ELEMENTS FROM SHUTTERSTOCK

get ready for BLAZING bandwidths

When it comes to breakneck internet speeds, 2018 will be a banner year for the Capital Region

by **STEVEN YODER**

The city of Chattanooga, Tenn. offers a clue as to what high-speed internet can do for an economy. In 2007, the City Council approved a plan by its municipal public utility to build out a fiber-optic cable network to homes and businesses. By late 2009, the utility started offering connection speeds of up to one gigabit per second, at the time the fastest available in the Western hemisphere.

That plan stimulated a growth spurt for the area. A 2015 study by the head of the University of Tennessee-Chattanooga's Department of Finance calculated that in its first four years, the network had generated at least $198 million in new investments and more than 2,800 new jobs in the city. At least 91 companies employing more than a thousand people relocated to Chattanooga because of high-speed broadband, according to a conservative estimate by the Chamber of Commerce. Meanwhile, individual firms cranked up productivity: The IT manager at a community bank estimated that the new network saved 80 minutes per employee per day because of its reduced downtime and faster responsiveness, which translated into annual productivity gains of almost $750,000.

Better efficiency. More firms relocating. More jobs. All of that could accelerate Sacramento's growth this year as internet speeds as fast as any in the country come to the city. That likely will mean nothing but opportunity for businesses and economic initiatives in the city, which has a population more than twice that of Chattanooga.

Until now, getting a fast connection for a business or home has generally come through coaxial cable, DSL, fiber-optic cable or some combination. Later this year, Verizon will offer another option, investing more

BY 2035, 5G WILL GENERATE $719 BILLION IN EXTRA U.S. ECONOMIC OUTPUT AND SUPPORT 3.4 MILLION JOBS.

- IHS Economics & IHS Technology, Jan. 2017 Economic Impact Analysis

than $100 million to bring fifth-generation (5G) cellular speeds to businesses and residences via signals from small cell towers mounted on Sacramento utility poles. Those who get it will trade in a Camry for a Lamborghini: 5G speeds are 10 times faster than the latest version of 4G, a Verizon spokesman told *Wired* in February 2017 (though one report puts the company's 5G download test runs at 30-50 times faster).

Meanwhile, Comcast has launched a service that offers speeds of up to one gigabit per second to Sacramento and nine surrounding cities. The Comcast network relies on a hybrid fiber-coaxial cable system: Many customers get fiber-optic all the way to their business (or home), while others get fiber-optic most of the way and then coaxial for the last mile. One-gigabit speeds like that have been available in the past but were expensive, says Ted Girdner, Comcast's vice president of strategic initiatives and business development. Even two years ago, that

would have cost $2,000 a month — now it will be under $200, he says.

For the region, more players pushing each other to offer ever-faster broadband is good news, says Rob Koester, vice president at Roseville-based Consolidated Communications. "It does represent competition for us. But it's an exciting time — these are pro-consumer changes," he says. Consolidated Communications has carved out a niche in part by focusing on value-added services for businesses like continuity disaster data-recovery planning and managed WiFi.

The economic impacts of 5G coming here could put an already-hot region on track for even faster growth. A report last year from IHS Economics and IHS Technology likens the advent of 5G to the coming of the printing press, steam engine, telegraph, electricity and the internet itself — technologies that revolutionized economies and lifestyles. IHS projects that by 2035, 5G will generate $719 billion in extra U.S. economic output and support 3.4 million jobs.

Locally, the faster speeds could have big implications for business, says Comcast's Girdner. In health care, for example, hospitals and clinicians will be able to send larger radiology files and increasingly use video to show real-time clinical procedures. For other companies, live, high-quality video feeds will replace training documents. In agriculture, farmers will increasingly use internet of things devices for moisture management and pest control. Those are just the start — it's hard to predict the new applications that companies and individuals will identify.

Sacramento's economic development initiatives also will get a boost. Faster speeds will support the City's Vision Zero initiative to eliminate traffic-related fatalities and severe injuries, which could include more sensors to collect data about traffic-flow patterns and near-accidents. 5G will be central to the autonomous vehicle open standards lab, a public-private partnership of state and city agencies and autonomous-vehicle companies to develop and test protocols and standards for these vehicles. And it could bring more vendors to the table to support the City's demonstration partnerships policy designed to let tech vendors quickly team up with local government to test improvements in City programs and services.

All of that may not begin to describe how new connection times will change the region and the economy — after all, the internet itself was born as just a way for a few scientists to communicate. "There's no end in sight with the need for bandwidth growth to meet the needs of the marketplace," Girdner says. ■

Steven Yoder writes about business, real estate and criminal justice. His work has appeared in The Fiscal Times, Salon, The American Prospect *and elsewhere. On Twitter @syodertweet and at stevenyoder.net.*