Edison Eastlake Community:
A Public Housing Connectivity Blueprint

Through the ACA ABDG-Urban grant, the city of Phoenix Housing Department and partners will develop the first "Broadband & Digital Equity Public Housing Blueprint" for the Edison Eastlake Community (EEC) to help eradicate the homework gap and close the digital divide at public housing units across the country. To help accelerate the implementation of the proposed project outlined below, the city of Phoenix is seeking [redacted] from ACA ABDG-Urban grant reimbursement. The city is committed to the project and its partners and, if successful, will provide matching funding in the amount of [redacted] of eligible project costs.

There are approximately 1 million public housing units in the United States, managed by some 3,300 public housing authorities (PHAs), housing a total of roughly 2.3 million low-income people. Public housing tends to be in neighborhoods with higher poverty rates and higher shares of nonwhite households. In 2016, across the United States, the average poverty rate for census tracts that include public housing units was 33 percent. On average, the households in those tracts were 61 percent nonwhite. Public housing is available to people who earn no more than 80 percent of area median income (AMI). PHAs are required to target at least 40 percent of new admissions to households that meet HUD's definition of extremely low income (0 to 30 percent of AMI). Most families pay 30 percent of their income in rent or a minimum rent of [redacted]. Public housing plays a crucial role in helping low-income people afford safe, stable housing.

Imagine a public housing community wherein every person is engaged and is an active participant in shaping the future of their community. For too long, the homework gap and the digital divide have persisted as a troubling barrier to achieving digital equity in these already vulnerable communities. As the Arizona economy digitizes at an astounding pace and formal and informal learning increasingly occurs online, it is evident that it is time to act to ensure every household and every student in public housing developments has the internet connectivity, equipment, and skills they need to participate fully.

BROADBAND IMPACT

The innovation enabled by widespread, high-speed broadband is limitless, but its uneven distribution exacerbates inequities, disproportionately disadvantages low-income communities, and widens the digital divide. The COVID-19 pandemic shone a light on broadband-related disparities and their impact on marginalized communities, particularly the poor, people of color, people with disabilities, and the elderly. Coupled with a lack of access to reliable broadband, the digital divide, often referred to as a gap, is quickly becoming a chasm. In rural, tribal, and urban areas alike, a continued lack of access to essential digital services, including education, healthcare, and work, will have devastating, long-term economic and social consequences. Conversely, working collaboratively to ensure everyone has equal opportunity to fully engage in every aspect of society, nurtures innovation, empowers communities, and acts as a force multiplier for economic growth.

Broadband adoption over time is a predictor of economic growth, prosperity, and full-time employment of the population. Indices related to assessing change in the number of jobs, gross domestic product, and change in average wage and standard of living, show clear economic benefits to residents, communities, and businesses. The continued health and vitality of the Phoenix economy are largely dependent on the ability to ensure those in greatest need have access to fast, reliable, and affordable broadband and the skills and devices necessary to engage fully. Nationally, more than 14% of people living in urban areas, an estimated 13.6 million U.S. households, still lack access to broadband. Recent ITU report data indicate that a 10% increase in fixed broadband penetration would lead to a 1.9% increase in GDP per capita, and a 10% drop in broadband price would result in a more than 3% boost to broadband adoption.

EDISON EASTLAKE COMMUNITY BLUEPRINT

The City of Phoenix Housing Department, in partnership with the Digital Equity Institute, Arizona State University, and the Sun Corridor Network (together the “Coalition”) proposes the establishment of a blueprint for public housing connectivity by creating an environment where broadband is available to every resident of the Aeroterra complex within the Edison Eastlake Community (EEC), a Choice Neighborhoods community. The Coalition chose to

focus on the EEC, a city of Phoenix public housing redevelopment, because EEC residents were some of the most negatively impacted by the COVID pandemic. EEC has a high population of people living in poverty, those with disabilities, minorities, and women.
The Coalition proposes a project that would establish a WiFi 6 wireless mesh network to provide high-speed broadband to every resident living in the Aeroterra complex and support the community programs within the communal facilities. Additionally, our industry partners are committed to adding value and resources to the environment, once built, including a telehealth portal environment, digital literacy training, 24/7 navigators, help desk support, and devices for residents in need.

EDISON EASTLAKE COMMUNITY - LA CIUDAD DEL FUTURO
For the last several decades, the Edison Eastlake Community (EEC) has been known for its concentration of public housing - in fact, the highest concentration in the State of Arizona - and the associated poverty and social challenges that unfortunately frequently characterize these communities. Regardless, over 3,300 residents call the EEC home, including those who were born and raised in the area and those who moved into the community over the years for its affordable housing in an increasingly unaffordable region.

In 2018, with extensive support from the U.S. Department of Housing and Urban Development (HUD) and the City of Phoenix, hundreds of public housing and neighborhood residents and community stakeholders came together to inform and shape a community-driven transformation plan that would pinpoint specific strategies to move the Edison Eastlake Community (EEC) towards its preferred future. The EEC "One Vision Plan" captured the community's hope for the future – a future that would provide for improved public safety, walkable streets with plenty of open space, and services and educational opportunities that address the needs of youth and adults. The aspirational plan considered the potential for the area while concurrently grounded in existing realities and the very real challenges facing this community.

The One Vision Plan focuses on short-, medium, and long-term strategies centered around three themes that harness the potential of the EEC to become a premier in-town neighborhood in Phoenix. One theme in particular, "Connect U.S.," confronts a number of barriers that isolate the community and focuses on opportunities that will connect the community back into the larger social, economic, and physical fabric of greater Phoenix to improve the lives of current residents and attracts future residents, which is critical to Edison-Eastlake being able to realize its full potential.

One strategy that the community specifically identified was the ability to "Install neighborhood WiFi technology to provide free internet access for residents and visitors." Although internet connectivity for all was specifically targeted in the 2018 plan, this vision remains unrealized today.

However, that is about to change. With seed funding from the ACA grant and support from a coalition of public and private partners, the new Digital Equity as a Service model will not only help the EEC connect to the internet but will ensure EEC residents have access to the digital literacy and skill-building necessary to participate in remote schooling and also engage in and contribute to the economy fully.

EDISON EASTLAKE COMMUNITY CONTEXT
Located one mile east of downtown Phoenix and spanning 0.58 square miles, the EEC is home to over 3,300 residents and over 150 business establishments. Bounded by Interstate 10 to the north and east, 16th Street to the west, and the Union Pacific Railroad tracks to the south, the EEC is primarily residential to the north and west and transitions to light industrial/commercial to the south with St. Luke's Medical Center sitting in the heart of the community.

DEMOGRAPHICS
Unlike the City of Phoenix and Maricopa County, population growth is essentially non-existent in the EEC, with a net loss of population of 4.6% between 1990 and 2010. Of the 3,339 residents (2010 Census), 79.0% classify themselves as Latino, a significant percentage of which have difficulty with English. Of the households that speak Spanish at home, nearly 40% are "limited English," meaning that all members 14 years of age and older have at

least some difficulty with English. The EEC's population is significantly younger than the City and County's, with nearly half of the residents under the age of 18.
Given the large number of youths, the EEC has slightly more family households and nearly twice as many large households (5 or more persons) than the City and County. Of the family households, nearly two-thirds are headed by single females.

EMPLOYMENT AND INCOME

The unemployment rate in the EEC at 20.2% is more than double the rate in the City and County. Low employment is reflected in the low average median household income in the EEC at $16,519, which is about one-third of the median income in the City and County. Nearly two-thirds of families have incomes below the poverty level. When EEC residents are working, many are employed in low-wage jobs.

When public housing residents were asked, "What makes it hard for you to find and/or keep work," the top response was a lack of job opportunities in the area (54%) followed by a lack of professional training/skills (38%) and lack of a high school diploma or GED (38%).

Low educational attainment among residents 25 and older is a very real concern, with nearly half having less than a high school diploma. With "middle-skill" jobs - defined as those requiring a high school diploma but not a four-year degree - comprising the bulk of the Arizona labor market, EEC residents are at a significant disadvantage in being competitive for these positions. Additionally, about half of the public housing residents lack access to or knowledge of how to use a computer or the internet.

YOUTH & EDUCATION

Nearly 50% of EEC residents are under 18, and of those under 18, nearly 30% are under the age of 5. Only 41% of public housing children under five are enrolled in an early childhood program such as Head Start/Early Head Start. As a whole, the public schools attended by the majority of EEC children have lower rates of proficiency as measured through the AzMERIT standardized test than the state average. After school, the majority of children go home (68%) despite the availability of free after-school programs at the local elementary schools. The local branch of the Boys and Girls Club, located just north of the EEC, also has low participation. When asked why children do not participate in out-of-school time programs, residents cited cost and lack of knowledge of available programs as the most common reasons.

HEALTH

Self-reported health among residents is generally fair to poor, with better health reported for children. The most prevalent chronic health conditions are high blood pressure, stress or anxiety, weight problems, depression, and diabetes. Among children, the most prevalent condition was asthma. According to the CDC's 500 Cities project, EEC residents 18 and older suffer a higher rate of chronic health conditions than the City.
Aside from physical health, residents also struggle with mental health, and over half cited a need for services to help alleviate stress, anxiety, depression, and other mental health issues by both adults and children. Other unmet health needs include programs to address alcohol, drug use, and smoking.

BROADBAND PROJECT DESCRIPTION, TIMELINE, AND DEVELOPMENT

In the EEC One Vision Plan, the residents highlighted the need to install neighborhood WiFi technology to provide free internet access for residents and visitors. From economic stability to education, internet connectivity is intrinsically tied to collective health and equity outcomes and the future of EEC.

Through the ACA ABDG-Urban grant, the Coalition will build the connectivity infrastructure to provide ubiquitous and free-to-tenant internet access to all residents and visitors of the Aeroterra Complex within the EEC. The ultimate goal is to develop a blueprint that can be scaled to the rest of the EEC and other similarly situated public housing developments across the country.

AEROTERRA CONTEXT

The Aeroterra Complex is located one mile east of downtown Phoenix. Aeroterra has three distinct units. Unit I is called Aeroterra Senior Village. Adjacent to Aeroterra Senior Village are Aeroterra units II and III, which include family rental homes with up to five (5) bedrooms. There are a total of 60 senior units and 130 family units housing a total population of 733 residents**.** The average household income across both senior and family units at Aeroterra is $17,595.29.

THE EDISON EASTLAKE NETWORK

When it comes to connecting the unconnected, there is no one size fits all. There is not one network infrastructure strategy that can and will be the panacea for all unserved and underserved communities. Therefore, it requires a sort of network of networks approaches that can enable governments and school districts to be agile and leverage different types of network architectures depending on the unique physical, social, and geographical characteristics where such communities are located. Once designed, deployed, and measured, these architectures can be developed into blueprints that can be leveraged by other similarly situated communities to accelerate network deployments and the exchange of best practices. Through previous work, the Coalition has developed a reference architecture to connect the Aeroterra complex and will become the foundation for an EEC connectivity blueprint.

DESCRIPTION

To achieve the vision of ubiquitous and free-to-tenant internet, the Sun Corridor Network (SCN) will partner with World Wide Technology (WWT) to deploy a wireless network consisting of a WiFi 6 mesh network encompassing the Aeroterra Apartments and Senior Village, served by a MMWave backhaul for internet delivery. This network will provide free-to-tenant 100\100 internet access for all residents. The total number of households served include all of Aeroterra's 130 family units (1775 E. McKinley) and 60 senior units (675 N. 16th Street) housing a total of 733 residents. Furthermore, the network will benefit four community anchor institutions including, but not limited to, Maricopa County Public Health, Gateway Community College HUG Clinic, Edison Elementary School, and the Aeroterra Community Center.

To accomplish this, the Coalition has developed a network reference architecture that will provide a scalable solution for the City of Phoenix Housing Department to deploy in support of providing reliable connectivity. Through the Sun Corridor Network (an eligible provider of broadband), the Coalition will provide internet connectivity to Aeroterra via 10G Microwave line-of-site connections. Line-of-site connection will be established between Arizona State University's Fusion on First building in Downtown Phoenix and the Aeroterra complex.

These connections will feed into the campus wireless at Aeroterra that will be provided to each unit and throughout the complex. It is important to note that due to the location and characteristics of the Aeroterra Complex, it was not financially feasible to install fiber, either underground or aerial, to connect the complex. After consultation with network experts from both WWT and Intel, it was decided that the quickest, most prudent, and most effective option was the 10G Microwave line-of-site connections. The Coalition will contract with WWT to perform all infrastructure construction related to this project.

Sun Corridor Network, as the Coalition's eligible provider of broadband, will provide internet services to the different housing communities and commits through this partnership to operate and maintain the network for a minimum of five (5) years.

USE OF FUNDS

Our proposed project would use ABDG-Urban funds to support the acquisition, installation, and configuration of the MMWave and WiFi 6 equipment and services for the Aeroterra Housing Complex. Planning for this initiative is substantially complete; therefore, no ABDG funding will be required for planning purposes. Additionally, this project would use the matching funds provided by the City of Phoenix Housing Department to support the costs associated with the acquisition and installation of the MMWave backhaul environment and associated routers, switches and related configuration items.

SECTION 1.4 ABDG-URBAN

This project is not reliant on any other federal funding opportunities. The Coalition currently has all funds, as described in the budget narrative, necessary to execute on the proposed project.

TIMELINE

The proposed timeline for completion of the improvements would not exceed six months following funding availability. The most significant unknown in our timeline is the supply chain. At the time of this writing, the equipment being proposed is currently delivered within eight weeks of order confirmation. Upon confirmation of the award, the SCN team would immediately order the equipment and begin planning for the installation phase. This will enable us to install the equipment upon receipt, roughly eight weeks post-award. We estimate that installation, configuration, and testing would take approximately one month. After these steps are complete, we would move to enable residents to access the network and launch the communications campaign associated with the new network capabilities.

ACCELERATED TIMELINE THROUGH ADBG-URBAN GRANT

Without the ACA ADBG-Urban grant seed funding, the EEC connectivity project would not be realized on the aggressive 6 month timeline outlined below. In absence of the grant funding, the city of Phoenix Housing Department would have to submit a funding request as a part of American Rescue Plan Act Round 2 negotiations. Not only will these negotiations likely take 6 to 8 months in and of themselves, but it is also not guaranteed that the Housing Department would get the request approved for the EEC with other departments, projects, and priorities all competing for the same funding. The ACA ADBG grant will enable the Coalition to begin construction right away. Furthermore, the ADBG grant would also unlock and mobilize other public and private investment around digital equity services (detailed below) that have been lined up based on this funding opportunity. The ADBG grant will be the catalyst for a holistic broadband and digital equity project for the Edison Eastlake Public Housing Community.

ANTICIPATED ECONOMIC DEVELOPMENT BENEFIT

The proposed construction will increase broadband adoption within the EEC and over time drive economic growth, prosperity, and full-time employment for residents of the community. Data is critical to understanding the effectiveness of the EEC connectivity initiative, therefore, metrics related to assessing change in the number of jobs, gross domestic product, and change in average wage and standard of living will be measured closely. The continued health and vitality of the EEC community will largely be dependent on the ability to ensure those in greatest need have access to fast, reliable, and affordable broadband and the skills and devices necessary to engage fully. The Coalition, through the blueprint, intends to show the clear economic benefits to the residents and broader community of the ADBG-Urban grant construction.

ABDG-URBAN MATCHING REQUIREMENT

To help accelerate the implementation of the proposed project outlined below, the city of Phoenix is seeking [redacted] from ACA ABDG-Urban grant reimbursement. The city is committed to the project and its partners and, if successful, will provide matching funding in the amount of [redacted] of eligible project costs. The match funds will be available for use upon grant award and will be utilized to support costs associated with acquisition and installation of the MMWave backhaul environment and associated routers, switches and related configuration items.

PROJECT CONCLUSION

Community networks, such as the proposed EEC network can bring huge economic, educational, and social opportunities to areas and individuals without Internet access. Through the ACA's seed funding of the proposed EEC network, we will be able to prove that existing technologies and collaboration across sectors can bring Internet service to some of the most vulnerable populations within our communities. The Coalition's goal with the EEC network isn't to compete with existing commercial services, but to connect areas and individuals without service. The EEC network is just one piece of a larger effort to bring connectivity to more people and ultimately close the digital divide. The ultimate goal is to develop a blueprint that can be scaled to the rest of the EEC and other similarly situated public housing developments across the country.

ADDITIONAL PROJECT OUTCOMES: DIGITAL EQUITY

NOTE: If successful, none of the ACA ABDG-Urban grant funding would be used for the below resources. All digital equity resources listed below are being provided by the various public, private, and non-profit partners associated with this application.

There is no doubt that broadband has become the essential infrastructure for the 21st century. The socioeconomic returns to investment in broadband are significant. Broadband expansion can improve health and life outcomes, offer access to remote healthcare providers, and increase educational and workforce opportunities. However, broadband can only deliver benefits to those who can connect to it, afford it, and know how to use it. Ultimately, empowering communities and involving communities is crucial. Successful and scalable broadband strategies must be more than just bringing wires to the community. It must put the community at the center of the effort so the people can understand how they can use the technology to improve their lives. There must be a holistic digital equity component to any broadband expansion strategy.

The National Digital Inclusion Alliance (NDIA) serves as a unified voice for over 600 affiliates in 44 states engaged with technology and broadband development issues. NDIA combines grassroots community engagement with technical knowledge, research, and coalition building to advocate on behalf of people working in their communities for digital equity. Angela Seifer, executive director and founder of NDIA, has stated that core tenants of a strong digital equity program must address all aspects of digital inclusion, including:

- Affordable and subsidized broadband service options that meet the need of the community
- Affordable and subsidized device ownership programs that meet the needs of the community
- Digital literacy and digital skill training that meet the needs of the community
- Hardware and software technical support
- Digital navigation services to guide residents to the above services.
- Coordination among entities providing digital inclusion services

However, even with this guidance, traditional government digital equity service delivery models remain ineffective. Today's models are expensive, slow, inefficient, and are difficult to scale. Challenges related to digital equity are not confined by jurisdictional or school district boundaries. Yet, government service models designed to address digital equity continue to rely on traditional approaches such as one City providing a service to one (or many) households physically located within that City's jurisdictional boundaries. The work of the Coalition, significantly informed by engagement with members of our regional communities, confirms that traditional models are inequitable, inadequate, inefficient, and unnecessarily costly.

People are increasingly mobile. They rarely live, work, and learn in one city, town, or county. A City of Phoenix employee might live in the town of Tempe and have a child that goes to school in the City of Mesa. In Maricopa County, mobility-related complexities can be compounded by rising eviction rates that result in families navigating housing-related inconsistencies month over month. Other fundamental challenges associated with digital equity service make "going it alone" for a city or school district nearly impossible and include:

- Establishing a new Digital Equity department for each individual city is expensive.
- There is no sustainable business model for a city to deliver a digital equity service, and so new revenue streams or additional tax dollars are needed to subsidize these programs, which is often politically difficult.
- Disaggregated demand across multiple governments or agencies disincentives private, philanthropic, and federal investment.
- Siloed efforts hinder impact and the ability to scale.
- Lack of executive champion when political and administrative turnover occurs.

While the commitment levels of local governments and school districts to fund digital skills programs, offer discounted subscriptions and devices to at-risk households, and liaise directly with disadvantaged communities to understand their needs vary widely across the state, now is an ideal time for communities to focus on building the digital equity service infrastructure that they are missing.

THE DIGITAL EQUITY INSTITUTE

To address these service infrastructure challenges, this coalition of partners has established the Digital Equity Institute to deliver households the tools to physically access and use broadband and related digital services. DEI is structured as a non-profit, civic organization dedicated to improving the quality of life for people around the state of Arizona through digital equity and inclusion. This structure will enable it to become a permanent public-private partnership within the state of Arizona to prioritize historically disadvantaged groups and neighborhoods, build trust, and create interventions to directly benefit those who have struggled the most to compete digitally. DEI will enable local and state governments to be community responsive. DEI will become a trusted government partner to help cities, regions, states, and school districts advance sustainable digital equity programs at scale.

Through an alliance of dedicated public, private, and academic partners working collectively, DEI takes a holistic approach to addressing digital equity, including providing internet service, equipment, access to digital literacy and skill-building, and digital navigators who are on call 24/7 to support the community. DEI is led by Dr. Erin Carr-Jordan, the Digital Equity Director, and will work alongside the City of Phoenix to develop a Digital Equity Plan for the EEC. This plan will set performance targets, establish strategies, collect data, and plan coordinated activities across multiple stakeholders, including those responsible for the broadband infrastructure implementation listed above. Specifically, DEI will provide the City of Phoenix with a first-of-its-kind Digital Equity as a Service model through its Digital Equity Success Kit (DESK) program.

THE DIGITAL EQUITY SUCCESS KIT (DESK) PROGRAM

In addition to internet connectivity, DESK ensures all EEC residents have the devices necessary to fully engage online, have access to no-cost, high-quality digital literacy training and a community-responsive tech support system. The DESK program will establish a digital equity ecosystem within EEC wherein everyone, regardless of age, gender, race, ethnicity, ability, or socioeconomic status, has access to opportunities to achieve their fullest potential. The core pillars of DESK and the related EEC goals include, but are not limited to:

1. CONNECT

Goal - Free-to-Tenant Internet Connection to All EEC residents

The DEI team will work alongside the Coalition to develop the reference architecture and playbooks for deploying network infrastructure and ecosystem supports (security, privacy, sustainability, management, operations) across the EEC. DEI will work with the City of Phoenix to ensure this connectivity is free to all EEC residents.

2. EQUIP

Goal – 2 Laptops per Household

Through local device donations and purchasing programs that leverage financial and operational economies of scale, DEI will efficiently and cost-effectively collect and distribute internet-enabled laptop devices to all individuals and households within the EEC. Simultaneously, DEI will also work with the City of Phoenix to help respond to FCC and other federally funded device provision programs for EEC residents.

3. SKILL

Goal - Free web-based digital literacy content library for all tenants

DEI will provide EEC households with 5 years of FREE access to a web-based digital literacy content library designed to guide any family member through digital skill-building on topics such as computer and information literacy, online safety and digital citizenship, word processing, presentations, spreadsheets, databases, and multimedia. This service will provide all EEC residents with a culturally responsive and inclusive digital literacy solution that prepares people of all ages (K12- older adults) with the critical digital skills necessary to succeed in the classroom and in the digital economy.

4. TECH SUPPORT

Goal - Free 24/7 365 Day Tech Support for All Tenants

Through a partnership with the ASU Experience Center, all EEC community members will have access to comprehensive phone-based tech support and a team of digital navigators to help address a full spectrum of questions about home connectivity, technology, learning and skill-building, and device access.

CONCLUSION

The Edison Eastlake: Community Connectivity program is positioned for measurable and meaningful impact. The City of Phoenix, along with a dedicated coalition of partners, will establish and accelerate broadband construction

to reach citizens and businesses in the low-income Aeroterra public housing community. In addition to connectivity, EEC community residents will have access to digital literacy and skills training, quality telehealth, and the support of digital navigators via the DEI DESK model. This first-of-its-kind blueprint for achieving digital equity lays the foundation and model that other cities around the state can leverage to address the needs of their communities. By proactively creating mechanisms that catalyze broadband infrastructure to strengthen capacity and spark economic growth, economic conditions and quality of life improve and everyone has equal opportunity to thrive.

Edison Eastlake Community: A Public Housing Connectivity Blueprint

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