

The Intelligent Community Forum will use the data provided on this form for the first stage of its international awards program: the selection of the Smart21 Communities of the Year, semi-finalists for the Intelligent Community of the Year award. The Smart21 will be announced on October 21 at a ceremony hosted by the Institute for the Study of the Intelligent Community at Walsh University in Canton, Ohio, USA. After the announcement of the Smart21, the Awards program will proceed as follows:

October-December 2014

Each of the Smart21 Communities is required to complete a detailed questionnaire in order to be considered for ICF's Top7 and Intelligent Community of the Year (ICY) awards. The information in this form will be evaluated by an independent research firm, which produces numerical scores for each community.

January 2015

The seven top-scoring communities are named as ICF's Top7 Intelligent Communities (finalists) online and at an event at Taichung City, Taiwan, the 2013 Intelligent Community of the Year.

Feb-April 2015

The Top7 Communities host an ICF co-founder for not more than two business days, at the community's expense, for a site visit to validate the information provided to the Forum. The co-founder's report on the community is reviewed by an international jury, which votes on its choice for ICY. To select the ICY, ICF combines the scores of the independent research firm on a weighted basis with the votes of the jury.

June 2015

ICF invites representatives and citizens from the Top7 to its annual Summit. Each of the Top7 will participate in panels, a ceremony honoring their achievement and an individual interview on stage. On the final day of the Summit, one of the Top7 will be named Intelligent Community of the Year. The ICY is barred from entering the Awards program again but is named to the international jury.

Association

Communities named to the Smart21, Top7 or Intelligent Community of the Year become eligible to join the ICF Foundation, the membership association of the Forum, which provides a permanent platform for collaborative economic development and peer learning.

Completing the Application. Fill in the fields below. Each field will expand to make room for your complete answer. Save the file to your computer and email it to ICF at awards@intelligentcommunity.org by **September 22, 2014**. The Analysts for the Smart21 will use only the information on this form in making its evaluation. Do not send additional information or attachments.

Deadline for
Nominations:
22 Sept 2014

Answering the questions below May require you to gather information and hold discussions across multiple government departments: economic development, administration, IT and telecom, education, planning and community relations. You will also benefit by consulting with higher education, healthcare and other institutions, as well as with the business leaders who are champions of progress in the community. The communities that succeed in our program tell us that **completing the questionnaire helped bring about community-wide collaboration – and that collaboration proved to be the critical ingredient for a better future.**

Pilot Introduction of a New Indicator. This year, ICF is piloting the introduction of a sixth Intelligent Community Indicator devoted to environmental sustainability. This questionnaire contains questions about the sustainability practices of your community. Your response will help us determine how to evaluate sustainability in the development of Intelligent Communities but **will not have any bearing on award scoring** this year.

2015 Theme: The Revolutionary Community. In the 2014-15 Awards cycle, ICF will focus on urban and regional planning. The work of creating an Intelligent Community often begins in crisis. It may be a severe

economic downturn after major employers relocate. It may be accelerating brain drain as the community's most talented people leave in search of opportunity. Or it may be more subtle – a dawning awareness that the community faces profound risks to its future. In response to crisis, Intelligent Communities hold public consultations, launch programs and build infrastructure that they hope will create a new foundation for prosperity and wellbeing.

But once the crisis is past, how do Intelligent Communities maintain their momentum and avoid being caught unprepared by the next wave of change? They engage in urban and regional strategic planning – a deliberate and collaborative effort to design a prosperous, inclusive and sustainable future for their people. But this is planning with a difference. They know that today's disruptions in technology, the economy and the environment will only grow more intense. They understand the profound impact that the continuing broadband revolution will have on their physical form, the delivery of services and their competitive advantages. So they approach the planning of land-use and infrastructure, sustainability and community development in revolutionary ways. In the process, they reinvent what it means to plan. More information will become available in a white paper, *The Revolutionary Community*, to be published on the Nominations page www.intelligentcommunity.org/nominations.

Nomination

Name of Community

Arlington County, Virginia

The following questions provide an opportunity to tell the community's story: its recent history and background, the challenges it faces, how the community has met those challenges, and the results it has achieved. **Before answering the questions, review the description of the Intelligent Community Indicators and Success Factors** beginning on page 15 or visit ICF's Web site at www.intelligentcommunity.org. Your nomination will be more successful if you fully understand how ICF analyzes a community's development.

As you answer the questions, you will find overlap in content among them. This is deliberate: it offers you the opportunity to tell multiple stories about your community's experience. Wherever possible, avoid repeating information from one question to another.

Vital Statistics

Population	Municipality	<input type="text" value="210,280"/>	Metro Area (if applicable)	<input type="text"/>
Labor Force	Municipality	<input type="text" value="210,200"/>	Metro Area (if applicable)	<input type="text"/>
Area	Municipality	<input type="text" value="26 square miles"/>	Metro Area (if applicable)	<input type="text"/>

1. **Background** (Maximum: 1 page) Describe the community's location, features of interest, demographics and history that relate to current conditions.

Situated just across the Potomac River from the nation's Capital, Arlington County sits at the epicenter of broadband innovation and usage and the development of technology our nation - and the world - will need for the future. The smallest geographic self-governing county in the United States (at 26 sq. miles or 67 sq. km), Arlington was originally part of the District of Columbia until its return to the Commonwealth of Virginia in 1847. Despite this transfer, Arlington continues to be heavily impacted by a strong federal presence, and in recent years a growing number of high-tech private sector companies are joining that presence. It is home to the Pentagon, Ft. Myer, a State Department training center, Arlington National Cemetery (which includes President John F. Kennedy's gravesite as well as the Tomb of the Unknown Soldier), the U.S. Marine Corps War Memorial (Iwo Jima), the Air Force Memorial, and the National 9/11 Pentagon Memorial. More than 8000 Federal employees work in Arlington for the U.S. Departments of State, Homeland Security, Defense, and related agencies.

Arlington is also recognized for its cluster of public, university, and private science and technology-driven research and development organizations, including the Defense Advanced Research Projects Agency (DARPA), the Office of Naval Research, and Virginia Tech's Advanced Research Institute, which together fund billions of dollars of high tech research and have been the innovators of many of today's most prevalent technologies. For example, Arlington is the true birthplace of the Internet. A plaque officially commemorating the founding, and founders, of ARPANET (the precursor to the Internet) can be found at the agency's original Arlington headquarters:

"The ARPANET, a project of the Advanced Research Projects Agency of the Department of Defense, developed the technology that became the foundation for the internet at this site from 1970-1975. Originally intended to support military needs, ARPANET technology was soon applied to civilian uses, allowing information to be rapidly and widely available. The Internet, and services such as e-mail, e-commerce and the World Wide Web, continues to grow as the under-lying technologies evolve. The innovations inspired by the ARPANET have provided great benefits for society."

Arlington is also home to corporations and not-for-profit entities with strong commitment to technology based innovation and effective private enterprise. We are a "smart," "green," and "sustainable" community. We are a uniquely proactive future-oriented urban jurisdiction that draws strength from education, research, innovation, and broadband IT systems.

Arlington is renowned for its "Smart Growth," transit-oriented development that concentrates growth and density around Metrorail stations and tapers off into quiet residential neighborhoods. This landmark urban planning strategy resulted from a Long Range Planning Committee, in which the County lobbied extensively for an underground Metrorail line along the existing commercial corridor rather than the less expensive option along a future interstate. Today, more than 35 years later, that effort has succeeded in concentrating mixed-use housing, office, and retail development at Metrorail stations and has resulted in above average transit use and increased energy efficiencies within the commercial corridors.

However, despite being one of the most densely populated jurisdictions in the nation, Arlington is a locality known for its livability, with 88% of County residents rating their quality of life as "good" or "very good." Arlington's population is racially, ethnically, and culturally diverse, with nearly 1/4 of residents born outside the United States. Arlington residents are also some of the most well-educated in the nation; more than 71% of adults age 25 or older hold a bachelor's degree or higher. That educational excellence begins in Arlington Public Schools (APS), which is not only state of the art in its networking and IT capabilities, but is also ranked #2 in the nation in its educational attainment. What's more, its student population is incredibly diverse; students hail from 126 nations and speak nearly 100 languages. APS' technological capabilities are equally as impressive; it has a broadband video system that allows interconnectivity with all other schools in Arlington and around the region.

2. **Challenge** (Maximum: 3 pages) Describe the economic, social, political, and technological challenges to the community's future that led it to begin a process of change using information and communications technology.

Arlington has not been without its challenges, all of which have shaped the revolutionary community Arlington is today. Even greater efforts lay ahead to achieve Arlington's vision to be the truly intelligent community of tomorrow. While Arlington already envisions itself as a world-class urban community, it also recognizes the importance of addressing challenges and leveraging growth opportunities as essential to its future success. From the terrorist attacks of September 11 targeting the Pentagon in Arlington to the substantial office vacancies and job losses that resulted from BRAC and government sequestration, Arlington has prided on being a community that truly works in tandem to address its challenges head on and rise above to become a sustainable and thriving community.

Dynamic Economy: Despite its diverse employment base and stabilizing presence of the nearby federal government, Arlington is not immune to fluctuations in the greater economy. The 2008 recession resulted in a decline in both residential and commercial property values, a tightening in the commercial lending market, and a slowdown in new development. Over the past several years, the County has taken extraordinary measures to evaluate programs, streamline costs, and review discretionary programs to preserve core services and ensure fiscal sustainability.

BRAC: In May 2005, the Department of Defense (DoD) issued recommendations to the Base Realignment and Closure (BRAC) Commission to close and/or realign DoD agencies and installations throughout the country. Approved in November 2005, the BRAC law requires that 3.2 million square feet of leased office space in Arlington be vacated. As a result, Arlington stands to lose approximately 13,000 jobs, making the County's loss the largest in the United States. The impact will be spread out over several years and will persist well beyond the September 2011 BRAC deadline. In preparation for the relocations, contractors supporting BRAC-affected agencies are adjusting their business plans, modifying operations and considering future facility needs. An active outreach campaign to BRAC-impacted Arlington based defense contractors has been in place since 2005 and is critical to mitigating the indirect impacts of BRAC.

Competition from Emerging Office Markets: The office market in and around Arlington has seen increased competition, especially in the last year as Metrorail expanded west into the Tysons/Reston areas, which traditionally have offered lower rents than Arlington and which now enjoy similar levels of transit access and amenities. Increased competition has also occurred in Washington, D.C., as increasing rents along Arlington's economic corridors are now competitive with those offered in the District. Arlington's own economics are also changing, as the next generation of office cores will have even higher economic profiles going forward.

Federal Leasing Vulnerability: Federal agencies occupy approximately 18.7 million square feet of office space in an Arlington market that contains some 40.5 million square feet in total. Federal office space includes 11.4 million square feet of leased space and 7.3 million square feet of owned space. The leased space alone accounts directly for one-third of the private sector office market in Arlington. Increasing security standards will likely make the direct leasing of office properties for federal agencies more difficult. The leased portion of the federal office market is dynamic, with leases expiring, renewing, or being re-competed constantly. The County has worked to diversify its economic base: Education and Health Services, Leisure and Hospitality, and Other Services have all increased their share of the Arlington market.

Aging Infrastructure: More than 70 percent of Arlington's commercial building stock was constructed prior to 1990, with nearly 20 percent of buildings built before 1970. These aging buildings are cause for concern in a number of areas. First, commercial buildings are responsible for 40.9 percent of total Arlington County greenhouse gas emissions, and older buildings are much less efficient than newer properties. Second, many of the older buildings reflect outdated urban design practices incongruous with the lively streetscapes Arlington strives to create. Third, older buildings may have lower lease rates, but they often lack the newer amenities and efficiencies desired by tenants.

Mobile Population: While Arlington attracts great numbers of highly-educated young people, this is also a highly mobile population. Recently, Arlington was ranked as having the highest percentage increase in millennials in the nation. As a result, Arlington's population mobility is more than twice the national average and its population turnover is well above that of any other community in the Washington, D.C. region. While both population growth and turnover affect mobility rates, Arlington's mobility rate is reflective of a much more transient population, one where only about 20 percent of the population mobility is attributable to population increases. This high mobility rate makes it increasingly difficult to retain workforce talent and engage residents in the community process.

Security: Arlington's first responders led the emergency response on the attack on the Pentagon on 9/11. Many communities moved to review their emergency operations plans in light of these events, but Arlington is uniquely challenged with a densely-populated location directly outside of the nation's capital, a heavy federal presence (including the Pentagon), Reagan National Airport, the Metrorail system, Ft. Myer Army Base, as well as numerous iconic monuments and memorials. Arlington also must be able to coordinate emergency responses with numerous neighboring jurisdictions and public safety organizations, including Metropolitan Washington Airports Authority Police Department, Metro Transit Police, and the Pentagon Force Protection Agency.

Affordable Housing: The cost of land and the burgeoning cost of housing has created enormous difficulties in preserving affordable housing. While Arlington strives to ensure a range of housing choices, provide information, and facilitate community revitalization, housing expenses have risen faster than incomes in the Washington, D.C. area, leaving some households spending a disproportionate amount of their income on housing or simply unable to afford to live in Arlington. In addition to low-income families, this includes a diverse workforce population (e.g. teachers, firefighters, police officers, etc.) essential to the Arlington economy and community.

Energy Planning and Management: Like any urban community, Arlington is challenged to utilize energy in the most efficient means possible. The leading contributors of greenhouse gas emissions in the County are commercial properties (40.9%) followed by vehicles (29.3%) and residential buildings (23%). Arlington is embarking on a community energy planning process to address the burdens and opportunities of energy supply, delivery, and use in our community. Energy planning and management is needed to minimize the economic costs and environmental harm from energy use, and smart energy planning can produce opportunities for economic growth and sustainability. In 2013, The Arlington County Board and its Community Energy Plan set an ambitious goal of reducing Arlington's greenhouse gas emissions by approximately 75% by 2050, from 2007 baseline levels.

Diversity: Arlington is one of the most diverse urban communities in the U.S. with over 125 nationalities and citizens that speak over 100 languages. Arlington's population is approximately 15% Hispanic, 8% African-American, and 10% Asian/Pacific Islanders. Its public school population is even more diverse, about 26% Hispanic, 13% African-American, and 11% Asian/Pacific Islanders. Engaging such a diverse population in community affairs and decision-making requires expanding beyond traditional outreach measures.

The Arlington Way: Arlington has a nationally-recognized tradition of being a very active and engaged community, embracing a model of participatory democracy in an institutionalized system of civic participation known as the "Arlington Way". The formal structure of the "Arlington Way" includes more than 40 Citizen Advisory Groups and Commissions, while the informal manifestation is a transparent government and a shared philosophy of cooperation between the government and the community. However, the model has not kept pace with changing demographics and technology that have altered, and in some ways limited, the way in which the community engages with the government. Efforts to provide accessible and accurate information, engage a wider and more representative group of residents and organizations through online tools and smartphone applications, and support Arlington's leadership with reliable and credible data to help in decision-making, are currently being explored as means of improving the "Arlington Way".

Broadband Capacity: As in many areas around the world, demand for broadband is increasing at an incredible rate. ConnectArlington, a revolutionary concept that is already well underway in Arlington, is the future of digital telecommunication services for Arlington County. Currently it is a fiber-optic, high-speed, dedicated network that links County and Schools buildings, ensuring that the government, the schools and the community will benefit as demand for digital services continually increases over the long term.

However, this need for broadband technology through the use of underground dark (dedicated) fiber continues to grow, and Arlington County had the foresight to recognize the need for additional resources and technological capability in the future, therefore installing additional conduits in the ground to enable the County to expand its use of dark fiber. Planning is now underway for a new phase of ConnectArlington that will ensure the community's place as a technology leader in the region, sharing that advanced technology and the opportunities it provides to enhance the business community.

Social Media: Social media continues to transform the way we communicate and transmit operations. Platforms like Facebook, Twitter, and LinkedIn, as well as smartphone applications that allow residents to do everything from report potholes to inquire about voting locations, allow us to connect with residents, businesses and visitors on a one-on-one basis and have sped up the pace of doing business. Arlington faces the challenge of providing accurate, timely information to tech-savvy citizens while still needing to reach out and include those residents more accustomed to engaging with the community and government in traditional ways.

3. **Strategy & Programs** (Maximum: 3 pages) Explain the ideas, plans and process that the community put into place to address these challenges and seize opportunities. Please organize your response by Intelligent Community Indicator. Broadband

Innovation Leader: Arlington is the actual birthplace of the Internet. Although numerous communities globally make similar claims, the technology for the ARPANET, the precursor to the Internet, was developed at Arlington's Defense Research Projects Agency (DARPA). Arlington's broadband strategy has been to build on that early innovation through additional research on broadband technology and its applications. The science sector represented by DARPA, the Office of Naval Research, the Virginia Tech Research Center and private entities has enabled additional innovation through research capacity that exists in few places in the world. With the Federal technology presence, private research enterprises, and top university minds, Arlington sits at the epicenter of broadband innovation and usage.

Additionally, Arlington is among the most well-connected research facilities in the world, incorporating next-generation Internet connectivity with direct fiber access to National LambdaRail, Internet 2, and multiple feeral networks. High-performance connectivity links this reseach center to Virginia Tech's main campus in Blacksburg, as well as to other major universities. The network provided access to international peering points in New York, Chicago, Seattle, Los Angeles, and Florida.

Arlington has developed a Telecommunications Master Planning process to build and expand a robust high-capacity County-owned fiber-based network that will provide the resiliency and redundancy necessary to sustain the County's technology investments and those of the secure organizations that call Arlington home. Known as ConnectArlington, the infrastructure already links core facilities in both County buildings and through Arlington schools. Currently, the County is taking that process to the next step and working to provide the "last mile" of dark fiber directly to targeted office buildings and related entities, which will not only provide unparalleled speed and security to businesses, but also to public safety response systems.

In the event of disruption, it is essential that the County continue to operate effectively and be able to provide essential programs and services. Arlington has begun to shift applications or services that must be available all the time (24/7), have mission critical data that cannot afford to be unavailable, or have a requirement to be supported by the very best available security and redundancy as possible, to offsite cloud-based platforms.

Knowledge Workforce

University Collaboration: Virginia Tech's Advanced Research Institute (VT-ARI) in Arlington provides a platform for Virginia Tech's engineering and computer science researchers to interact with counterparts in academia, government and industry around the National Capital region and also serves as a gateway to the R&D base at the main campus in Blacksburg. Currently, VT-ARI is involved with research in the fields

of computer networking, data visualization, fiber-optics, wireless & telecommunications, satellite systems, medical informatics, energy and the environment, and more. VT-ARI complements its research activities with teaching by providing a base for graduate students (both MS and PhD) in engineering and computer science. ARI also hosts seminars, workshops and lectures by its faculty as well as government program managers, industry researchers and overseas visitors.

Supporting Multicultural Entrepreneurship: Arlington recognizes the importance of small businesses to the County's economic sustainability and as such is always looking for new, collaborative ways to support its multicultural entrepreneurship base. BizLaunch, Arlington's small business center, offers information, counseling, and research opportunities nearly all free of charge and provides as many as 100 different seminars and workshops for budding small business owners in the region each year. In 2004, BizLaunch initiated an outreach campaign geared specifically towards Latino business owners in partnership with the Greater Washington Hispanic Chamber of Commerce. This outreach effort has attracted entrepreneurs to learn more about business through workshops and one-on-one business sessions. Today, a number of those BizLaunch-sponsored seminars and workshops are held in Spanish, and counseling is provided for more than 100 Spanish-speaking entrepreneurs. Recently, on a variety of topics ranging from launching a mobile food cart to the best use of social media BizLaunch has offered simultaneous translation to ensure that a larger number of entrepreneurs fully understand the various hot topics facing business owners today.

As part of its Small Business Coordinating Council, BizLaunch also brings together area government and non-profit small business service providers to coordinate events and other activities to improve the quality and scope of services available to small business owners and entrepreneurs. Partners include (although not limited to) the Ethiopian Community Development Council, Greater Washington Hispanic Chamber of Commerce, Hispanic Committee of Northern Virginia, SCORE, U.S. Small Business Administration, Virginia Department of Business Assistance, Virginia Department of Minority Business Enterprise, Virginia Hispanic Chamber of Commerce, and Women's Business Center of NOVA.

Digital Inclusion

Arlington has spent considerable effort this past year on the application of technology to problems associated with civic engagement. We have concluded that traditional methods of civic engagement – public meetings and hearings – is insufficient if we are to engage those that do not attend these meetings but still have opinions on subjects of public interest. Often, opinions are expressed in blogs, meetup groups or in social media postings, but they are generally not offered in a way that is organized or productive for reaching policymakers. By using electronic communications devices and a variety of media we can perhaps reach and solicit ideas and information from Arlington's growing millennial population and others that may not attend public meetings.

Arlington is committed to being an inclusive community, and ensuring populations with limited or no broadband access have the ability to fully participate and reap the benefits of technology is a priority. A primary goal of the County's "E-Government Master Plan" is to extend customer service delivery and set new, transitional priorities for how the County may find capacity to provide more, improved, and better services. Three strategies have been identified and are currently being implemented to achieve this goal:

- Realize Gov 2.0 – Leverage the transformative communications and participatory features of Web 2.0 / Web 3.0 to redefine Government interactions with its constituents.
- Redefine Customer Service Delivery – Create a performance driven service delivery model that seeks that is resident driven, transparent, clear and concise and accountable.
- Building Capacity and Confidence – Implementing initiatives to extend the workforce and our ability to serve our constituents in the most effective, economic, secure, environmental and efficient manner.

Innovation

Arlington's economic development strategy is rooted in innovation and a powerful government-industry-university triangle. Technology affects how we work, where we work, with whom we work, and when we

work. It can hinder the fulfillment of work or it can strengthen it. Technology also enables us to expand the type of work we do, giving us a reach into new markets, new data, and therefore, new opportunities. The Arlington Department of Technology Services (DTS), AED, and Virginia Tech are partnering to explore these new reaches of opportunity.

To that end, this partnership is investigating the value of connecting buildings to Connect Arlington for the purpose of gathering data for planning, response, and policymaking. Through the use of sensors placed throughout a building, we can collect thermo data that will let us know the location of people and/or radiological and nuclear devices; water and energy consumption that will identify ways to reduce usage and potentially establish energy districts; enable us to monitor cyber threats and adapt security measures accordingly. Using the Living Laboratory, we will evaluate vulnerabilities/threats and test and analyze potential mitigations these before implementing them fully. This offers us a 'controlled' live environment to practice remedies to ensure they will provide the relief intended. We have secured several pilot buildings as well as a number of prospective private sector partners.

Advocacy

Energy Planning: Arlington County is embarking on a community energy planning process to address the burdens and opportunities of energy supply, delivery, and use in our community. Energy planning and management is needed to minimize the economic costs and environmental harm from energy use. Smart energy planning can produce opportunities for economic growth and sustainability. Arlington's has a three-pronged strategy, developed by a Community Energy Advisory Group comprising community and business leaders, to promote energy awareness and management:

- Community Energy Plan - A meaningful community dialogue on cutting-edge greenhouse gas emissions reductions programs and energy generation, distribution, storage, and use in the greater Arlington community. A 30-person task force representing interests from a broad range of sectors is currently immersed in implementing recommendations.

- Arlington Initiative to Reduce Emissions - The County's Climate Action program which has an ambitious target of reduce County government greenhouse gas emissions by 75% by 2050.

- Energy Management in County Operations - These are programs focused on reducing energy use in County facilities and operations, from retrofitting traffic signals with LED lights to purchasing energy-efficient hybrid vehicles and encouraging transit use. New LED traffic signals and streetlights contributed to a 10 percent decline in their energy usage. The hybrid fleet has resulted in nearly a 10 percent reduction of emissions from County vehicles.

Responding to BRAC: In what many jurisdictions would view as a dangerous and threatening crisis, the Arlington County Board recognized a unique opportunity in the BRAC recommendations (3.2 million square feet of office vacancies; loss of 13,000 jobs) to redefine the community, replace and modernize an aging building stock and transportation network, and build upon the existing positive aspects of Crystal City. Arlington began a comprehensive planning process for the area in 2006. The resultant 40-year plan is the culmination of four years of extensive work with the community and area stakeholders.

The 40-year plan is a pioneer in the use of economic analysis for planning purposes and is among the first of its kind to closely study the economics of demolishing-and-replacing major commercial buildings. Its economic findings led to an infrastructure finance plan addressing costs and estimating increasingly substantial tax yields anticipated in the coming decades. The plan calls for a better balance of residents and workers in Crystal City – with 26,000 residents and 56,000 jobs by 2050. It will transform the area into a lively, complete, urban community with attractive streets, new transit options, functional public open spaces, and community and neighborhood-oriented retail and services.

Sustainability

Arlington's framework is values-based and focuses on identifying the strengths that enable its economy and community to weather challenges and assist it in forming a strategy for the future. Resiliency,

competitiveness, and innovation are integral to Arlington's view and cultivation of economic, environmental and community sustainability.

NEED MORE

4. **Results** (Maximum: 3 pages) Describe the results produced to date by the strategy in terms of new infrastructure, new investment, better quality of life, improved educational achievement, employment growth, income growth, new industries or growth in existing industries and new efficiencies for citizens and organizations. Please organize your response by Intelligent Community Indicator.

Broadband

National Lambda Rail: The Virginia Tech Research Center has brought National Lambda Rail (NLR) to the Ballston area and enabled NSF to connect its headquarters at little cost. NLR is the innovation network for research and education. NLR's 12,000 mile, nationwide, advanced optical network infrastructure supports many of the world's most demanding scientific and network research projects. With no restrictions on usage or bandwidth, NLR is the platform of choice enabling cutting-edge exploration and discovery in the biomedical, engineering, network research, physics and many other disciplines at over 280 leading research institutions and federal agencies. NLR offers users the choice of Ethernet-, IP- or Lambda-based connectivity and transport services, as well as a complete, global Internet transit solution and highly customized technical support.

With virtually unlimited capacity, speeds of up to 100 Gbps, an existing footprint throughout the U.S. and new links to international organizations, NLR opens up unprecedented opportunities for collaboration, innovation and commercialization among the global research community and between private and public partners.

Universities and other institutions may participate in NLR through their association with an NLR member regional optical network. All participants enjoy full access to the NLR network and have total control over how they choose to use the network, whether for advanced, academic research or to support public-private commercialization to help promote job growth and economic revival in their respective geographies.

NLR First's:

- Innovation Leadership for Research and Education
- First high-performance national infrastructure founded by the research and education community
- First transcontinental production 10Gbps Ethernet network
- First intelligently managed nationwide peering and transit program focused on research applications to improve network performance and reduce costs of Internet services
- First national TelePresence network for the research and education community
- First Cisco TelePresence Exchange dedicated to research and education.
- First international, multi-point TelePresence session over a research and education network
- First University-Corporate TelePresence connection over a research and education network

Broadband Capacity Extension: Over the past several years, the County has strategically developed a plan for implementing fiber optics technology and leveraging County assets (such as the right of way) as projects by developers, utilities and the County are identified. By partnering with developers and utilities in the placement of conduit for fiber optic communication networks, the County saves money and staff resources by avoiding designing and construction of a separate trench and minimizes disruption to the roadways and the citizens that use those roadways. This approach provides the best opportunity to efficiently use financial resources and the right of way assets to construct the fiber optics communication network. These projects include:

-Building an emergency vehicle preemption (EVP) system to improve emergency response times and intersection safety. EVP gives emergency vehicles the right-of-way at signaled intersections with an automatic green light. The emergency responder is able to safely navigate the intersection, while drivers and pedestrians are clearly directed to cede the right-of-way via the traffic signals.

- Continuing the success of the ConnectArlington fiber optic network that has already revolutionized the communications capabilities of County-owned buildings and extending that success to Arlington's office culture. The next phase of ConnectArlington will make available its dark fiber to eligible businesses locating in Arlington for the purpose of stimulating economic development. By doing this, Arlington businesses will have the opportunity to connect at speeds infinitely faster than current availability around the Capital region. The County will work with a third-party licensing contractors to manage the dark fiber to multiple service providers and will ensure universities, research centers, government buildings and Federal agencies are connected – providing additional collaboration opportunities at unprecedented levels of speed and security.

-A state-of-the-art Emergency Communications Center which utilizes 1) an 800 MHz Project 25 compliant digital radio system, licensed on 18 frequencies that are simul-broadcast via 6 remote transmitter/repeater sites throughout the County 2) a Computer-Aided Design (CAD) system for call processing and the dispatch of Police, Fire and EMS units. This interface allows dispatchers from all three agencies to share live status of Fire and EMS units which enables the dispatchers to more quickly dispatch calls for service.

Knowledge Workforce

Science Cluster: Arlington has the highest concentration of workers in the science and technology, and creative positions in the Washington, D.C. region, with its Ballston neighborhood as the epicenter of science and technology research. Major research agencies include Defense Advanced Research Projects Agency (DARPA), which developed the precursor the Internet and had a hand in today's GPS technology; the Air Force Office of Scientific Research (AFOSR), and the National Science Foundation (NSF). Tandem NSI, a public-private partnership managed by AED and Amplifier Ventures, began in 2014 in an effort to connect federal technology agencies and leading universities with high-tech entrepreneurs to create emerging technology companies and promote higher engagement between entrepreneurs and national security research and development.

Education: Educational excellence in Arlington begins with the Arlington Public School System (APS) which is not only state of the art in its networking and IT capabilities, but is nationally ranked in its educational attainment. Arlington Public Schools offers the International Baccalaureate program at the elementary, middle and high school levels. In the 2012 Washington Post Challenge Index, all APS high schools were listed in the top 2% in the U.S. list. These results are achieved despite the fact that the APS student population is quite diverse. Arlington's Schools have a wide range of IT tools available to them. It has a broadband video system that allows interconnection not only with all schools in Arlington, but the ability to interconnect with schools across the region--all the way to the State capital. It has dedicated channels for instruction via the Verizon and Comcast networks as well as for coverage of school board meetings. Its educational programming supports computer instruction and various forms of e-instruction.

Beyond the public school system, Arlington is home to numerous graduate institutions design to enhance the skillsets of working professionals. Arlington's Adult Education program has been providing both enrichment classes and professional certificate courses for more than 80 years. George Mason University's Arlington campus is home to its law school, MBA program, School of Public Policy, and the Institute for Conflict Analysis and Resolution. Marymount University offers undergraduate and graduate level programs in the areas of health, business, education, and arts/sciences. George Washington University, located near the Ballston high-tech/science cluster, offers nearly two dozen programs, including Applied Quantitative Risk Analysis, High Technology Crime Investigation, and Accelerated Systems Engineering. More than 73 percent of Arlington adult residents have college degrees, with 35 percent also holding graduate degrees.

Multicultural Entrepreneurship: Arlington has successfully supported multicultural businesses through its BizLaunch program, with workshops and counseling reaching to 637 Spanish speakers in 2010; in 2004, this figure was 203, representing a 214% increase. Arlington was also recently the site of the Entrepreneurship Behaviors Challenge, an innovative collaborative entrepreneurial program developed by Arlington County and the Geneva-based United Nations Conference on Trade and Development (UNCTAD). The training program, which employs an empirical approach to teaching and learning, had never previously been conducted in a developed nation. Twenty-five entrepreneurs from the U.S., Ghana, Guyana, Nigeria, Mexico, and Switzerland completed the two day workshop, self-identifying, strengthening and enhancing their behavioral competencies through a set of dynamic activities so that they may then apply the competencies in their own businesses. Arlington will continue to collaborate with UNCTAD to deliver innovative programming that fosters the sustainable growth and success of Arlington-based entrepreneurs in today's increasingly global business environment.

Digital Inclusion

Community Center Cyber Centers: Cyber Centers complete with personal computers, business software and broadband internet access were created at Arlington's Arlington Mill Community Center, Walter Reed Community Center and the Langston-Brown Community Center to serve the needs of the community for such electronic access.

Disadvantage Student Services (Gunston@Home): To address inequities in digital learning opportunities, the County leveraged terms of its Cable Television Franchise Agreement to provide for at home free Internet access to students identified by the Arlington Public Schools as financially distressed.

Human Services Non-Profit Network Assistance (Project XTend): To address the inequities for the provision of Internet access available to nonprofit community organizations which partner with the County to provide for Human Services, the County leveraged the terms of its Cable Television Franchise Agreement to provide for at home free Internet access to approximately twenty-five of these organizations identified by the Department of Human Services.

Implementation of Wireless Hotspots: To provide Internet access to residents in shared public places, free WiFi Hotspots were created at various community centers, libraries, and popular community gathering places.

Video Indexing of County Board Meetings: Indexing of video recording of County Board Meetings dprovides residents with streamlined access to specific meeting topics, speeches and scheduled events through a web interface.

Social Media: Arlington County Government is using social media tools to share important information with the community and to encourage collaboration. The County uses many different types of social media tools including blogs, Twitter, Facebook, Flickr, and YouTube. During its first annual social media awards in 2010, the Northern Virginia Technology Council awarded Arlington top honors for "Best Integrated Social Media Campaign."

Features to Improve Website Accessibility: The Arlington website includes several features designed to improve accessibility for users with disabilities, including images on the site that contain 'alt tags.' Alt Tags aid users who listen to the content of the site by using a screen reader, rather than reading the site. Likewise, a 'skip to' link provides these users with a method for bypassing the header and going directly to the main content each time a page is accessed.

Electronic Library Materials: Arlington County Libraries offers over 60,000 titles in its NetLibrary, which includes academic, technical, and reference titles. The library began providing access to NetLibrary titles in 2003. As for popular ebook materials, Arlington began offering ebooks for checkout in June 2010

through the Overdrive website, which works with leading technology companies to develop software and apps for end users to enjoy eBooks, audiobooks, music and video. Arlington offers nearly 3,000 items through Overdrive. There has been a 520 percent surge in the circulation of electronic materials since 2009.

Innovation

Cutting Edge Companies: Arlington companies are on the forefront of technological innovation, helping transform the way business does business. Examples include:

- Decision Lens: Powerful desktop and Web-based applications enable clients of to save billions of dollars, aligning their strategic operational goals and priorities with the best possible investments in people, projects, products and suppliers. Sophisticated mathematical analysis, superior reporting and world-class performance visualization capabilities allow users to instantly understand the potential ramifications of changing business scenarios.
- Applied Predictive Technologies: APT's revolutionary Test & Learn™ software and our unparalleled consulting expertise empower consumer-focused companies to test proposed new initiatives, learn from the results, accurately predict the impact of decisions, and maximize profits. APT provides meaningful information and analysis that details the pros, the cons, and the expected results of each course of action. Thus, corporate decision-makers gain the insight to accurately predict the impact of new initiatives and the tools to craft solutions that will strengthen their bottom line.
- Capterra: Capterra was started in 1999 to help organizations make smarter software purchases and to help software companies reach their customers more cost effectively. Capterra is a free resource for software buyers. Millions of people every year start their software research in one of the 350+ software categories on its website. Capterra's filtering tool allows companies to narrow their search from hundreds of choices down to a short list of solutions that match their specific needs. Buying guides and user reviews help purchasers make the right purchase decision.

Advocacy

Think Arlington: In Arlington, a "perfect storm" of industry, occupational and educational characteristics, compounded by a greater than average sized cohort of 24 to 34 year olds and extraordinary levels of population mobility, has provided the conditions for the growth of Washington's physical, engineering and biological research and social science and humanities research industry clusters. Arlington has developed a substantial competitive advantage within the Washington region in these sectors. The unique combination of private, public and academic resources currently existing and potentially available was first articulated in AED's Emerging Technologies study conducted in 2004. That study was augmented by an analysis of the creative class in Arlington, "Benchmarking the Creative Class in Arlington", which compared Arlington's extraordinary creative class population to the rest of the Washington, D.C. region, in 2005. The current snapshot of the physical, engineering and biological research and the social science and humanities research industry clusters offers further evidence of Arlington's unique position within the region. When combined, these three studies document Arlington's competitive position and serve as the basis for developing effective strategies for economic sustainability in the long term, as well as creating the substantial basis for associated marketing strategies.

In 2007, AED launched a targeted branding campaign, dubbed "Think Arlington" with the slogan – "Brainpower: arlington's alternative energy" – to position Arlington as a premier location for start-up and relocating high-tech, research and related companies by highlighting the County's existing, highly-skilled workforce. Arlington's series of six unique advertisements have been placed in more than 220 Washington Metropolitan Area Transit Authority cars, running in 12 week-increments. In addition, the ads were utilized in both a print and online campaign. The creative concept depicts one or more of the community's well-educated members stating how Arlington is a great location to grow and develop a business. Each spokesperson in the campaign affirms their decision to locate in Arlington due to the plethora of high-level job opportunities.

In 2013, AED expanded upon that same campaign and launched a second phase of its targeted marketing campaign to attract new companies to Arlington. The campaign and its slogan – “Think Arlington: Intersections” – demonstrates the wide variety of industries and companies located in Arlington and highlights Arlington’s many culturally-rich amenities. The campaign uses a twist on converging aspects of life and work and promotes the county’s varied, well-educated community as well as attract valuable employees because of Arlington’s quality of life. As part of the campaign, a series of six unique advertisements were placed in 100 Washington Metropolitan Area Transit Authority rail cars. The ads ran for 12 weeks along with a focused print and online campaign over the current year. The creative concept depicts two members of the Arlington business community, each depicting a different aspect of Arlington’s skilled workforce and cultural diversity and showcasing Arlington’s desirability in growing and developing a business. The campaign demonstrates the “intersections” of resources and opportunities available in Arlington.

Sustainability

5. **The Revolutionary Community** (Maximum: 3 pages)

a. Check the box that best describes the current state of your plan for the future of the community over the next 5-20 years.

- None Under discussion In formal planning Approved Being implemented

b. Check the boxes that indicate what aspects of development are included in the plan in its present stage.

INFRASTRUCTURE

- Improvements in broadband capacity and access
- Government-owned fiber or wireless network connecting government facilities
- Government or public-private fiber network serving the public
- Government or public-private wireless network serving the public
- Transportation (road, rail, port, airport) and transit improvements
- Downtown revitalization
- Upgrading water and sanitation systems
- Upgrading power distribution
- Adapting to population growth or decline
- Remediating pollution-affected property

KNOWLEDGE WORKFORCE

- Improved educational outcomes
- Attracting or expanding higher education

INNOVATION

- Promoting start-ups and business acceleration
- Investments in e-government and cloud-based government services delivery
- Innovation district
- Improved health outcomes

DIGITAL INCLUSION

- Programs to deliver broadband access and computer technology to the digitally excluded
- Digital skills training for the digitally excluded

ADVOCACY

- Increasing collaboration among business, institutions and government
- Citizen engagement
- Improving environmental sustainability

c. Please summarize the top priorities of your plan at its current stage of development and explain briefly why those priorities were selected.

Key Contacts

By submitting this information, the above-named community attests and acknowledges that:

- All information provided is accurate and fairly represents the past and current condition of the community to the best knowledge of the individual submitting the information.
- All information submitted to the ICF in connection with its international awards program becomes the property of the Intelligent Community Forum and will be used for the purposes of research, analysis and publication in pursuit of its global mission.

Intelligent Community Indicators

For a complete description of the Intelligent Community Indicators, visit www.intelligentcommunity.org and select "Intel Comm Indicators" on the Intelligent Communities menu.

1. **Broadband Connectivity.** Broadband is the new essential utility, as vital to economic growth as clean water and good roads. Intelligent Communities express a clear vision of their broadband future and craft policies to encourage deployment and adoption.
2. **Knowledge Workforce.** A knowledge workforce is a labor force that creates economic value through the acquisition, processing and use of information. Intelligent Communities exhibit the determination and demonstrated ability to develop a workforce qualified to perform knowledge work from the factory floor to the research lab, and from the construction site to the call center or Web design studio.
3. **Innovation.** Intelligent Communities work to build the local innovation capacity of new companies, because these produce all of the job growth in modern economies, and invest in e-government programs that reduce their costs while delivering services on the anywhere-anytime basis that digitally savvy citizens expect.
4. **Digital Inclusion.** As broadband deploys widely through a community, there is serious risk that it will worsen the exclusion of people who already play a peripheral role in the economy and society, whether due to poverty, lack of skills, prejudice or geography. Intelligent Communities promote digital inclusion by creating policies and funding programs that provide "have-nots" with access to digital technology and broadband, by providing skills training and by promoting a compelling vision of the benefits that the broadband economy.
5. **Advocacy.** The citizens and institutions of a community can either support positive change or become its biggest opponent, depending on how they perceive the community's present and future. Intelligent Communities engage with citizens and institutions to build a shared vision that makes citizens and businesses the community's most powerful advocates for progress. That shared vision also becomes the basis of effective marketing to the outside world.
6. **Sustainability (In Pilot).** To improve current living standards, while maintaining the ability of future generations to do the same, is at the core of sustainability. Throughout human history, economic growth has always involved the consumption of more resources and the production of more waste. As humanity begins to push up against the limits of the ecosystem to provide resources and absorb waste, we need to find ways to continue growth – with all of its positive impacts on the community – while reducing the environmental impact of that growth.

Success Factors

In evaluating nominations, ICF looks for trends that characterize successful Intelligent Communities. We suggest that, where appropriate, your nomination refer to the following success factors in describing your strategy and results.

Collaboration. The development of an Intelligent Community typically requires intense collaboration among government, businesses, universities and institutions. Few organizations have enough resources, political capital or public backing to drive a community-wide transformation. But collaboration is challenging. It demands vision, flexibility, and a high degree of trust among the partners. Intelligent Communities develop the vision, find the flexibility and create trusting relationships among key constituencies. Effective collaboration is typically the result of the working environment created by effective leaders.

Leadership. It is fair to say that no Intelligent Community has succeeded without strong leadership. Effective leaders identify challenges, set priorities, communicate a compelling vision and foster a sense of urgency in achieving it. They establish a collaborative environment that encourages risk-taking and creates win-win relationships with partners in government, businesses and institutions. It matters little where leadership comes from. In the Intelligent Communities that ICF has studied, leadership has emerged from elected officials, government employees, business executives, universities and nonprofit organizations. What matters is the character, motivation and talents of the individuals who commit themselves to improving the economic and social wellbeing of the community.

Talent and Investment Attraction and Retention. Intelligent Communities leverage all of the Indicators to create the best opportunities for attracting and retaining talent and investment. Intelligent Communities develop strategies, pursue opportunities aggressively and ensure they are able to differentiate themselves in the market by projecting their competitive advantages to the outside world. Intelligent Communities also develop and support an ecosystem that entices investment and talent to thrive.