

CanaData East BLOG: Challenges for construction in a world of technological growth with Bern Grush

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GrushNiles Strategic autonomous fleet strategist Bern Grush presented "The Challenges for construction in a world of technological growth" at CanaData East in Toronto on Sept. 21.

Grush created reports for the **Residential and Civil Construction Alliance of Ontario** on autonomous vehicles and how they may impact transit in the future and infrastructure investment. He added there are forecasts that examine ways autonomous vehicles will deploy in terms of city planning and transit planning.

"The point is to not pick through them, but to know that there are too many variables to be able to provide one forecast," Grush said.

There are three major shifts coming, he said, and the move to renewable propulsion and electric vehicles (EV) is the first shift.

The second shift is vehicle automation with personal vehicles and shared vehicles. They are two different planning streams and markets, he said.

"If personal vehicles dominate, we may have lower fatalities, but we'll still have sprawl, parking concerns and so forth. But if you have shared vehicles that are automated then that could change the way cities are designed," he said.

The shift in ideas means regulatory hurdles, he said.

"Not all roadways would be suitable for fully automated vehicles. Mixed automation will have construction implications. The key issue is we're innovating in automated vehicles but we're not thinking of the issue as a whole and what it means," he said.

Traditional transit will wither somewhat in future, he said, and will be replaced by public or commercial autonomous vehicles.

"Over the 30 or 40 year period of mixed traffic, the demand in mobility is increasing at the same time we're implementing this new technology. Will technology keep up or will we fall behind?" he asked.

Many predict that the majority of people will abandon personal ownership in the future, he said.

In the second era, automated trips will still be slower and the roads will need to be well cared for in order for these trips to work. By the third era, technology will mature and there will be more trips used. Technology will be more appealing, convenient, affordable, fast and instantly available.

"Shared use has to be better promoted and a better option. Just cheaper is not enough," Grush said.

In the final era, he said, the "magical vehicle" appears, with more shared vehicles, more trips and robotaxis becoming prominent.

The first passengers in autonomous vehicles will be the first customers of autonomous vehicles. "Robotaxis" will be one of the first waves of autonomous vehicles, and transit buses will likely be replaced.

There will be a further shift from families with more than one car as they move gradually to robotic vehicle use. The final shift will be to "no car families."

Jobs will be less threatened than is currently thought, Grush said, because while fleets won't have drivers, they will require staffing to maintain and deploy the vehicles.

This shift to autonomous vehicles changes infrastructure calculations, and technological disruption "makes planning even riskier," Grush said.

Eventually these zones would expand to the point where a larger area will be covered, and eventually city dwellers will be able to use the system extensively.

A software solution would specify performance, set subsidies and prices, and monitor and regulate compliance via those subsidies and prices. A third party, such as Uber or a similar entity would provide the service for the municipality.