Regional Connectivity Ring: Building the Foundation for Smart Region Development

HRTO Subcommittee
10.09.2018
Goal of the Regional Broadband Initiative is to leverage the transatlantic broadband cables that have connected to Virginia Beach.

HRPDC has established a Regional Broadband Steering Committee comprised of Southside city managers and elected officials.

The five Southside Cities have agreed to contribute $650,000 to complete Phase I of the Regional Connectivity Ring.

https://www.youtube.com/watch?v=D-INjSKtUcs
Marea: The future of subsea cables
MAREA TRANSATLANTIC SUBSEA CABLE
Faster. Stronger. More Resilient.

- 1st transatlantic cable running from Virginia to Spain
- 160 Terabits/sec of data can be sent from U.S. to Europe
- 16 million times faster than average home Internet connection
- 10,249,000 pounds of cable or the equivalent of 34 blue whales
- 6,600 km long (over 4,000 miles) — twice the length of the Rio Grande River

VIRGINIA, USA

BILBAO, SPAIN

Microsoft, TELXIU...
Regional Connectivity Ring
Objective: Connect the 5 Southside Cities to the transatlantic cables

- Virginia Beach
- Norfolk
- Chesapeake
- Portsmouth
- Suffolk

- Phase 1: Complete 30% Pre-engineering Design
- Phase 2: Full Engineering Design
- Phase 3: Construct and Build
The Regional Connectivity Ring (RCR) involves building out a fiber optic backbone which will:

- Serve as the foundation for **Smart Region** development
- Reduce municipal broadband costs
- Expand affordable broadband access to underserved and unserved communities
- Advance innovation, improve educational opportunities and attract business investment
1. Gather GIS data, current and future fiber route mapping
2. Assess existing infrastructure
3. Engage higher education organizations
4. Collaborate with private sector
5. Develop cost models and strategic plan
VIRGINIA BEACH SEGMENT SUBTOTAL $3,839,958
Regional Connectivity Ring - Norfolk Path - Segment A

Legend
- Hub Locations
- City Hall/Traffic Ops
- Signalized Intersection
- City Facilities
- Proposed Fiber Path
- Existing City Fiber
- VDOT-Owned Fiber
- Existing Unit VDOT FORS
- Existing LiV DOTS FORS
- Enterprise Zones

NORFOLK SEGMENT SUBTOTAL $1,983,829
PORTSMOUTH SEGMENT SUBTOTAL $743,910
COST BREAK DOWN

- 30.47 miles of new construction
- 160,881.6 FT
- $40.00 per feet of underground construction

CHESAPEAKE SEGMENT SUBTOTAL ESTIMATE
$6,435,264
COST BREAK DOWN

- 21.38 miles of new construction
- 112,886.4 FT
- $40.00 per feet of new underground construction

SUFFOLK SEGMENT SUBTOTAL ESTIMATE
$4,515,456
September 5th Media Event / Press Release
'Regional ring' intended to bring faster Internet to Hampton Roads

Southside cities are working together to bring Hampton Roads one step closer to faster Internet speeds.

VIRGINIA BEACH, Va. (WVEC) — Leaders in Hampton Roads are one step closer to harnessing the power of international data.

They're using two transatlantic fiber optic cables running from Spain and Brazil to Corporate Landing in

PRESS RELEASE

September 5, 2018

Contact:
Robert Crum, Executive Director
Hampton Roads Planning District Commission
Tel: (757) 420-8300
Fax: (757) 523-4881
rcrum@hrpdca.gov

For Immediate Release: Today, the Hampton Roads Planning District Commission (HRPDC), in partnership with the Regional Broadband Steering committee, elected officials for the cities of Norfolk and Virginia Beach and representatives of Old Dominion University and Virginia Wesleyan University, gathered to announce the first connection point to the Regional Ring, a fiber optic backbone system that will connect all five Southside localities to the transatlantic cable landings. This landmark event underlines the region’s efforts to plan, design and build an interconnected fiber ring that will ultimately result in the creation of job opportunities for all Hampton Road communities and will offer the region fast, reliable and affordable access to data and technology transfer.

While the first connection point occurs in the Region’s South Side, future phases will include the Peninsula as well.

# # #
Smart Region Core Focuses

Connection to RCR Makes Smart City Transformation a Possibility for Any City

Infrastructure Evolves into a High Speed Next Generation Network

Objectives Provide a Higher Quality of Life for Citizens

Possible Smart City Technologies:
- Public Safety
- Traffic Control
- Autonomous Vehicles
- Connected Region – Open Data
- Flood Control
- Water Treatment

Open Data
2018 Smart Infrastructure Challenge
• 69 Regional Response Teams
• 80+ Project Plans
• 250+ Collaborating Governments and Universities
• 500+ participating organizations
• $3+ billion in project financing available for projects to scale
2018 Smart Infrastructure Challenge

- Up to $50 million available for winners, and up to $3 billion “for the right projects”
- May 31, 2018 - Submitted letter of intent
- June 1, 2018 - Received acceptance notification
- September 27, 2018 - Draft presentation due
- October 25, 2018 - Final presentation at Smart Regions Conference in Columbus, Ohio
• Develop a diverse regional portfolio of projects
• Regional projects determined by strengths and needs of each city
• These projects are required to be S.M.A.R.T.
  • Scalable
  • Measurable
  • Accessible
  • Replicable
  • Transferrable
StormSense and Land-based Flood Sensors

**Transportation Redefined**

Project: StormSense

Priority Area(s): Public Safety, Resilient and Connected Communities

Goal: Develop a monitoring network of Internet of Things (IoT) sensors to detect flooding on area roadways in real time

Overview: Coastal communities cannot afford to ignore the ever-looming threat of sea level rise and recurrent coastal flooding. Cited as one of the most vulnerable areas, Hampton Roads understands potential solutions to rising seas require resources beyond what government alone can provide. The award-winning StormSense project has been touted as a promising avenue for addressing flooding. The regional collaboration between several municipalities, universities and researchers, aims to mitigate the impact of flooding by predicting flood events due to storm surge, rain and tides; building more resilient communities; enhancing emergency preparedness; and strengthening disaster recovery efforts. Smart IoT sensors are strategically installed in specific locations to collect and aggregate water level data in the cloud. Through the application of hydrodynamic modeling and data science, the StormSense team can create historic, current, and future analysis; decision support platforms to enhance real-time predictions; and raise citizen awareness in enterprising new ways.

http://www.stormsense.com/
In conjunction with the Hampton Roads Planning District Commission’s Regional Connectivity Ring initiative, the city of Chesapeake is working to implement a municipal fiber ring that will connect key facilities and assets. This city-wide fiber network will allow the city to meet its increasing internal operational needs for more bandwidth and position the city to fully participate in regional initiatives by connecting to the Regional Connectivity Ring. This grant proposal seeks additional funding to design the wireless overlay that will sit on top of the municipal fiber network and provide connectivity to smart devices throughout the city. The first use of this new wireless network will be to improve our water and sewer operations via AMI. Chesapeake has funded $1 million in the current year to hire a consultant to assist in the development of a feasibility study and master plan for this project.
Norfolk
Elizabeth River Trail

**PROJECT MANAGER:** Chip Finch

**PROJECT DESCRIPTION**

Virginia’s First Smart Bike and Pedestrian Trail

Build smart city infrastructure into the 10.5 mile Elizabeth River Trail. Building a smart infrastructure into the ERT will enable the region to test different pieces of smart technologies, pick and choose the best options, and then scale throughout the rest of our region for use as part of and on the regional connectivity ring.

The ERT links residential, commercial, cultural, institutional, and entertainment venues such as Town Point Park and provides a perfect test bed for innovative technologies.
Digital Inclusion of all citizenry, especially low-income population districts. Project goals include providing wi-fi throughout highlighted districts as strategic facet of municipal broadband connectivity deployment. Additionally, connectivity infrastructure to these locations will serve as the foundation of tele-health initiatives.
Suffolk
CenterPoint Manufacturing and Logistics Center MEGA Site

**PROJECT MANAGER:** Kevin Hughes

**PROJECT DESCRIPTION**

The CenterPoint Manufacturing and Logistics Center is currently the most successful industrial development in Virginia today. The Center offers a 250 acre mega site that is shovel ready. Enhancing the data infrastructure would widen the opportunities for expanded economic development.

CenterPoint’s 250 acre mega site has received Tier 4 status by the Virginia Economic Development Partnership’s site readiness program.

Since 2011, the 900+ acre CenterPoint development has created over 600, new to Virginia, jobs and added over 1,500,000 square feet of space. Peet’s Coffee is currently under construction with the establishment of their $58M, 175,000 sqft east coast coffee roasting facility, that will create 138 new jobs.

Significant investment in water, sewer, electricity and natural gas are in place, and can be expanded to support major manufacturing operations.

CenterPoint is privately owned and motivated to win projects! Over $46M has been spent to date in the development. They will build-to-suite lease back or sell land to win a deal.
Virginia Beach
Entertainment Corridor

PROJECT MANAGER: Nina Goodale

PROJECT DESCRIPTION

Virginia Beach’s Entertainment District has been in development over the past year. This area’s goal is to be a year-round destination for citizens and tourists. Since most tourism revenue comes during the peak summer season, building more of a year-round destination would bring more activity to the city during the colder months (and hence, more business). This will better the community life and economy. By utilizing smart technology in the city’s entertainment, we can improve on transportation, public safety, public service, and public information.
**Connected Corridor**

**Transportation Redefined**

**Project:** Hampton Roads Regional Connected Corridor - connect the five Southside cities via a multimodal corridor and serve as a test bed for self-driving cars and other emerging technologies.

**Priority Area(s):** Public Safety, Mobility, Environment, Infrastructure

**Goal:** Create a regional roadway network to support connected vehicle technology.

**Benefits:**
- Introduce elective cars, mobility apps, link to information grid
- Expand mobility options for people and freight
- Alleviate traffic congestion, lack of parking, long commutes
- Efficient use of existing infrastructure
- Deliver real-time information to drivers (road closures, work zone lane alerts, incident management, etc.)
- Interface with Virginia Department of Transportation (VDOT) Operations Hampton Roads/Eastern Region Transportation Operations Center (TOC) and city Traffic Management Centers (TMCs) – provide data to support traffic management throughout region
- Assist state with goals and objectives outlined in VDOT Connected and Automated Vehicle Program Plan
New Opportunities

Sentara-
• Interested in Regional Connection of Medical Facilities.
• Developing a plan for adopting Smart Homecare for outpatients.
• Will support Telemedicine Grant Application Through Non-Profit?

Regent-
• Interested in Connection to the Ring.
• Hosting the Regional Network Operation Center.
• Investor Opportunities.
New Opportunities

Globallinx-
- Regional Ring Hosting Services

GTS/SPARQ-
- Cybersecurity Partner/Investor

LUMOS-
- Last Mile service provider to Unserved/Underserved Areas

CIT-
- Non-Profit Partner to assist with Grant submissions

MidAtlantic and Eastern Shore Broadband-
- Working on a collaborate effort and outward broadband path

Tidewater Community College-
- Has space allocated for regional NOC at the Virginia Beach Campus. Currently has space in the data center for 35 additional racks to accommodate the RCR
Regional Connectivity Ring:
Building the Foundation for
Smart Region Development

HRTO Subcommittee
10.09.2018