Ciena Corporation statement to the Ontario Government Standing Committee on Finance and the Economic Affairs regarding Small and Medium Enterprises. 28 August 2020

Good morning, Mr. Chairman and Committee Members and thank you for the opportunity to speak to you today. My name is Rodney Wilson I am Ciena Corporation's executive responsible for External Research programs, including our collaboration with universities and other research organization from my offices in Ottawa / North Kanata.

For those of you who are not familiar with Ciena, we are an American telecommunications networking equipment and software services supplier based in Hanover, Maryland. Independent Market Researchers say Ciena is the world's biggest player in optical networking connectivity and number 1 Optical systems vendor for the past 6 years. The company reported revenues of $3.57 billion for 2019. Our 1500+ customers are located in over 35 countries and are served from over 70 Ciena Offices. Our systems are used by the 85% of the world's top Service Providers and by Cloud services companies across the globe. It's almost certain that my appearance before you today is travelling through, and enabled by Ciena technologies installed in the Canadian telecommunications infrastructure.

Ciena has over 6,500 employees, world-wide. Our largest site is in Ottawa / North Kanata with a headcount of about 1650 employees, 1300 of whom are Research and Development engineers and scientists. Our 80,000 square foot Kanata labs house ¼ billion dollars in research and design assets which we use to develop "adaptive high capacity infrastructures". Our Ottawa / Kanata North operations have a hand in all aspects of the product life cycle and customer solutions support. Our 2019 global R&D investment was $548m USD.

By any measure, Ciena is not an Ontario based Small, Medium Enterprise. We're "Big Tech". So why am I here before you today?

In spite of Ciena's remarkable success, we do not do it alone. We rely on an ecosystem that keeps us, competitive, in the technological forefront, and enabled with bright, sharp people who are not regular full-time employees. My main purpose for being here today is to tell you about this ecosystem and suggest a few

ideas to stimulate financial recovery and growth in the high-tech sector as the province emerges from COVID-19 constraints.

Ciena invests millions of dollars in University based research. Our Global External Research program is heavily weighted towards Ontario Universities largely due to our academic strengths. Whether we are looking for device level measurements, digital signal processing mathematics, or advances in computer and networking science and computer, we partner with Universities to explore, qualify promising technologies and learn, but also to stimulate entrepreneurship. We provide a large number of Internships, both directly funded and through programs like OCE. Right now, we have 69 student Interns working on R&D programs. Research aside, talent acquisition is intensely competitive. Our universities and colleges here produce extremely high quality graduates, but can't turn out enough graduates to serve industry growth. Ciena has 60 full time jobs and 15 Intern positions openly posted in Ottawa, all unfilled. We have been on-boarding new hires during COVID-19 Work-from-Home guidelines and the pandemic has not slowed us down. But finding high quality people remains a challenge.

Small Medium Enterprises are important to "Big Tech". Ciena engages SME specialists, with skills, abilities and precision services. One example is a Stittsville SME DA-Integrated which does specialized prototyping and Radio Frequency profiling for new products. It's a vital service for which we do not have direct capabilities. Another example, Renaissance Supply in Ottawa that provides, sustaining engineering and repair services to extend the life of otherwise functional networks. This SME works with our Engineering group to keep older systems delivering value to our customers. These are examples from each end of our product life cycle. It is very important to appreciate that Ottawa, and Kanata North in particular, is the location within Canada where over 80% of all commercial R&D on next generation telecommunications is still done. SME's are able to gain business directly from companies like Ciena, but also a great competitive edge indirectly thorough the supportive North Kanata "Big Tech" community.

Significantly, the Ontario ENCQOR project, co-funded with Quebec and the Federal government has stimulated significant innovation and economic benefit. Through ENCQOR, in partnership with OCE, SME's can receive funding grants from $50,000 to $500,000 on qualified projects. ENCQOR has stimulated SME

development of technologies like, Machine Learning network reliability tools, or Internet of Things asset tracking, Cybersecurity and a project that improves Roadway Public Safety. ENCQOR recently announced over 450 SME's across both provinces are committed to the program. One of the features of ENCQOR is a testbed network connecting innovation hubs in Waterloo, Toronto and Ottawa and in Quebec. Called the "Innovation Platform as a Service" or IPaaS is unique in that it offers SME's, a free of cost sandbox to explore, test and validate 5G wireless and related networking technologies. The innovation hubs offer full next generation wireless connectivity, computational tools, training and business development resources, not the least of which is the opportunity to develop relationship with companies like Ciena and gain our help with market awareness and introductions.

My Concluding Recommendations…

Last March, in a 10 day window, 4.2m Ontario households switched to "Work-from-Home mode. The experience was not uniformly good. My available bandwidth here is 350Mbps. But a short 40 minute drive away, the picture is extremely different, in some near urban-pockets, the Internet is almost non-functional. There is a digital bandwidth divide in Ontario. Incentives to enhance broadband in Rural / Northern communities are strongly recommended. It's necessary to expand the digital economic footprint

Ciena relies on SME's… but they have to be there. Incentives to support SME's are great, but they have to be process-lite. Heavy administrative burdens & bureaucracy mutes the benefits. Consider increasing support for SME's by providing both direct and indirect support to deliver incubation kick-starts.

ENCQOR is a phenomenally successful program. Reinvesting to stimulate new academic and SME projects, with an eye to expanding the IPaaS testbed to smaller urban centres will expand the net-benefit beyond the Ottawa-Toronto-Waterloo corridor and deliver great economic benefit to Ontario.

Rodney G. Wilson
Ottawa / Kanata North Research and Development Labs
Ciena Corporation
rwilson@ciena.com