), it is entirely unclear how said projects may impact the local environment.

I request that all proposed expansion or renovation projects at the Trenton Mercer Airport (TTN) first undergo an extensive Environmental Impact Study (EIS) to determine the cumulative impact on noise, pollution, and safety to ensure the health and well-being of the area's surrounding residents.

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Brian Fitzpatrick, Member of Congress (PA-01)

I am writing today to add to the public comments for the New Jersey Clean Air Council public hearing regarding air quality around our ports and airports. As a member of the Aviation Subcommittee of the Transportation & Infrastructure Committee and the Quiet Skies Caucus in Congress, I understand the impacts airports have on a neighboring community. I have been heavily involved in the proposed plan to modify the existing Trenton-Mercer Airport (TTN) and continue to be concerned with many of the environmental assessments that have gone into the proposed plan. I am requesting that the New Jersey Clean Air Council review their assessments on environmental impacts on all past, present and future airport plans and ensure that these evaluations receive the highest standard of review.

As you are aware, TTN has proposed and implemented several projects over the past 25 years with little input from the surrounding community as required by the National Environmental Policy Act of 1969 (NEPA) and the Federal Aviation Administration (FAA) Order 1050.1F - Environmental Impacts: Policies and Procedures. TTN implemented a comprehensive Master Plan that calls for large-scale enhancements to the terminal, taxiway, and runway to increase passenger traffic at TTN. Unfortunately, TTN has chosen to segment these projects in an effort to reduce the level of NEPA analysis required from an Environmental Impact Statement (EIS) that would require a broader scale cumulative impact analysis that would take into consideration the impacts to my constituents in Pennsylvania.

The planned airport expansion has the potential to negatively impact the residents, businesses, and community that comprise PA-01 as a flight path associated with the airport is directly above the district. Adding to the already poor air quality of the Philadelphia Metropolitan area, the first phase of the proposed plan will result in the clearing of 2.3 acres of trees within 100 feet of contaminated groundwater associated with the Naval Air Warfare Center (NAWC). In a response letter I received on May 11, 2020, the Federal Aviation Administration (FAA) acknowledged the NJDEP is actively working to remediate NAWC while stating the removal of trees will not significantly impact the groundwater quality in that impacted area.
Additionally, the standard of studying noise pollution is not consistent amongst airports. The amount of noise studies and impacts of noise pollution of airports are very different when comparing Newark Liberty International and the TTN. Larger airports are constantly testing noise impacts whereas smaller scale airports conduct sparse noise studies.

Going forward, I request New Jersey Clean Air Council review their assessments on environmental impacts and consider expanding its testing protocol on all existing and future evaluations.

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Fredric K Weiss, Chair, Lower Makefield Township Board of Supervisors

The Pennsylvania Lower Makefield Township (LMT) Board of Supervisors would like to bring to the attention of the New Jersey Clean Air Council our community's air and water pollution

concerns regarding $177M of planned development projects at the Trenton-Mercer Airport in New Jersey. The projects are aimed at significantly expanding air traffic capacity and the airport is ignoring critical NEPA guidelines regarding the environmental impact of these changes as outlined in the LMT letter attached below.

The Trenton-Mercer Airport Master Plan has projected a low rate of air traffic growth of 1% over the period of 2015-2035. But their 2018 and 2019 flight operations already exceed the 2035 projection and the projects have not yet been carried out. Their plans are to increase the terminal by a factor of five while adding taxi ways and other infrastructure projects that will support significantly higher numbers of air operations. To base their environmental impact on an unrealistically low growth rate means the environmental assessments are disingenuous and not reflective of the air and water pollution levels the local NJ and PA communities will experience. Our concerns about these issues has led our Congressman Brian Fitzpatrick to write to the FAA objecting to the procedures being followed by the airport. This letter emphasizing water pollution concerns is also attached below. One of the key problems is that the FAA and airport authorities assert that all of these projects are disconnected and they do not recognize the cumulative impact that these projects will have on the local community and environment in terms of air, water and noise pollution.

We request that the NJ CAC address these concerns to protect the health and quality of life of our collective citizens and our shared environment from a pollution level that will be significantly higher than has been analyzed if these projects go through. We request that you push the NJ DEP to prepare a full environmental impact statement for the collection of planned projects.

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Debra Baseman, MD

I am writing to you as a medical doctor and concerned Mercer County resident, to outline the significant risk to public health that increased and unregulated aviation emissions have on the residents of our state. The convergence of several detrimental factors demand consideration: 1) the identification of Ultrafine Particulate Matter (UFP, diameter <100 nanometers nm) specific to aviation exhaust, 2) significant contribution of UFP to perilous and costly health conditions, 3) increased flight volume, including overflights, in a background of poor ambient air quality, 4) the lack of regulation regarding Greenhouse Gases (GHG) emitted from aviation sources. There are numerous other pollutants and issues related to aviation emissions, but I will focus on these four concerns which have been poorly considered as the Trenton Airport seeks to massively expand operations.

In 2014, a groundbreaking study using mobile air quality monitors demonstrated that particulate matter from airplane emissions spread 10 miles outside of the flight path.[1] This was not just for takeoff and landings, as previously presumed, but for overflights as well. Specifically, pollutants measured 4-5-fold at 6 miles downwind and persisted 2-fold at 10 miles downwind. The authors of the study concluded that air traffic exhaust was the "same general magnitude as the entire urban freeway network"[2] occurring overhead, raining down on residents. Their findings "indicated that the air quality impact areas of major airports may have been seriously underestimated".[3]

Until recently, studies regarding Traffic Related Air Pollution (TRAP) and Particulate Matter (PM 2.5, diameter <2.5 micrometers (μm), did not specifically address smaller Ultrafine Particles (UFP, diameter <100 nanometers nm) or the specific contribution of aviation-origin emissions.[4] The groundbreaking Mov-Up Study, published in December 2019, utilized mobile air sensors to specifically delineate road vehicle exhaust from airplane emissions.[5] The researchers were able to identify a fingerprint of UFP specifically emitted by planes. The Mov-Up researchers found that the size and velocity with which aviation UFPs are thrust from jet engines, allows for much further spread than heavier ground vehicle emissions, which fall to the surface a relatively short distance from roadways. Additionally, the velocity with which UFPs travel prevents adherence to other particles, allowing the UFPs to reach the earth unchanged in size.
The significance of UFP's <100 nm size is demonstrated in UFP's ability to permeate human tissue barriers far more efficiently than other PM; emerging studies correlate UFP with significant tissue inflammation, injury and risk, as outlined in the health section below.

Related studies have shown that the size and velocity of aviation-emitted UFPs allow for concentration indoors[6], and the concentrations in homes of aviation-origin UFP and NO_2 were comparable to or exceeded near-road regulatory monitors.[7] This same report also demonstrated the inadequacy of stationary air quality monitors to accurately estimate residential exposures. Stationary air quality monitors are currently utilized in New Jersey.

The exact composition of aviation emitted UFP will be further delineated in the ongoing Mov-Up Part 2: "The Characterization of Urban Nanoparticles".[8] There is concern that aviation related UFPs contain heavy metals, as demonstrated by a study examining soil contamination surrounding the international airport in Delhi, India.[9] Of additional concern is the recent report of aviation-originated emission organophosphates in the water, soil and vegetation surrounding airports.[10]

As a medical doctor, I am overwhelmed and alarmed by mounting environmental toxicology data implicating serious harm related to airplane emissions. We have known for a long time about the significant harms to human health of poor ambient air quality. Extensive correlations have been demonstrated in diverse illnesses, impacting all segments of the population. Air quality related illnesses include cancer[11], asthma and non-smoking COPD[12], Heart Attacks[13], cognition[14], Sudden Infant Death Syndrome (SIDS)[15], Neonatal ICU admissions and Preterm delivery[16].

Recent data linking TRAP to Pregnancy related complications such as Preeclampsia and Gestational Hypertension, is particularly alarming given the Maternal Mortality crisis occurring nationwide.[17] A well-designed study documented airport delays and taxiing time to the incidence of hospitalizations for asthma and heart attacks.[18]

Data is now emerging regarding the specific risk of UFPs. UFPs cause unique risk to health because their small size allows passage across tissue barriers, including the difficult to permeate blood-brain barrier. Recent NIH studies have demonstrated UFP exposure related brain tumors[19], asthma[20], heart attacks, mental health issues, including teen ER visits for anxiety and suicidal ideation[21], and various pregnancy complications, specifically preterm birth[22]. Babies and

children may be particularly susceptible because they accumulate UFPs at higher relative concentrations than adults.[23]

Recent COVID-19 related public health trends, specifically decreased preterm birth[24] and increased COVID-19 mortality for residents in areas of poor air quality[25], are two tangible examples of the real-time consequences of air quality. It is imperative that we quantify the emissions pollutant volume and dispersal patterns with regard to public health and environmental injustice.

New Jersey residents' risk from aviation-emission toxicity are compounded because of our poor ambient air quality, our population density and our location. We are the unfortunate recipients of massive pass-through vehicular[26] and aviation overflight exhaust. Our location along the northeast corridor makes us specifically susceptible to exhaust generated by residents of other states passing through and flying over *en route* to out of state destinations. The burden of our impact was increased with the FAA's 2007 tristate metropolitan area airspace redesign[27] which sought to streamline routes into condensed sky highways: "Each layer includes a finite piece of airspace defined by lower and upper altitude limits and defined geographic boundaries". The Redesign, by delineating specific, narrowed lanes of travel, allows for increased volume and additional flight routes: " new departure gates and arrival posts would permit the development of new routes in the airspace structure. Expanding the boundaries of the terminal airspace environment would permit less restrictive separation rules to be used in a larger volume of airspace". The net impact of the redesign was not only to increase flight volume to/from New Jersey, but also to dramatically increase overflights.[28] The resultant expansion of air traffic over the past decade, prior to the COVID-19 pandemic, has contributed to New Jersey's poor air quality and public health issues.

The NY-NJ-PHL Airspace redesign established the local framework for the FAAs NextGen system, which transitions airspace to satellite-based navigation nationwide.[29] The FAA is unapologetic in their goal of drastically increasing flight volume. As James Eck, the Assistant Administrator for NextGen commented: "overarching objectives for the future remain the same — maximizing airspace capacity with more sophisticated and seamlessly integrated information about the future position of aircraft at a given time". NextGen has already been implemented at major US airports, with a phased approach for nationwide integration by 2025. NextGen uses satellite guided positioning to reduce mandatory distances, including vertical distances, between planes and to expand multiple runway operations. Thus, airport operations can be drastically increased. While this has been skillfully accomplished in the name of "aviation safety" and efficiency, the FAA's description of NextGen as "a collaborative effort between the FAA and the aviation community" underscores the fact that the FAA has not considered the safety, health or air quality of citizens on the ground. In fact, the FAA's primer on aviation emissions, impacts and mitigation maintains "Aviation's contribution to a region's air emissions inventory is generally small".[30] Because aviation emissions have been both minimally studied and minimally regulated, residents are being crop-dusted with invisible turbine exhaust and dangerous pollutants, the health impacts of which are only now being recognized.

Aviation's contribution to greenhouse gases is unregulated. Thus, the alarming speed at which aviation negatively impacts climate change has also been unrecognized.[31] Although the EPA ruled in 2016 that "Greenhouse Gas Emissions From Aircraft Cause or Contribute to Air Pollution That

May Reasonably Be Anticipated To Endanger Public Health and Welfare" no regulations were proposed.[32] Only recently have Aviation related GHG Emission Standards for Aircraft been proposed.[33]

The following assessment in the TTN Airport Runway Protection Zone Environmental Assessment emphasizes the veracity and magnitude of this issue:
1.4.2 Greenhouse Gas Pollutants: Since there are no federal or state standards for aviation-related GHG, there is no significant impact threshold for GHGs." .[34]
The same report includes 5 pages detailing construction vehicle emissions and duration of use during the Runway Protection Zone obstacle clearance, yet there is no analysis of anticipated emissions after completion of RPZ and other related Master Plan projects (new 4x current capacity passenger terminal, new corporate terminal, Flightserv terminal, redesigned taxiways for increased efficiency and flight operations). Projected airport operations used in the analysis are extremely underestimated: total operations calculations for 2035[35] had already been surpassed by 2019.[36] One would anticipate increased on-ground facility operations, increased passenger car volume, and significantly increased flight operations after the airport has realized its master plan[37] expansion and is working at full capacity. The report distracts from the continued impact that TTN will have on the local environment and climate change by extensively reviewing construction equipment during the finite, short-term obstacle clearance of the RPZ. The long-term, ongoing impact of the finished cumulative master plan projects, which promise and threaten to be utilized at increasing capacities for decades to come, remains unexamined.

The disregard for air quality impacts was demonstrated with the onset of the coronavirus pandemic when major commercial airlines flew nearly empty so as to not lose their preferred scheduled slots.[38] The FAA promoted this practice, without concern regarding the impact to the environment and without promoting coordination and efficiency between airlines. Thus, airlines received billions in CARES grant bailout money without any incentives to consider the massive environmental impact of continuing to fly empty planes so as to not lose their place in the priority queue.

The complex interaction between climate and pollution is a self-perpetuating and escalating relationship. As some in the federal government have taken a pro-industry stance by withdrawing from the Paris Accord and stripping away the basic tenets of the Clean Air Act, it is up to politicians and government agencies at the state level to continue to be responsible. I appreciate the leadership Governor Murphy has taken with his Climate Bill, Executive Order No. 100. While air travel will recover over the next decade, it is imperative that we proceed as deliberately as possible with regard to the balance between the benefits of travel and our commitment to preserving our environment.

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APPENDIX

Appendix A: *Port Authority Facility Traffic (from PANYNJ 2018 Annual Report)*

	2018	2017	2016	2015
TUNNELS AND BRIDGES (Eastbound Traffic)				
AUTOMOBILES				
George Washington Bridge	**47,264,000**	47,594,000	47,497,000	46,361,000
Lincoln Tunnel	**15,742,000**	15,841,000	15,993,000	15,706,000
Holland Tunnel	**14,460,000**	14,247,000	14,727,000	14,763,000
Staten Island Bridges	**32,373,000**	31,430,000	30,303,000	28,883,000
Subtotal Automobiles	**109,839,000**	109,112,000	108,520,000	105,713,000
BUSES				
George Washington Bridge	**448,000**	442,000	440,000	429,000
Lincoln Tunnel	**2,170,000**	2,161,000	2,164,000	2,165,000
Holland Tunnel	**168,000**	179,000	191,000	199,000
Staten Island Bridges	**186,000**	180,000	177,000	176,000
Subtotal Buses	**2,972,000**	2,962,000	2,972,000	2,969,000
TRUCKS				
George Washington Bridge	**3,792,000**	3,684,000	3,692,000	3,666,000
Lincoln Tunnel	**1,048,000**	1,037,000	1,055,000	1,061,000
Holland Tunnel	**443,000**	446,000	447,000	447,000
Staten Island Bridges	**2,163,000**	2,153,000	2,085,000	2,091,000
Subtotal Trucks	**7,446,000**	7,320,000	7,279,000	7,265,000
TOTAL VEHICLES				
George Washington Bridge	**51,504,000**	51,720,000	51,629,000	50,456,000
Lincoln Tunnel	**18,960,000**	19,039,000	19,212,000	18,932,000
Holland Tunnel	**15,071,000**	14,872,000	15,365,000	15,409,000
Staten Island Bridges	**34,722,000**	33,763,000	32,565,000	31,150,000
Subtotal Vehicles	**120,257,000**	119,394,000	118,771,000	115,947,000
PATH				
Total passengers	**81,733,402**	82,812,915	78,553,560	76,541,453
Passenger weekday average	**280,860**	283,719	269,081	258,425
MARINE TERMINALS				
General cargo[4] (Metric tons)	**37,577,000**	35,450,000	32,556,203	36,781,069
Containers (in twenty foot equivalent units)	**7,179,788**	6,710,817	6,251,953	6,371,720
International waterborne vehicles	**573,035**	577,223	505,150	477,170
Waterborne bulk commodities (in metric tons)	**3,686,686**	3,975,000	3,212,603	5,050,519
CONTAINERS				
New Jersey Marine Terminals	**3,828,434**	3,599,514	3,416,144	3,427,226
New York Marine Terminals	**267,020**	246,910	186,364	236,787
Subtotal Containers	**4,095,454**	3,846,424	3,602,508	3,664,013
BUS TERMINALS				
PASSENGERS				
Port Authority Bus Terminal	**76,400,000**	76,400,000	75,800,000	74,500,000
George Washington Bridge Bus Station	**4,930,000**	5,000,000	5,000,000	4,900,000
PATH Journal Square Transportation Center Bus Station	**11,999,000**	11,972,500	11,966,000	11,940,000
Subtotal Passengers	**93,329,000**	93,372,500	92,766,000	91,340,000
BUS MOVEMENTS				
Port Authority Bus Terminal	**2,410,000**	2,400,000	2,380,000	2,350,000
George Washington Bridge Bus Station	**341,000**	343,000	345,000	340,000
PATH Journal Square Transportation Center Bus Station	**959,920**	957,800	957,280	957,120
Subtotal Bus Movements	**3,710,920**	3,700,800	3,682,280	3,647,120
AVIATION				
PLANE MOVEMENTS				
John F. Kennedy International Airport	**455,542**	448,366	448,753	439,298
LaGuardia Airport	**372,025**	369,152	369,987	358,609
Newark Liberty International Airport	**458,674**	438,578	431,594	413,873
New York Stewart International Airport	**32,542**	34,787	37,295	37,834
Subtotal Plane Movements	**1,318,783**	1,290,883	1,287,629	1,249,614
DOMESTIC PASSENGERS				
John F. Kennedy International Airport	**28,117,337**	26,961,081	27,245,463	26,806,854
LaGuardia Airport	**27,869,644**	27,474,292	27,996,763	26,684,923
Newark Liberty International Airport	**31,923,876**	30,330,568	27,995,353	25,693,128
New York Stewart International Airport	**366,130**	307,621	275,421	281,754
Subtotal Domestic Passengers	**88,276,987**	85,073,562	83,513,000	79,466,659
INTERNATIONAL PASSENGERS				
John F. Kennedy International Airport	**33,506,419**	32,518,263	31,693,184	30,079,898
LaGuardia Airport	**2,224,430**	2,087,936	1,790,006	1,752,745
Newark Liberty International Airport	**14,141,299**	12,891,846	12,324,428	11,805,317
New York Stewart International Airport	**324,281**	141,077	—	—
Subtotal International Passengers	**50,196,429**	47,639,122	45,807,618	43,637,960
TOTAL PASSENGERS				
John F. Kennedy International Airport	**61,623,756**	59,479,344	58,938,647	56,886,752
LaGuardia Airport	**30,094,074**	29,562,228	29,786,769	28,437,668
Newark Liberty International Airport	**46,065,175**	43,222,414	40,319,781	37,498,445
New York Stewart International Airport	**690,411**	448,698	275,421	281,754
Subtotal Passengers	**138,473,416**	132,712,684	129,320,618	123,104,619
CARGO-TONS				
John F. Kennedy International Airport	**1,431,090**	1,394,509	1,311,191	1,332,091
LaGuardia Airport	**5,996**	6,878	7,586	7,721
Newark Liberty International Airport	**847,935**	822,589	746,770	405,214
New York Stewart International Airport	**22,808**	20,834	18,729	15,144
Subtotal Cargo-tons	**2,307,829**	2,244,810	2,084,276	1,760,170
Revenue mail-tons	**154,377**	153,733	140,418	126,026

LIST OF ACRONYMS

ALP	-	Airport Layout Plan
BP	-	British Petroleum
BRRAM	-	Bucks Residents for Responsible Airport Management
CAC	-	(NJ) Clean Air Council
CAP	-	Criteria Air Pollutants
CARB	-	California Air Resources Board
CHE	-	Cargo Handling Equipment
CHP	-	Coalition for Healthy Ports
CNG	-	Compressed Natural Gas
CO_2	-	Carbon Dioxide
CO	-	Carbon Monoxide
COPD	-	Chronic Obstructive Pulmonary Disease
COVID-19	-	Coronavirus Disease (2019/2020 pandemic)
DTF	-	Diesel Technology Forum
DVRPC	-	Delaware Valley Regional Planning Commission
EIS	-	Environmental Impact Statement
EJ	-	Environmental Justice
EMP	-	Energy Master Plan
EV	-	Electric Vehicle
FAA	-	Federal Aviation Administration
FET	-	Federal Excise Tax
GCIA	-	Gloucester County Improvement Authority

GHG	-	Greenhouse Gas
GSE	-	Ground Support Equipment
HC	-	Hydrocarbon(s)
ICU	-	Intensive Care Unit
LED	-	Light-emitting Diode
LDV	-	Light Duty Vehicle
MDE	-	Maryland Department of the Environment
MDOT	-	Maryland Department of Transportation
MHDV	-	Medium to Heavy Duty Vehicle
MOU	-	Memorandum of Understanding
MPA	-	Maryland Port Administration
NAWC	-	Naval Air Warfare Center
NEPA	-	National Environmental Policy Act
NIH	-	National Institutes of Health
NJDEP	-	New Jersey Department of Environmental Protection
NJEDA	-	New Jersey Economic Development Authority
NJEJA	-	New Jersey Environmental Justice Alliance
NJSA	-	New Jersey Statutes Annotated
NJSHAD	-	New Jersey State Health Assessment Database
NJT	-	New Jersey Transit
NOx	-	Nitrogen Oxides
OGV	-	Ocean-going Vessels
PA	-	Port Authority of New York and New Jersey (also, PANYNJ)

PAH	-	Polyaromatic Hydrocarbons
PATH	-	Port Authority Trans-Hudson
PFAS	-	Per- and polyfluoroalkyl substances
PFOS	-	Perfluorooctanesulfonic Acid
PM	-	Particulate Matter
RASP	-	Regional Airport Systems Plan
RGGI	-	Regional Greenhouse Gas Initiative
SJPC	-	South Jersey Port Corporation
SIDS	-	Sudden Infant Death Syndrome
SO_2	-	Sulfur Dioxide
SOx	-	Sulfur Oxide
TEU	-	Twenty-Foot Equivalent Units (std. dimension of a 20-foot shipping container which is 20 feet long and 8 feet tall)
TRAP	-	Traffic-Related Air Pollution
UCLA	-	University of California, Los Angeles
UFP	-	Ultra-fine Particle
USEPA	-	United States Environmental Protection Agency
VALE	-	Voluntary Airport Low Emissions
VOC	-	Volatile Organic Compound
VW	-	Volkswagen
ZEV	-	Zero-Emission Vehicle

HISTORY OF THE CLEAN AIR COUNCIL

2019 Global Warming Pollutants in New Jersey: Beyond Carbon Dioxide

2018 Zero Emission Vehicles: Clearing the Air

2017 What Can Be Learned from Low Cost Air Quality Monitors: Best Uses and the Current State of Technology

2016 The Clean Power Plan: Impact on New Jersey (not released)

2015 Air Pollution Knows No Bounds: Reducing Smog Regionally

2014 Reducing Air Emissions Through Alternative Transportation Strategies

2013 Addressing the Adverse Effects of Climate Change on Air Quality

2012 Transportation and Small Sources of Air Pollution: Challenges and Opportunities to Achieve Healthier Air Quality in New Jersey

2011 The Cumulative Health Impacts of Toxic Air Pollutants on Sensitive subpopulations and the General Public

2010 Vision for the Next Decade: Air Quality and Pollution Control in New Jersey

2009 Electricity Generation Alternatives for New Jersey's Future: What is the Right Mix for Improving Air Quality and Reducing Climate Change?

2008 Improving Air Quality at Our Ports & Airports—Setting an Agenda for a Cleaner Future

2007 Improving Air Quality through Energy Efficiency and Conservation: The Power of Government Policy and an Educated Public

2006 Indoor Air Quality

2005 Air Pollution—Effects on Public Health, Health Care Costs, and Health Insurance Costs

2004 Fine Particulate Matter in the Atmosphere
- Health Impacts in NJ
- Need for Control Measures

2003 Moving Transportation in the Right Direction

2002 Innovative Solutions for Clean Air

2001 Air Quality Needs Beyond 2000

2000 Air Toxics in New Jersey

1999 The Impact of Electric Utility Deregulation on New Jersey's Environment

1998 CLEAN AIR Complying with the Clean Air Act: Status, Problems, Impacts, and Strategies

1997 Particulate Matter: The proposed Standard and How it May Affect NJ

1996 Clearing the Air Communicating with the Public

1995 Strategies for Meeting Clean Air Goals

1994 Air Pollution in NJ: State Appropriations vs. Fees & Fines

1993 Enhanced Automobile Inspection and Maintenance Procedures

1992 Impact on the Public of the New Clean Air Act Requirements

1991 Air Pollution Emergencies

1990 Trucks, Buses, and Cars: Emissions and Inspections

1989 Risk Assessment - The Future of Environmental Quality

1988 The Waste Crisis, Disposal Without Air Pollution

1987 Ozone: New Jersey's Health Dilemma

1986 Indoor Air Pollution

1985 Fifteen Years of Air Pollution Control in NJ: Unanswered Questions

1984 The Effects of Resource Recovery on Air Quality

1983 The Effects of Acid Rain in NJ

1981 How Can NJ Stimulate Car and Van Pooling to Improve Air Quality?

1980 (October) Ride Sharing, Car– and Van-Pooling

1979 What Are the Roles of Municipal, County, and Regional Agencies in the New Jersey Air Pollution Program?

1978 How Can NJ meet its Energy Needs While Attaining and Maintaining Air Quality Standards?

1977 How Can NJ Grow While Attaining and Maintaining Air Quality Standards?

1976 Should NJ Change its Air Pollution Regulations?

1974 Photochemical Oxidants

1973 Clean Air and Transportation Alternatives to the Automobile and Will the Environmental Impact Statement Serve to Improve Air Quality in NJ?

1972 The Environmental Impact on Air Pollution: The Relationship between Air Quality, Public Health, and Economic Growth in NJ

1971 How Citizens of NJ Can Fight Air Pollution Most Effectively with Recommendations for Action

1970 Status of Air Pollution from Mobile Sources with Recommendations for Further Action

1969 Status of Air Pollution Control in NJ, with Recommendations for Further Actions

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