PBA HOLDINGS, INC.
20125 State Road 80, Loxahatchee, FL 33470

June 19, 2026

[VIA EMAIL ONLY WITH ATTACHMENT]

Honorable Karen Brill, Chair
and Members of the School Board
School District of Palm Beach County

Re: Project Tango
Response to School District Questions Regarding Student Health, Safety, and School Operations

Dear Chair Brill and Members of the Board:

We are writing in response to your recent letter to the Palm Beach County Board of County Commissioners regarding Project Tango with questions raised about potential impacts on Saddle View Elementary School, its students and staff, and surrounding school operations.

We appreciate the School District's engagement and agree that projects located near schools deserve careful review and evaluation. Protecting student health, safety, and educational outcomes is a responsibility we take seriously.

To address similar questions and concerns, we commissioned an independent Public Health & Safety Assessment prepared by an international panel of experts in environmental health, occupational medicine, and acoustics. The enclosed report evaluates questions and concerns raised through public outreach discussions and specifically considers potential effects on nearby residents and Saddle View Elementary School. The assessment included:

- A review of sound levels at the school today and what the sound levels are expected to be at the school and surrounding area with construction of the project.
- A review of peer-reviewed research on sound and its potential effects on children's health and learning.
- An evaluation of low-frequency sound from the project.
- An assessment of fire safety, air quality, electrical systems, heat, and operational impacts.
- An evaluation of applicable health, safety, and regulatory standards.

Below is a summary of the findings that directly respond to the questions and concerns raised by the School District, with details in the attached assessment.

**Industrial Noise and Student Learning Environment**

Concern raised: Whether operational noise from the facility, including mechanical equipment, could affect students, staff, classroom learning, or outdoor activities.

Response:

- Sound levels at Saddle View Elementary were evaluated using existing sound measurements and modeled Project Tango conditions.
- The assessment found projected sound levels at the school playground would be approximately 44 dBA, which is below the average outdoor sound levels currently experienced at the school of approximately 55 dBA.
- The projected sound environment was compared to guidelines from the American National Standards Institute and World Health Organization guidance and **was found to meet the standards intended to support classroom learning**.
- **The assessment concluded that project-related sound will not interfere with sleep, community health, or classroom learning**.

**Low Frequency Noise, Vibrations, and "Hum" Concerns**

Concern raised: Whether students or staff could experience impacts associated with low-frequency sound or vibration.

Response:

- Using recognized methods for identifying low-frequency sound, sometimes described as humming or rumbling, the assessment **found that projected low frequency sound levels at the school and surrounding community will remain below thresholds associated with annoyance, discomfort, or health concerns.**

**Air Quality and Children's Health**

Concern raised: Whether the project could introduce emissions or pollutants affecting children and school staff.

Response:

- Project Tango is proposed to use battery energy storage rather than onsite diesel backup generators.
- The assessment found that operations will not produce air emissions from the data and information processing buildings or associated infrastructure.
- Based on the proposed design, **the assessment concluded that the project will not negatively affect local air quality or the health of nearby residents and school communities.**

**Fire Safety and Emergency Preparedness**

Concern raised: Whether battery systems create public safety risks.

Response:

- The assessment reviewed fire events associated with modern battery systems and concluded that while incidents are uncommon, emergency preparedness remains important.
- The heat monitoring system within the data center buildings and battery systems will be highly advanced to detect the build-up of heat before a fire can occur.
- In the event a fire does occur, the fire systems within the buildings include onsite water tanks, and may also include more advanced solutions, like gas suppression systems.
- **Project Tango has committed to coordination with local first responders regarding site-specific response planning, training, and emergency procedures**.
- In discussions with PBC Fire Rescue, they have indicated that they have sufficient training to handle fires both inside the data center buildings and outside within the battery backup system. Additional information on this specific topic can be provided upon request.
- Emergency response readiness was identified as an important design and operational consideration.

**Heat Generation and School Environment**

Concern raised: Whether a large facility could increase local temperatures near the school.

Response:

- The assessment evaluated concerns related to heat generation and impacts on temperature.
- The assessment considered existing heat-generating uses, including an asphalt plant, a concrete plant, and heavy equipment staging.
- The assessment states that Project Tango would replace these uses with buildings and significantly more landscaped, vegetated areas, intended to reduce heat-absorbing surfaces.
- **The assessment concluded that the project will not increase surface air temperatures at Saddle View Elementary or within the Arden community.**
- The assessment indicates a possible 2°F to 4°F temperature increase directly at the sites associated with the cooling equipment, which are located on the west side of the project. Prevailing winds in the area move east to west, carrying any heat away from the Arden community and the school, with the effect fading quickly with distance.

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**Traffic and School Operations**
Concern raised: Whether project traffic could interfere with school traffic flow and safety.

Response:

- Traffic patterns were reviewed on Southern Boulevard and the surrounding road network.
- The project meets all applicable County and Department of Transportation requirements.
- Roadway and site entrance improvements, including additional turning lanes and a potential future signal, are planned to address any potential traffic impacts.
- **The assessment concluded that construction and operational traffic are not expected to disrupt normal traffic flow or school access**.

We understand there may be additional questions, and we welcome the opportunity to continue the discussion with School District staff. Our team would be happy to meet, give you or your colleagues a tour of the site, walk through the findings, and answer questions directly. We would also be happy to schedule a virtual meeting to go through these findings and answer any questions.

Thank you for your commitment to students, educators, and school communities.

Sincerely,

Ernie Cox
Project Manager
PBA Holdings Inc.

CC: Mike Burke, Palm Beach County School Board Superintendent
[Enclosed: Project Tango Public Health Assessment]

# Project Tango Public Health & Safety Assessment

Prepared by

Christopher Ollson, Ph.D.
Norm Broner, Ph.D., FAAS /FIEAust., CPEng., APEC.Engineer., IntPE(Aus)
Robert McCunney, M.D., MPH, MS

June 18, 2026

# Executive Summary

PBA Holdings, Inc., has proposed Project Tango, a data and information processing development with a capacity of 600 megawatts (MW) in Loxahatchee, Palm Beach County, Florida. It will be located in the Central Park Commerce Center along Southern Boulevard in western Palm Beach County, Florida. Project Tango representatives have held several public meetings, and met with myriad individuals in the local community, from county commissioners to state representatives and senators, to residents of Arden and the surrounding communities. During these discussions, a number of stakeholders had questions or concerns about Project Tango. For example, the Western Palm Beach Communities Alliance provided Project Tango with a list of concerns that they wished to have addressed.

To that end, PBA Holdings, Inc., has assembled an international team of experts in the fields of acoustics (Dr. Norm Broner), occupational and environmental medicine (Dr. Robert McCunney, MD, MPH) and public health (Dr. Christopher Ollson) to address the community concerns (collectively "the Panel"). The charge to the Panel includes:

- Review the ambient baseline acoustic environment and preliminary sound assessment, and determine the potential impact of Project Tango on neighboring properties and on the Saddle View Elementary School (the "School");
- Assess whether Project Tango will cause noise issues; such as low frequency noise (LFN) and infrasound for nearby residents or children at the School;
- Provide an overview of potential health impacts associated with exposure to anticipated Project Tango sound levels, including with low frequency noise and infrasound; and,
- Review non-acoustical health concerns raised by the community and determine if there are credible issues associated with those concerns.

***Sound***

Project Tango commissioned Jacobs to conduct ambient sound level measurements on the closest edge of the Arden community to the project. This assessment allows the Panel to determine whether or not the addition of sound levels from Project Tango would adversely change the soundscape in the community and at the school. Within this report Jacobs also modelled the predicted sound levels in the surrounding area that would result from Project Tango.

Sound levels were reported on both the A- weighted (most common sound metric that best approximates human perception of sound) and C- weighted (better metric for describing human perception of low frequency noise) scales. They are reported as the maximum 1-hour average sound levels (LAeq and LCeq).

It was determined that the modelled predicted sound level at the School are compliant with the County ordinance requirements. The predicted sound level on the School playground was LAeq,1hour 44 dBA, well below the existing average outdoor sound level at the School of LAeq,1hour 55 dBA. The modeled outdoor Project Tango sound levels of LAeq 44 dBA and LCeq 56 dBC were determined to meet the American National Standards Institute/Acoustical Society of America and World Health Organization (WHO) guidelines for indoor sound levels to protect learning in the School classrooms. Therefore, the Project Tango sound levels will not impact the children playing outdoors or learning in their classrooms.

With respect to the community of Arden, the predicted Project Tango A-weighted sound levels will be below the County requirement of LAeq 50 dBA at the residential property line. In fact, the predicted worst case downwind sound levels in the community will be below LAeq 45 dBA and would fall to even lower on the east side of the community. These sound levels are predicted to be within the range of existing sound levels. Therefore, the Project Tango sound emissions will not adversely impact the existing soundscape. These predicted sound levels are below the commonly accepted 45 dBA level that ensures protection of sleep and potential health impacts.

Evaluation of the low frequency noise at the School and in Arden determined that the predicted Project Tango dBC sound levels will be below the existing ambient soundscape. The predicted Project Tango C-weighted sound levels are below 60 – 65 dBC at which low frequency noise annoyance may begin to manifest, based upon the collective experience of the Panel.

An alternative approach to fixed or absolute C- weighted criteria for assessing community annoyance to low frequency noise, is to evaluate the dBC minus dBA sound level difference. A result of dBC – dBA = >20 dB provides an indication of when there might be a LFN concern in a neighboring community (e.g. Alberta Utilities Commission Rule 012). The Panel's experience shows that a 20 dB difference minimum between the dBC and dBA levels is necessary to give rise to a LFN problem where the community would be more likely to experience annoyance with the low frequency components of the sound. For Project Tango, the dBC – dBA difference of only 12 dB is below the 20 dB guideline level that can be used as a check to determine the potential for high levels of low frequency content and potential annoyance. Therefore, low frequency noise will not be at a level of concern that would increase annoyance in the community or impact the health and welfare of nearby residents or the children attending the School.

Overall, the Panel concludes that Project Tango's sound emissions will not adversely change the existing overall soundscape. The levels predicted from the project are well below those that would impact the public health, safety and welfare of the community.

***Air Quality***

Project Tango has been specifically designed to prevent any airborne chemical emissions from the data and information processing buildings or associated infrastructure. Back-up emergency power will be provided through a battery energy storage system (BESS) and not diesel generators. Therefore, the Panel concludes that Project Tango will have no impact on the local air quality. Given that there will be no additional sources of air quality emissions from the facility, there will be no impact on local residents, including children's health.

***Electromagnetic Fields (EMF)***

Project Tango will construct a power substation on the west side of the property. This substation will interconnect to the grid at the existing adjacent substations; there will not be any substantial transmission line for the project. Given the distance of the substation and interconnection line from the School and the community of Arden, the levels of EMF from the associated electrical infrastructure will be well below those background levels we experience in our homes and schools every day.

In addition, the level of EMF from the Project Tango data and information processing buildings themselves will be low and again it is not expected that levels of EMF above background would be measurable at the property line.

Based on approximately 25,000 articles published over the past 40 years, none of the U.S. or international medical organizations has found that exposure to power frequency EMF causes, or contributes to, cancer or any other disease or illness. These reviews generally conclude that, while some epidemiological studies report a weak association with childhood leukemia, controlled laboratory studies do not support that association, and the scientific studies overall have not demonstrated that EMF causes or contributes to any type of cancer or other disease. The Panel concludes that EMF from Project Tango will not impact the local community or School.

***Heat Island / Heat Generation***

Project Tango has been designed to manage heat emissions from the facility and reduce heat emitting surfaces compared with other typical industrial uses. For example, the site plan includes extensive landscaping and vegetation buffers, which help reduce surface temperature increases and break up heat-radiating paved areas.

In addition, the site currently houses an asphalt plant, a concrete plant, and a heavy construction staging operation. All of these operations may generate substantial surface heat. Project Tango would replace all of these uses with modern buildings and significantly increased landscaped areas, thus reducing the overall intensity of heat-emitting surfaces at the site. The surrounding area also includes significant vegetation that allows for a general cooling effect in the surrounding area.

The Panel concludes that Project Tango will not increase the surface air temperature in the community of Arden or at the School.

***Traffic***

Project Tango will be accessed directly from Southern Boulevard, which is already a heavily trafficked roadway. This means that those routinely using this road already experience traffic that includes heavy haul trucks. Safety of the local residents and a commitment to not impeding local traffic is of foremost importance for Project Tango. To that end, a new entrance to the site from Southern Boulevard has already been constructed. This entrance was specifically designed with multiple additional turning lanes to ensure that traffic on Southern Boulevard will not be impeded or slowed, even during construction. In addition, if warranted, Project Tango is committed to installing a traffic signal at the intersection. Project Tango traffic during operations will be minimal. Overall, the Panel concludes that construction and operational traffic will not impact vehicles using Southern Boulevard.

***Fire***

Fires in data centers and battery energy storage systems are very rare; however, they do happen and Project Tango will ensure that local first responders will have a site-specific emergency response plan, the equipment required and be provided the training that they need to be prepared to protect the local community.

**Conclusion**

Project Tango has undertaken significant efforts in designing their hyperscale data center. This effort includes:

- Design of building and infrastructure layout to ensure that sound sources are located as far away as practicable from the School and the community of Arden.

- The Project Tango data center was specifically designed such that many of the potential sound sources are located within the interior of the data center and ancillary buildings. Thus, external sound emission will be minor from those sources. This design is an important feature of Project Tango so that many noise sources will not affect the local community.

- The project will employ low-noise, aero-acoustically optimized dry cooler fan cooling units. These are large slow running fans that are optimal as they are substantially quieter than smaller high-speed units. These low-speed fans are unlikely to generate significant tonal noise (hum) as they are aerodynamically sophisticated impellers that produce inherently less noise than simpler units.

- There will be no onsite sources of electrical generation or backup power through the use of diesel generators. The site will have no airborne emissions of chemicals.

- The site entrance was specifically designed with multiple additional turning lanes that will ensure that traffic on Southern Boulevard will not be impeded or slowed, even during construction.

Overall, the Panel concludes that Project Tango sound emissions, including low frequency noise, will not adversely change the existing soundscape in the community. The sound emissions, including low frequency noise, will not adversely impact the public health, safety and welfare of local residents or the children attending the School. The non-acoustical health concerns are properly managed through the design of the site.

## Author Biographies

**Dr. Norm Broner, Ph.D., FAAS /FIEAust., CPEng., APEC.Engineer., IntPE(Aus)**
**Managing Director, Broner Consulting Pty Ltd**
**Acoustics Expert**
**Jerusalem, Israel**

Dr. Norm Broner has over 40 years of consulting experience in Acoustics, Noise and Vibration. He has been heavily involved in the preparation of Environmental Impact Statements and with the preparation of Environmental Management plans. Where necessary, optimum cost-effective noise controls have been recommended and designed to reduce excessive noise emissions to within statutory and regulatory limits. Norm has also been involved with various community/public consultation processes/meetings and has also presented technical information at public/community meetings and provided expert witness at various Tribunals/Panel Hearings and in court. Norm has also presented many technical papers at acoustic conferences in Australia and worldwide.

Norm has been involved with the effects of Low Frequency Noise (LFN) since 1973. He completed his PhD on LFN Annoyance at Chelsea College under the guidance of Prof Geoff Leventhall and proposed the LFNR noise metric to minimize LFN annoyance indoors. He conducted a research program on LFN and Rumble due to HVAC funded by ASHRAE (USA) which resulted in a modification of the RC criterion. Norm wrote the Chapter on "Effects of Infrasound, Low Frequency Noise and Ultrasound on People" in the "Handbook of Noise and Vibration Control" which was published in September 2007.

In 2010, Norm developed simplified LFN criteria which have been adopted by the Australian NSW Department of Planning and some other jurisdictions.

Norm was a member of the Australian National Health Medical Research Council Wind Farm & Human Health Reference Group which completed investigating the impact of wind farms on human health in February 2015. Norm was also an International Advisor to the Health Canada research project entitled Community Noise & Health Study for which the field work has been completed and several peer reviewed papers have been published. Norm has further assisted Health Canada in regards to LFN.

Norm was also a Guest Editor for a special edition of Acoustics Australia dealing with the topic of Wind Farm Noise. Dr. Broner is a Past President and Vice President of the Australian Acoustical Society (multiple terms) and is a sitting member of the Australian Acoustical Society Federal Council.

**Dr. Robert J. McCunney, MD, MPH, MS**
**Boston, Massachusetts, United States**

Dr. McCunney is a specialist in internal medicine who is also board certified in occupational and environmental medicine. He is a practicing physician in the Pulmonary Division of the Brigham and Women's Hospital (BWH) in Boston and a member of the Harvard Medical School faculty. His clinical and research practice focuses on occupational and environmental illnesses. He lectures at the BWH on numerous topics, including pulmonary medicine board review courses and updates on severe occupational asthma.

Dr. McCunney is former Director of Environmental Medicine at the Massachusetts Institute of Technology (MIT). As a visiting research professor at the Harvard School of Public Health, he lectures residents and graduate students and serves as a member of the Residency Advisory Committee for the occupational and environmental medicine residency program. Over his career, he has given presentations in countries around the world ranging from Europe to Asia and Africa as well as Australia and North America, including Canada.

Dr. McCunney received a BS in chemical engineering from Drexel University, a MS in environmental health from the University of Minnesota, a MD from the Thomas Jefferson University Medical School and an MPH from the Harvard School of Public Health. He completed training in internal medicine at Northwestern University Medical Center in Chicago.

Dr. McCunney is past president of the American College of Occupational and Environmental Medicine (ACOEM), the world's largest professional organization of physicians specializing in occupational and environmental medicine. He has edited five medical textbooks and published 125 peer-reviewed articles and book chapters. Most recently, he has served as editor-in-chief of a special issue for the peer reviewed journal "Frontiers in Public Health" related to epidemiology, toxicology and regulatory studies associated with particle exposures on Human Health. Dr. McCunney is also the Editor of all three editions of the textbook, A Practical Approach to Occupational and Environmental Medicine. He is also the editor of a text designed as a board review course for physicians seeking to attain board certification in occupational/environmental medicine. He has received awards from international, national and regional medical societies for his work in occupational and environmental medicine.

Dr. McCunney has extensive experience in the topic of noise and health. He has written three book chapters on occupational noise exposure in major occupational and environmental medicine textbooks. He is also the lead author of an MIT critical review that evaluated potential health implications of wind turbines and served as a co-author of a major white paper entitled, "Wind Turbine Sound and Health Effects. An Expert Panel Review. He has given presentations on wind turbines and health for 10 years at the Harvard School of Public Health as well at numerous hearings and public settings related to noise from wind turbines in the USA and Canada.

**Dr. Christopher Ollson, Ph.D.**
**Ollson Environmental Health Sciences (OEHM)**
**Environmental Health Scientist**
**Ancaster, Ontario, Canada**

Dr. Ollson is Owner and Senior Environmental Health Scientist at Ollson Environmental Health Management (OEHM). He holds a Doctorate in Environmental Health Sciences from the Royal Military College of Canada. He has 25 years of international consulting experience in environmental health sciences and toxicology. Dr. Ollson has worked across the United States and is well versed in Federal and State environmental legislation.

Dr. Ollson is one of North America's foremost experts in environmental health issues related to the energy sector. He has led risk assessments and provided risk communication support for wind turbine, solar, hydroelectric, battery energy storage systems (BESS), energy-from-waste / waste-to-energy facilities, natural gas fired stations, oil sands environmental assessments, refineries, pipelines, and coal power plants. Dr. Ollson has conducted extensive research in potential health and environmental issues surrounding energy facilities and associated transmission lines and has and has published numerous peer-reviewed articles and government white papers on the topic of potential health impacts of living in proximity to wind projects.

Dr. Ollson has been certified as an expert and provided testimony at more than forty contested environmental review tribunals, commissions, hearings and court proceedings with respect to potential health concerns in living in proximity to renewable energy projects and associated transmission lines. He has also spent years testifying before Planning and Zoning Boards and Boards of County Commissions for renewable energy permit approvals.

Over the past seven years, he has undertaken significant research efforts to understand the potential public health effects that could result in from emissions from a BESS Fire. This includes continuous review of the scientific peer reviewed published literature, review of results of fire events and available environmental

data in BESS facilities in North America and Australia, understanding the design, testing and requirements code requirements under NFPA 855 and UL 9540A (and their updates over the past 6 years.

Dr. Ollson is an expert in community and individual exposure to noise, including low frequency noise and infrasound. He was the health expert on the American Clean Power (ACP) Expert Working Group contributing to the development of the ACP Sound Modelling Standard for wind turbine sound under the American National Standards Institute (ANSI) (ANSI/ACP111-1). Dr. Ollson has testified before State Senate Utilities Committees in Kansas, North Dakota and Indiana and was the consultant of record for the State of Vermont for setting wind turbine siting and sound standards.

Over the past couple of years Dr. Ollson has consulted on a number of hyperscale data center projects across the United States. He has conducted research on sound emission and impact on local communities, and addresses issues surrounding heat island effect, air quality from power generation, electromagnetic fields (EMF), impacts on livestock, soil and groundwater impacts, and issues around fire.

In addition to his consulting practice, Dr. Ollson was previously appointed as an Adjunct Professor in the Department of Physical and Environmental Sciences at UTSC. He is currently a Lecturer at University of Toronto School of the Environment and the Dalla Lana School of Public Health teaching graduate level course in Environmental Health and Risk Assessment. He has also co-supervised numerous Masters and Doctoral students and supervised Post-Doctoral Fellows throughout his career.

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# 1. Introduction

The rapid growth of cloud computing, streaming, digital commerce, artificial intelligence (AI), and connected devices is fundamentally reshaping global infrastructure needs. Traditional enterprise data centers are no longer sufficient to support the scale, speed, and computational intensity required by modern digital economies. Hyperscale data centers have emerged as critical infrastructure because they provide the capacity, efficiency, and resilience necessary to power next-generation technologies and services.

Hyperscale data centers are defined as data centers that require power greater than 100 megawatts (MW) of power. These facilities are designed to support massive workloads across thousands of servers with highly sophisticated and optimized networking, cooling, and power systems. Unlike conventional data centers, hyperscale environments are equipped to meet surging demand while maintaining operational efficiency and reliability. This scalability is particularly important as organizations increasingly rely on cloud-based platforms and AI-driven applications that require ample computing power and low-latency performance.

One of the primary drivers for hyperscale development is the explosion of artificial intelligence and machine learning workloads. Training and deploying advanced AI models requires robust processing capabilities, high-density GPU clusters, and continuous access to large datasets. Hyperscale data centers provide the infrastructure necessary to support these computationally intensive operations at scale, enabling innovation across industries including healthcare, finance, manufacturing, logistics, and autonomous systems.

Hyperscale infrastructure also plays a central role in supporting cloud computing and digital transformation initiatives. Enterprises are migrating mission-critical applications and data to the cloud to improve flexibility, reduce costs, and accelerate innovation. Major cloud providers continue to expand hyperscale capacity globally and in the United States to meet growing enterprise and consumer demand for cloud services.

In addition to scalability, hyperscale facilities deliver significant operational efficiencies. Through advanced cooling technologies, automation, and optimized power management, hyperscale operators achieve lower energy consumption per unit of compute compared to smaller legacy facilities. This efficiency is increasingly important as data center energy demand rises worldwide and sustainability becomes a strategic priority for governments, investors, and corporate stakeholders.

Reliability and resiliency are equally critical. The United States economy depends on uninterrupted digital services, from financial transactions and healthcare systems to communications and e-commerce platforms. Hyperscale data centers are engineered with redundant power systems, advanced cybersecurity protections, and geographic distribution strategies that ensure high availability and business continuity even during disruptions.

The proliferation of data center development across the United States in recent years has evoked public concern in some communities. These concerns include topics related to energy consumption, electricity rates, water consumption, sound emissions (audible, low frequency noise, tonal noise and infrasound), increased traffic (during construction and operations), air emissions, electrical hazards, heat island effects and fire.

### 1.1. Purpose of This Report

PBA Holdings, Inc., has proposed Project Tango, a data and information processing development with a capacity of 600 megawatts (MW) in Loxahatchee, Palm Beach County, Florida. It will be located in the Central Park Commerce Center along Southern Boulevard in western Palm Beach County, Florida. Project Tango representatives have held several public meetings, and met with myriad individuals in the local community, from county commissioners to state representatives and senators, to residents of Arden and the surrounding communities. At these discussions, a number of stakeholders had questions or concerns about Project Tango. For example, the Western Palm Beach Communities Alliance provided Project Tango with a list of concerns that they wished to have addressed.

To that end, PBA Holdings, Inc., has assembled an international team of experts in the fields of acoustics (Dr. Norm Broner) and public health (Dr. Robert McCunney and Dr. Christopher Ollson) to address the community concerns (collectively "the Panel"). The Charge to the Panel includes:

- Review the ambient baseline acoustic environment and preliminary sound assessment, and determine the potential impact of Project Tango on neighboring properties and on the Saddle View Elementary School (the "School");

- Assess whether Project Tango will cause noise issues; such as low frequency noise (LFN) and infrasound for nearby residents or children at the School;

- Provide an overview of potential health impacts associated with exposure to anticipated Project Tango sound levels, including with low frequency noise and infrasound; and,

- Review non-acoustical health concerns raised by the community and determine if there are credible issues associated with those concerns.

Issues surrounding energy use, any effect on electricity rates, and water consumption of data centers are outside the expertise of the Panel of this report and are not addressed in this report. The findings of this report are the independent opinions of the Panel and may not reflect those of PBA Holdings, Inc.

## 2. Project Tango

Project Tango (Project) is a proposed data and information processing development with a capacity of 600 megawatts in Loxahatchee, Florida will be located on the Central Park Commerce Center along Southern Boulevard on approximately 60 acres. The site is fronted along a major transportation corridor and is adjacent to two regional electrical substations, interstate transmission lines, and Florida Power & Light's (FPL) West County Energy Center, which is a 3,800-megawatt natural gas-fired power generation facility. It is separated from nearby homes in the Arden Community and Saddle View Elementary School (the School) by canals, open space, a wildlife corridor, required setbacks, berms, and landscaped buffers (Figure 1).

**Figure 1. Project Tango to be located in the Central Park Commerce Center**

The data center will contain information technology (IT) server racks and required support equipment. The thermal loads generated by IT equipment at the proposed data center facility will be cooled primarily with a closed loop cooling with dry cooler fan-based system. This approach results in significantly less water consumption than a traditional evaporative water-cooled data center technology.

Site infrastructure will include two 2-story (90-foot) data center buildings, three one-story (50- foot) data center buildings, a large one-story warehouse, three one-story (40-foot) central utility buildings, five future warehouses, and an on-site electrical substation (Figure 2). During construction and operations, the site will be accessed from Southern Boulevard.

**Figure 2. Project Tango Site Layout**

The surrounding land uses include the FPL West Energy Center and agricultural fields to the west, the Arden Community residential area to the east, including Saddle View Elementary School. South of the site includes various stormwater treatment areas and wilderness, including the South Florida Water Management District's (SFWMD) 1E and 1W Stormwater Treatment Areas (STA), the S5A pump station and the Arthur R. Marshal Loxahatchee National Wildlife Refuge.

The berms along the eastern and southern edges of the property are about 15-20 feet high, with various scrubby vegetation and grasses along the top and base.

To the east of the eastern berm is the L-8 Canal - owned, maintained and operated by SFWMD, which manages flooding in the area and sends water to the Lake Worth Lagoon that is adjacent to the City of West Palm Beach. Additionally, the waterbody to the north of the site is the L-8 Flow Equalization Basin, which takes in water from the L-8 Canal and holds that water until it is ready to be received by STAs 1E and 1W.

## 3. Introduction to Sound

Given that sound (mid to high frequency, low frequency noise and infrasound) is of primary importance to the community, it is important to provide a background on the varying terms that will be used throughout this report. Sound is simply a form of energy made when vibrations by an object cause movement in the surrounding air molecules. These air molecules collide with those next to them in a chain reaction that produces sound waves. This chain reaction continues until the molecules run out of energy. The number of vibrations per second is referred to as frequency and we measure this frequency in Hertz (Hz).

Sound is quantified by measuring the sound pressure in decibels (dB) at individual frequencies. The louder the sound, the higher the decibel readings. Specialized sound meters have been designed to measure the sound pressure levels (SPLs) across a wide range of frequencies. Human hearing is the function of these vibrations in the air entering the outer ear, which causes our eardrums to oscillate. These oscillations are then transferred to the middle ear that contains the ossicles bones that connect the eardrum to the inner ear (cochlea). The vibration of the ossicles causes movement of fluid in the inner ear. The movement of this fluid excites the ear hair cells that send electrical signals through the auditory nerve to our brains. Our brains then interpret these electrical signals as sound.

Under typical environmental sound conditions, the slowest vibrations that can be detected by a young human ear is in the range from 20 vibrations per second (20 Hz) up to the fastest of 20,000 vibrations per second (20 kHz). It is acknowledged that there is variation among people as to how we hear or perceive sound.

The human ear perceives the loudness of a sound across a range of sound frequencies differently and is typically more sensitive to frequencies between 250 – 5,000 Hz (Figure 1). Sound frequencies are generally classified as infrasound (<20 Hz), Low Frequency Noise (20 to 200 Hz), medium and treble (high frequency) sounds (200 to 20,000 Hz) and ultrasound (>20,000 Hz) (Figure 3). For example, the standard 88-key piano covers a frequency range of 27.4 Hz at key A0 (lowest key) to 4,186 Hz at key C8 (highest key), with middle C (C4) at 262 Hz.

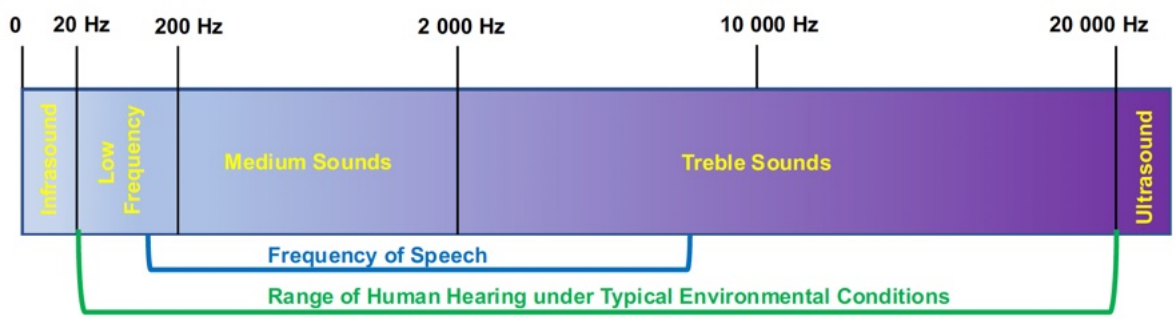


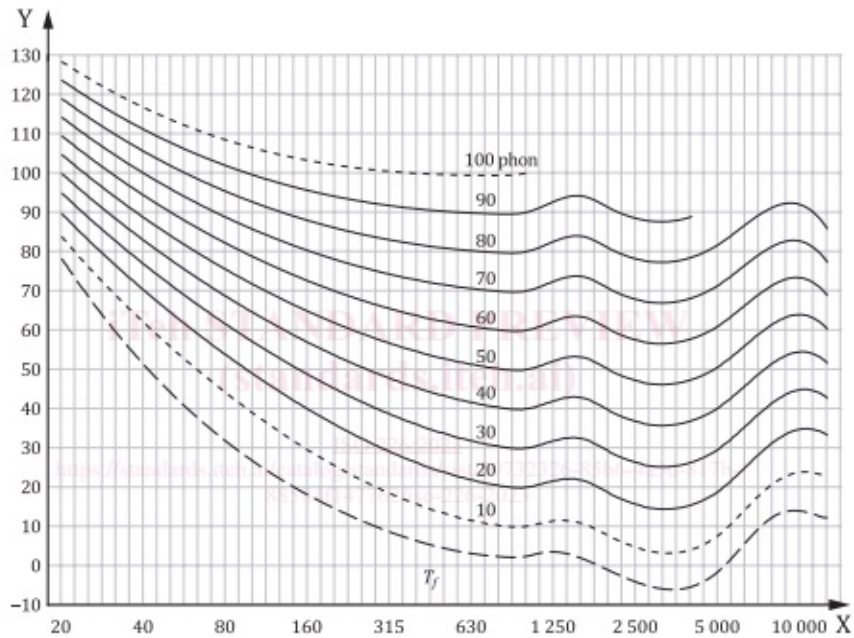

**Figure 3. Sound Frequency Spectrum**

Equal loudness level contours are presented in ISO 226, *Acoustics — Normal equal-loudness-level contours* (ISO 226:2023). Figure 4 shows the normal equal loudness contours for pure tones based on binaural frontal free field listening. These curves represent the hearing function of the human ear. They were derived by having young adults listen to tones at varying frequencies and sound levels and having them adjust the level to provide the same loudness as a reference tone at 1000 Hz at the stated sound pressure level. The vertical, Y-axis, is sound pressure level in decibels, the horizontal (X-axis) is the frequency in Hertz (Hz). The lines are "phon" contours of equal loudness[1]. For example, for the 40 phon curve, a sound at 1000 Hz and 40 dB will have the same apparent loudness as a 63 Hz sound at 78 dB

[1] "phons" is a metric derived to represent apparent loudness. By definition, a sound has a loudness of X phons if it is perceived to be as loud as a 1 kHz pure tone with a sound pressure level X dB SPL where X is defined between 10 and 100 per the curves shown in in Figure 4.

when listened to by the human ear. Additionally, along the 50 phon curve, sound will be perceived twice as loud as a sound along the 40 phon curve to the human ear.

**Normal equal-loudness-level contours for pure tones under free-field listening conditions**




**Key**

X frequency, expressed in Hz

Y sound pressure level, expressed in dB

$T_f$ hearing threshold

NOTE 1 The hearing threshold under free-field listening condition, $T_f$, is indicated by a dashed line as defined in ISO 389-7[1].

NOTE 2 The contour at 10 phon is drawn by dotted lines because of the lack of experimental data between 20 phon and the hearing thresholds. Moreover, the 100-phon contour is also described by a dotted line because data from only one institute are available at this loudness level.

**Figure A.1 — Normal equal-loudness-level contours for pure tones (binaural, free-field listening, frontal incidence)**

**Figure 4 Equal Loudness Level Contours for Pure Tones (ISO 226:2023)**

The distance between the curves is substantially smaller (compressed) at low frequencies (e.g., 31.5 Hz) than at mid-range frequencies (e.g., at 1,000 Hz). For example, a doubling or halving of how loud a sound will be perceived by the human ear will occur with a change in sound pressure level of 10 dB at 1,000 Hz. While at low frequencies, such as 31.5 Hz, a doubling or halving of sound loudness (an increase or decrease of 10 phon, shifting from one curve to the adjacent curve in Figure 4) can occur with a change of the order of 5 dB. This figure shows that once above the hearing threshold, decibel level changes in sound level at low frequencies may be more audible than similar decibel level changes in higher frequencies.

The standardized hearing thresholds are established with a lower frequency range of 20 Hz, as shown in Figure 4. The hearing threshold at frequencies below 20 Hz, described as infrasound, has been well studied. A summary example are the results from Tachibana (2012) as shown in Figure 5. It can be seen that in order for a sound at 10 Hz to be above the hearing threshold, it would need to exceed a sound pressure level of approximately 90 dB, compared to 20 dB at 125 Hz. This 70 dB increase is substantial given the logarithmic nature of decibels and such high levels of infrasound are not commonly found in the environment. This is why infrasound is typically described as below the hearing threshold in our everyday environments.

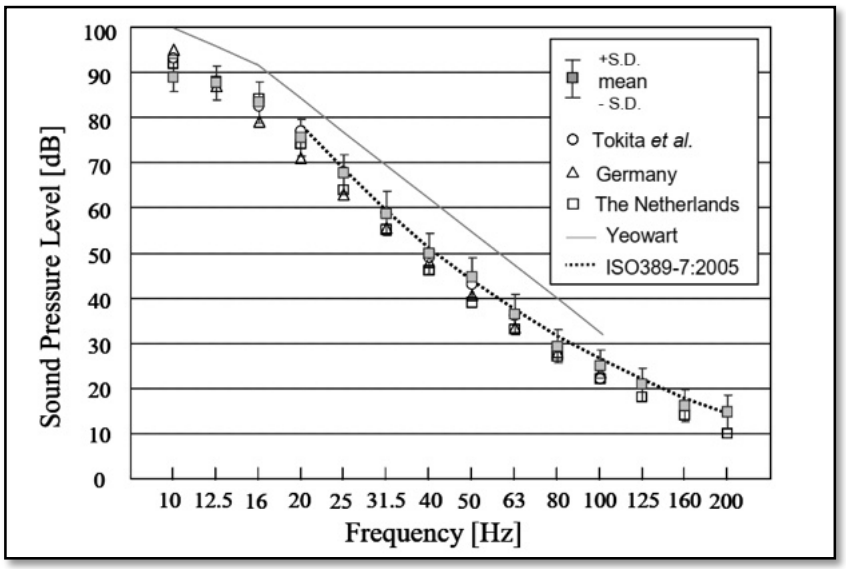



**Figure 5 Low Frequency and Infrasonic Hearing Thresholds for Pure Tones - age range of 20's (Tachibana, 2012)**

Over the years, researchers have developed adjustment factors or scales that weight varying sound frequencies to try and represent how people perceive noise. The unweighted sound measurements (dB) across these frequencies can then be scaled, most commonly on the A- weighted (dBA) and C- weighted (dBC) scales. The unweighted sound level in dB (known as dBZ) is then corrected at each frequency for the varying scales and then combined to give a single value (Table 1).

To do this correction, an electronic filter can be applied to the unweighted sound. The unweighted sound (dBZ) is corrected at each frequency depending on which scale is applied and then combined to give an overall single value of weighted sound level (Table 1).

**Table 1. Comparison of the Z, C, and A Weighting Scale at Various Individual Frequencies**

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
|---|---|---|---|---|---|---|---|---|---|
| A-weighting (dB) | – 26.2 | – 16.1 | – 8.6 | – 3.2 | 0 | 1.2 | 1 | -1.1 | – 6.6 |
| C-weighting (dB) | – 0.8 | – 0.2 | 0 | 0 | 0 | – 0.2 | – 0.8 | – 3.0 | – 8.5 |
| Z-weighting (dB) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Most commonly, sound is measured on the A- weighted scale (dBA). This scale provides greater weight to the mid and higher (treble) frequencies and less importance to the lower frequencies to which the ear is

less sensitive. We use the A- weighted scale to describe the loudness of common everyday sounds in our lives and to evaluate the potential for hearing loss in occupational environments.[2] The overall A- weighted sound level has been adopted by regulatory bodies worldwide, given that it best approximates how humans perceive sound across the spectra at typical environmental sound levels (Figure 7).[3]

The C-weighted sound curve has a much flatter response (smaller adjustments than the A-weighted curve) and represents the human response to loud sounds, such as those along the 100-phon contour. Given this flatter response, the C-weighted sound levels may provide an indication of high levels of low frequency noise, particularly when the difference between the C-weighted and A-weighted sound level is evaluated, as will be discussed later.

An example of how the weightings are used follows, if one measured 100 dB unweighted (dB or dBZ) from a sound that only included the 63 Hz frequency, then you would subtract -26.2 dB for adjusting to the A-weighted sound level yielding 73.8 dBA while only subtracting -0.8 for the C- weighted scale yielding 99.2 dBC (Table 1 and Figure 6). The dBC-dBA difference would be 25.4 which would indicate a higher level of low frequency noise as will be discussed in subsequent sections.

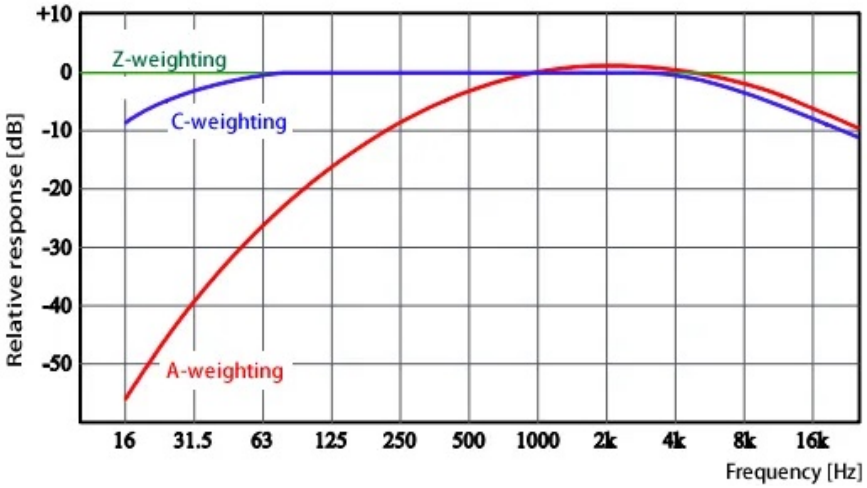



**Figure 6. Sound scale weighting**

Infrasound is too low to be heard by the human ear at common everyday levels. It is typically reported as unweighted (dBZ) or on the G-weighted scale (dBG), a scale specifically designed for the assessment of infrasound where each frequency is weighted in accordance with its relative contribution to perception. It is a common misunderstanding that infrasound is inaudible. Although this is true for typical environmental infrasound levels, the audibility threshold on the dBG scale is between 85 to 95 dBG. For example, to approach these levels, one must usually be in a car with the windows rolled down and with very audible throbbing noise, or in an occupational or laboratory setting with mechanical equipment operating at very low frequencies.

Figure 7 provides the A- weighted sound levels for common noise sources that we experience in our everyday lives.

[2] A common action level for when hearing protection (e.g. earplugs) is recommended is 85 dBA.
[3] The A-weighting adjustments roughly approximate the inverse of the 40-phon curve.

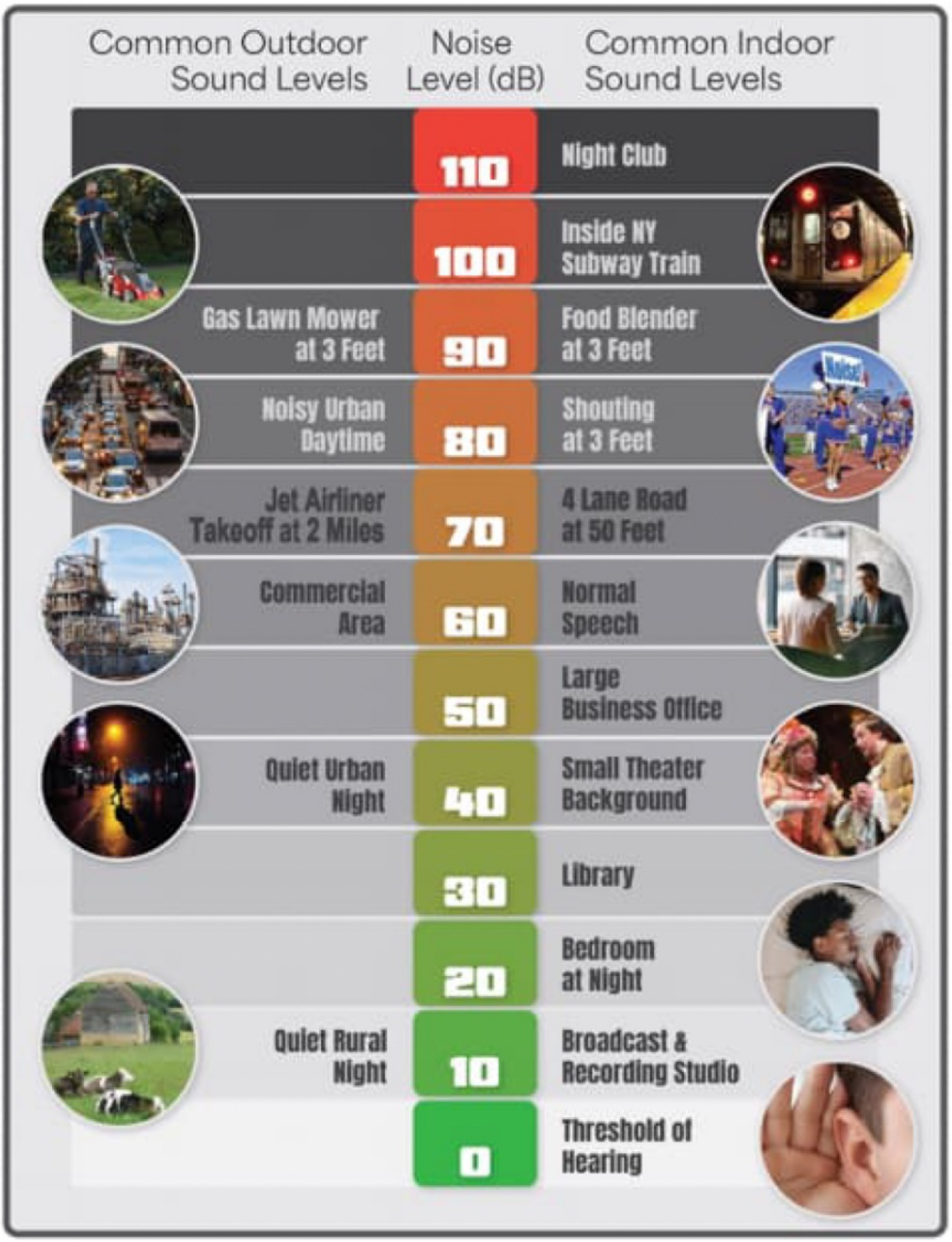



**Figure 7. Typical Sound Level in Our Everyday Lives (Florida Department of Transportation (FDOT) 2026)**

A list of acoustical terms that are used throughout this report is provided in Table 2.

**Table 2. Definition of Acoustical Terms**

| Term | Definition |
|---|---|
| Ambient noise level | The composite of noise from all sources near and far. The normal or existing level of environmental noise or sound at a given location. The ambient level is typically defined by the equivalent sound pressure level (Leq). |
| Sound pressure level decibel (dB) | A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured relative to the reference pressure, which is 20 micropascals (20 micronewtons per square meter). |
| A- weighted sound pressure level (dBA) | The sound level in decibels as measured on a sound level meter using the A- weighted filter network. The A- weighted filter de-emphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and generally correlates well with subjective reactions to environmental sounds. All sound levels in this assessment are A- weighted unless otherwise noted. |
| C- weighted sound pressure level (dBA) | The sound level in decibels as measured on a sound level meter using the C- weighted filter network. The C- filter isa more appropriate scale (dBC) of how humans perceive a greater contribution from the lower frequencies than the A- weighted filter. |
| Equivalent sound pressure level (LAeq or LCeq) | The average A- or C- weighted sound pressure level, on an equal energy basis, during the measurement period. |
| Percentile sound pressure level (Ln) | The sound pressure level exceeded during n percent of the measurement period, where n is a number between 0 and 100 (e.g., L90 represents the sound pressure level that is exceeded during 90 percent of the measurement period). |

### 3.1. Palm Beach County Noise Regulations

The Project is located in unincorporated Palm Beach County, Florida. Noise in unincorporated portions of the County is regulated by the *Unified Land Development Code* (Palm Beach County 2025). Noise limitations and prohibitions are stated in Section 4, *Nuisances*, of Chapter E, *Performance Standards* in the Code. Maximum sound levels are established in Section 4.B.2 as follows:

> *2. Maximum Sound Levels a. No person shall operate or cause to be operated any source of sound from any location in such a manner as to create a sound level which exceeds the limits set forth below in Table 5.E.4.B [reproduced as Table 3 in this report], Maximum Sound Levels, for more than ten percent of any measurement period, which period shall not be less than ten minutes. Sound Level Measurement Compliance shall be determined with a Type 2 or equivalent sound level meter using the A-Weighting Scale in accordance with the standards of the American National Standards Institute (ANSI). All measurements shall be made with a sound meter at or within the boundary of the complaining landowner within the property lines of the receiving land.*

Table 3 presents the maximum sound levels established in Section 4.B.2 of the Unified Land Development Code (Palm Beach County 2025).

**Table 3. Maximum Sound Levels allowed in Palm Beach County**

| Receiving Land Use Type | Sound Source | Time of Day | Maximum Sound Level | |
|---|---|---|---|---|
| | | | USA | RSA |
| Residential | Fixed mechanical equipment | Any time | 60 dB | 60 dB |
| Residential | Permanent generator | See Art. 5.B.1.A.19, Permanent Generators[a] | 75 dB | 75 dB |
| Residential | All other sources | 7:00 a.m. to 8:00 p.m. | 60 dB | 55 dB |
| | | 8:00 p.m. to 10:00 p.m. | 55 dB | 50 dB |
| | | 10:00 p.m. to 7:00 a.m. | 50 dB | 50 dB |
| Commercial Nonresidential | All sources | Any time | 70 dB | 70 dB |
| Nonresidential | Permanent generator | See Art. 5.B.1.A.19, Permanent Generators[a] | 75 dB | 75 dB |

Source: Palm Beach County 2025. Notes:

[a] Art. 5.B.1.A.19 states the maintenance cycle operation of generators as follows: *Generators may be operated for exercising purposes one time per week, excluding Sundays, for a period not exceeding 30 minutes between the hours of 10:00 a.m. to 5:00 p.m.*

RSA = rural service area; USA = urban service area

Maximum noise thresholds for Project Tango were proposed by Palm Beach County Planning and Zoning Staff in the Proposed Conditions for Approval included in the Add/Delete Agenda for the December 10, 2025, Board of County Commissioners meeting:

> *The maximum noise levels at the receiving residential development to the east shall be a maximum of:*
>
> *Fixed Mechanical Equipment: Any time maximum is 60 dB*
>
> *Permanent generators: During applicable times of testing and power outages Testing shall be during the day between the hours of 10 am and 2 pm. Maximum is 75 dB.*
>
> *All sources:*
> *7:00 am to 8:00 pm 60 dB*
> *8:00 pm to 10:00 pm 55 dB*
> *10:00 pm to 7:00 am 50 dB*

This regulation has been interpreted by the Panel as requiring Project Tango noise not to exceed the most restrictive nighttime sound level of 50 dBA Leq at the property line of a residence.

### 3.2. Overview of Low Frequency Noise C- Weighted Sound Level Guidelines

One of the common public concerns about some data centers is their potential to emit low frequency noise (LFN), which has been characterized as a "hum". The following section provides a detailed description about low frequency noise and how Project Tango may affect levels of LFN in the area. As mentioned above, LFN noise is generally considered to be noise within the frequency range 20 to 200 Hz.

As is common across the United States, Palm Beach County does not have a LFN or dBC sound limit. This is because the dBA metric is universally applied by regulatory authorities to ensure protection of public health, safety and welfare.

However, C- weighted sound levels are simple to use and provide a metric to identify when low frequencies might be an issue. There are no United States government regulated C- weighted sound level standards and thus the Panel have reviewed the scientific literature to propose a series of C- weighted criteria for use in this evaluation of Project Tango sound.

Hessler (2005) recommended LFN and Infrasound criteria mainly from extensive experience where LFN caused community annoyance from installations using open-cycle (e.g., simple cycle) combustion turbines for peak power generation (which may not have had air emissions controls such as large selective catalytic reduction exhaust ducts which can assist with the attenuation of low frequency noise). Hessler concluded that the recommended C- weighted limits in his paper were applicable to most common steady low-frequency noise sources, in addition to combustion turbines due to the combined tonal and broadband character of the sound. Table 4 shows the C- weighted criteria recommended by Hessler (2005).

**Table 4. Recommended C– Weighted Criteria (Hessler, 2005)**

**Table I. Maximum allowable dB(c) levels at residential areas to minimize infrasound noise and vibration problems**

| | For normal suburban/urban residential areas, daytime residual level, $L_{90}$>40 dB(A) | For very quiet suburban or rural residential areas, daytime residual level, $L_{90}$<40 dB(A) |
|---|---|---|
| For intermittent daytime only or seasonal source operation | 70 | 65 |
| Extensive or 24/7 source operation | 65 | 60 |

Hessler noted repeated experience which indicated that residents of very quiet rural environments are much more distressed by a new intrusive source of noise because of the loss of a former peaceful and tranquil sound environment. It is noted that Arden is a somewhat urban environment adjacent to substantial existing infrastructure (combined-cycle power plant, highway, etc.) which generate a baseline level of ambient noise. Nonetheless, for Project Tango, the applicable criterion from Hessler (2005) is 65 dBC.

In 2010, Dr. Norm Broner, a co-author of this report, conducted a comprehensive review of LFN and infrasound criteria (as the Hessler 2005 review was more limited) and recommended a simple overall C-weighted criterion for assessing low frequency noise sources, similar to power stations, in an environment where there were no other significant noise sources present (i.e., for noise sources with a falling spectrum, a characteristic of low frequency noise sources, such as a new power station in a rural area). The "falling" spectrum of frequencies exhibits higher levels at low frequencies falling to lower levels at high frequencies. This "falling slope" can be observed farther away from the noise source when other sounds are absent.

Table 5 shows the criteria proposed by Broner (2010) which also vary depending on the receiver and time of day. This recommendation was based on an assessment of a significant number of empirical community annoyance data and was applicable to new installations in areas with low ambient sound levels. Where the ambient noise level contains mid and high frequency energy, these LFN criteria can be increased in magnitude. This article is highly cited article in the field of LFN research, as it has been cited in over 60 other peer-reviewed journal articles. To put that figure into perspective, the average paper is cited 3 to 8 times over a lifetime. In addition, Broner (2010) and Hessler (2005) are both referenced in the American Society of Mechanical Engineers (ASME) ANSI *Standard B133.8 - Gas Turbine Installation Sound Emissions (2011)* for "recommended C-weighted limits for residential receptors", while the standard itself states the "upper limit for this C-weighted level at the nearest frame structure should not exceed 75 dB(C) to 80 dB(C)."

**Table 5. Recommended C – Weighted Criteria (Broner, 2010)**

**Criteria for Assessment of LFN**

| | Sensitive Receiver | Range | Criteria Leq (dBC) |
|---|---|---|---|
| Residential | Night time or plant operation 24/7 | Desirable | 60 |
| | | Maximum | 65 |
| | Daytime or Intermittent (1 – 2 hours) | Desirable | 65 |
| | | Maximum | 70 |
| Commercial/ Office/ Industrial | Night time or plant operation 24/7 | Desirable | 70 |
| | | Maximum | 75 |
| | Daytime or Intermittent (1 – 2 hours) | Desirable | 75 |
| | | Maximum | 80 |

In Table 5 above, it can be seen that for a new noise source in a previously undeveloped residential location at night, the desirable criterion is an Leq of 60 dBC while the maximum recommended is 65 dBC Leq.

This criterion is applicable when there is a low ambient sound level without other sound sources in the proximity (i.e., at a further distance of some kilometers from the source). In Project Tango, an existing power generation plant predates the development of the Arden residential community and is not that far away from Arden. Therefore, the above C- weighted criteria would be applicable more as minimum or *de minimis* criteria, rather than a maximum not to exceed level given the presence of some existing sound that provides some masking.

Although not a bright line, based on the work by Hessler (2005) and Broner (2010), the Panel conclude that Project Tango modeled dBC levels should be benchmarked against a 65 dBC Leq nighttime and 70 dBC daytime level, as it is located in an area with existing sound sources. Higher sound levels may also be warranted but were not considered further in this study.

An alternative approach to fixed or absolute C-weighted criteria, is to evaluate the dBC minus dBA sound level difference. A result of dBC – dBA = >20 dB provides an indication of when there might be a LFN concern in a neighboring community (e.g. Alberta Utilities Commission Rule 012). The Panel's experience shows that a 20 dB difference minimum between the dBC and dBA levels is necessary to give rise to a LFN problem where the community would be more likely to experience annoyance with the low frequency components of the sound.

# 4. Sound Due to Project Tango Data Center

## 4.1. Health-Based A- Weighted Sound Standards and Thresholds

The local community has expressed concerns about how Project Tango sound levels may impact their environment, particularly with respect to LFN and Infrasound. This concern is not unique to Arden. To that end, this section focuses on the ambient noise monitoring that was conducted in the area and the predicted sound levels from Project Tango to determine whether the project is properly designed and sited to ensure the protection of public health, safety and welfare of local residents.

Noise has always been an important environmental challenge for communities and hence why it is important to regulate sound levels. As described by the World Health Organization (WHO, 1999), in ancient Rome they had rules that restricted ironed wheeled wagons from using the cobble stone streets at night to ensure a peaceful sleep for residents.

There are decades of research studying the potential for community sound (noise) to impact health of residents. These studies primarily focus on A- weighted sound levels and includes research from a number of sound sources, including but not limited to, natural gas plants, traffic noise, railroad noise, living under airplane flight paths, and wind turbines. There is no universal sound regulation for protection of public health and welfare in the United States.

In 1974, the United States Environmental Protection Agency (US EPA) published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. They provide the following sound criteria for consideration:

| | |
|---|---|
| Hearing Loss: | 70 dBA outdoors |
| Protection of speech communication: | 45 dBA Leq in the home (allowing 15 dBA reduction outdoors to indoor with windows partially open) |
| | 60 dBA Leq outdoors |
| Outdoor for long-term annoyance: | 48.6 dBA Leq outdoors (daytime and nighttime)[4] |

The primary health concerns related to nighttime environmental noise from any source, is its potential to disrupt sleep. Long-term disruption of sleep is well known to be associated with potential adverse health effects; however, it needs to be noted that whether sound disrupts sleep is directly dependent upon the noise levels associated with the generation of the sound and the community's attitude toward the noise source.

For outdoor noise, community annoyance is the most prevalent community response in populations exposed to environmental noise. Noise annoyance is a complex phenomenon that typically dominated by the community's or individual's attitude towards the source of the noise and often not correlated directly to the sound level itself.

In this case, the focus is environmental sound or as it may be described as noise, which conventionally is considered unwanted sound. Over the decades, the most studied sources of environmental noise are associated with transportation sources (e.g., road traffic, aircraft noise, and railroads) and industrial operations (e.g., warehouses, industrial manufacturing facilities, and wind turbines).

Since the publication of the USEPA's 1974 Levels Document, there have been numerous epidemiological studies that have been conducted to further determine the levels of sound that may be associated with various health effects (e.g., WHO 1999, WHO 2018).

[4] Equivalent to the 55 dBA $L_{dn}$ value reported in the document

One of the most comprehensive reviews of noise and its potential impact on community annoyance and sleep disturbance was undertaken by the WHO *Guidelines for Community Noise* (1999), which proposed the following noise guidelines:

| | |
|---|---|
| Outdoor living areas: | 50 to 55 dBA Leq (to avoid moderate to serious outdoor activity annoyance) |
| Outside Bedrooms: | 45 dBA Leq (sleep disturbance-15 dBA outdoor to indoors reduction factor) |
| Inside Classrooms: | 35 dBA Leq; 50 dBA Leq (15 dBA outdoor to indoors reduction factor) |
| Outdoor School Playground: | 55 dBA Leq |

To address the potential for noise from the Project Tango to adversely affect the health of nearby residents or the cognitive abilities of school children, a search of PUBMED (the National Library of Medicine's data base) was conducted to identify appropriate peer reviewed medical and scientific literature. This data base includes upwards of 6000 journals and over 35 million peer reviewed publications. Terms included in the search were noise, health and data centers. Particular attention was directed to systematic reviews and meta-analyses along with controlled human experimental studies in which specific noise levels were evaluated. In this section of the report, the full spectrum of sound, including low frequency sound and infrasound, are addressed regarding potential adverse health effects.

Therefore, the interpretation of appropriate sound levels resulting from Project Tango is based on the significant body of research addressing environmental sound and health.

Since 1999, numerous studies have focused on a variety of community sound sources. The World Health Organization (WHO) published a comprehensive document, *Environmental Noise Guidelines for the European Region*, regarding noise from numerous sources and potential health implications (WHO, 2018). Their recommended sound levels generally reflect similar values as the previous reports by the US EPA (1974) and the WHO (1999).

Regarding noise and sleep, one noteworthy systematic review and meta-analysis examined environmental noise exposure and sleep disturbance from road traffic, aircraft, and rail traffic (Smith et al, 2022). A systematic review is a high-level research method that answers a specific question, such as noise and sleep, by collecting, critically appraising, and synthesizing all available empirical evidence that meets pre-specified criteria. It uses explicit, reproducible methods to minimize bias, making it a cornerstone of evidence-based practice. As a result, systematic reviews have significant credibility. In the Smith 2022 report, investigators analyzed exposure–response relationships using nighttime noise levels measured as $L_{night}$ (average outdoor nighttime noise level between 11 PM and 7 AM). Based on their analysis, the authors concluded that at noise levels above 45 dBA Leq, effects on sleep may occur. The analysis confirmed the WHO report that noise levels above 45 dBA Leq are likely to increase the risk of sleep disturbance (WHO, 2018). The Panel notes that although levels above 45 dBA Leq are an indicator that sleep disturbance may occur, it is not a definitive value and that many communities experience sound levels in excess of 45 dBA and no sleep disruption is reported.

The Smith et. al. (2022) review is highly pertinent to Project Tango because it updated the WHO 2018 review, included more than 100,000 participants, used formal meta-analytic methods and quantified exposure–response curves for sleep disturbance.

Relatedly, Health Canada conducted a comprehensive epidemiological study on the potential health impacts of wind turbine sound and local residents (Michaud et al, 2016). Although a study of wind turbine noise and potential health effects may not directly pertain to data centers, the results offer a valuable perspective in the assessment of noise impacts on health. This study, the results of which were published

in over 15 independent research papers, is the largest and most methodologically rigorous evaluation of wind turbine noise and health.

Approximately 1200 households took part in the study. Participants completed detailed questionnaires; objective measures included actigraphy to assess sleep, blood pressure measurements and hair cortisol levels as markers of stress. Over 4,000 hours of noise measurements were obtained. The health outcome measures were evaluated in light of the environmental noise assessments.

The major results showed no associations of measured noise levels up to 46 dBA LAeq, and modeled sound levels of up to 49 dBA Leq, with:

- objective sleep measures measured by actigraphy.
- self-reported sleep disturbance including sleep quality, use of sleep medication and diagnosed sleep disorders.
- major health outcomes, including: hypertension; cardiovascular disease; diabetes, migraine headaches and tinnitus
- stress biomarkers, including hair cortisol levels and perceived stress scores based on a questionnaire.

Given the decades of history of research into community noise and what constitutes appropriate sound guidelines for Project Tango, the Panel chose to use the following to evaluate the potential for annoyance, health issues and protection of sleep as follows:

| | |
|---|---|
| Residential Daytime Outdoors: | 50 dBA Leq for homes |
| Residential Nighttime Outdoors: | 50 dBA Leq for residential property lines |
| | 45 dBA Leq for residential homes |
| Schools: | 55 dBA outdoor playground |
| | 35 dBA Leq indoor classroom (50 dBA outdoor classroom) |

These benchmarks are meant to evaluate the potential impact of Project Tango on the Arden community and School. They are consistent with the decades of research conducted on community noise levels around the world by health authorities. Exceedances of these guidelines does not mean that exceedance will be a public health or welfare impact on the community, rather suggest that further work would need to be done to understand the implications. If A- weighted sound levels are below these benchmarks, then no impact on public health, safety or welfare would be expected to occur.

#### 4.1.1. General Concerns Surrounding Data Center Sound

The Panel are aware of community reports across the United States of potentially excessive sound being generated by some data centers. Gour et. al. (2026) published a review paper on the theoretical *Health Implications of the Rapid Rise of Data Centers in Virginia: An Exploratory Assessment*. We note that this commentary contains no measured sound levels of data center in surrounding communities. Rather, they discuss that continuous operation of cooling systems, backup diesel generators, and other machinery related to data centers have been raised for their potential to generate persistent noise (Gour et al, 2026). Depending on the resulting community noise level, effects could include sleep disturbance and annoyance; however, annoyance is a subjective experience for which there is marked individual variation (McCunney et al, 2014).

As described above, it is important to note that whether adverse health effects may occur from exposure to noise from data centers is directly dependent on the noise level and other mediating factors, such as the attitude towards the data center itself.

In 2024, a Joint Legislative Audit and Review Commission (JLARC) in Virginia described many aspects of data centers ranging from economic and tax benefits to employment opportunities and potential

environmental issues (JLARC, 2024). What follows is a summary of the legislative report's description about the potential noise from data centers:

> *"The constant nature of data center noise has sometimes been a problem when data centers are located near residential areas. Data centers may emit low-frequency noise that is not loud enough to damage nearby residents' hearing and rarely loud enough to violate noise ordinances. Although noise has been raised as a potential concern for some data centers, according to the legislative report, "a large majority of data centers do not generate noise complaints because of their location or design".* (JLARC, 2024).

Given the concerns by the local community about how Project Tango's operation may impact the sound in the nearby residential neighborhood and School, it is important to empirically assess the ambient (existing) levels of sound in the community, as well as the predicted modeled levels of sound that would emanate from the Project. Importantly, we note that Project Tango is located more than 1,000 feet from Arden or the School. In the following, we address this issue and benchmark sound levels against the guidelines described above to assess the potential for community annoyance, sleep disturbance, health impacts and learning in the School.

### 4.2. Sound Source Spectra for Project Tango Sound Emitting Equipment

It is important to note that sound emitting equipment can vary widely across different data centers that are in operation or proposed across the United States. Therefore, the Panel caution that a community's experience with one data center cannot necessarily be translated to all proposed data centers, including Project Tango. Therefore, consideration must be given to the Project Tango design, engineering and installation of sound emitting equipment.

Unique to the Project Tango data center is that it was specifically designed such that many of the potential sound sources are located within the interior of the data center and ancillary buildings. This important feature of Project Tango means that many of the customary noise sources that are problematic in other data centers will not affect the local community in this case.

A site plan is provided in provided in Appendix A. There are three primary sound sources, apart from the battery energy storage system, that are external to the Project Tango buildings and the sound spectra for these are shown in Figure 8. The battery energy storage system containers are to be located on the west side of the Storage building so this sound source will also be acoustically shielded by the building relative to Arden and the School and will not impact the community.

The thermal loads generated by computer equipment at the Project Tango data center facility will be cooled via a closed loop water and dry cooler fan-based system. The primary equipment emitting sound to the outdoors during normal operations is the dry cooler, one for each of the five buildings. Secondary sources are one air-cooled chiller per building and the four substation transformers. The substation transformers are to be located further to the west on the site and behind a large concrete wall relative to Arden (Figure 2).

It is our understanding that Project Tango's current basis of design is dry coolers with low noise aero-acoustically optimized fans. These are large slow running fans that are optimal as they are substantially quieter than smaller high-speed units. These low-speed fans are unlikely to generate significant tonal noise (hum) as they are aerodynamically sophisticated impellers that produce inherently less noise than simpler units.

Figure 8 shows the sound source spectral data for the noise sources that are outdoors and could potentially impact the ambient noise environment. The plot shows the Sound Power Level versus Octave Band Center Frequency. The Sound Power Level is the noise level that is a property of the noise source and should not be confused with sound pressure level (what one would hear or measure).

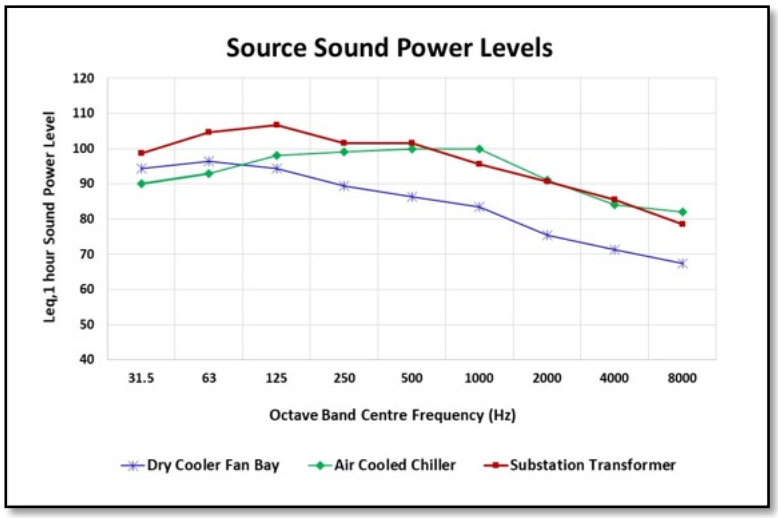



**Figure 8 Sound Sources Spectral Data for Project Tango Sound Sources**

It can be seen that for each of the three sound sources the trend for frequencies below 31.5 Hz is that the sound level is decreasing (dropping). This means that the presence of excessive levels of lower frequency noise and infrasound lower than the 31.5 Hz band is very unlikely. This is true even for the transformer.[5]

It should be realized that just because sources of low frequency noise exist at a site, it does not necessarily mean that a LFN and infrasound will manifest as annoying unwanted sound. There are many plants/facilities around the world with LFN sources in them and where LFN and infrasound are not a problem in the surrounding community. Whether or not LFN becomes a problem will depend on the level of the LFN relative to the other acoustic energy in the spectrum in the existing ambient sound, whether the LFN is broader in frequency content or more tonal in the low frequency range, whether the LFN is fluctuating in level, how rapidly the level is changing and on the individual circumstances and expectations of the community. Based upon the design of Project Tango, LFN will not negatively impact the Arden community.

### 4.3. Ambient Sound in the Area and Modeled A-Weighted Results from Project Tango

In April 2026, Jacobs completed the Project Tango Data Center Preliminary Sound Impact Assessment (Jacobs, 2026).

Details of the ambient sound in the area and the addition of the Project Tango can be found in the report. From the Executive Summary of the report:

> *Jacobs conducted short- and long-term ambient sound monitoring the week of January 12, 2026, and the week of February 9, 2026, in the vicinity of the proposed Project. Short-term (15-minute) baseline noise measurements at the property line of the receiving residential development east of the site were performed at 400-foot intervals during the day, evening, and nighttime hours. Sound levels ranged from 47 to 74 decibels on an A- weighted scale (dBA). Longer-term measurements, conducted over several days in the same area, generally ranged between an average of 40 and 60 dBA, with lower sound levels measured at night, as expected. Sound levels increased toward the end of the week during the January monitoring event as a cold front approached, and additional gas turbines at the existing, nearby power plant may have started operations. Short-term (15-*

[5] Note that there are already a number of transformers at the existing substation that are shielded behind a sound wall, not associated with Project Tango, located to the west of the proposed Project Tango.

*minute) daytime sound levels collected adjacent to the Project site, on the western side of the levee ranged, from 57 to 69 dBA, with higher sound levels closer to the existing, nearby power plant.*

*Standard acoustical engineering methods, such as the International Organization for Standardization 9613 standard for outdoor propagation, and vendor sound data for low noise equipment options, were used to determine predicted Project sound levels during normal operations. The resulting preliminary predicted Project sound level at the nearest residence is 45 dBA. Overall predicted Project sound levels fall within the range of measured existing sound levels at monitoring locations M2 and M3 (representative of nearest residences) and are below expected regulatory thresholds (60 decibels for fixed mechanical equipment at the receiving residential development to the east of the Project). In addition, although not expected to be applicable, the predicted Project sound levels comply with the lowest regulatory limit of 50 dBA at night for noise sources other than fixed mechanical equipment sources. Proposed noise control measures to minimize sound levels during facility operation include placing sound barriers adjacent to the substation transformers and implementing low noise design features. Low noise design features include, for example, locating equipment on the western portion of the site, selecting outdoor cooling equipment that is acoustically optimized to the Project site, and placing other mechanical equipment inside sound-attenuating (reducing) buildings.*

To predict the Project Tango Data Center noise level in the surrounding area, Jacobs (2026) developed an acoustical model using the well-established ISO 9613 standard as implemented in Cadna/A, developed by DataKustik GmbH of Munich, Germany (DataKustik 2025). This standard and model is a sophisticated tool that enables users to fully model complex industrial plants. The modelling results are accepted around the world.

The model is based on using the proposed facility sound source input levels derived from data supplied by manufacturers, the design team, and information found in the technical literature. The sound levels presented represent the anticipated steady-state level from the facility with essentially all equipment operating at full capacity. Using source sound power levels as the basis, the model calculates the sound pressure level that would occur at each receptor from each source after losses due to distance, air absorption, and other loss factors are considered. The prediction was conducted assuming that all receiver locations are downwind from the plant (i.e., worst case propagation conditions in all directions simultaneously which cannot happen in practice).

Importantly, the sound modeling results from the report estimated that the highest sound level during the daytime or nighttime will be less than 45 dBA at the exterior of residential homes in Arden and the School.

### 4.4. Predicted Project Tango Data Center A-Weighted Sound Levels at the Saddle View Elementary School

As the Project Tango data center is planned to be located near the School, PBA Holdings asked the Panel to assess the impact the facility will have on school children and their learning environment. In addition to the guidelines provided above, it is appropriate to address literature that has evaluated the impact of environmental noise on school children. Some studies have shown environmental noise exposure can adversely affect children's learning and cognitive performance, and that children with chronic aircraft, road traffic, or rail noise exposure at school have poorer reading ability, memory, and performance on standardized tests than do children who are not exposed to noise at school.

Excessive noise to school children has been described as potentially affecting cognition (Thompson et al., 2022). Children in noisy environments, defined by the U.S. Environmental Protection Agency (EPA) as chronic exposure above 55 dBA Leq outdoors and 35 dBA Leq indoors, may exhibit poor school performance, increased stress, and behavioral issues, lower reading comprehension, and concentration deficits (US EPA 1974, Lercher et al., 2003; Stansfeld et al, 2015).

To assess the predicted A- weighted sound level at the School, a comparison was made with the measured hourly LAeq,1hour ambient sound levels measured at M4 and M3 (Figures 9 and 10 below, as documented by Jacobs (2026)). Only daytime data are shown for ambient sound levels, given that the School is only open during the daytime hours. The red circle in Figure 10 below is the location where Jacobs predicted the sound level that would be experienced at the school due to the Project Tango Data Center.

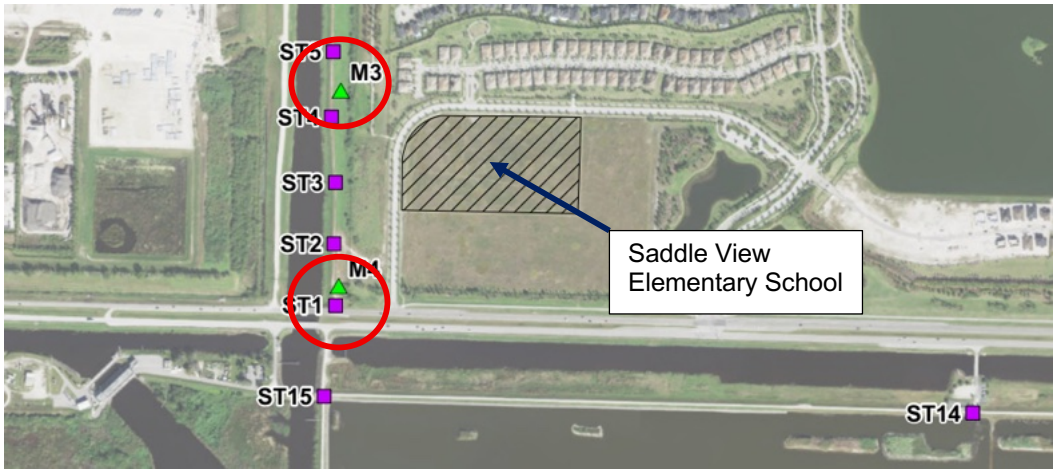



**Figure 9 Location of the Ambient Sound Level Measurements Around the School**

**Figure 10 Location for the Predicted Data Center Incident Sound Level**

Using the data collected by Jacobs at M3 and M4, the Panel calculated several average A- and C- weighted sound levels of ambient noise at the specified School location in Figure 10. Table 6 shows the predicted A- and C- weighted sound level incident on the School versus ambient levels and the average of these ambient sound levels in the area. It can be seen that the predicted Project Tango sound level outdoors at the School

of 44 dBA is at least 7 dBA less than the sound level that the students experience on the playground currently. Given that sound levels are presented on a logarithmic scale this means that the Project Tango sound level is likely to be less than half as loud as the existing sound levels on the playground.

**Table 6. Predicted Data Center Sound Level at the School versus Ambient A- and C- weighted sound levels**

| Location | LAeq,1hr | LCeq,1hr |
|---|---|---|
| **Predicted** | | |
| School | 44 | 56 |
| **Measured Ambients** | | |
| Average Ambient | 56 | 68 |
| M4 10:00 hrs | 64 | 76 |
| M4 15:00 hrs | 62 | 72 |
| M3 15:00 hrs | 51 | 63 |
| M3 13:10 hrs | 49 | 63 |
| M3 15:00 hrs | 52 | 64 |

This conclusion is reinforced in Figure 11 which shows the predicted Project Tango incident sound level spectrum at the School compared with the average ambient sound level. It can be seen from Figure 11 that the existing ambient octave band sound levels are generally well above the predicted Project Tango sound level at the School.

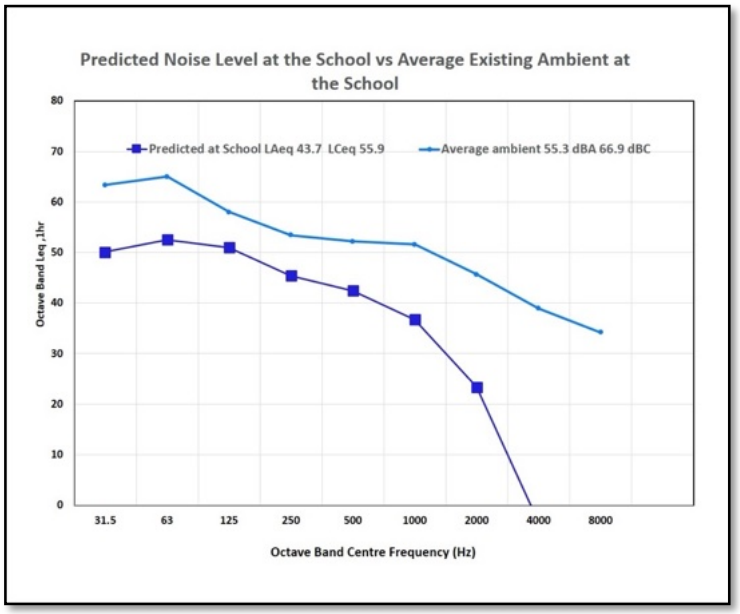



**Figure 11 Comparison of the Project Tango Sound Level with the Average of the Current Ambient A- Weighted Sound Levels**

Appendix B presents a plot of the average ambient sound levels along with the individual ambient sound levels collected at the different nominated times. Note that the higher ambient sound levels at M4 are a result of the traffic noise from Southern Boulevard. Location M3 is further in distance than the School

boundary from Southern Blvd but is also affected by traffic. The two levels at M3 at 15:00 represent the A-weighted hourly levels on two different days.

In addition to the County sound level requirements, we can assess the predicted Project Tango sound levels at the School against the:

> *American National Standards Institute / Acoustical Society of America (ANSI/ASA) Standard S12.60-2010/Part 1 American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools.*

This ANSI/ASA Standard considers that excessive background sound or reverberation in school learning spaces interferes with speech communication and thus presents an acoustical impediment to learning. Part 1 of ANSI/ASA S12.60 is applicable to core learning spaces and classrooms with interior volumes not exceeding 566 m3 (20,000 cubic feet) and to ancillary learning spaces of any volume.

The ANSI standard specifies that the sound outside the school should not result in interior sound levels measured inside the classroom greater than 35 dBA LAeq and 55 dBC LCeq. Note that this is the limit once the transmission loss of the sound level across the façade of the building is applied to the outdoor noise level to arrive at the measured indoor level. This is consistent with the WHO (1999) guidelines for sound levels of 35 dBA Leq in the classroom and 55 dBA LAeq outdoors on the playground. Note that the 55 dBA Leq on playgrounds is a target and that this level is exceeded merely by sound created by children playing on the playground.

From Table 6, we see that the predicted Project Tango sound level incident at the exterior of the School is LAeq,1hr 44 dBA. In order to comply with the indoor limit of 35 dBA, a noise level reduction of only 9 dBA would be required. Given that the School building is built to withstand Category 3 hurricanes, the sound level reduction from outdoors into the interior of the School would be well in excess of 9 dBA, (i.e., it would be at least 20 dBA). What this means is that the interior sound level from Project Tango into the school would be far less (44 dBA – 20 dBA = 24 dBA) than the 35 dBA ANSI/ASA standard or the WHO (1999) guideline for the protection of student learning in the school.

Although there is less attenuation of the dBC levels from the exterior of the School to the interior, the predicted exterior sound level of 56 dBC very nearly meets the ANSI/ASA interior standard of 55 dBC. The level of LFN predicted from Project Tango is also far lower than the existing ambient LFN sound at the School. Therefore, the School will not experience an LFN issue due to Project Tango.

In addition, the Project Tango sound level modeled outside of the School of 44 dBA would be far less than the WHO (1999) guideline of 55 dBA or the County requirement of 60 dBA daytime at the property line. On the outdoor playing fields of the school, the data suggests that the existing ambient sound level – primarily due to road noise from Southern Blvd – will be the dominant sound source and that the Project Tango sound will be less than half as loud as the ambient level.

Overall, the Panel conclude that there will not be any disruption to the school children in the classroom or on the playground due to Project Tango sound levels.

### 4.5. Project Tango Data Center Sound Levels in the Community

#### 4.5.1. A- Weighted Sound Levels

Project Tango sound levels were predicted for locations in Arden. Figure 12 below shows the locations R1 – R4 at which modeled sound level predictions were made by Jacobs (Jacobs, 2026). R1 and R2 are on the western edge of Arden, closest to Project Tango. R3 and R4 are locations further to the east in Arden and further away from Project Tango. R5 is a location at a similar distance away from Project Tango; therefore, it will have the same sound exposure due to Project Tango as at R4. Locations R1 – R4 were requested of Jacobs to provide coverage of the Arden community.

Also shown are the locations M3 and M2 at which ambient sound levels were measured by Jacobs and that are used for comparison with the Project Tango Data Center predicted levels. These two locations were chosen because the predicted sound levels at R1 and R2 were at similar locations and could therefore be directly compared with the existing ambient sound at these locations.

The Jacob's sound model predictions at R3 and R4 are based on flat ground without any intervening berms or houses. This means that the predicted Project Tango sound levels as shown may be somewhat higher than will be realized in practice due to the houses causing a small barrier effect to sound. A barrier effect is an effect due to an object in the way of a sound source which has the effect of reducing the sound level on the other side of the barrier as the source. The sound model always assumes a downwind condition that would propagate the sound from Project Tango towards the community of Arden. Given that the predominate wind direction in this area is from east to west, and the community will be upwind from Project Tango, the model results are reasonably conservative estimates.

**Figure 12 Locations at which the Project Tango Data Center Sound Levels have been Predicted. Figure 2 provides a more accurate location of Project Tango.**

As indicated above, the Panel have also considered a comparison at location R5 which is the location to the east at a similar distance from the Project Tango as R4 (Figure 12). For the purposes of this comparison, the Panel have used the predicted Project Tango sound level at R4, which is at a similar distance from the Data Center as R5. The ambient level at R4 is influenced by traffic noise while this would not be as substantial at R5.

The Panel did not have a measurement of the ambient sound level to use for comparison with the location R5. Therefore, the Panel have used the measurements at M2 and adjusted the measured levels at M2 on the assumption that the measurements at M2 were totally dominated by noise from the power stations and other equipment to the west of the proposed Project Tango. The distance of M2 from the power stations is approximately 1200 meters while location R5 is approximately 1800 meters away.

Table 7 shows the predicted Project Tango Data Center A- weighted sound levels at the various locations R1 – R4 versus the average measured ambient sound levels at M3 and M2 at various times, while Table 8 shows a comparison of R5 modeled sound levels with predicted ambient levels.

**Table 7. Project Tango Data Center Sound levels at R1 – R4 versus Ambient A- weighted Sound Levels**

| Location | LAeq,1hr |
|---|---|
| Predicted | |
| R1 | 45 |
| R2 | 43 |
| R3 | 43 |
| R4 | 40 |
| Measured Ambients | |
| Average Ambient | 48 |
| M3 15:00 hrs | 51 |
| M3 13:10 hrs | 49 |
| M3 07:00 hrs | 49 |
| M3 15:00 hrs | 52 |
| M2 15:00 hrs | 51 |
| M2 00:00 hrs | 47 |
| M2 05:00 hrs | 40 |

**Table 8. Project Tango Data Center Sound levels at R5 versus Ambient A- weighted Sound Level**

| Location | LAeq,1hr |
|---|---|
| Predicted | |
| R5 | 40 |
| Measured Ambients | |
| Average Adjusted | 42 |
| M2 Adjusted 15:00 hrs | 48 |
| M2 Adjusted 00:00 hrs | 43 |
| M2 Adjusted 05:00 hrs | 36 |

It can be seen that the predicted Project Tango sound levels are generally well below the most stringent County requirement of 50 dBA at nighttime at the residential property line and also below the existing ambient sound levels. This would be even more evident at locations R3 and R4 if the barrier effect of the houses which act as noise barriers were taken into account in the modelling, which it is not.

An example spectral comparison is shown in Figure 13 below. It can be seen that the predicted Project Tango octave band sound levels at R1 range from well below ambient to the same order of magnitude.

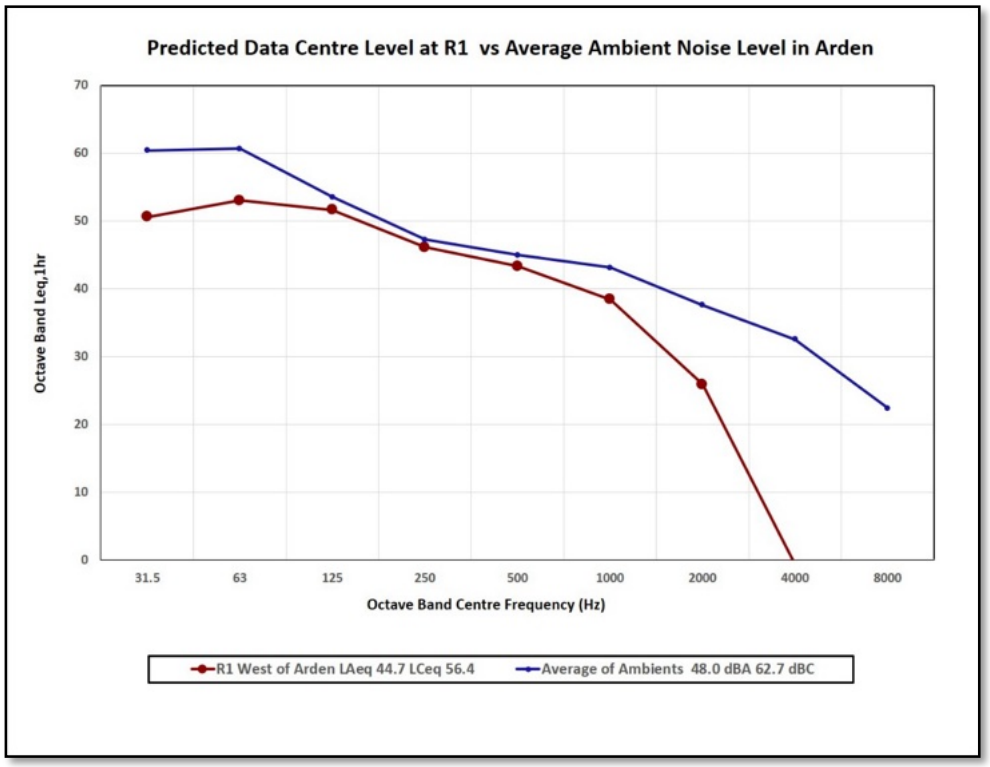



**Figure 13 Predicted Data Center Sound Levels at R1 versus Ambient Sound Levels**

Plots showing the comparison for locations R2 – R5 and comparison of average ambient with ambient sound levels are shown in Appendix C. It should be noted that at R5, the ambient ranges from dominant to similar to the predicted modelled Project Tango sound level, except for the early morning hour of 05:00 when the predicted level for R5 exceeds the ambient by the order of 3 dBA. However, this is not expected to be the case in practice. This is because the predicted modelled result did not take into account the houses in Arden, which will acoustically shield R5 so that the A- weighted level at R5 in practice will be likely to be at least 5 dBA less the sound levels shown in Table 8. And also, such a low ambient sound level is not characteristic of the area. A low ambient level could be as a result of a low load condition on the power station, or low traffic along Southern Boulevard, or due to meteorological effects reducing the sound levels to the east, in which case, the Project Tango Data Center sound levels would also be similarly reduced.

The modeled results at property line of the residential homes meets the County's level of 50 dBA at nighttime. As described above, the health and sleep epidemiological literature suggests that if project sound levels are less than 45 dBA at nighttime at the exterior of homes it will not result in sleep disturbance or other adverse health effect in the community. Given that sound levels at even the closest homes to the project are predicted to be less than 45 dBA at the exterior of homes in Arden, we conclude that Project Tango is properly sited and will not result in adverse health impacts, sleep disturbance or impact welfare or annoyance in the community.

### 4.5.2. Low frequency noise and C- Weighted Sound Levels in the Community

Overwhelmingly, the research on potential health and impacts to sleep has been conducted on A- weighted community sound levels. The Panel note that the A- weighted metric does include the LFN frequencies between 20 to 200 Hz, although the A- weighted sound metric does inherently discount the LFN frequencies based on how our ears perceive sound.

The focus of LFN research on community experience is primarily focused on its importance in the overall community soundscape and its potential to result in increased community annoyance if the LFN is a dominant component of the overall sound. Most of the published LFN studies rely on self-reported outcomes, while experimental studies are usually of short duration. It is recognized that A- weighted sound levels may underestimate the impact of LFN, because A-weighting de-emphasizes low-frequency energy. Several authors have highlighted the importance of complementary metrics, such as C- weighted levels or frequency-band analysis, when assessing LFN exposure (Broner 2010 and Møller & Pedersen, 2011).

Like broadband noise, at high levels of exposure, LFN may affect sleep and lead to annoyance in some (Baliatas et al, 2016). Pawlaczyk-Luszczynska et. al. (2010) conducted an *Evaluation of Annoyance from Low Frequency Noise Under Laboratory Conditions*. They investigated the prevalence of annoyance of LFN in the workplace. In the study 55 younger and 70 older volunteers were subjected to a range of dBA and corresponding dBC levels. It was determined that high annoyance occurred when subjects were subjected to sound levels above 62 dBA and 83 dBC.

A number of laboratory experiments evaluated the potential for LFN at individual frequencies between 20 Hz and 200 Hz to cause measurable biological effects (e.g., Ohgami et. al., 2020; Tamura et. al., 2010; and Takahashi, 2011; Vasilyeva et. al., 2017). These laboratory experiments involve SPL typically far in excess of 95 dB and up to 150 dB; at for example 100 Hz. In general, effects of LFN at extremely high levels can affect biological systems. However, these levels are far greater than one experiences in environmental conditions, especially from exposure to data center noise.

In their review, Alves and colleagues summarized results from higher LFN noise levels (Alves et al, 2020). The majority of the studies reported sound levels on the A- weighted scale. Psychophysiological and working-memory effects were noted in the 65–75 dBA range, with corresponding dBC levels above 80 dBC. Sound levels above 50 dBA or 60 dBA, with corresponding dBC levels above 65 to 70 dBC appear to be associated with annoyance, sleep disturbance, headache, nausea, and possible cardiovascular concern.

Baliatsas et. al. (2016) conducted a review of the available LFN studies in their *Health effects from low-frequency noise and infrasound in the general population: Is it time to listen? A systematic review of observational studies*. The majority of studies they reviewed examined the subjective annoyance as the primary outcome. Some associations were observed between LFN annoyance and self-reported sleep-related problems, concentration difficulties and headaches. However, these could not be correlated to a specific dBC level.

Overall, the scientific peer-reviewed literature supports the use of the work by Hessler (2005) and Broner (2010). It supports the use of the Panel of this study to benchmark Project Tango modeled dBC levels against a 65 dBC Leq nighttime and 70 dBC daytime level as discussed above.

Table 9 presents the predicted C- weighted sound levels due to the Project Tango versus the different measured ambient sound levels in Arden.

**Table 9. Modelled Project Tango Data Center Sound levels at R1 - R5 versus Measured Ambient A-weighted Sound Levels**

| Location | LCeq,1hr |
|---|---|
| **Predicted** | |
| R1 | 56 |
| R2 | 55 |
| R3 | 55 |
| R4 | 52 |
| **Measured Ambients** | |
| Average Ambient | 63 |
| M3 15:00 hrs | 63 |
| M3 13:10 hrs | 63 |
| M3 07:00 hrs | 64 |
| M3 15:00 hrs | 64 |
| M2 15:00 hrs | 64 |
| M2 00:00 hrs | 65 |
| M2 05:00 hrs | 61 |

| Location | LCeq,1hr |
|---|---|
| **Predicted** | |
| R5 | 52 |
| **Measured Ambients** | |
| Average Adjusted | 59 |
| M2 Adjusted 15:00 hrs | 61 |
| M2 Adjusted 00:00 hrs | 62 |
| M2 Adjusted 05:00 hrs | 58 |

The Project Tango predicted C - weighted sound levels are well below the existing ambient C - weighted levels in the community. Further, it can be seen that the predicted C - weighted sound levels are also well below the benchmark levels used by the Panel of 65 dBC at nighttime and even below 60 dBC. Therefore, the Panel conclude that annoyance due to LFN and Infrasound from the Project Tango Data Center is not indicated and will not be an issue in the community of Arden.

In summary, LFN has not been shown to be a direct cause of any chronic disease at typical environmental levels, and Project Tango will not cause an adverse LFN annoyance response in community of Arden.

### 4.6. dBC LCeq – dBA LAeq Difference

An alternative approach to evaluating whether or not a LFN annoyance problem could occur in a community is to evaluate a dBC minus dBA sound level difference. Hessler (2005) stated that his experience indicated that if the C minus A- weighted level exceeded 20 dB, the spectrum was perceived as unbalanced or that the low frequency content was pronounced and could potentially lead to LFN annoyance in the community. Broner (2010) in his review supported this finding. A guideline limit of dBC – dBA = >20 dB provides an indication of when there might potentially be a LFN concern in a neighboring community and is therefore chosen to assess the potential for LFN annoyance by the Panel. Note that this difference has been adopted by some Regulatory Authorities (e.g. Alberta Utilities Commission Rule 012).

Figure 14 shows the LCeq,1hour and LAeq,1hour values for the ambient noise levels recorded at M2, M3 and M4 as reported by Jacobs (2026).

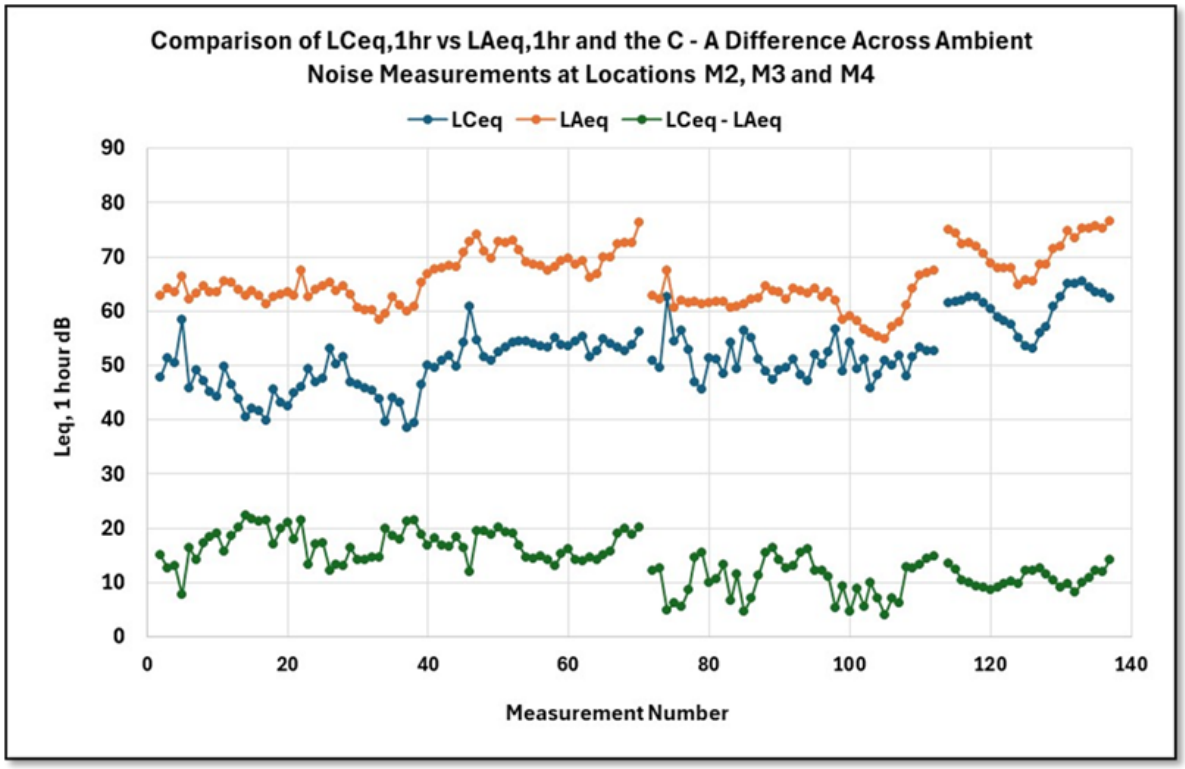



**Figure 14 dBC – dBA- Weighted Ambient Sound Level Differences Recorded at Locations M2, M3 and M4**

It can be seen that the ambient LCeq levels varied between 55 and 77 dBC and the LAeq levels varied between 39 and 65 dBA. The dBC - dBA weighted difference in levels varied between 5 and 22 dB across all of the measurements. This provides further evidence that the current ambient noise levels are unlikely to cause any LFN issues in Arden.

An evaluation of the dBC – dBA differences for the modeled Project Tango sound levels are provided in Table 10. The dBC – dBA Project Tango modelled level was ~12 dB at the School and all locations in Arden. On average, this is an even a lower difference than already exists in the current ambient environment. Given that this is less than the 20 dB difference guideline, it is further evidence that there will not be high low frequency content in the soundscape from Project Tango.

Therefore, the Panel conclude that Project Tango will not be the cause of low frequency noise annoyance at the School or the community of Arden.

**Table 10. dBC – dBA- Weighted Project Sound Level Differences**

| Location | dBC | dBA | dBC-dBA Difference |
|---|---|---|---|
| School | 56 | 44 | 12 |
| R1 | 56 | 45 | 11 |
| R2 | 55 | 43 | 12 |
| R3 | 55 | 43 | 12 |
| R4 | 52 | 40 | 12 |
| R5 | 52 | 40 | 12 |

### 4.7. Infrasound

Infrasound from the operation of data centers has been raised as a potential matter of concern by some stakeholders. A critical issue in the literature concerns the role of inaudible infrasound (Smith et al, 2023). Only levels of infrasound above the audible threshold have been seen to cause adverse health impacts. For example, Marshall et al. (2023) exposed healthy noise-sensitive adults to simulated wind-turbine infrasound at 1.6–20 Hz and about 90 dB for 72 hours in a double-blind randomized crossover design experiment (Marshall et al, 2023). This level will greatly exceed the infrasound levels from Project Tango. Marshall et. al. (2023) found no meaningful effect on self-reported sleep, cardiovascular function, neurobehavioral performance, mental wellbeing, or biomarkers of stress, inflammation, or metabolic homeostasis even at this relatively high infrasonic level.

In the case of Project Tango there is no significant source of infrasound from any of the source emitters (Figure 8). The infrasound levels emitted from Project Tango will therefore be well below the hearing threshold and thus the level that could cause health effects.

Therefore, the Panel concludes any emission of infrasound from Project Tango will not impact the health, safety or welfare of the children attending the School or those living in the community of Arden.

### 4.8. Summary of Project Tango Sound Levels and Impact on Local Residents

Project Tango commissioned Jacobs to conduct ambient sound level measurements on the closest edge of the Arden community to the project. This allows the Panel to determine whether or not the addition of sound levels from Project Tango would significantly change the soundscape in the community and at the school.

It was determined that the modelled sound levels at the School are compliant with the County ordinance requirements. The predicted sound level on the school playground was LAeq,1hour 44 dBA, well below the existing average outdoor sound level at the School of LAeq,1hour 55 dBA. The modeled outdoor Project Tango sound levels of LAeq 44 dBA and LCeq 56 dBC were determined to meet the ANSI/ASA and WHO guidelines indoor sound levels to protect learning in the School classrooms. Therefore, the Project Tango sound levels will not impact the children playing outdoors or learning in their classrooms.

With respect to the community of Arden, the predicted Project Tango A- weighted sound levels will be well below the County requirement of LAeq 50 dBA at the residential property line. In fact, the predicted worst case downwind sound levels in the community will be below LAeq 45 dBA and would be lower still on the east side of the community. In addition, these sound levels are typically within the range of the existing measured ambient sound levels in Arden. Therefore, the Project Tango sound emissions will not adversely impact the soundscape that the community already experiences. In addition, these predicted sound levels are below the commonly accepted 45 dBA level that ensures protection of sleep and resulting potential health impacts.

Evaluation of the low frequency noise at the School and in Arden determined that the predicted Project Tango dBC sound levels will be well below that already in the existing ambient soundscape. The predicted Project Tango C - weighted sound levels are below 60 – 65 dBC at which the Panel believe LFN annoyance may begin to be observed. In addition, the dBC – dBA difference of only 12 dB is also below the 20 dB level that can be used as a check to determine the potential for low frequency content and annoyance. Therefore, the LFN due to the data center will not be at a level of concern that would increase annoyance in the community or impact the health and welfare of local residents or the children attending the School.

Overall, the Panel concludes Project Tango sound emissions will not adversely change the soundscape already experienced in the community. The levels predicted from the project are well below those that would impact the public health, safety and welfare of the community.

## 5. Air Emissions

A common concern that is raised around hyperscale data centers is that they cause excessive toxic air emissions into the local environment. Many existing, or proposed, data centers around the United States are often powered by natural gas plants or have numerous back-up power diesel generators located onsite.

Natural gas plants and diesel generators have the potential to emit nitrogen dioxide, sulfur dioxide, fine particulate matter ($PM_{2.5}$), volatile organic compound (VOCs), carbon monoxide, and diesel particulate amongst others. Left uncontrolled, these emissions have the potential to adversely impact the health of nearby residents.

This has led to some in the community surrounding Project Tango to express concerns that the project could adversely impact children and other vulnerable people attending school and living in the nearby community of Arden. These concerns include the potential for increased asthmatic episodes, reduced lung function, increased cardiovascular disease and potential for adverse cogitative impacts.

However, Project Tango has been specifically designed to eliminate airborne chemical emissions from the data center or associated infrastructure. There will be no onsite natural gas plant built and back-up emergency power will be provided through a battery energy storage system (BESS) that do not have air emissions, and not diesel generators. The power for the facility will be provided through an interconnection at the existing FPL substation.

Therefore, Project Tango will not adversely affect local air quality. Given that there will be no additional sources of air quality emissions from the facility, there will be no impact on local residents, including childrens' health.

## 6. Electrical Hazards

Communities near proposed data centers often raise concerns surrounding the potential for electromagnetic fields (EMF) surrounding data centers and their associated substations and transmission lines.

Electric and magnetic fields (EMF) are invisible lines of force that surround any electrical device or generating equipment. Power lines, solar panels, electrical wiring, and home electrical equipment all produce EMF. The electric fields and magnetic fields are very different in nature and are measured in different scientific units (Figure 15).

- electric fields increase as the voltage on the line increases and are measured in volts per meter (V/m).
- magnetic fields result from the flow of current through the line and increase as the current does and are measured in units of milliGauss (mG) or Tesla (T).

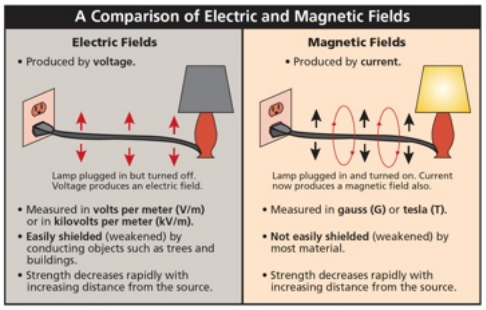



**Figure 15. Depiction of electric and magnetic fields as they relate to a household lamp (NIEHS, 2002).**

The potential health considerations involve the strength of the magnetic fields. Given that we are surrounded by magnetic fields in our everyday lives it is important to put these levels into perspective. The typical level of magnetic fields in our homes averages 1-4 mG. However, our exposure increases as we are closer to electrical equipment. Table 11 provides a list of common household appliances and their associated magnetic fields.

**Table 11. Typical AC Time Varying Magnetic Fields (mG) Surrounding Common Appliances and Beneath a 69 kV AC transmission line (NIEHS, 2002)**

| Appliance | Time Varying Magnetic Field (mG) | | |
|---|---|---|---|
| | 6 inches from source | 1 foot from source | 2 feet from source |
| Microwave | 100 – 300 | 1 – 200 | 1 – 30 |
| Dishwasher | 10-100 | 6 – 30 | 2 – 7 |
| Refrigerator | 2 – 40 | 2 – 20 | 1 – 10 |
| Vacuum Cleaner | 100 – 700 | 20 – 200 | 4 – 50 |
| Hair Dryer | 1 – 700 | 1 – 70 | 1 – 10 |

There are no Federal or State health-based exposure guidelines for EMF for the general public. Two international expert groups—the Institute of Electrical and Electronics Engineers ("IEEE") and the International Commission on Non-Ionizing Radiation Protection ("ICNIRP")—have issued EMF exposure guidelines. Both groups of experts have concluded that no adverse health effects occur at EMF levels below their exposure guidelines for the general public. For AC time varying magnetic fields, the IEEE exposure guideline is 9,040 mG, and for ICNIRP the exposure guideline is 2,000 mG.

Project Tango will construct a power substation on the west side of the property. This substation will connect to the grid at the adjacent substation and there will not be any substantial transmission line for the project. Given the distance of the substation and interconnection line from the School and the community of Arden the levels of EMF from the associated electrical infrastructure will be well below those background levels we experience in our homes and schools every day.

In addition, the level of EMF from the Project Tango data center buildings themselves will be low and levels of EMF levels will not be background at the property line.

Based on approximately 25,000 articles published over the past 40 years, none of the U.S. or international medical organizations has found that exposure to power frequency EMF causes, or contributes, to cancer or any other disease or illness. These reviews generally conclude that, while some epidemiology studies report a weak association with childhood leukemia, controlled laboratory studies do not support that association and the scientific studies overall have not demonstrated that EMF causes or contributes to any type of cancer or other disease.

The Panel concludes EMF from Project Tango will not impact the local community or School.

## 7. Heat Island/Heat Generation

Cities, towns and commercial areas experience a phenomenon referred to as the heat island effect. This is where built up areas can be significantly warmer than surrounding rural areas, especially at night. This is because urban areas contain large amounts of heat-absorbing material; such as, asphalt, concrete and buildings. This results in urban areas releasing heat and the local air temperature being anywhere between 2 to 20°F higher than surrounding rural areas.

People routinely experience this heat island effect in our daily lives. For example, the ambient air temperature in Florida often reaches 100°F. If one were to stand on a large store parking lot, the asphalt will radiate heat upwards and the temperature will often be 18°F to 27°F higher. This temperature differential decreases rapidly as one steps away from the parking lot to a neighboring property. We note that major retail stores with large parking lots are often co-located in residential neighborhoods.

In 2026, Marinoni et. al., researchers from the University of Cambridge released their unpublished findings *The Data Heat Island Effect: Quantifying the Impact of AI Data Centers in a Warming World* on arXiv, which is a preprint server where researchers often post their findings prior to undergoing to rigorous peer-review scientific review process.

We caution that this paper provides few details about the size and location of the data centers that were included in the study. In addition, it is possible that the heat island effect that they predict may be the results of replacing vegetated sites with data center associated buildings and asphalt, rather than significant heat being emitted from the data centers themselves.

That said, Marinoni et. al. (2026) report that there would be a potential 1°C to 2°C (2°F to 4°F) increase in the air temperature at the site. Due to the prevailing east-to-west winds in the area, any heat generated would be blown west away from the Arden community and the effect of this increase in temperature would rapidly decrease with distance from the facility.

Project Tango has been designed to manage heat emissions from the facility itself and reduce the overall heat emitting surfaces compared with other typical industrial uses. For example, the site plan includes extensive landscaping and vegetation buffers, which help reduce surface temperature increases and break up heat-radiating paved areas.

In addition, the site currently houses an asphalt plant, a concrete plant and a heavy construction staging operations. All of these may generate substantial surface heat. Project Tango would replace these with modern buildings and significantly increased landscaped areas, thus reducing the overall intensity of heat-emitting surfaces at the site. In addition, the surrounding area also includes significant vegetation that allows for a general cooling effect in the surrounding area.

The Panel concludes that Project Tango will not increase the surface air temperature in the community of Arden or at the Saddle View Elementary School.

## 8. Traffic

A traffic impact report was prepared for Project Tango which confirmed that it meets all County traffic requirements. It is important that during the construction phase of the project that a traffic management plan be developed. This includes issues surrounding the timing of delivery of materials and worker access to the site. It includes clear direction to all construction workers and delivery trucks that they must obey posted speed limits along Southern Boulevard.

Project Tango will be accessed from Southern Boulevard, which is already a heavily trafficked roadway. This means that those routinely using this road already experience traffic that includes heavy haul trucks. Safety of the local residents and a commitment to not impeding local traffic is of foremost importance to Project Tango. To that end, a new entrance to the site from Southern Boulevard has already been constructed. This entrance was specifically designed with multiple additional turning lanes that will ensure that traffic on Southern Boulevard will not be impeded or slowed, even during construction. In addition, if warranted Project Tango is committed to installing a traffic signal at the intersection.

During operations Project Tango is anticipated to generate very little daily traffic. Typical operational traffic will include:

- Staff personal vehicles
- Occasional service visits
- Infrequent equipment deliveries

Therefore, the Panel concludes operation of Project Tango will not affect local traffic patterns or local residents.

## 9. Fire Risk

Project Tango has been designed to ensure that fire safety is foremost in the engineering design and layout of the project. There are only small quantities of regulated materials that will be present on-site. These will include cooling equipment chemicals (e.g., glycol) and battery energy storage systems (BESS). At this point there is anticipated to be up to 100 MW of on-site BESS containers that would provide back-up energy for the facility in the event of a power outage.

Each of the buildings will be designed and engineered with strict building and fire codes. This will include advanced fire detection and suppression systems. Each building is different and have different fire suppression systems that will be required. Fire alarm panels and automated emergency response calls will be reported to the local fire stations.

The BESS will be sourced from only Tier 1 manufacturers and will undergo rigorous fire testing through Underwriters Laboratory (UL) 9540A testing. The BESS containers will each have a Battery Management System (BMS) that monitors battery health, temperature and abnormal conditions within the containers. This will ensure that if a problem is detected, the container can be isolated and shutdown in order to prevent a fire. In addition, the site layout, container design, emergency response planning and training will all abide by the requirements of the National Fire Protection Association (NFPA) 855 Standard.

There will be controlled site access, and on-site security will be provided 24 hours a day, seven days a week. Prior to construction there will be a comprehensive Emergency Response Plan developed in coordination with the local Fire Department. Although specialized firefighting equipment is not required this will be confirmed with the Fire Chief. In addition, an annual training plan will be developed and executed with the local Emergency Management Services to familiarize them with the site and its potential hazards.

Fires in both data centers and BESS are very rare; however, they do happen and local first responders will have the equipment and training they require to be prepared to protect the local community.

## 10. Conclusion

Project Tango has undertaken significant efforts in designing this data center. This includes:

- Design of building and infrastructure layout to ensure that sound sources are located away as far as practicable to the School and the community of Arden.

- The Project Tango data center was specifically designed such that many of the potential sound sources are located within the interior of the data center and ancillary buildings. This means that the external sound emission will be minor from those sources. This is an important feature of Project Tango and means that many of the noise sources will not influence the local community.

- The project will employ Kelvion dry cooler fan cooling units. These are large slow running fans that are optimal as they are substantially quieter than smaller high-speed units. These low-speed fans are unlikely to generate significant tonal noise (hum) as they are aerodynamically sophisticated impellers that produce inherently less noise than simpler units.

- There will be no onsite sources of electrical generation or backup power through the use of diesel generators, and the site will have no airborne emissions of chemicals.

- The site entrance was specifically designed with multiple additional turning lanes that will ensure that traffic on Southern Boulevard will not be impeded or slowed, even during construction.

Overall, the Panel concludes Project Tango sound emissions, including LFN, will not adversely change the soundscape already experienced in the community. The sound emissions, including LFN will not affect the public health, safety and welfare of local residents or the children attending the School. The Panel concludes that the non-acoustical health concerns are properly managed through the design of the site.

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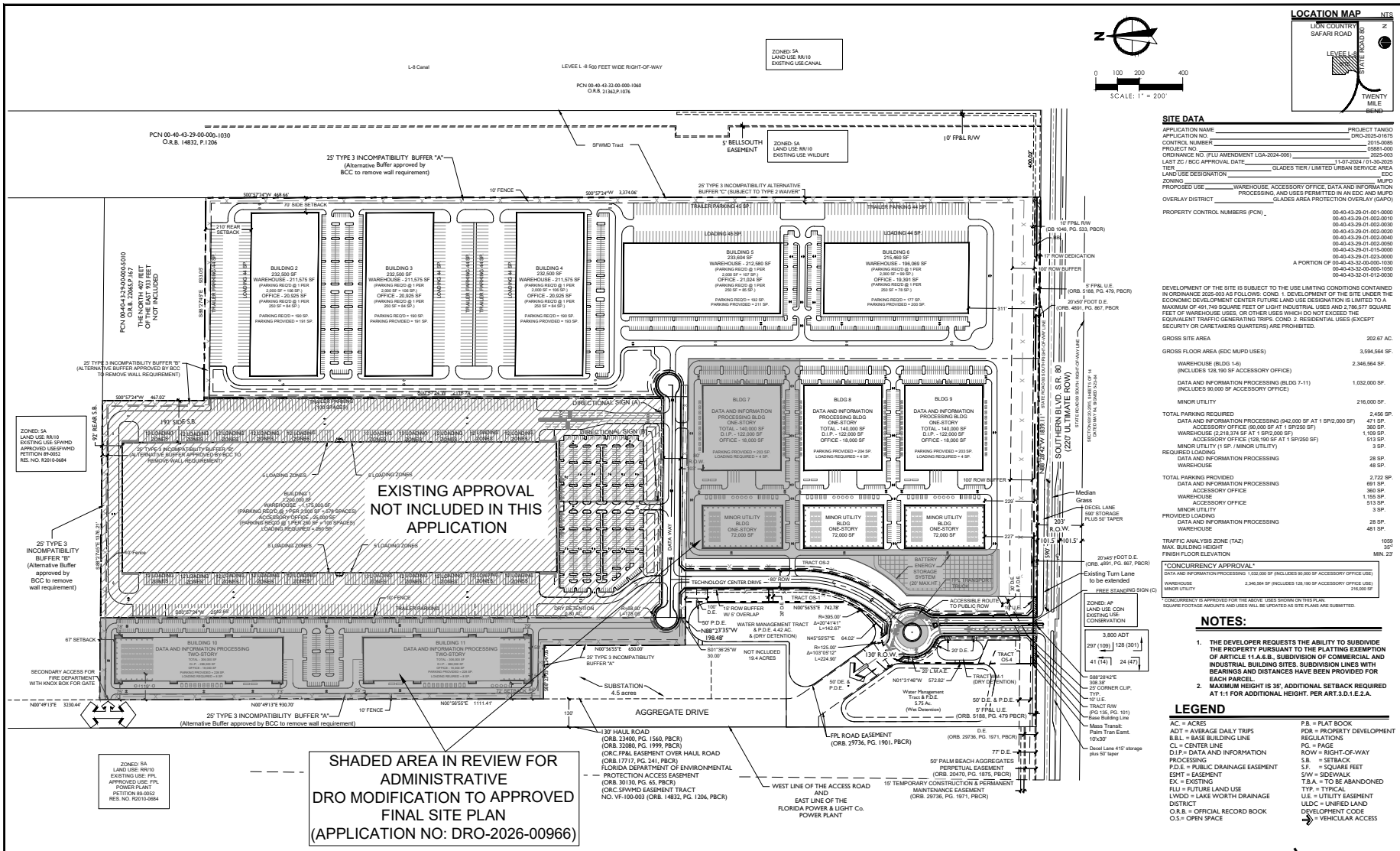
# APPENDIX A
# PROJECT TANGO SITE PLAN




## LOCATION MAP

NTS




SCALE: 1" = 200'

## SITE DATA

| | |
|---|---|
| APPLICATION NAME | PROJECT TANGO |
| APPLICATION NO. | DRO-2025-01675 |
| CONTROL NUMBER | 2015-0085 |
| PROJECT NO. | 05881-000 |
| ORDINANCE NO. (FLU AMENDMENT LGA-2024-006) | 2025-003 |
| LAST ZC / BCC APPROVAL DATE | 11-07-2024 / 01-30-2025 |
| TIER | GLADES TIER / LIMITED URBAN SERVICE AREA |
| LAND USE DESIGNATION | EDC |
| ZONING | MUPD |
| PROPOSED USE | WAREHOUSE, ACCESSORY OFFICE, DATA AND INFORMATION PROCESSING, AND USES PERMITTED IN AN EDC AND MUPD |
| OVERLAY DISTRICT | GLADES AREA PROTECTION OVERLAY (GAPO) |

PROPERTY CONTROL NUMBERS (PCN)

00-40-43-29-01-001-0000
00-40-43-29-01-002-0010
00-40-43-29-01-002-0030
00-40-43-29-01-002-0020
00-40-43-29-01-002-0040
00-40-43-29-01-002-0050
00-40-43-29-01-015-0000
00-40-43-29-01-023-0000
A PORTION OF 00-40-43-32-00-000-1030
00-40-43-32-00-000-1050
00-40-43-32-01-012-0030

DEVELOPMENT OF THE SITE IS SUBJECT TO THE USE LIMITING CONDITIONS CONTAINED IN ORDINANCE 2025-003 AS FOLLOWS: COND. 1. DEVELOPMENT OF THE SITE UNDER THE ECONOMIC DEVELOPMENT CENTER FUTURE LAND USE DESIGNATION IS LIMITED TO A MAXIMUM OF 491,749 SQUARE FEET OF LIGHT INDUSTRIAL USES AND 2,786,577 SQUARE FEET OF WAREHOUSE USES, OR OTHER USES WHICH DO NOT EXCEED THE EQUIVALENT TRAFFIC GENERATING TRIPS. COND. 2. RESIDENTIAL USES (EXCEPT SECURITY OR CARETAKERS QUARTERS) ARE PROHIBITED.

| | |
|---|---|
| GROSS SITE AREA | 202.67 AC. |
| GROSS FLOOR AREA (EDC MUPD USES) | 3,594,564 SF. |
| WAREHOUSE (BLDG 1-6) (INCLUDES 128,190 SF ACCESSORY OFFICE) | 2,346,564 SF. |
| DATA AND INFORMATION PROCESSING (BLDG 7-11) (INCLUDES 90,000 SF ACCESSORY OFFICE) | 1,032,000 SF. |
| MINOR UTILITY | 216,000 SF. |
| TOTAL PARKING REQUIRED | 2,456 SP. |
| DATA AND INFORMATION PROCESSING (942,000 SF AT 1 SP/2,000 SF) | 471 SP. |
| ACCESSORY OFFICE (90,000 SF AT 1 SP/250 SF) | 360 SP. |
| WAREHOUSE (2,218,374 SF AT 1 SP/2,000 SF) | 1,109 SP. |
| ACCESSORY OFFICE (128,190 SF AT 1 SP/250 SF) | 513 SP. |
| MINOR UTILITY (1 SP. / MINOR UTILITY) | 3 SP. |
| REQUIRED LOADING | |
| DATA AND INFORMATION PROCESSING | 28 SP. |
| WAREHOUSE | 48 SP. |
| TOTAL PARKING PROVIDED | 2,722 SP. |
| DATA AND INFORMATION PROCESSING | 691 SP. |
| ACCESSORY OFFICE | 360 SP. |
| WAREHOUSE | 1,155 SP. |
| ACCESSORY OFFICE | 513 SP. |
| MINOR UTILITY | 3 SP. |
| PROVIDED LOADING | |
| DATA AND INFORMATION PROCESSING | 28 SP. |
| WAREHOUSE | 481 SP. |
| TRAFFIC ANALYSIS ZONE (TAZ) | 1059 |
| MAX. BUILDING HEIGHT | $35^2$ |
| FINISH FLOOR ELEVATION | MIN. 23' |

*CONCURRENCY APPROVAL*

| | |
|---|---|
| DATA AND INFORMATION PROCESSING | 1,032,000 SF (INCLUDES 90,000 SF ACCESSORY OFFICE USE) |
| WAREHOUSE | 2,346,564 SF (INCLUDES 128,190 SF ACCESSORY OFFICE USE) |
| MINOR UTILITY | 216,000 SF |

CONCURRENCY IS APPROVED FOR THE ABOVE USES SHOWN ON THIS PLAN.
SQUARE FOOTAGE AMOUNTS AND USES WILL BE UPDATED AS SITE PLANS ARE SUBMITTED.

## NOTES:

1. **THE DEVELOPER REQUESTS THE ABILITY TO SUBDIVIDE THE PROPERTY PURSUANT TO THE PLATTING EXEMPTION OF ARTICLE 11.A.6.B., SUBDIVISION OF COMMERCIAL AND INDUSTRIAL BUILDING SITES. SUBDIVISION LINES WITH BEARINGS AND DISTANCES HAVE BEEN PROVIDED FOR EACH PARCEL.**
2. **MAXIMUM HEIGHT IS 35', ADDITIONAL SETBACK REQUIRED AT 1:1 FOR ADDITIONAL HEIGHT. PER ART.3.D.1.E.2.A.**

## LEGEND

| | |
|---|---|
| AC. = ACRES | P.B. = PLAT BOOK |
| ADT = AVERAGE DAILY TRIPS | PDR = PROPERTY DEVELOPMENT REGULATIONS |
| B.B.L. = BASE BUILDING LINE | PG. = PAGE |
| CL = CENTER LINE | ROW = RIGHT-OF-WAY |
| D.I.P = DATA AND INFORMATION PROCESSING | S.B. = SETBACK |
| P.D.E. = PUBLIC DRAINAGE EASEMENT | S.F. = SQUARE FEET |
| ESMT = EASEMENT | S/W = SIDEWALK |
| EX. = EXISTING | T.B.A. = TO BE ABANDONED |
| FLU = FUTURE LAND USE | TYP. = TYPICAL |
| LWDD = LAKE WORTH DRAINAGE DISTRICT | U.E. = UTILITY EASEMENT |
| O.R.B. = OFFICIAL RECORD BOOK | U.L.D.C = UNIFIED LAND DEVELOPMENT CODE |
| O.S.= OPEN SPACE | = VEHICULAR ACCESS |

| VARIANCE CHART | | | | | |
|---|---|---|---|---|---|
| VARIANCE NO. | VESTED | ULDC REFERENCE ARTICLE / SECTION | REQUIRED | PROVIDED | VARIANCE REQUEST | APPROVAL DATE / RESOLUTION NO. |
| 1 | | ART 3.E.1.C.2.h.5 PLANNED DEVELOPMENT PARKING NON-RESIDENTIAL | 10% OF REQUIRED PARKING SPACES TO BE LOCATED AT THE REAR OR SIDE OF THE BUILDING. | NO PARKING SPACES PROVIDED AT THE REAR OR SIDE OF THE BUILDINGS. | TO ELIMINATE THE REQUIRED PARKING SPACES ON THE REAR AND SIDE OF THE BUILDING. | 04/06/17 ZR-2017-009 VESTED FOR THE 138+ AC. ORIGINAL PORTION OF THE MUPD |
| 2 | | ART.3.E.3.B.1.d MIXTIPLE USE PLANNED DEVELOPMENT (MUPD) PROPERTY DEVELOPMENT REGULATIONS | PROVIDE INTERCONNECTION BETWEEN USES WITHIN AND ADJACENT TO THE MUPD. | NO INTERCONNRICTION BETWEEN USES WITHIN AND ADJACENT TO THE MUPD. | TO ELIMINATE THE INTERCONNECTIVITY BETWEEN USES WITHIN AND ADJACENT TO THE MUPD | 04/06/17 ZR-2017-009 |

| VARIANCE CHART | | | | | |
|---|---|---|---|---|---|
| VARIANCE NO. | | UDLC REFERENCE ARTICLE / SECTION | REQUIRED | PROVIDED | VARIANCE REQUEST | APPROVAL DATE / RESOLUTION NO. |
| 1 | | TABLE 6.B.1.B. MINIMUM OFF-STREET PARKING AND LOADING REQUIREMENTS. | 1 SPACE PER 250 SQ. FT. OF DATA INFORMATION PROCESSING USE. | 1 SPACE PER 2,000 SQ. FT. OF DATA INFORMATION PROCESSING USE. | ALLOW PARKING REQUIREMENT RATE OF 1 SPACE PER 2,000 SQ. FT. OF DATA INFORMATION PROCESSING USE | 12/04/25 ZR-2025-014 |

## PROPERTY DEVELOPMENT REGULATIONS

| MUPD | DRO SUBMITTAL | | | | | | SETBACKS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NET ACRE | WIDTH | DEPTH | FAR | MAX BLD COVER. | | FRONT | SIDE | SIDE STREET | REAR |
| REQUIRED | 5.0 | 300' | 300' | .85 | 45% | | 30' | 15' | 30' | 20' |
| PROPOSED | 202.67 | 308.38' | 1,720' | .41 | 37% | | 227' | 57' | N/A | 67' |

## PLANNED DEVELOPMENT CHART

| MUPD | DRO SUBMITTAL | | | | BCC APPROVAL | | | |
|---|---|---|---|---|---|---|---|---|
| | NET ACRE | | MAX BLD COVER. | FAR | | MAX BLD COVER. | FAR | % CHANGE |
| REQUIRED | | | 45% | .85 | | 45% | .85 | 0% |
| PROPOSED | 202.67 | | 37% | .41 | | 45% | .85 | 0% |

FOR INFORMATIONAL PURPOSES ONLY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Phone No. 868.909.2220 www.wglnc.com
Cert No. 0091 - LB No. 7065

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Urban Planning & Design
Landscape Architecture
Communication Graphics
630 Clematis Street, Suite 5100
West Palm Beach, FL 33401
561.366.1100 Fax: 561.366.1111
www.urbandesignstudio.com
AC-0000850


| REVISIONS | | | |
|---|---|---|---|
| PROP. | DATE | DESCRIPTION | BY |
| 1 | 12/17/24 | REVISIONS #1 | DS |
| 2 | 4/2/26 | RESUBMITTAL #2 | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

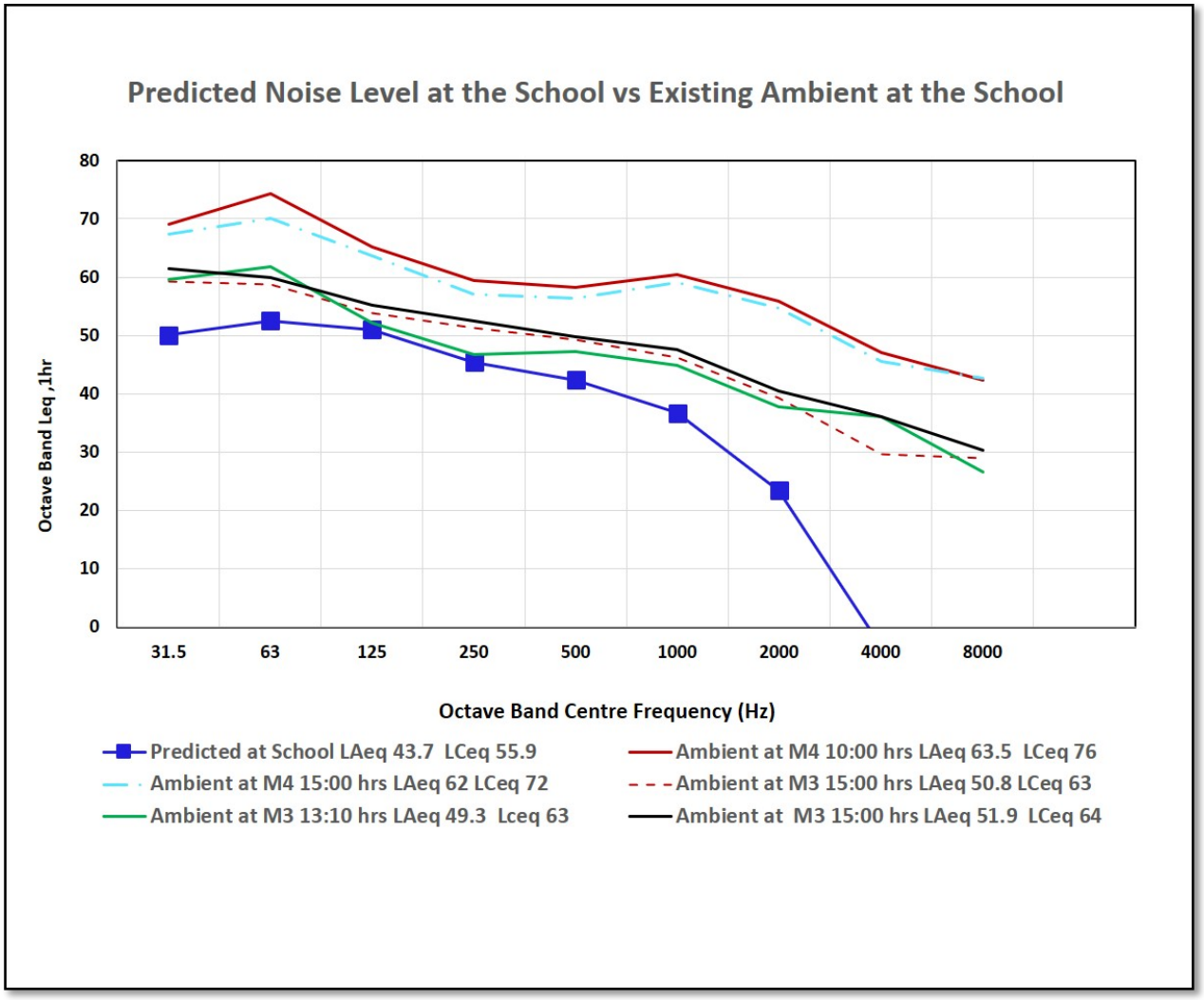
| | | | |
|---|---|---|---|
| CAD SITE PLAN\DRA ALL PLAN | | | |
| JOB NO. | 2160.04 | DRAWN BY | DS |
| CHECK BY | DM | DATE | 2025-10-17 |

**PROJECT TANGO**
**PALM BEACH COUNTY, FLORIDA**
**FINAL SITE PLAN**

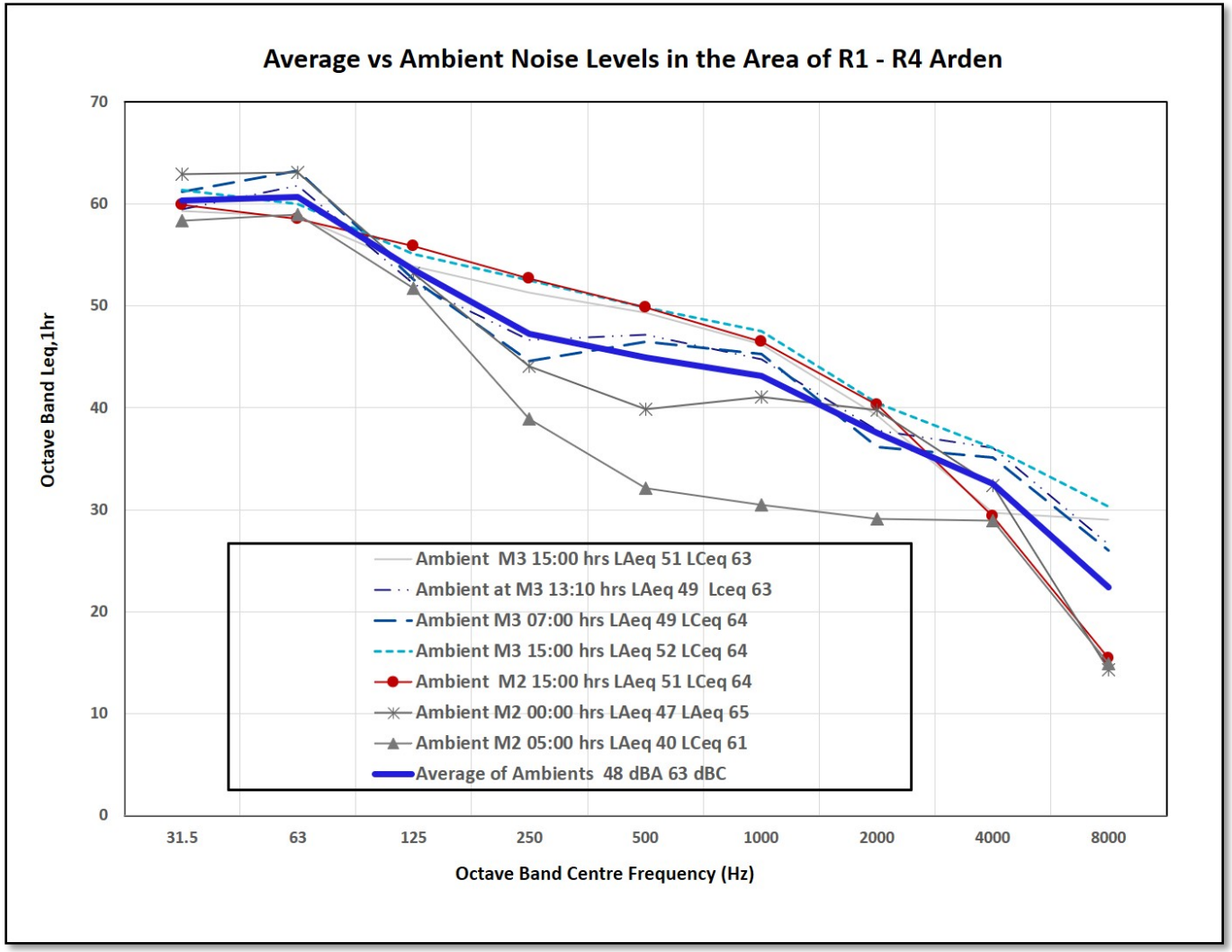
SHEET:
FSP-1
1 OF 8

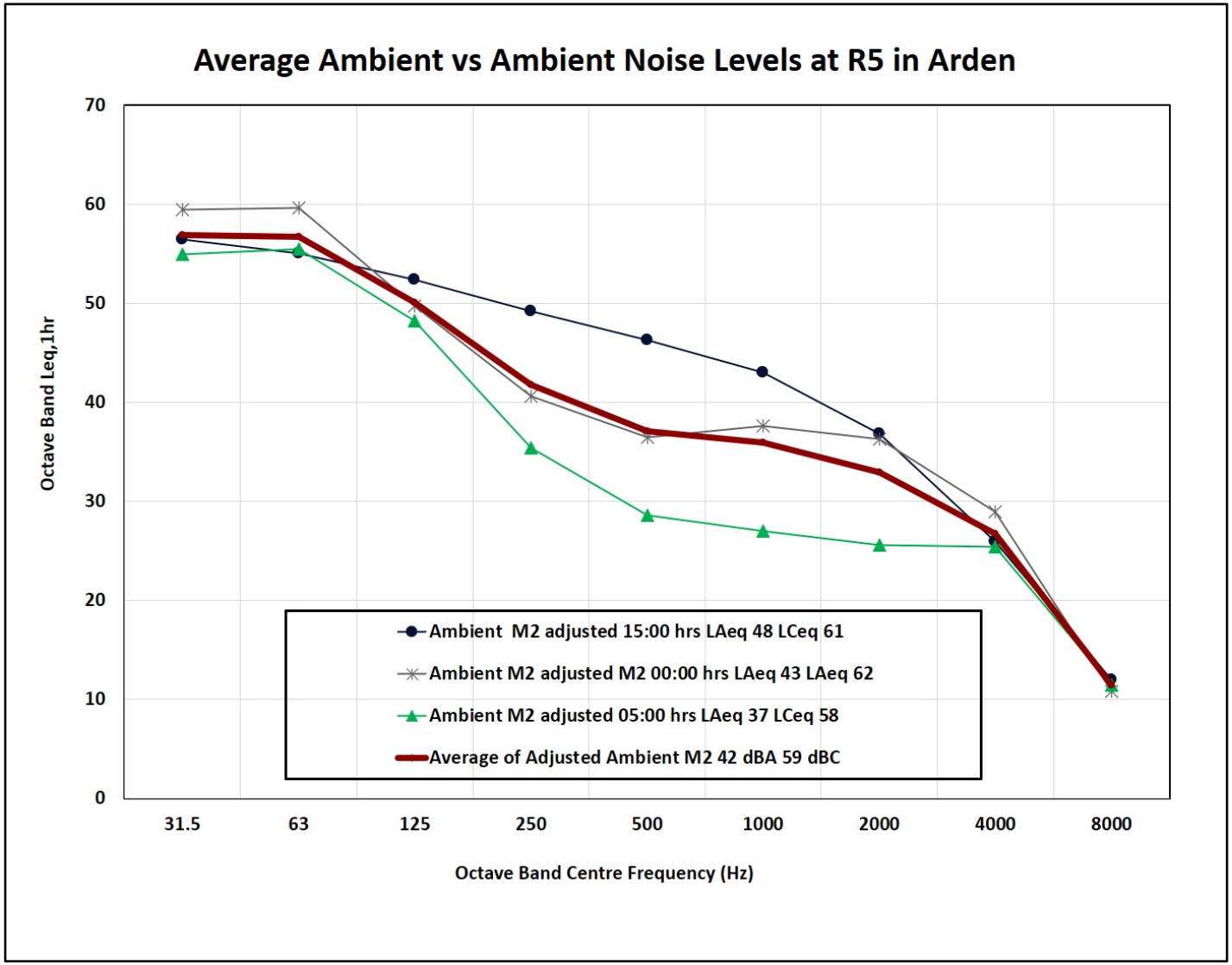
# APPENDIX B
# ADDITIONAL SOUND GRAPHS

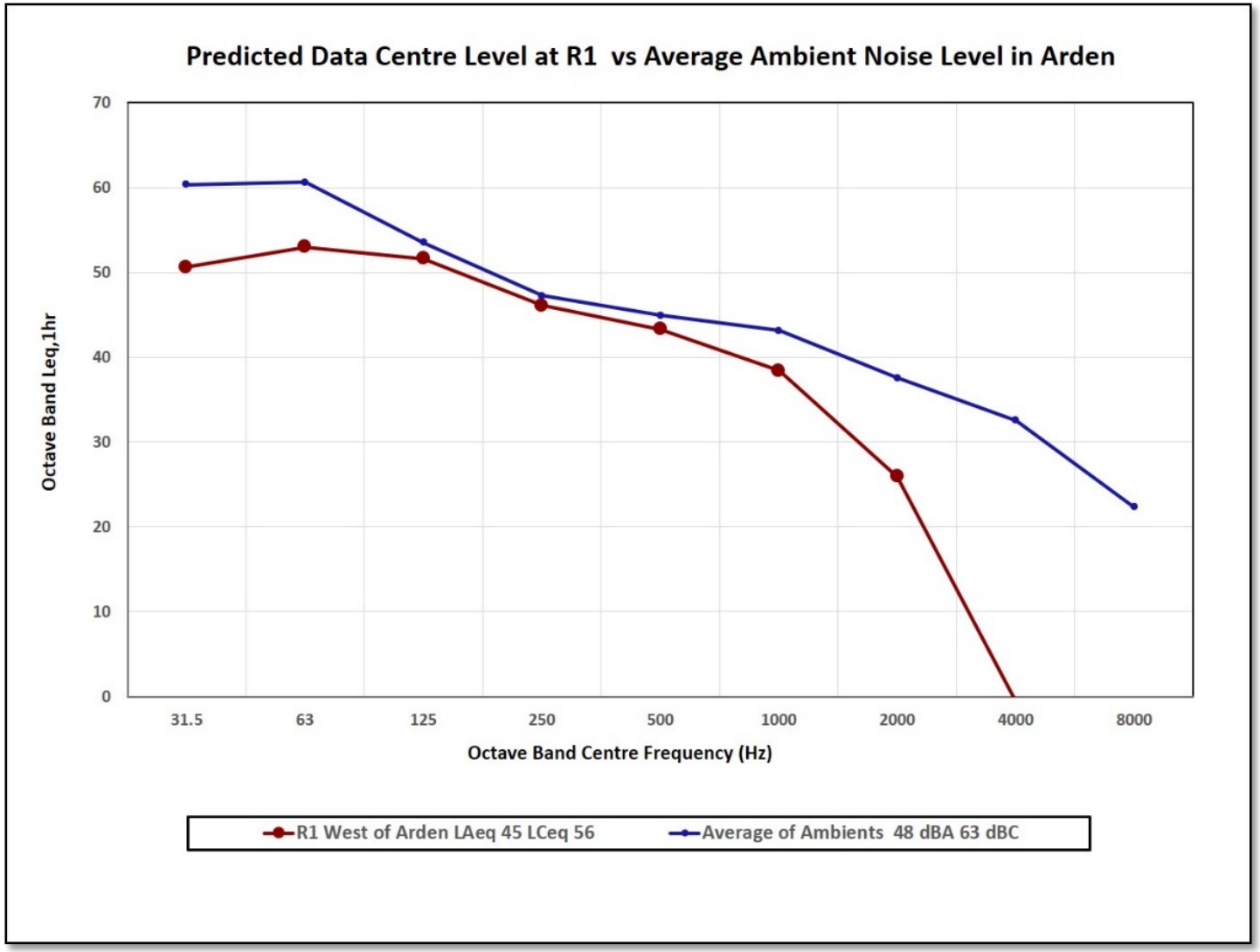
**Appendix 1. Average Ambient Sound Levels versus Ambient Sound Levels at the School**

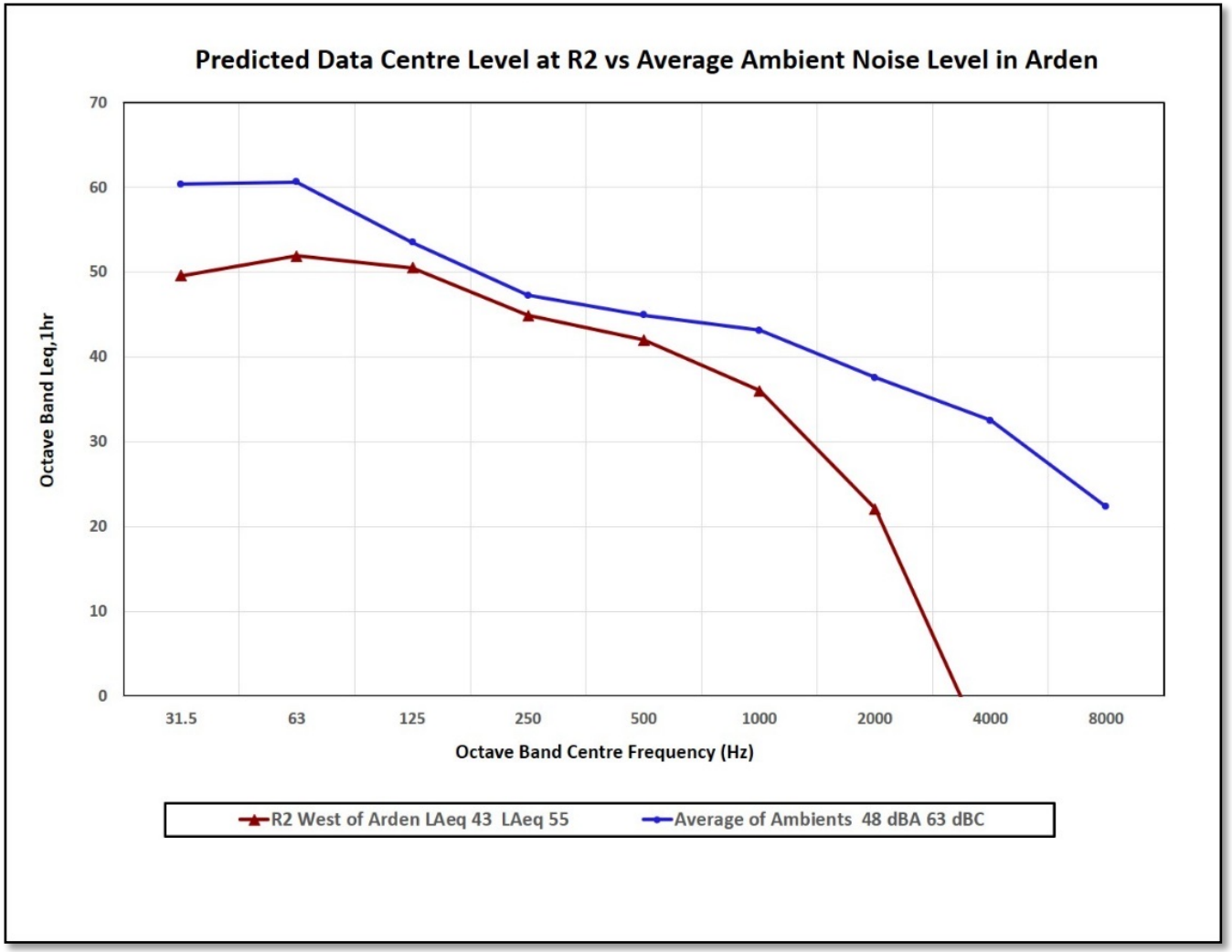


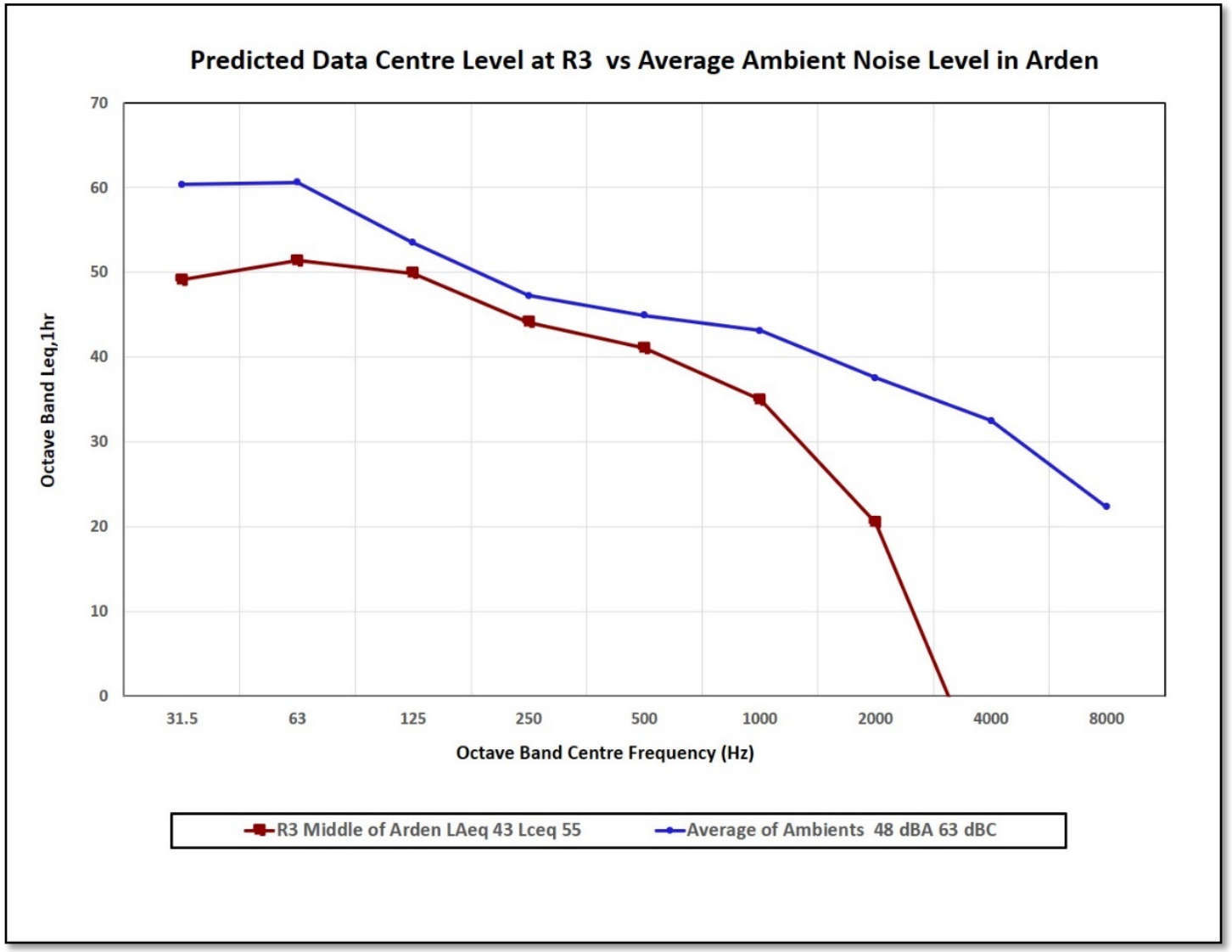
# Appendix C
# Predicted Data Center Sound Levels at Locations R2 – R5 versus Existing Ambient Sound Levels

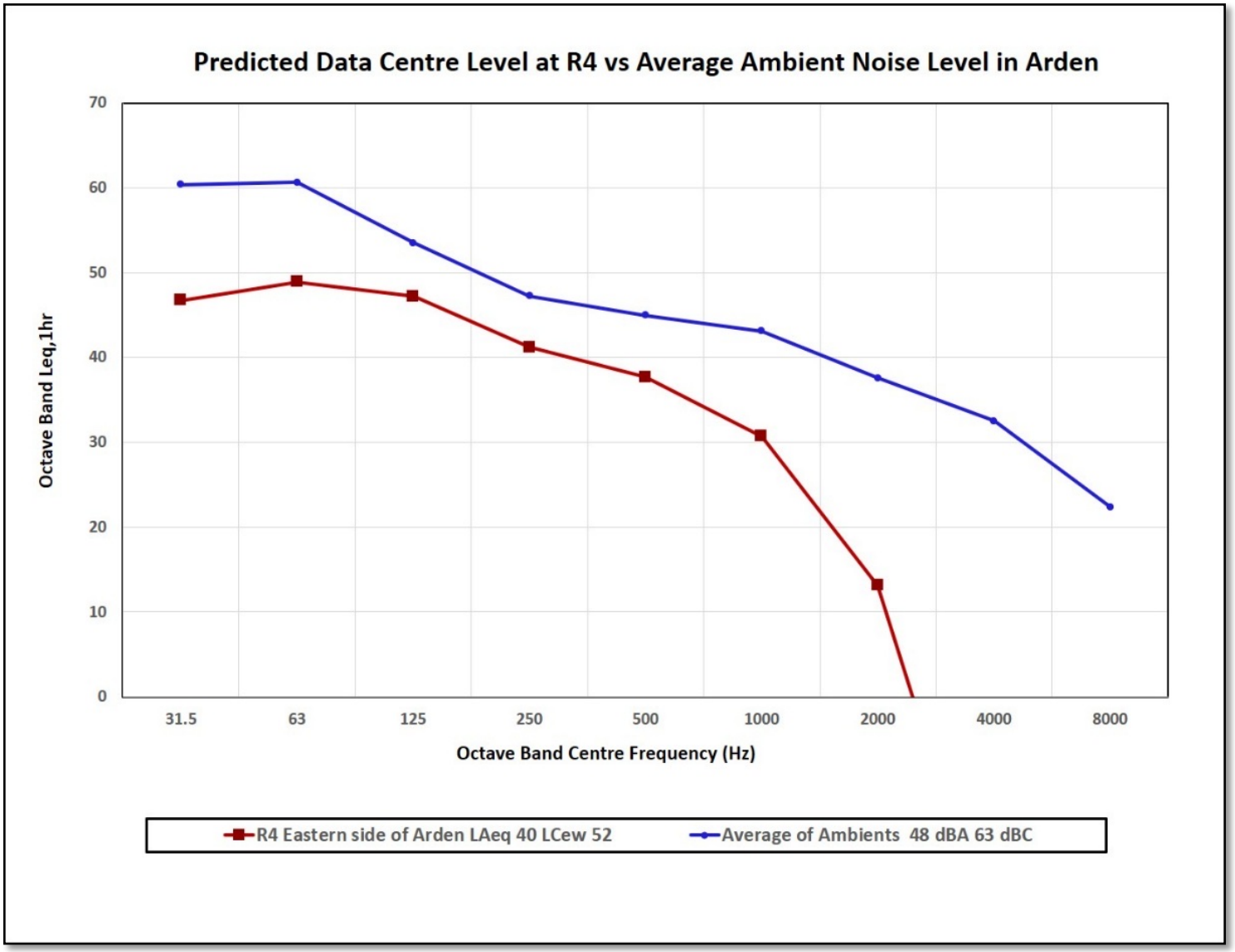

Average vs Ambient Noise Levels in the Area of R1 - R4 Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
Ambient M3 15:00 hrs LAeq 51 LCeq 63
Ambient at M3 13:10 hrs LAeq 49 Lceq 63
Ambient M3 07:00 hrs LAeq 49 LCeq 64
Ambient M3 15:00 hrs LAeq 52 LCeq 64
Ambient M2 15:00 hrs LAeq 51 LCeq 64
Ambient M2 00:00 hrs LAeq 47 LAeq 65
Ambient M2 05:00 hrs LAeq 40 LCeq 61
Average of Ambients 48 dBA 63 dBC

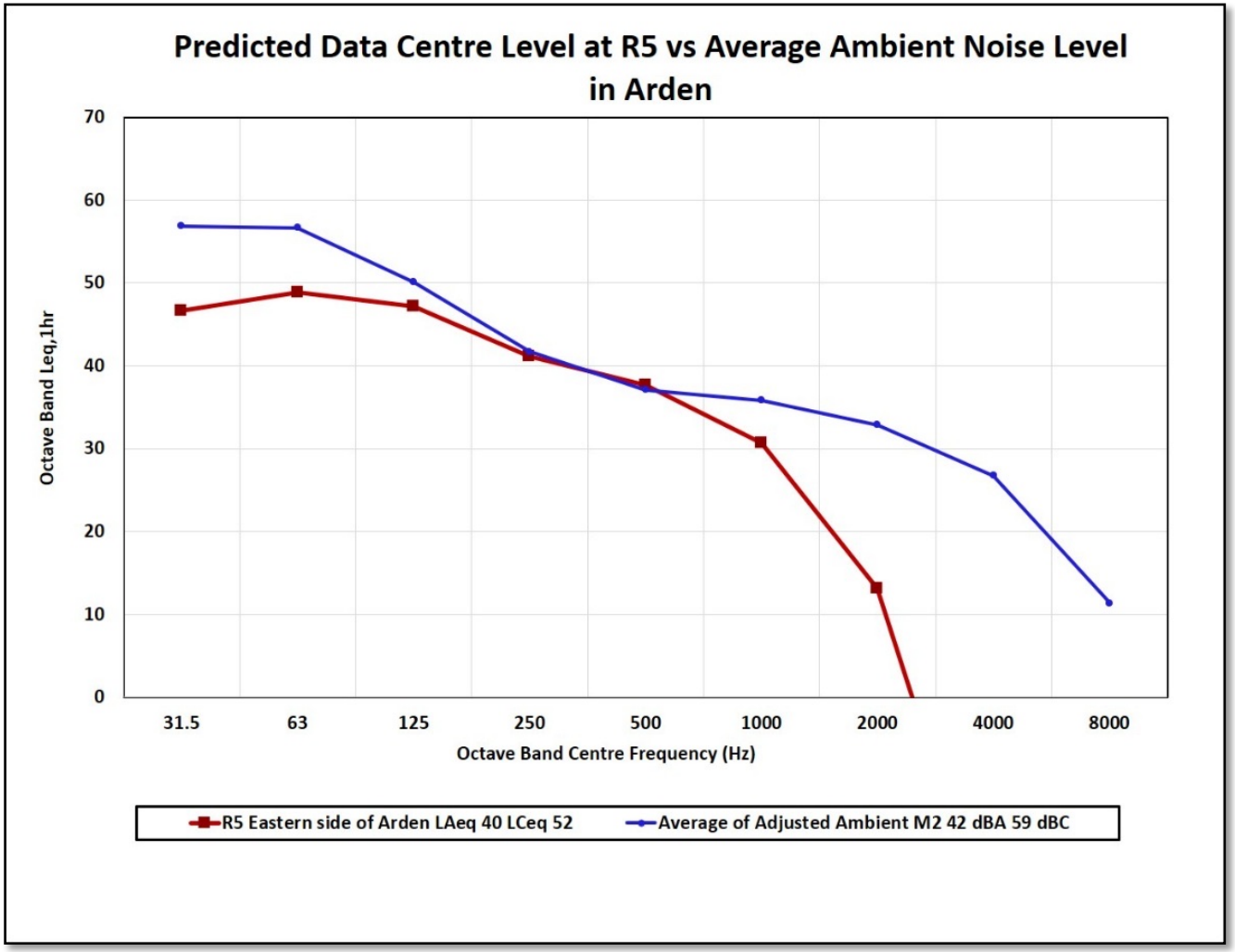

Average Ambient vs Ambient Noise Levels at R5 in Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
Ambient M2 adjusted 15:00 hrs LAeq 48 LCeq 61
Ambient M2 adjusted M2 00:00 hrs LAeq 43 LAeq 62
Ambient M2 adjusted 05:00 hrs LAeq 37 LCeq 58
Average of Adjusted Ambient M2 42 dBA 59 dBC


Predicted Data Centre Level at R1 vs Average Ambient Noise Level in Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
R1 West of Arden LAeq 45 LCeq 56
Average of Ambients 48 dBA 63 dBC


Predicted Data Centre Level at R2 vs Average Ambient Noise Level in Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
R2 West of Arden LAeq 43 LAeq 55
Average of Ambients 48 dBA 63 dBC


Predicted Data Centre Level at R3 vs Average Ambient Noise Level in Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
R3 Middle of Arden LAeq 43 Lceq 55
Average of Ambients 48 dBA 63 dBC


Predicted Data Centre Level at R4 vs Average Ambient Noise Level in Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
R4 Eastern side of Arden LAeq 40 LCew 52
Average of Ambients 48 dBA 63 dBC


Predicted Data Centre Level at R5 vs Average Ambient Noise Level in Arden
Octave Band Leq,1hr
70
60
50
40
30
20
10
0
31.5
63
125
250
500
1000
2000
4000
8000
Octave Band Centre Frequency (Hz)
R5 Eastern side of Arden LAeq 40 LCeq 52
Average of Adjusted Ambient M2 42 dBA 59 dBC