RVA757 Connects' Global Internet Hub Strategic Plan Executive Summary 06-26-23

Document Background:

This document is the Executive Summary of RVA757 Connects' strategic framework to make the I-64 Innovation Corridor the world's next Global Internet Hub (GIH).

RVA757 Connects is a 501(c)(3) advocacy group supporting the economic success of the Richmond and Hampton Roads regions, also known as the I-64 Innovation Corridor. One of RVA757 Connects' top priorities is to accelerate the status of the I-64 Innovation Corridor as an emerging GIH into a world-class digital interconnection point that will, in turn, drive the future economic prosperity of both the Richmond and Hampton Roads regions.

- State Government
- Municipal Governments
- Economic Development
- Higher Education
- Workforce Training & Development
- Subsea Cables
- Data Centers
- Terrestrial Networks
- Business

To this end, RVA757 Connects created the GIH Steering Committee, a diverse group of leaders representing 10 different industry categories:

The Committee was charged with the task of developing a strategic vision and comprehensive action framework that will accelerate the I-64 Innovation Corridor's digital infrastructure growth. The Committee's work, the full strategic plan, is located here: www.GlobalInternetHub.com. A full list of GIH Steering Committee members is in the appendix of this document.

What is a Global Internet Hub:

The technical definition of a Global Internet Hub: A Global Internet Hub is a physical infrastructure that facilitates the exchange of internet traffic between multiple networks, internet service providers (ISPs), content delivery networks (CDNs), and other interconnected entities. Global Internet Hubs have a large number of connectivity landing points (both subsea and terrestrial networks) and widespread access to physical fiber networks along with a robust mix of data centers and internet exchange points and a competitive mix of enterprise and internet

IGNITING **THE I-64 INNOVATION CORRIDOR**

backbone service providers. By connecting diverse networks from around the world, these hubs enable seamless global connectivity.

TeleGeography, an international digital infrastructure tracking firm, publishes an annual list of the world's top interconnection points (Global Internet Hubs) – see the latest list here: https://www.globalinternethub.org/global-internet-hubs.

Why being a Global Internet Hub is important:

Hubs play a crucial role in optimizing network routes and fostering a robust and interconnected digital ecosystem.

By facilitating direct interconnection between networks, hubs enhance the speed, reliability, and overall performance of the internet. Bringing together multiple networks, hubs reduce the distance that data must travel between different regions, minimizing latency and improving the overall speed and reliability of internet connections.

Global Internet Hubs enable even broader access to a range of online services, promote inclusion, and facilitate economic development. From an economic development perspective, Global Internet Hubs are important because businesses choose to co-locate and interconnect in the most robust and growing digital infrastructure hub markets.

Pursuing a Global Internet Hub recognition or ranking is not for the international designation itself but rather for the significant number of business, community, and governmental benefits (see table to the right). At the top of the list of benefits is growing and attracting high-paying jobs to support the jobs-generating industries that both Richmond and Hampton Roads regions are targeting - data and data analytics, cyber security/national security, transportation/logistics, life sciences/pharma, and advanced manufacturing.

BENEFITS OF A ROBUST and GROWING DIGITAL INFRASTRUCTURE

- Attracts IT/Tech workers and industries and companies that need this type of talent.
- Provides the most advanced digital platform that supports every business's operation.
- Provides faster, more reliable, and potentially lower residential and business internet service costs.
- Provides the fastest internet service to global markets.
- Helps provide high-speed internet to underserved neighborhoods.
- Supports "Smart City" development.
- Supports the growth of connected vehicles and autonomous vehicles.
- Produces additional municipal revenue with network rings.
- Supports dramatic rise in I of T devices in our lives.
- Supports the growth and use of AI.
- Supports advanced healthcare and education.
- Future-proofs a community.

Virginia, and specifically the I-64 Innovation Corridor, needs these kinds of jobs and industries to grow our economy. The Richmond and Hampton Roads markets are behind in growing their respective IT/tech talent workforce when compared to the top U.S. digital infrastructure regions and the peer regions we most often compete against (such as Nashville, Columbus, Orlando,

Jacksonville, Charlotte). We are even behind the national average of U.S. IT/Tech talent growth. This is unacceptable.

The digital infrastructure assets the I-64 Innovation Corridor already has in place:

Four subsea cables landing sites are in Virginia Beach at Camp Pendleton. Four more landing sites will be available in Sandbridge. Hampton Roads is currently in the process of building a comprehensive fiber network ring funded by municipalities. The Virginia Beach subsea cables serve large data centers (Meta and QTS) in Richmond. The Richmond region has a robust terrestrial network and also has an Internet Exchange (DE-CIX) that's part of the world's largest.

To date, the digital infrastructure assets of the Richmond (RVA) and Hampton Roads (757) regions have always been viewed separately. Viewing these assets together, as a unified ecosystem, is the opportunity for the I-64 Innovation Corridor to become recognized around the world as a Global Internet Hub, not as a traditional GIH city but rather as a Global Internet Hub megaregion.

The strategic plan goal and development process:

Understanding the benefits of a robust and growing digital infrastructure and the potential of a unified digital ecosystem, RVA757 Connects identified the opportunity to accelerate the development of the Corridor's digital infrastructure.

Officials from Marseille, France inspired the idea of creating a strategic plan to drive this needed development. Over the past 10 years, Marseille has become one of the world's fastest-growing Global Internet Hubs. Via a Zoom call with RVA757 Connects, Marseille leaders pointed to their own strategic plan that ignited and guided Marseille's explosive digital infrastructure growth.

RVA757 Connects set its sights on following a similar approach for I-64 Innovation Corridor, but with a twist. Our approach was to create a strategic digital infrastructure plan that would not only capitalize on the combined digital assets of the Richmond and Hampton Roads regions but do so in a way that would galvanize the RVA and 757's digital infrastructure industry into a unified force that could accelerate digital infrastructure development.

To do so, RVA757 Connects set up a Steering Committee with more than 60 leaders from 10 separate industry categories. This group met eight times from July 2022 through February 2023. The Committee's work was supported by three consultants. A project website

(www.globalinternethub.org) was created to support the initiative and track the work of the committee. And all of this was made possible by GO Virginia and financial supporters from both markets: Dominion Energy, Henrico County, the City of Virginia Beach, the Hampton Roads Alliance, Old Dominion University, and the Dragonfli Group.

The strategic vision and goals:

At the onset of the planning process, the Steering Committee formulated a strategic vision:

> *Virginia's I-64 Innovation Corridor will be internationally known as the world's first megaregion to become a Global Internet Hub (GIH), with a deep sense of intentionality and urgency, playing an increasingly vital role in the world's growing digital backbone. Through unprecedented local collaboration, coordination, and investment, our expanding digital infrastructure will transform Richmond's and Hampton Roads' workforce productivity, industry attraction and retention, GDP, and overall inclusive economic prosperity.*

The Steering Committee members were clear that this vision will be guided by three interrelated goals inspired by who the ultimate beneficiaries should be in making the I-64 Innovation Corridor a Global Internet Hub:

- Make Inclusive Economic Opportunity a Primary Goal
- Serve ALL Communities in the Corridor
- Generate Local Jobs and Local Return on Investment (ROI

The strategic framework recommendations:

The Steering Committee identified 10 strategies to make the I-64 Innovation Corridor one of the world's recognized Global Internet Hubs.

All of these strategies together will create the critical infrastructure to give the I-64 Innovation Corridor an advantage over other regions. These strategies, working in tandem, will create the digital infrastructure that will in turn attract high-paying IT/tech jobs and companies seeking one of the most reliable, lowest latency (fastest) internet services on the East Coast and the fastest service to Europe and South America.

These 10 strategic recommendations will enable the I-64 Innovation Corridor to compete effectively for the high-paying jobs that the emergent digital economy is projected to create over the next decade.

1. **Establish a Global Internet Hub Industry Council.**

   The GIH Steering Committee will be transformed into the GIH Council, building on the momentum of the planning process. The GIH Council will be self-sustaining based on dues and events and will be responsible for implementing the GIH Strategic Plan recommendations. Members from the GIH Steering Committee will be the founding members of the GIH Council to support and advance the nine other strategies required to build out a Global Internet Hub for the RVA757 megaregion.

2. **Increase regional awareness, familiarity, and support among local stakeholders in the I-64 Innovation Corridor for digital infrastructure development.**

   Development of a region's digital infrastructure and pursuit of international hub status will require the awareness, support, and coordination of multiple stakeholders — businesses, government agencies, local and state-level elected officials, and community groups — over an extended period.

   The strategic plan calls for the GIH Council to design, launch, and sustain this general outreach and education program across the I-64 Innovation Corridor. The strategic plan will be made into a digital infrastructure map and handed out to all stakeholders.

3. **Increase international awareness of and familiarity with the I-64 Innovation Corridor among the global digital infrastructure community, in general, and digital infrastructure investors, in particular.**

   The outreach and education efforts inside the megaregion will be complemented by an initiative to increase international awareness of the I-64 Innovation Corridor among the global infrastructure community and investors. The goal here is to attract additional digital infrastructure investments and additional international subsea cables.

   The strategic plan calls for all of the GIH Council's international outreach and education efforts to be seamlessly coordinated with the marketing efforts of the Virginia Economic Development Partnership (VEDP), the Hampton Roads Alliance, the Greater Richmond Partnership, and local economic development agencies.
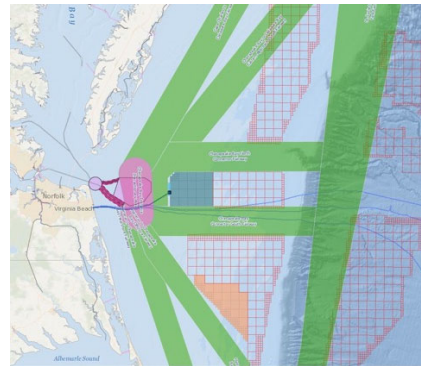
   Time is of the essence on both the internal and external marketing front as jurisdictions across the world are on to the benefits of becoming an interconnection hub and creating a plan to become one.

4. **Support the growth of robust local internet networks and routes connecting the megaregion to other domestic hub markets.**

    The strategic plan calls for the GIH Council to promote the need for additional investment in local terrestrial networks and routes connecting the region to other hub markets. An inventory of existing routes will be created and shared with the industry and investors.

5. **Attract additional international subsea cables.**

    A critically important component of the GIH Strategic Plan is to get into a position to attract more cable landings. Over the next 10 years, TeleGeography, the world's expert on inventorying digital assets, estimates that at least 10 to 12 new subsea cables may be built on the East Coast as data transmission demand increases and many of the legacy cables that currently land in New York and South Florida reach the end of their useful 25-year life.

    The strategic plan calls for the GIH Council to work with Virginia Beach to promote the availability of additional landing sites, diversified Cable Landing Stations, and work to finalize and promote no-anchor protection zones as depicted in the image above.

6. **Support the growth of data centers.**

    Data centers are the engines of a digital economy. Data centers are often the most visible element of an internet hub. The I-64 Innovation Corridor is highly connected to the world's most important aggregation of data centers – Loudoun County's Data Center Alley and the facilities in the surrounding NOVA jurisdictions. NOVA has 151 data centers. The I-64 Innovation Corridor has 14 data centers.

    Now is the time to support data center growth in the I-64 Innovation Corridor given Amazon's recent growth announcement and the pushback on data center growth in NOVA. The strategic plan calls for the GIH Council to support local and regional economic development organizations in inventorying and packaging viable data center site locations in the I-64 Innovation Corridor. This will require funding. The GIH Council will also work to repeal the 2035 sunset law for state tax incentives for data centers.

7. **Encourage the growth of IXs and IXPs – Internet Exchanges and Internet Exchange Points.**

Internet Exchanges (IXs) and Internet Exchange Points (IXPs), sometimes called a Network Access Point (NAP), are also foundational elements of a successful Global Internet Hub. IXPs are a "fabric" of ethernet switches within one or more big data centers. They provide a platform for interconnections between networks.

The Richmond region has an IX (DE-CIX) in Henrico and three IXPs (two in Henrico and one in Hanover). The Hampton Roads region does not have one – yet. It needs one. The strategic plan calls for the GIH Council to encourage the growth of IXs and IXPs in the Richmond area and Hampton Roads. This includes packaging what the region offers and making sure all of the largest global IXs understand the opportunities here.

8. **Explore the potential of an I-64 Innovation Corridor network ring from Hampton Roads to Richmond.**

Both international digital infrastructure consultants pointed out that local interconnectivity was a major factor of success in becoming a global interconnection point. Regions are effectively connected through a competitive mix of carriers with deep fiber access along with backbone services. In some markets, a municipal fiber network ring serves as an additional interconnection access resource.

The strategic plan calls for the GIH Council to support the completion of the 757-fiber ring and to help facilitate the RVA region in exploring the need for a regional ring. An I-64 Innovation Corridor-long loop also holds promise. This could be a loop connecting the Virginia state government's digital infrastructure in Richmond with key economic assets such as NASA's Langley Research Center, Jefferson Lab (with its pursuit to host the Department of Energy's High Performance Data Facility), the Virginia Port Authority, and Rocket Lab on the Eastern Shore. This could also include the high-growth industries of tomorrow — cyber, logistics, data, and life sciences/pharma.

9. **Promote Dominion Energy's ability to provide reliable and inexpensive power and help establish a proactive collaboration between local governments and Dominion to remove potential obstacles to data center development.**

Data centers are energy-intensive structures. Data center operators and investors have become increasingly concerned about the availability of reliable power.

Today, 21% of Dominion Energy's output is consumed by data centers. Not only does Dominion have the needed power, but it also has the capacity to support digital infrastructure growth along the Corridor and across Virginia for years to come.

The strategic plan calls for the GIH Council to share the real story of Dominion's energy capacity to help support NOVA while positioning the I-64 Innovation Corridor as the optimal place to expand data center presence in Virginia. The Council will work with Dominion Energy to map the most viable data center sites in the I-64 Innovation Corridor. The Council also will support local and regional economic development organizations in inventorying and packaging viable data center sites in the I-64 Innovation Corridor.

10. **Provide a growing tech-savvy workforce.**

A robust digital infrastructure requires and continuously builds a growing tech talent pool. It has become recognized that building a tech talent pipeline that begins long before college and extends through post-graduate education is crucial for regions that want to compete successfully in the emergent digital economy.

The I-64 Innovation Corridor presently has a wealth of technical certifications, badges, and degrees in tech-related jobs and several new initiatives that intend to increase coordination among institutions and improve the effectiveness of the partnerships between educational institutions and industry on workforce development. The strategic plan calls for the GIH Council to inventory and share the existing talent pipeline education and training programs with all digital infrastructure ecosystem organizations, businesses, and education and training ecosystems to help maximize their use and identify additional programming needs.

It is critically important to understand that not one of these 10 recommendations is the silver bullet strategy. It will take the combined success across all of these initiatives to make RVA and the 757 regions a world-class digital infrastructure and reach international recognition.

Summary:

RVA757 Connects' Global Internet Hub Strategic Plan is a bold plan to harness a once-in-a-generation opportunity to transform the future of the Richmond and Hampton Roads regions.

We are well on our way. The international digital infrastructure consultants who helped craft this plan believe we are an emerging Global Internet Hub. The evidence unassailable. In just a few short years, 18% of the East Coast's international internet traffic now comes from and through the I-64 Innovation Corridor. This plan now puts goals, organizational structure, and clear intentionality in place to drive the global importance of our megaregion as a digital gateway and realize the resulting benefits for our regions in doing so.

Becoming a Global Internet Hub will do more to advance Richmond's and Hampton Roads' economies in the first half of the 21st century than building Interstate 64 did for both regions in the second half of the 20th century.

Now is the time to think big, act boldly, and embrace urgency!

Appendix: Steering Committee

More than 60 leaders from 10 different industry and business categories are members of the Global Internet Hub Steering Committee. (The content of this report does not necessarily reflect the views of the Steering Committee members' companies or organizations):

Brian Anderson, President and CEO, ChamberRVA
Shawn Avery, President and CEO, Hampton Roads Workforce Council
Glenn Ballard, President and CEO, Dragonfli Group, LLC
Antoine Banks, Virginia Lead of Government and Regulatory Affairs, Comcast
Serena Barry, Communications Director, GROW Capital Jobs Foundation/ GO Virginia Region 4
Charles J. Bauman III, Business Development Coordinator, City of Virginia Beach
Capt. Lamont Bazemore, Coast Guard District Five, Chief of Planning and Force Readiness
Stan Blackwell, Director, Customer Service and Strategic Partnerships, Dominion Energy
Gerardo Bonilla, Head of Sales, Telxius
Keith Boswell, President and CEO, Virginia Gateway Region
Scott Brown, Owner, Pixel Factory Data Center
Lt. Luis Caquias, Coast Guard District Five, C5I and Security
Patrick Coady, Former Executive Director, Eastern Shore of Virginia Broadband Authority
Katie Comer, Community Development, Meta
Marcia Conston, President, Tidewater Community College
Bob Crum, Executive Director, Hampton Roads Planning District Commission
Stephen Cummings, Virginia Secretary of Finance
Ben Davenport, Business Development Director, GTS
Brian Davis, Director, Capital Region Workforce Partnership (CRWP)
Steven DeBerry, Executive Director, Southside Network Authority
Tad Deriso, President and CEO, Mid-Atlantic Broadband Communities Corporation
Rick Dwyer, Executive Director, Hampton Roads Military and Federal Facilities Alliance (HRMFFA)
John Ferrel, Business Development Director, Cloud & Network Services, QTS
Morris Foster, Vice President of Research, Old Dominion University
Nancy Grden, President and CEO, Hampton Roads Executive Roundtable
Tracy Gregorio, CEO, G2 Ops
Ram B. Gupta, Associate Dean for Research and Graduate Affairs, College of Engineering, Virginia Commonwealth University
David Harold, Director, Technology Operations, CarMax
Steve Harrison, Vice President, Business Intelligence and Communications, Hampton Roads Alliance
Stephen Hartka, Vice President of Research, Virginia Economic Development Partnership
Martha Heeter, Executive Director, PlanRVA
Stuart Henderson, Director, Jefferson Lab

Robert Holsworth, Managing Partner, DecideSmart
Sabrina B. Joy-Hogg, Deputy City Administrator, Finance and Administration, City of Richmond
Michael S. Karafotis, Managing Director, Data Quality and Control Executive, Global Technology and Operations, Bank of America
Mark Klett, CEO, Klett Consulting
Hakim J. Lucas, President, Virginia Union University
Maj. Chad Martin, Joint Base Langley-Eustis, 633rd Communications Squadron, Director of Operations
John W. Martin, President and CEO, RVA757 Connects
Kelley McCall, Community Development Regional Manager, Meta
Bob McKenna, President and CEO, Virginia Peninsula Chamber
Matt McLaren, Senior Project Manager, Chesterfield County Economic Development
Vinay Nagpal, President, InterGlobix LLC
Kelly Newman, General Manager, PointOne
Angela Oakes, Vice President of Strategy, Greater Richmond Partnership
Joel Ogren, CEO, Assured Communications Advisors
Paula P. Pando, President, Reynolds Community College
Mark Pike, former Navy Region Mid-Atlantic Chief Information Officer/N6
Bernard Robinson, President and CEO, Networking Technologies + Support
Anthony Romanello, Executive Director, Henrico Economic Development Authority
Katherine Rowe, President, William & Mary
Leonard Sledge, Economic Development Director, City of Richmond
Douglas L. Smith, President and CEO, Hampton Roads Alliance
James Spore, Board of Directors, RVA757 Connects
Anthony Stefanidis, Professor and Director of Data Science, William & Mary
Bryan Stephens, President and CEO, Hampton Roads Chamber
Gary Tarpley, CEO, Metro Fiber Networks Inc.
Jeffrey Thomas, Vice President and Chief Technology Officer, Sentara
Greg Twitt, CEO, Globalinx
Jennifer Wakefield, President and CEO, Greater Richmond Partnership
Pedro "Peter" Wallace, Chief Information Officer, City of Virginia Beach
David White, Executive Director, Virginia Maritime Association
Laura White, Chief Risk Officer, PRA Group
Raymond White, retired Business Development Coordinator, City of Virginia Beach