



## SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2021.** Please include this submission form with the electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

### PROGRAM INFORMATION

County: Prince William County

Program Title: Technology & Connectivity Plan

Program Category: Community & Economic Development

### CONTACT INFORMATION

Name: Parag Agrawal, AICP

Title: Director of Planning

Department: Prince William County Planning Office

Telephone: 703-792-7615 Website: www.pwcva.gov/planning

Email: Pagrawal@pwcgov.org

### SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Christopher E. Martino

Title: County Executive

Signature: 

## **Prince William County Technology & Connectivity Chapter. Pathway to 2040**

### **Prince William County, VA Program Year 2021**

#### **Brief Overview**

The Prince William County Technology & Connectivity Chapter of the Comprehensive Plan: Pathway to 2040 uses an innovative approach to planning for innovation in the future and leveraging the Technology & Connectivity Plan to improve service delivery, influence land use entitlement cases, direct legislative policy, and prioritize capital investment into the future. Prince William County is the first jurisdiction in Virginia to plan for innovative technology solutions to service delivery for its residents and businesses through a comprehensive planning approach. The basis of the Plan was “How do we use technology to better and more efficiently deliver services to our constituents”. The Plan encourages building an Infrastructure and Communications Technology (ICT) structure that is continuously forward-thinking, placing Prince William County in a competitive position to recruit a highly desirable workforce and business investment to the County.

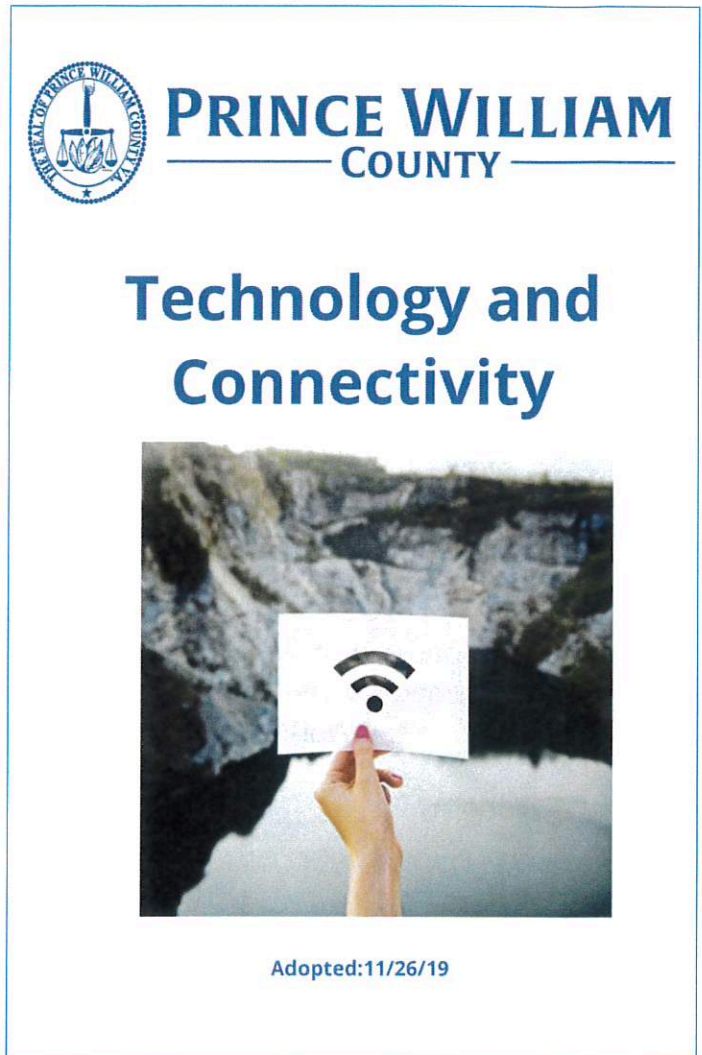
The Technology & Connectivity policies of the Comprehensive Plan aim to accelerate enhancement in quality of life by supporting a robust economy, safe and secure communities, quality education, workforce development, mobility and well-being of our citizens and businesses. As an example of implementation, the Prince William County Department of Information Technology (DoIT) created the Prince William Technology Inclusion Initiative (TII) to help resolve chronic issues of technology access, affordability, and literacy (formerly known as the “Digital Divide”) across the County. As a specialized program, TII serves under DoIT as a broadband strategist, advocate, sponsor, and domain representative for Prince William County and aligns with the Technology & Connectivity Chapter of the Comprehensive Plan.

In short, the Technology & Connectivity Chapter of the Comprehensive Plan is the toolbox of the future for a high quality of life in Prince William County.

**The Problem**

As part of the overall Comprehensive Plan update, Prince William County Planning Office decided to repurpose what was formerly their “Telecommunications” chapter of the Comprehensive Plan. We believed the term telecommunications was too narrow and did not take advantage of incorporating “Smart Cities/Communities” concepts into the policy document. Localities are just beginning to discuss development of “Smart Cities” plans, however many of these plans are siloed and not incorporated into their overall community vision. This does not allow the advantage of messaging, coordinating, and leveraging public/private partnerships to achieve the goal of innovative technology solutions. The challenge was to find the most effective and versatile way to create

a technology vision for the future while connecting it to the County’s Strategic Plan (Robust Economy, Mobility, Quality Education, Well-Being, Safe and Secure Communities).



## **The Solution**

The decision to eliminate the Telecommunications Chapter and replace it with a Technology & Connectivity Chapter was an exciting opportunity to show how Prince William County can use innovation to plan for the future. The goal of the incorporation into the Comprehensive Plan, is that the County uses it to negotiate with developers through land use entitlements, to guide infrastructure investment through the Capital Improvement Program, and to form partnerships with other (federal/state) government agencies and the private sector.

### **VALUES + GOALS**

In Prince William County, ICT will help accelerate enhancements in quality of life detailed in the Strategic Plan by enabling and supporting a Robust Economy, Mobility, Wellbeing, Safe and Secure Communities, and Quality Education and Workforce Development.



### **Robust Economy**

*Strategic Plan Values: "THE COMMUNITY FOSTERS A DIVERSE LOCAL ECONOMY THAT CREATES A CULTURE OF INNOVATION AND ACHIEVES MORE QUALITY JOBS, ECONOMIC OPPORTUNITIES AND AN EXPANDED COMMERCIAL TAX BASE."*

ICT will help promote a culture of innovation while supporting a Robust Economy by:

- **Attracting and retaining companies in targeted industries.**

ICT is and will be vital to industries, companies, and jobs Prince William County wants to attract and retain. Reliable communications systems, access to fast fiber-optic networks, and the ability to quickly and securely access data will be necessary for Life Sciences & Biotechnology, Information Technology, Federal Agencies & Corporate Facilities, and Specialized Logistics & Supply Chains. ICT will also be critical in providing systems these industries rely on, such as improved mobility, power distribution networks, and data storage. In addition, supplying these industries with a consistent pipeline of skilled employees, familiar with emerging technologies, will drive the location decisions for firms across the target sectors.

The idea of a Technology & Connectivity Chapter in a Comprehensive Plan was not an easy idea to explain, since typically Comprehensive Plans focus on capital facilities. Therefore, the Planning Office decided to develop a mobile app to demonstrate how technology could better streamline service delivery in the future. The mobile app was downloaded by stakeholders and participants and used to communicate meeting dates, provide drafts of chapter

text, allow for public comment and interaction, and links to other informational sites. Through the stakeholder engagement process, staff explained that this mobile app could be used in the future to allow residents to monitor commuter parking lot capacity, connect and plan transit trips, reserve park fields, access historical marker maps, look up landfill hours, access critical community, social and human services, receive emergency notices, schedule appointments as well as endless other possibilities. Through the demonstration of the mobile app, stakeholders began to understand the possibilities of our future.

#### **COMMUNITY CONVERSATIONS ON THE COMPREHENSIVE PLAN**

Citizen involvement in developing the 2040 Comprehensive Plan is critical. Share your thoughts, ideas, and suggestions with the Planning Office and other County agencies to help shape the ongoing Comprehensive Plan update and the future of Prince William County by:

- [DOWNLOADING](#) our new Mobile and desktop app (guidebook) to access Comprehensive Plan Information and to submit your comments and questions!

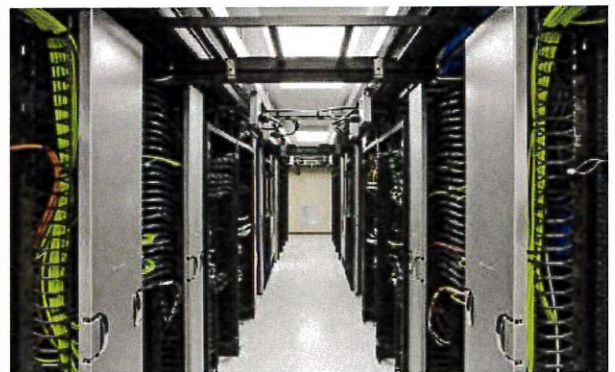
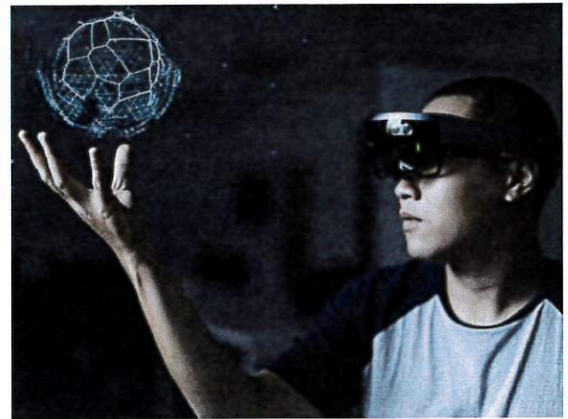
Prince William County Planning Office began to hold a series of internal and external stakeholder meetings to gather input. The draft plan was presented to the Planning Commission through a work session and a public hearing. The Planning Commission recommended approval of the plan and the plan was presented to the Board of County Supervisors in a work session and subsequently a public hearing. Many people testified in support of the plan, citing that the forward-thinking out-of-the-box approach is what jurisdictions need for long-term success. The Technology & Connectivity chapter of the Comprehensive Plan was adopted unanimously by the Board of County Supervisors on November 26, 2019.

The County allocated approximately \$50,000 to the development of the plan and utilized approximately eight staff members in the Planning Office in the development of the plan.

The importance of Infrastructure & Communications Technology (ICT) in daily life is reflected in its ability to help achieve goals in nearly every chapter of the County's Comprehensive Plan. Data-driven planning can help optimize sustainable Long-Range Land Use planning through modeling, monitoring, and analyzing how communities manage growth. Similarly, information sharing between the County, businesses, developers, and residents can ultimately lead to improved housing and circulation, new types of businesses, and reduced waste.

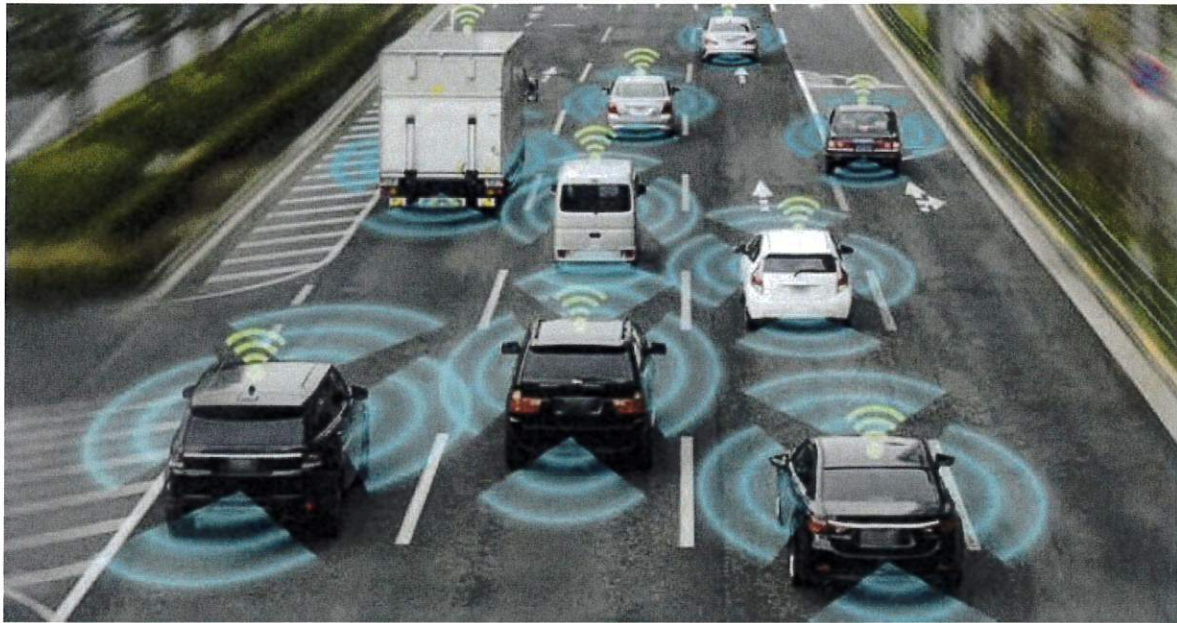
ICT can be integrated into new infrastructure and emergency management systems to improve the management of resources and coordination between responders. Websites, apps, and virtual curriculum can connect students and teachers to new learning opportunities and augment the visitor appreciation experience of cultural and natural heritage destinations. As with any infrastructure, it will be important to guide the deployment of ICT and its support systems to maximize benefits to Prince William County while minimizing potential negative impacts.

Stakeholders internal and external to the County government consistently describe the need to strengthen the reliability and coverage of existing ICT infrastructure systems, while creating and maintaining the capacity to adapt to new technologies. Stakeholders also stress the importance of the County 'keeping-up' with changing technologies, from fifth generation (5G) to Autonomous Vehicles (AV), to make informed decisions. This could be achieved by the County taking a more proactive leadership role in attracting and implementing new technology or looking at best practices from other jurisdictions. Keeping the County's workforce up-to-date on new technologies and investing in new technologies in schools will also be an important factor in Prince William County's ability to adapt to new technology.



- **Developing systems that increase awareness of beneficial opportunities, potential threats, and connect people to the resources they need.**

ICT is increasingly becoming a part of citizen's daily lives and plays a vital role in the way information is shared and received. The County already does an excellent job of providing its citizens information through its web platforms to make informed decisions. ICT will allow the County's eNotifications system to provide vital information more quickly



## Mobility

*Strategic plan values: "THE COMMUNITY WILL HAVE AN ACCESSIBLE, COMPREHENSIVE, MULTI-MODAL NETWORK OF TRANSPORTATION INFRASTRUCTURE THAT SUPPORTS LOCAL AND REGIONAL MOBILITY."*

ICT will help enable and support Mobility by:

- **Understanding mobility behaviors, trends, and desires throughout the County.**

Knowing more about specific mobility behavior and usage patterns throughout the County will allow for targeted allocation of resources in a manner that reduces the potential for waste and provides the best return on investments. ICT can be used to collect and analyze mobility data to inform capital investments and inform mobility policy.

- **Enabling new-mobility options.**

Future trends in mobility include electrification of transport, ride hailing, on-demand transportation, and eventually autonomous and or connected vehicles. All of these mobility options will require innovative infrastructure, whether it's improved communications technology, charging networks, or power generation and storage. To ultimately allow

for autonomous vehicles (AV) and connected vehicles (CV), ICT will need to provide a robust infrastructure network that allows for vehicle-to-vehicle communication.

Parking is a critical component of vehicular mobility that affects land use and development decisions. Smart parking systems can help reduce the money necessary to construct new parking lots as drivers are more efficiently able to use existing structures. This will maximize the use of the existing infrastructure and allow land that would have been required for parking lots to be used in a more productive manner.

- **Preserving capacity to adapt to new technologies.**

As new mobility technologies are quickly developed and introduced into the market, the County needs to maintain the ability to adapt with them, make informed decisions and remain an attractive destination for businesses and citizens. The County can incorporate adaptability into the hardware and software tools they use to allow them to be upgraded or altered over time rather than require replacement.

Since adoption, the County has begun work on development of an autonomous vehicles pilot program, is considering a Countywide focused mobile app as described above, is assessing infrastructure gaps and looking toward legislative reform to allow deployment of additional County-provided wireless services.

## Wellbeing

*Strategic Plan Values:*

*"THE COMMUNITY WILL SUPPORT VULNERABLE INDIVIDUALS AND FAMILIES TO ENSURE THE WELLBEING OF THE ENTIRE COMMUNITY."*



ICT will help enable and support Wellbeing by:

- **Protecting equitable access to information, goods, and services.**

As the economy and society continue to become more data driven, virtual, and internet-enabled, the danger of excluding some segments of the population increases. ICT literacy and access to internet and communications infrastructure are increasingly key metrics in determining people's employability, education, access

to healthcare, and the ability to fully participate in society. ICT can continue to support new technologies that can improve the quality of life for citizens, while continuing to support current systems that provide inclusivity and access for all County residents.

- **Reducing the physical impacts of ICT infrastructure.**

New ICT, such as 5G, will have infrastructure requirements that create new implications for its deployment. Unlike the current wireless communications network that require macrocell towers with a coverage area of several miles, 5G will utilize small cell facilities that have a much smaller coverage area but can be deployed in closer proximity to each other through a mesh network.<sup>1</sup> As these facilities are most impactful in denser areas, the transition to small cell facilities will have an impact on public spaces. Cities have already begun to deal with the implications of placing small cell antennas within public rights-of-way (ROW), and the County can develop its own strategy, in coordination with VDOT, to encourage infrastructure while complying with federal and state laws.

New ICT infrastructure will also require additional

### **Example of Utilization of Program**

The Prince William County Department of Information Technology (DoIT) created the Prince William Technology Inclusion Initiative (TII) to help resolve chronic issues of technology access, affordability, and literacy (formerly known as the "Digital Divide") across the County. As a specialized program, TII serves under DOIT as a broadband strategist, advocate, sponsor, and domain representative for Prince William County and aligns with the Technology chapter of the Comprehensive Plan.

The current broadband services available to County residents, businesses, visitors, and government are similar to those found in other Northern Virginia Counties; where towns and suburban areas have more broadband services available from major commercial carriers, while remaining rural areas (where density is not high) enjoy few if any of



the same service offerings and benefits. Rural areas represent a level of broadband services where chronic conditions of lack of service availability and/or insufficient legacy technology exists for these locations. We classify such areas respectively as unserved and under-served. Accurate mapping of unserved and underserved areas, independent of carrier-provided information, precedes acquisition of services to build out consistent, viable access to broadband to those areas.

Even in areas where broadband access is strong and reliable, affordability and literacy issues remain. As of 2019 approximately 16.5% of the entire County population was classified as below poverty level. During the 2020-21 school year Prince William County Schools identified <sup>2</sup>40% of school-aged children as economically disadvantaged. TII will serve as guides to these County residents to resources that will afford them the ability to communicate online with family members, the medical community, educational institutions, workplaces, and more. TII will offer residents with recent access to broadband free technology education to help them navigate away from cyber criminals all too willing to steal their identities, money, and even their personal safety.

Outside of TII, DoIT supports the Technology chapter via infrastructure and new technologies in collaboration with partner County agencies. DoIT continues to install Wi-Fi in Libraries and Parks, Recreation, and Tourism facilities that can be used by County residents as needed. DoIT recently established a modernized technology infrastructure that will facilitate rapidly changing, cutting edge technologies in partnership with other County agencies to best serve County residents.

There are only a handful of jurisdictions in the entire United States who have planned for technology innovation. In this way, Prince William County is a leader in policy development. The Technology & Connectivity chapter should serve as a model for jurisdictions across Virginia as well as the United States.

The Technology & Connectivity Plan can be found on the Prince William County Website:

<https://pwcgov.maps.arcgis.com/apps/MapSeries/index.html?appid=93304a4a844a442ca04026aba180dd92>

<sup>1</sup>Prince William County Government (2021). *Standard Data Dictionary: Version 2021*. Retrieved from Prince William County Department of Information Technology's Geospatial Technology Services: <https://www.pwcva.gov/departments/gis/standard-data-dictionary>

<sup>2</sup>Prince William County Schools (2021). *Student And Staff Demographics: Version 2021*. Retrieved from Prince William County Public Schools Office of Accountability: <https://www.pwcs.edu/cms/One.aspx?portalId=340225&pageId=41830>

## **Executive Summary**

The Prince William County Technology & Connectivity Chapter of the Comprehensive Plan uses an innovative approach to planning for innovation in the future and leveraging the Technology & Connectivity Plan to improve service delivery, influence land use entitlement cases, direct legislative policy, and prioritize capital investment into the future. Prince William County is the first jurisdiction in Virginia to plan for innovative technology solutions to service delivery for its residents and businesses through a Comprehensive Plan approach. The basis of the plan was “How do we use technology to better and more efficiently deliver services to our constituents”. The Plan encourages building an Infrastructure and Communications Technology (ICT) structure that is continuously forward-thinking, placing Prince William County in a competitive position to recruit a highly desirable workforce and business investment to the County. The Technology & Connectivity Chapter aims to accelerate enhancement in quality of life by supporting a robust economy, safe and secure communities, quality education, workforce development, mobility and the well-being of our citizens and businesses. Some of the plan’s goals include:

- attracting and retaining companies in targeted industries,
- streamlining delivery of public services,
- assessing gaps in existing or emerging infrastructure,
- collaborating with adjoining jurisdictions to enhance connectivity and remove barriers to innovation,
- collaborating with the private sector to implement through Public-Private-Partnerships (P3),
- understanding mobility behaviors, trends and desires throughout the County,
- enabling new mobility options,
- preserving capacity to adapt to new technologies,
- protecting equitable access to information, goods and services,
- reducing the physical impacts of ICT infrastructure,
- protecting and communicating the value of cultural and environmental resources,
- providing data platforms needed to optimize public safety, protecting the cyber-security of government,
- residents and businesses providing universal access to information,
- promoting participating in government and civic life, strengthening community resilience, as well as others.

In short, the Technology & Connectivity chapter of the Comprehensive Plan is the toolbox of the future for a high quality of life in Prince William County.