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Technology is the paradigm shift that keeps shifting.

Bev

Facing change and guiding Ontario into the next quarter century

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#### **KEYNOTE SPEAKERS**

Gregg Lintern, RPP, MCIP Chief Planner for the City of Toronto, with a proven track record in delivering transformative projects

#### **Ramona** Pringle

Writer, producer, digital journalist, and go-to expert on technology, digital culture, and creative innovation



#### **Mikael Colville-Andersen**

One of the leading global voices in urbanism, known for his pioneering philosophies about urban planning and cycling

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#### EXTENDED REALITY TECH AS THE NEW NORMAL

amers have been using extended reality visualization technology for years, but what started as entertainment has been evolving very quickly into a tool for various industries and professions, including planning. It may not be long before extended reality tech is the new normal.

The extended reality realm consists of three technologies: virtual reality (VR), augmented reality (AR), and mixed reality (MR).

"VR is fully immersive, so you put on a headset, and it completely blocks out the outside world," says Morgan Boyco, a Candidate Member of OPPI and a planner and public engagement specialist with Dillon Consulting. "AR is where you are looking through a screen or device and you can see what's surrounding you, but there's a digital overlay."

MR is an enhanced form of AR: a more integrated merger of real and virtual spaces. You wear some kind of device to see 3-D digital images that are integrated into and responsive to the real world. AR and MR advancements are ongoing, with both looking exciting in terms of potential uses for planners and urban design professionals, especially with coming 5G and improvements in GPS sensors. But what is really getting attention right now is VR, as barriers – cost, technical complexity, and practical and aesthetic challenges – are being reduced. "We see enormous potential in these extended reality technologies for planners to enhance dialogue with the public and stakeholders as well as for collaboration between technical experts," says Boyco.

Paolo Mazza, GIS specialist with Dillon Consulting, is currently training planners and GIS staff in Ontario in how to leverage VR. He explains that by applying a computer code to 2-D data, an immersive, smart, 3-D model can be created.

"Once you have the 3-D models, it's a matter of one click, and you can get it into a headset," says Mazza. "With several more clicks, you can actually bring it into a video game environment where you have VR gamification – multiple planners in one VR room at a digital table, looking at a 3-D model."

The most immersive VR headsets allow for a full range of motion in the digital world, so you can walk around inside a 3-D city model, even ducking down to look underneath the street. The response, especially from younger planners, has been positive.

"Planners are graduating from universities with really strong 3-D design and 3-D technical skills, so they almost expect it," says Mazza.

And, perhaps, it's partly because they grew up in a world where VR is as normal as the games they play.

Learn more about VR and other tech tools for planners at the Tech Demo Gallery at the OPPI Conference 2019 from October 1 to 3. Morgan Boyco and Paolo Mazza from Dillon Consulting Limited will be hosting TECH600: Virtual Reality: The Digital Frontier of Participatory City Building.

## "Technology has and will continue to influence planning."

his influence can be seen in early post-colonial planning theories like Frank Lloyd Wright's Broadacre City concept, where the telephone and other technologies facilitated a planned decentralization of communities. Instead of the telephone, today we talk about the influence of things like computing power and the internet of things, which are giving rise to artificial intelligence. Although the technologies have changed, the questions remain the same – how will these technologies influence how we live, work, shop and play?

Ontario's Registered Professional Planners are looked to for information on these trends and for their insights into how they will influence our communities in the future. As professionals that look at all sides of an issue and provide objective, evidence-based advice, we will continue to inform decision makers on how these changes will influence community character, quality, and competitiveness.

Technology will also continue to influence how we plan.

Registered Professional Planners will continue to leverage technology and gain access to larger datasets, faster computing speeds, robust analytical models, and visualization tools to inform and communicate their professional opinions. The public, stakeholders, and decision makers will also continue to harness the same technologies to engage in community conversations.

As a profession, we also need to understand the opportunities that artificial intelligence may bring to planning and our responsibility to uphold the public interest. In the future, artificial intelligence may be used for simple and routine planning tasks. This isn't surprising. It is already happening in other professions. Such a change will provide professional planners, known for their knowledge, integrity, objectivity, and creativity, with opportunities to focus on more strategic planning issues that involve competing interests and values and require professional judgement.

In this issue of Y Magazine, we look at some of the ways technology continues to influence our work as planners – and how planners are using technology to shape our communities.



Jason Ferrigan, RPP President Ontario Professional Planners Institute

FEATURES INTRO

# TECHNOLOGY & PLANNING

In this issue of *Y Magazine*, we look at how technology is being integrated into planning as tools used in the practice of planning, as well as how planners are working to incorporate technology into the communities where they work. To introduce this issue's theme, Eldon Theodore, RPP, offers his perspective on technology and an approach for planners eager to keep up with the pace of technological change.

## On the matter of technology...

BY ELDON THEODORE, RPP

t the OPPI 2019 Conference on October 1 to 3, the theme "Facing change and guiding Ontario into the next quarter century" will place focus on technology and the role it is playing in the evolution of our profession and our communities.

Last year, I was part of an OPPI survey to help understand our membership's level of experience with technology, how it influences their practice, where they saw it going, their concerns, and their advice on how we can stay ahead of the curve. The feedback was enormous: technology was clearly a top interest for our members. The survey also revealed a number of key findings I believe our profession should give greater attention to and explore.

Many members felt our profession's adoption of emerging technology was slow. For example, when it came to technology such as 3-D modelling and printing, drone technology, or platforms utilizing augmented reality or artificial intelligence, our membership was clearly interested but had limited practical experience. Also a general divide between our younger and older members was revealed, in terms of both the breadth of technological knowledge and willingness to adopt new tools to advance professional work. While this is generally an expected trend between generations, given the rapid pace of change in technology, should we take steps to ease our members' early adoption of emerging technology to stay ahead of the curve?

Barriers to adopting and accessing new technology include cost, the challenge of

keeping current, reluctance to try new approaches, and three areas of disparity: between public and private sector planners, between smaller and larger organizations, and between urban and rural areas of Ontario relative to ease of access to infrastructure to support technology. These disparities represent real inequities that members face in their work. As land use planning benefits from having the best information, and technology is playing a role in enhancing that information, do we as OPPI members have a role in helping to bridge this divide to achieve technological equity for all planners?

Speaking of the best information, the drive towards open data is influencing the way we plan our built environment. A lot of attention has been placed on disruptive technologies where planners have been playing catch-up on how best to mitigate existing impacts while making best efforts to foresee emerging changes. The rise of the smart city concept with developments such as Sidewalks Labs is introducing nextgeneration data-driven urbanism that will potentially redefine a user's relationship with the built environment. That relationship represents elements that are visible and invisible to residents, workers, and visitors. As we watch this data-driven urbanism unfold, questions about who should own the data, who should have rights to access to the information, and what data should be open or restricted should be answered quickly. Given this, does planning have an emerging role in promoting open data urbanism and/ or safeguarding the privacy of citizens?

Facing change and guiding Ontario into the next quarter century – it is a timely theme that will explore these questions and others in the advance our knowledge

## Technology is the paradigm shift that keeps shifting.

of technology. To conference attendees, I encourage you to listen to keynote speaker Ramona Pringle offer tools for staying ahead of change. I encourage you to spend some time at the Tech Demo Gallery, sharpening your skills with the latest tech tools. And I encourage you partake in sessions on matters such as disruption, isolation, engagement, artificial intelligence, and other great topics. I look forward to learning from my colleagues, sharing my thoughts, and debating these issues.

Technology is the paradigm shift that keeps shifting. Recognizing that our communities continue to be transformed by technology, there is an urgency for planners to prepare for change and be in a position to lead that change. (W)



Eldon Theodore, RPP, BES, MUDS, MCIP, LED AP, IS a member of OPPI and a partner with at MHBC Planning, Urban Design, and Landscape Architecture. He is also an OPPI Council Director and Chair of the Community Design Working Group.

TECHNOLOGY AND PLANNING

## Planner perspectives on practical applications of technology

BY CAROLYN CAMILLERI

New technology can go from being bewilderingly futuristic to normal life in a very short timeframe. To get their perspectives on the new technology in their projects and plans, *Y Magazine* talks to three RPPs: Pino Di Mascio, Director of Planning at Sidewalk Labs; Brad Anderson, a Principal Planner for the Region of Durham; and Paul Shaker, a Principal and co-founder of Civicplan.

01/02 Sidewalk Labs is an Alphabet company founded in 2015. Quayside, the Sidewalk Labs project in Toronto, is a smart city project that proposes to develop a comprehensive plan that significantly raises the bar on what is achievable.

Picture Plane for Heatherwick Studio / Sidewalk Labs



# **Sidewalk Toronto:** A smarter kind of smart community

he Sidewalk Toronto project, Quayside, is described as precedent setting and forward thinking, a new kind of development that uses technology to address some big urban challenges – but not only technology.

What impresses Pino Di Mascio, RPP, director of planning at Sidewalk Labs and previously a partner at Urban Strategies, is the comprehensiveness of the project.

"We are tackling relevant and pressing issues that planners deal with daily – most notably, improving how people move around, tackling climate change, building environmental resilience, and, most importantly to me, doing all this within an inclusive new community that addresses social issues and provides affordable housing options."

To do this, Sidewalk Toronto has proposed a number of specific solutions, including; establishing a global hub of urban innovation to spark jobs, growth, and new industries and supporting policy around digital infrastructure and data collection in public and semi-public spaces to ensure privacy and responsible data use.

The Sidewalk approach is different from traditional smart cities initiatives, which

Di Mascio says have not really succeeded, because they did not design with people and quality of life first; they created proprietary or closed systems that did not enable others to build new solutions, and thus stifled innovation; and they assumed technology alone would solve tough urban problems, and thus did not think about planning holistically.

"We don't believe in tech for tech's sake," he says. "For us, emerging technology and good planning and urban design are about improving the quality of life in cities – reaching new levels of sustainability, affordability, mobility, and economic opportunity."

The key to the project's innovation agenda is a comprehensive set of innovations – not all of which are necessarily digital or based on brand new technologies – that together will have meaningful impact while also allowing others to innovate on top of their initial concepts.

For example, Sidewalk Toronto is proposing an entire district made of tall timber and pre-fabricated components, which has required investing significant R&D to allow architects and engineers to design such buildings and will require investments into the supply chain and workforce training. "The result will not only be more sustainable buildings, but also the growth of a new industry that developers and builders will benefit from," says Di Mascio.

Streets will be green – significantly improving quantity and quality control for stormwater discharge – and dynamic: people focused and pedestrian oriented, with more space for transit, walking, cycling, micromobility, and accessibility requirements,

Emerging technology and good planning and urban design are about improving the quality of life in cities.

but with embedded infrastructure for technologies such as advanced traffic management and AV guidance systems.

Other initiatives include an advanced power grid, including renewable systems and a low-voltage distribution system; pneumatic waste collection; a districtbased freight delivery system; non-fossil-fuel heating and cooling; and open-standards digital infrastructure. Ultimately, Sidewalk Toronto innovations will be a catalyst for similar projects worldwide.

"If we can help begin to solve some of the problems associated with urban growth through new technology and good urban planning and design here in Toronto, we think those lessons can be applicable to cities everywhere with the same problems," says Di Mascio, noting that the key is not to demonstrate that the very same technologies should be applied everywhere.

"Instead, it is to show that it is possible to create a platform within cities that allows the public sector to work cooperatively with a wide variety of groups – innovation start-ups, non-profits, local entrepreneurs, and large companies – to apply a variety of ideas that solve important issues," he says. "In that way, the expectation is that as technologies are utilized in urban planning and development, the public and private sectors can together ensure that the public interest is properly addressed."

The focus on public interest is where Di Mascio believes planners beyond Toronto can look to Sidewalk Toronto as an example to learn from. He also believes planners need to become more literate with regard to technological innovation in general and the growing public policy regulations around data collection and privacy concerns.

"The digital revolution has changed how information can be gathered and analyzed. This has huge potential to improve the building and infrastructure systems we develop and the operations of those systems," he says. "But the application of these technologies in the public and semi-public spaces raises important public policy issues that need to be addressed. These issues are diverse and as planners are focused on the public interest, our awareness needs to be focused on understanding the capabilities of digital infrastructure, the appropriate application of such infrastructure, and evolving government requirements around privacy and responsible data use."

He adds that it is a very different environment from when started in planning 25 years ago.

"But if we as planners become more technologically literate, we can help the governments, institutions, non-profits, and private companies that we work with regularly." ()

# **Connected for success:** Durham Region's broadband strategy



01

ow we socialize, how we are entertained, how we work, and how we access services and information – these aspects of life are increasingly moving to online formats. Consider, too, the effect the internet has had on retail, as it shifts from brick and mortar stores to online shopping. A disruption also seems plausible for how and where people work.

"We may only be one or two innovations away from wider corporate acceptance that would allow tens of thousands of people to work from home, instead of travelling to a centralized work place," says Brad Anderson, RPP, a principal planner for the Region of Durham. "What will this mean for office buildings and business parks? Or for public transit and rush hour congestion?

"These examples are just the tip of the iceberg, but you can already see just how deep and disruptive the effects can be," he adds.

It also clearly points to the vital need for high-speed internet – a need revealed to Durham Region during consultations for its Economic Development Strategy and Action Plan. Anderson says staff and members of Council were increasingly hearing that the lack of broadband connectivity in certain areas was hampering both the attraction and retention of businesses.

"The importance of broadband infrastructure in the 21st century is often compared to the impact railroads and electricity had over 100 years ago," says Anderson. "Back then, communities that were served and connected thrived. The ones that weren't served were effectively left behind."

## Society and the economy rely on high-speed internet for success.

For people and businesses who can't access or afford broadband, there is a real fear and anxiety about being unable to participate in modern society and the digital economy.

Around the time Durham's Economic Development Strategy was being finalized, the federal government launched a funding program to stimulate broadband expansion to underserved areas. The desire to participate in the program accelerated the development of a broadband strategy to better understand and define existing conditions in Durham and to develop implementation actions to increase broadband connectivity.

Last February, Connecting our Communities: A Broadband Strategy for Durham Region was released, marking a first step in planning for a digitally connected regional community – and formally recognizing that society and the economy rely on high-speed internet for success.

A significant challenge is that broadband availability is strongly linked to market and economic factors, with internet service providers competing to serve the most profitable areas, which generally have dense populations. In low-density rural areas, cost to serve each household increases, and wireless technologies that can cover large geographies are slower and more expensive.

"This creates a divide in broadband access and equality between urban and rural areas," says Anderson. "With almost 85 per cent of Durham's land area being rural, this has been one of the major issues in our region."

Employment areas are a distinct challenge, given that internet service providers typically don't pre-service these areas, which saddles the property/business owner with the expense of extending broadband infrastructure to their building or unit. "Through consultation, we heard about businesses simply moving or locating elsewhere, rather than paying to extend the service, which can be in the tens of thousands of dollars," says Anderson.

"The question we faced – which other municipalities exploring broadband solutions should also consider – is what is the appropriate role for municipal or, in our case, regional government? This ranges from 'do nothing and leave the issue to market forces and higher levels of government' to 'building a regional network and providing services."

Durham Region concluded the appropriate role was to support efforts to expand broadband by co-operating with service providers, other levels of government, and key stakeholders.

"Durham's Broadband Strategy is one that focuses on leveraging existing regional assets, updating regional policies and practices, advocacy, and – in the right circumstances – financial support for internet service providers to support and incentivise broadband expansion to underserved areas."

And it means Durham Region has a strategy for a connected future. W

# Engaging neighbourhoods using technology for participatory planning



Participatory planning is a way of doing planning that puts residents at the centre of decision making in their community. Paul Shaker, RPP, is a principal and co-founder of Civicplan, a Hamilton-based company that has developed a participatory planning platform called PlanLocal to help residents engage more directly in planning their neighbourhoods. It combines elements of surveying and crowd mapping on the front end, with real-time data analysis on the backend to give planners and clients rich feedback on the concerns and priorities of residents.

In terms of issues it can address, Shaker says PlanLocal can be configured for any number of community planning topics, such as safer streets, parks and beautification, secondary planning, development applications, neighbourhood heritage and character, cycling and alternative transportation, and intensification. The detailed information it captures is useful for planners on a variety of data points depending on the context of engagement.

"For example, the locations of concern for residents, issues that are of importance at those locations, and the level of priority of the issues," says Shaker. "Clients can also get insight into the demographics of those engaging, where they are engaging from, the time of day and type of technology used for engagement, all to fine tune outreach strategies to improve engagement in real time."

The captured data can inform many different planning streams, including transportation plans, secondary plans, community infrastructure planning, and parks master planning. In addition, the data can help inform evaluation of development applications from the perspective of municipal officials as well as the community.

"It is most effective when it is applied as part of a planning process with a defined outcome or goal," says Shaker. "For example, a secondary plan, or a neighbourhood conversation about street safety, or a participatory budgeting process."

The PlanLocal platform has been designed to address some common concerns with this type of technology.

#### Citizens should benefit from being able to learn more about how their cities are planned.

"One issue is ensuring that savvy participants are not able to 'game' the engagement process and be over represented in the results," says Shaker. "PlanLocal is designed to flag such activities to ensure this doesn't happen."

Privacy is always a major concern. "The public needs to be assured any information provided will be protected, and we always tie data to each individual project so that it will never be sold or distributed to third parties," says Shaker. "Finally, our platform and the data collected are stored in Canada to ensure the information is Plan Ward 2 PlanLocal - Ward 2 @PlanLocalWard2 - 10 May 2016 Ward 2! This is your brain on PlanLocal. 6 days left to submit #safestreet hotspots planlocal.ca/ward2/identify/ #hamont



protected under Canadian privacy law." Shaker says a key part of using tech for engagement is to make sure it does not exclude people who are not tech friendly.

"The learning curve needs to be as shallow as possible," he says.

Also, sometimes less is more.

"Depending on the topic at hand, the level of sophistication of the technology doesn't have to be very high to be effective," he says.

Another important point: the use of technology should help facilitate a two-way exchange of information and empowerment within communities.

"On the one hand, technology can help officials and planners become more informed of residents' points of view, while on the other, citizens should benefit from being able to learn more about how their cities are planned, as well as to participate at a more sophisticated level in shaping their communities."

Learn more about PlanLocal at the 2019 OPPI Conference, where Shaker will be presenting 404A: PlanLocal: The Art of Using Technology for Effective Public Engagement. Visit ontarioplanners.ca for more details. ()

- **01** Connecting our Communities: A Broadband Strategy for Durham Region was developed to bring high-speed internet connectivity across the region, the lack of which was determined to hamper the attraction and retention of businesses and to be a detriment to residents.
- **02/03** Civicplan helps people shape communities through innovative participatory planning and public engagement, including development plans, economic development policy and planning, neighbourhood renewal strategies, participatory planning campaigns, and alternative transportation planning.

landscape for over 13,000 years. While this is now planned within the modern framework of Canadian law and governance, earlier modes of land use planning can be deduced from the trends and patterns they produced as reflected in the archaeological record. Modern and older forms of planning meet in the development of municipal archaeological management plans (AMPs), a process in which Ontario practitioners lead the world.

eople have been strategically and

systematically occupying the Ontario

Technology plays a key role in this process, in particular the facility it allows in bringing together a wide range of environmental and cultural data through geographical information systems (GIS).

Global positioning systems (GPS) technology has also revolutionized the methods and accuracy whereby archaeological sites are spatially documented.

The increasing ubiquity of access to these technologies has also contributed to the sharing of information with descendant stakeholders and treaty/ Aboriginal rightsholders, especially Indigenous communities for whom the majority of Ontario's cultural history is most directly relevant.

#### **ARCHAEOLOGICAL MANAGEMENT PLANS**

An AMP is fundamentally a GIS-based tool created by archaeological specialists for municipal planners to facilitate their decision making with respect to the need

for archaeological impact assessment as a condition of development approval. Pioneered for Ontario municipalities beginning in the mid 1980s, preparation and implementation of AMPs throughout the province was recommendation #26 of the 2007 Ipperwash Inquiry.

More recently, the 2014 Provincial Policy Statement under the Ontario Planning Act promotes AMP implementation in Section 2.6.4. To date, more than 20 municipalities and several First Nations communities in southern Ontario have commissioned AMP projects, with more doing so every year.

Tailored to the specific geography and cultural history of each municipality, an AMP partitions the study area into a zone with archaeological potential where impact

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## Using technology to map 13,000 years of land use for archaeological management plans

BY ROBERT MACDONALD

URBAN



assessment should be required and a zone where no assessment is warranted. Comparison of development application footprints with the zone of archaeological potential is easily accomplished within the GIS digital workspace. Indeed, some municipalities choose to post the

Online sharing of GIS data not only ensures accessibility and transparency, but it also facilitates input and review by stakeholders and rightsholders.

archaeological potential mapping online, making it easily accessible to development proponents carrying out due diligence exercises, often before they even acquire the land.

Online sharing of GIS data not only ensures accessibility and transparency, but it also facilitates input and review by stakeholders and rightsholders. Stakeholders include interested citizens, heritage professionals, and avocational archaeologists as well as organizations such as the Ontario Archaeological Society and the Ontario Genealogical Society. Many of these groups and individuals have invaluable local knowledge which can easily be incorporated into GIS databases through public meetings or personal interviews.

First Nations, Inuit, and Métis communities with treaty and/or Aboriginal rights, as well as other local Indigenous groups and individuals, also frequently curate a vast wealth of knowledge through both oral and written histories. While an Indigenous community may consider some of this knowledge proprietary, GIS can be a very useful platform for soliciting input that can be shared. Many Indigenous communities now use GIS for their own land-management purposes, but since web-based GIS viewing applications are also readily available, spatial data can now be accessed by consultation staff without the assistance of GIS specialists. These data, such as traditional land use areas or unregistered archaeological sites, can thus be shared with archaeologists preparing an AMP. In turn, archaeologists

can reciprocate by providing draft maps for review and comments and edits by Indigenous community staff much the way digital draft reports are circulated for review and comment.

#### **MODELLING LAND USE**

The core components of an AMP are archaeological potential models which describe pre-contact Indigenous and post-contact colonial land use patterns and trends over time. Since the latter spans only the four centuries since European contact, natural environmental change is largely insignificant in modelling colonial land use patterns. Instead, the model is based on a thematic history of the jurisdiction and the ways certain themes (e.g. transportation infrastructure, resource extraction, industry, commerce, agriculture, institutions, residential development, etc.) evolved and influenced the patterns and trends observed. This information is then used to define GISmapped buffers that will capture the various classes of archaeological site associated with each theme (e.g. farmsteads, mills, churches, schools, settlement roads, railway infrastructure, etc.). The buffering process is facilitated by historical maps which may document the former or current locations of such features.

Modelling Indigenous land use is much more involved since it began at the end of the Pleistocene, during the retreat of the continental glacier, and continued with many adaptive changes over the millennia.

For approximately the first 11,000 years, Indigenous people were organized in bands of hunter-gatherers, comprising several extended families of perhaps 30 to 50 people, each occupying a territory surrounded by similar and related bands and territories. Settlement was closely tied to the resource-rich shores of the Great Lakes and their antecedents. Bands would congregate in the spring at the lakeshore to intercept runs of spawning fish and remain together as long as possible during the warm season by sending hunting parties into the interior. Over winter, when resources became less available, bands would split up into smaller extended family units and disperse into interior family hunting territories. First evident in a strong correlation between campsites and the shoreline of glacial Lake Algonquin 13,000 years ago, this pattern

repeated each year for millennia as people adapted to the changing landscape.

Climate also changed over this period, and with it, the regional forest communities. Around 2,000 years ago, Indigenous people began experimenting with agriculture, and by 1,000 years ago, this led to population growth and the establishment of farming communities with hundreds of residents. This shift from a hunter-gatherer economy to an agricultural economy produced fundamental changes in Indigenous land use patterns. Modelling Indigenous land use over time thus requires a sophisticated reconstruction of human paleoecology through time. This, in turn, involves the compilation of a wide array of digital environmental data sets through GIS, including bedrock geology, surficial geology, topography, hydrography, soils, and historically recorded vegetation.

From these data are derived models characterizing plant and animal resource availability and, hence, environmental attributes that would have positively or negatively influenced human land use. Buffers are then established with respect to key environmental indicators using GIS. The distribution of registered archaeological sites, often numbering in the hundreds or thousands, is then used to test the model for suitable capture rates.

Thanks to accessible GIS technology, archaeologists, stakeholders, and Indigenous communities are better able to collaborate to understand land use trends over time in the creation of AMPs. By implementing AMPs, municipal planners become important partners in the stewardship of Ontario's fragile and non-renewable archaeological heritage legacy. ()

**01** This image illustrates the correlation between Early Paleo-Indian period (ca. 13,000 years ago) campsites (red dots) and the shoreline of glacial Lake Algonquin (blue line).



**Robert MacDonald, PHD, RPA,** is Managing Partner at ASI, Providing Archaeological and Cultural Heritage Services.



## **A BIRD'S EYE VIEW:** HOW HALTON IS USING DRONE TECHNOLOGY

BY RICHARD CLARK, RPP, AND ANTHONY CAMPESE

01 Halton Region explored potential use cases with a retail-grade UAV and collected high-definition aerial imagery and video for communicationrelated uses. Halton has since invested in a Matrice 210 RTK commercial-grade unit. has been using an Unmanned Aerial Vehicle (UAV) – also known as a drone – in a number of areas, including regional forestry, site reconnaissance, and promotional videos. This rapidly evolving technology is relatively inexpensive, easy to operate, and provides rapid access to precise year-round data, imagery, and video at a higher degree than cost-prohibitive satellite technologies. Utilization of UAVs in the planning profession to supplement ground-level reconnaissance and data collection can provide cost-effective solutions for several land use planningrelated applications that were previously too costly to even consider exploring.

UAVs come at varying price points with different camera mounts and payload capabilities. Research into the pros and cons of each UAV and capability is very important as it can dictate overall utility. Several companies now specialize in this area and can provide excellent UAV planning solutions for consideration.

Halton Region acquired a UAV to explore potential use cases. Several staff received training and became licenced to pilot our retail-grade UAV on successful flights to collect stunning high-definition aerial imagery and video for communicationrelated uses. It was then determined worthwhile to invest in a more advanced UAV to further explore this promising technology. We recently invested in a Matrice 210 RTK commercial-grade unit. We have little to report back on actual use cases at this time, but we have begun to explore some useful applications.



#### UAV APPLICATIONS

The main attraction for Halton Region to pilot UAV technology is the inherent advantages of accessing difficult to reach areas and gaining an overhead/ aerial perspective in order to collect and communicate information that would otherwise be unavailable in a cost-effective way. By integrating specific software, including video, with the collection of unique geospatial or aerial data, better discussions with staff, experts, and clients can occur and better decisions can be made. The information/footage collected allows the precise capture and delineation of existing natural and built features, which can then be integrated with other geospatial data to present a visual of the land in question. Other potential uses include:

- The imagery can be used to track developments within regulated areas or assess damage after natural disasters.
- With specialized thermal sensors, UAVs can visualize urban heat maps, which can inform urban decay analysis in roads due to weather and traffic.
- For forestry purposes, a UAV equipped with the right camera sensors can identify tree species and indicators of height and vitality and can even monitor disease outbreaks.

- In hydrology, UAV technology can locate and map groundwater discharge areas, a feature that is often difficult to ascertain and important to understand for stream health.
- A UAV flight over an urban area can translate the captured information into 3-D models of the structures, detailing complete building dimensions. It is easy to detect change, as areas can be easily flown and re-flown in every season, over multiple years.

These are just a handful of examples of how UAV technology has become an adaptable resource that is constantly changing in innovative ways to provide greater utility in the field of planning.

#### UAV USAGE NOTES

The benefits of using UAV technology outweigh its limitations. Many commercial UAVs have a flight time ranging between 20 and 30 minutes. Depending on the size of one's operation, a pilot would possibly need to complete several passes over a site. As well, finding a safe launch area is important to ensure the successful take-off and return of the UAV during an operation. Once the precise, high-quality data is captured, the information needs to be processed; a desktop computer with sufficient memory and speed is recommended to conduct further analysis of the imagery into visuals.

Prior to operating a UAV, the pilot must follow the requirements set by Transport Canada. As of June 1, 2019, new regulations are in effect and are outlined on the Transport Canada website. The goal of these regulations is not to deter the use of UAVs for practical applications, but rather to have pilots trained and ready for each operation.

A UAV is an excellent tool for reconnaissance, reaching inaccessible or dangerous areas, and for analytical and communication purposes. The ability to obtain accurate assessment with real-time, high-resolution imagery and without threat to human life or the environment makes this an ideal solution for the planning profession. ()

02 Halton Region explored potential use cases with a retail-grade UAV and collected high-definition aerial imagery and video for communicationrelated uses. Halton has since invested in a Matrice 210 RTK commercial-grade unit.



Richard Clark, RPP, is a member of OPPI and Senior Planner, Environmental, for Halton Region's Planning Services. Anthony Campese is a Data Management Specialist with Halton Region Planning Services.

## **THE PATH OF LEAST RESISTANCE:** AN APPROACH TO ACHIEVING BETTER "CELL TOWER" LAND USE PLANNING OUTCOMES

BY GLEN FERGUSON, RPP



Over 32 million Canadians have a wireless subscription. In 2017, mobile data traffic grew by 38 per cent, and estimates indicate that between 2017 and 2022, this traffic will continue to grow at an annual compound growth rate of 34 per cent.

ireless services are unquestionably an ingrained and integral part of our day-to-day lives, whether in a dense urban centre or a sparsely populated rural setting. We communicate with family and friends and colleagues. We consume and use data at work, on the road, and in the comfort of our own homes.

Our reliance on the physical infrastructure required to deliver such services and to enjoy such conveniences often goes unnoticed, despite the possible land use planning impacts antenna systems can have on a local community. There is a very direct trade-off to be considered between the quality of wireless services we enjoy (and expect) and how the infrastructure required to provide the service is integrated into our communities.

Bear in mind, too, that between 1987 and 2019, the federal government received approximately \$17.6 billion in spectrum auction revenue from wireless providers. Wireless providers have invested around \$70 billion in physical communications infrastructure between 1987 and 2019. The pressure to achieve good land use planning outcomes is real – especially with the launch of the next-generation "5G network" across Canada and the additional physical infrastructure needed.

#### LOCAL CUSTOMIZATION AND FLEXIBILITY

Under the Radio-communication Act, the federal government reserves sole jurisdiction

over interprovincial and international communication facilities. However, the federal government, through Innovation, Science and Economic Development Canada (ISEDC), has correctly identified that municipalities are best situated to provide for and facilitate public consultation between a provider wishing to install an antenna system and the community in which an antenna system is to be situated.

Perhaps a well-kept secret is that a number of resources have existed for some time already that municipalities can utilize should they choose to lead public consultation on antenna systems. ISEDC has a default protocol that can remove a municipality almost entirely from being involved in public consultation should they choose. At the same time, ISEDC has published a "how-to" guide for municipalities building their own unique protocol.

Even better news is that the Federation of Canadian Municipalities (FCM) in partnership with the Canadian Wireless and Telecommunications Association (CWTA) developed a template for an antenna systemsiting protocol consistent with ISEDC's rules around permissions granted to municipalities to conduct public consultation. Wireless providers have endorsed the theme of local customization and flexibility built into the FCM/CWTA protocol as being reasonable and practical from a public consultation perspective.



#### CONSIDERING ANTENNA LOCATION AND DESIGN

Some interesting flexibilities exist within the FCM/CWTA protocol that, when used properly, can provide incentives for a provider to consider location and design preferences that lead to the best possible land use planning outcome. For the most part, and ironically, the best outcome for residents and municipalities tends to be maximizing the separation distances between an antenna system and those who directly benefit from the wireless service.

#### "Location and design preferences are built directly into the City's protocol"

The wireless industry is fast moving and constantly in flux, and as service gaps emerge and technologies improve, providers are, for the most part, very keen to get positions of concurrence or nonconcurrence from a municipality as quickly as possible. The City of Greater Sudbury has provided for this "path of least resistance" incentive-based approach and is achieving specific location and design land use planning objectives, while at the same time getting providers a position of concurrence or non-concurrence to forward to ISEDC much faster.

Location and design preferences are built directly into the City's protocol and from pre-consultation through to the municipality issuing a position of concurrence or nonconcurrence to ISEDC, the provider has a clear and quick path should they choose to consider the City's land use planning



location and design preferences. The path ranges from internal staff review only or even being fully exempted from public consultation altogether, to full public information sessions including consideration from the City's Planning Committee and Council. The City has a Designated Municipal Officer positioned to give a provider a path to quicker concurrence (or non-concurrence) should they wish to take into serious account the land use planning location and design preferences identified in the protocol.

The tools are there for municipalities to utilize through ISEDC and FCM/CWTA, and it would be wise to do so – especially when one considers the tremendous growth pressures in the wireless industry and a municipality's interest in balancing our need to communicate and use a technology daily with being mindful of location and design outcomes desirable from a land use planning perspective. ()



#### **Resources:**

CWTA Facts & Figures: https://www.cwta.ca/ facts-figures/

FCM/CWTA Joint Protocol: https://data.fcm.ca/ Documents/reports/FCM/Antenna\_System\_Siting\_ Protocol\_Template\_EN.pdf

CGS Radio-communication and Broadcasting Antenna Systems Public Consultation Protocol: https:// www.greatersudbury.ca/do-business/planningand-development/start-a-planning-application/ planning-application-forms/city-of-greater-sudburyradio-communication-and-broadcasting-antennasystems-public-consultation-protocol/

**01/02/03** Flexibilities exist that can provide incentives for a provider to consider antenna location and design preferences that lead to the best possible land use planning outcome.

**Glen Ferguson**, **RPP**, **MCIP**, is a member of OPPI and Senior Planner, Development Approvals Section, Growth and Infrastructure, City of Greater Sudbury.



#### URBAN

## **Scaling up for a start-up ecosystem:** A mid-sized city perspective

BY RYAN MOUNSEY, RPP

Context: Moore's Law states that the rate of technology doubles every 18 months. This helps explain the impact of digital disruption and, in planning, the rise of smart cities and the start-up ecosystem. W ore than ever, technology is changing the way we work, engage, shop, and move (share services). The trend for more connected/autonomous cities will continue through breakthroughs such as 5G networks, quantum science, and rise of the start-up ecosystem, where new ideas are being developed and commercialized.

Another trend driving innovation is the millennial workforce, which will be 50 per cent of the workforce by 2020 and 75 per

#### Toronto-Waterloo Innovation Corridor is ranked as a Top Startup Ecosystem

cent in 2025. Companies (and 'cities') are responding to attract this workforce which, like investment, can go anywhere. As a new era, more offices are locating in downtown/ station areas, and there is a growing need for urban housing and quality-of-life amenities.

Given the rate of change, are cities keeping up with these trends?

#### **START-UP CITIES**

Start-up cities are synonymous with Silicon Valley and other large cities, such as Amsterdam, Berlin, Paris, Sao Paulo, Singapore, and Tel Aviv that are rich in amenities, venture capital, and talent. Lower-tier cities, such as Austin, Minneapolis-St. Paul, and Nashville, are competing for a slice of the tech sector boom – and this is also happening in Canada.

Globally, the Toronto-Waterloo Innovation Corridor is ranked as a Top Start-up Ecosystem (13th by World Genome Report), reflecting the importance of capital markets, diversity, innovation, transportation, and competitiveness. Across Canada, there is a range of emerging and maturing start-up ecosystems helping cities grow. Last year, CBRE Research ranked Canada's top 20 tech communities and eight are in Ontario: Toronto, Ottawa, Waterloo Region, Hamilton, London, Oshawa, Barrie, and Windsor.

#### ECONOMIC ENGINE

Cities are economic engines and have interest in understanding the start-up ecosystem, which generates jobs, supports housing, transit, and other businesses/ sectors. A strong post-secondary/higherlearning system is often in place, which anchors the start-up ecosystem through incubator programs, expertise, talent, and collaborative catalyst projects.

Start-ups are early stage companies that are nimble, fast growing, and potential acquisitions. These companies often cluster near start-up programs (and other draws) and older buildings and generate low parking demand. Over time, these companies scale, adding more jobs. With a history of innovation spanning decades, Waterloo Region provides a perspective on this ecosystem.

#### WATERLOO REGION

Today, Waterloo Region has over 600,000 residents and is forecasted to reach 742,000 by 2031. The Region is anchored by three post-secondary institutions plus 150 research institutes, Communitech (a leading tech association), and numerous start-up incubators/accelerators such as Communitech Rev, The Accelerator Centre (ranked the #4 incubator globally), UW Velocity (largest free start-up incubator), and WLU Launchpad.

The local office market is experiencing demand for smaller (and dense) office space, yielding 1 job < 150 per square feet (gross BFA) and more flexible/co-working options, allowing companies to land and grow. Since 2010, over 2.5M sq.ft. of office space has been absorbed in downtown and former BlackBerry spaces, helping to spur demand for new office construction with amenities as part of the maturing ecosystem and clusters.

The housing market is responding: high-density apartment construction is



#### Urban planning has a direct role in setting the ingredients for a complete community

well underway and demand is increasing for missing-middle options.

The local start-up ecosystem is linked to city planning and local governments\* are having a role:

- Incentives/grants: Strategic Community Improvement Program (CIP) incentives for new development and job growth projects (TIGs and Grants) are helping companies grow, and several grants have helped start-up programs expand.
- Arts and Culture: Local arts and culture programs and events have been enhanced.
- Public Realm: Examples include investing in and enhancing city streets, park/LRT station spaces with public art, thematic lighting, and bike lanes.
- Transit: A new \$1B LRT system was launched to better connect the region and leverage transit ridership potential.

- Zoning: Zoning rules have been updated to permit new types of offices (hardware, incubator programs), lower parking requirements, new amenities (makerspaces, nano-breweries), bonusing criteria, and greater housing options.
- Strategic City Land Dispositions: Expanding the ecosystem through new office space (345 King W. and 185 King S.) and land lease/conveyance for higherlearning projects such as CIGI Campus, The Perimeter Institute, and UW School of Pharmacy.

The start-up ecosystem is also helping government with projects like the Smart Cities Challenge, enhancing cultural events, and attracting investment. The private sector is delivering creative projects to support the maturing ecosystem, buildingout districts such as The Innovation District, The Metz, Idea Quarter, Breithaupt Block (Google expansion), Gaslight District, and Quantum Valley. Today, there is over \$3.1B in construction activity along the ION LRT system, which better connects the start-up ecosystem to amenities and talent. Urban planning has a direct role in setting the ingredients for a complete community; this goal – combined with the evolving start-up ecosystem and enabling vision(s), strategies, and collaborations – is proving to enhance economic resiliency and growth objectives, recognizing there is more work to do against less time. (Y)

\*CIP programs, zoning regulations, grants, and dispositions vary by municipality.

NOTE: This article was written as a follow up to the 2018 OPPI Symposium Community Readiness Economic Challenge Presentation, Planning for the Start-up Economy, prepared by The Cities of Kitchener and Waterloo.

**01** Communitech is a leading tech association in Waterloo Region.



**Ryan Mounsey**, RPP, BES, MUDS, MCIP, EDAC is a member of OPPI and Supervisor of Economic Development, Region of Waterloo.





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URBAN

## **Planning, Data, and Technology:** What's new, challenging, and beyond our reach?

BY PAMELA ROBINSON, RPP

Between Infrastructure Canada's Smart Cities Challenge recent award winners and Sidewalk Lab's Quayside project on Toronto's waterfront, the acceleration of Canadian smart city efforts is hard to miss. These technology-driven, data-rich projects are in much need of professional planning attention. Smart city conversations are more defined by technologists than planners right now, and our expertise working in the public interest needs to be central to efforts moving forward.

It's also high time for us as a profession to reflect upon and begin to address some of the ethical challenges that come with this technological innovation. I share two examples here.



#### THE DATA WE WANT BUT WE CAN'T HAVE

With the rise of urban platform technologies like Airbnb, Uber, and Lyft, comes a whole host of data-related planning challenges. One big one is that these private sector firms have all kinds of data that planners need and want but cannot access. A few years back, I had a graduate student who was keen on studying Airbnb's impact on housing affordability. She quickly found the data she wanted, but it didn't come from Airbnb. Airbnb has made controlled amounts of data available in the form of reports, but it has been reluctant to release the kinds of data that planners need. To fill the gap between the data wanted but not necessarily available, a community of tech-savvy users has built their own Airbnb data sets from scraped data in response.

#### Is it ethical for professional planners to use scraped data in their work if scraped data is needed but not necessarily legally gathered?

Scraped data is harvested from publicly available web pages using digital "robots." These robots are programmed to harvest specified data from identified locations. The quality of scraped data is varied, but the fact that people feel the need to do the scraping signals these data sets fill data gaps for municipal planners. For professional planners it is important to note that scraping data from a platform such as Airbnb is a breach of the contractual terms of service and might also fall outside of copyright laws. These accessible but not necessarily legally available data sets present challenges for planners. Is it ethical for professional planners to use scraped data in their work if scraped data is needed but not necessarily legally gathered? Furthermore, are planners taking the right steps to ensure the data sets they are using are legally accessible?

Until this student began this work, I had never thought about scraped data and its ethical implications in planning practice. I didn't even know what scraped data was. If it was available online, I just assumed it would be okay to use. This issue, among others (e.g. proliferation of fake news via bots), is only the beginning of challenges we face as a profession that is evidence-based in our work. It is time for us to collectively be more active about keeping on top of technology changes and the implications for practice.

#### FIRST NATIONS, INUIT, AND MÉTIS DATA

As our profession begins to reflect on our role in responding to the Truth and Reconciliation Commission's 94 calls to action, the Institute's June 2019 release of the Report on the Indigenous Planning Perspectives Task Force is an important next step. There is a data and Indigenous community connection, too. Some planners might not be aware that there are robust frameworks providing guidance about ownership, control, access, and possession of data gathered from First Nations, Inuit, and Métis communities. For planners wanting to learn more, here are some places to start.

- The ICES (https://www.ices.on.ca/ About-ICES/Collaborations-and-Partnerships/Indigenous-Portfolio) has a good website with resources and an introduction to their Indigenous Data Governance Principles.
- The First Nations Information Governance Institute has a website that is information rich (https://fnigc.ca/ ocapr.html), and they also offer an online training course.
- While primarily focused on academic researchers, the TriCouncil Policy Statement on "Research Involving the First Nations, Inuit and Métis Peoples of Canada" is another important learning source for planners (http://www.pre. ethics.gc.ca/eng/policy-politique/ initiatives/tcps2-eptc2/chapter9chapitre9/).

These two examples, while seemingly quite disparate, are important reminders that as professional planners, our efforts to uphold the public interest require us to be on top of the rapidly changing society in which we work. New data and technology advances allow us to gain access to data sets that are larger, more complex and current than we had five, 10, or 25 years ago. But with this expanded access and scope comes new responsibility. The Institute and our community of practice have lots of new learning ahead. Experienced practitioners also have a tremendous opportunity through Continuous Professional Learning to help share their expertise to strengthen the capacity of our profession as a whole. (W)

**01** The rise of urban platform technologies like Airbnb, Uber, and Lyft has brought with it a whole host of data-related planning challenges.



**Dr. Pamela Robinson**, RPP, MCIP, is a member of OPPI and the Director of the School of Urban and Regional Planning at Ryerson.



#### ACADEMIC

Assessing actual and perceived flood risks to better target public education programs.

**BY MEGHAN BIRBECK** 

- 01 Calgary experienced Canada's costliest flood in 2013, which resulted in four fatalities and an evacuation of roughly 100,000 citizens (Public Safety Canada, 2016).
- **02** OPPI's 2019 Student Case Competition teams had about eight hours to prepare their proposals (page 26).

The planning profession's role in mitigating and adapting to climate change does not end at writing policies. Planners and those in related professions have the skill sets to do more to prepare citizens and their communities for the residual effects of climate change. Specifically, planners can be integrated into the process of creating programs to educate citizens about minimizing their vulnerability. Professionals who are interested in creating such a program should start by educating people who are at risk of extreme rainfall on ways to mitigate flooding disasters.

In Canada, floods are the most common and costly natural disaster. Annually, flooding events require 75 per cent of the federal Disaster Financial Assistance Arrangements weather expenditures.<sup>1</sup> The substantial government support provided to Canadians following a flooding disaster is a result of their having few opportunities to purchase private overland flood insurance.<sup>2</sup> For the average Canadian, these events can result in substantial costs from property damage.<sup>3</sup> A recent paper discussing flooding in Canada indicates that property damage is predominantly caused by water entering basements through cracks in the foundation or causing a drain backup.<sup>4</sup>

#### ACTUAL AND PERCEIVED RISK OF FLOOD

For an educational program to be successful, it is critical to focus on educating citizens who are unaware of their actual risk of being impacted by flooding. To tailor the outreach program, the factors that influence citizens' perceived flood risk will need to be determined. Individuals involved with the outreach program will then need to assess actual and perceived risk.

Actual risk can be determined using floodplain maps to analyze the linear relationship of citizens to a waterway or wetland. To further understand actual risk to pluvial floods, consider coupling the geographic information system (GIS) with the Bayesian belief network-based flood vulnerability assessment model.<sup>5</sup>

Perceived risk can be determined by means

of community engagement to understand people's perceptions around different variables, such as their experience, impact, likelihood, mitigation, preparedness, demographics, risk area, affect, awareness, insurance, and cause.<sup>6</sup> Collecting postal code data during community outreach can connect people's perceived risk to their actual risk for comparison.

Once the actual and perceived risk data are collected, a multivariable linear regression can be constructed to identify which variables significantly affect a person's likelihood of being aware of their actual risk. For example, it would seem clear that people without over-land flood insurance are significantly unaware of their actual risk. Tailoring a program to people without insurance would then help them to become better prepared for a potential flood and accumulatively improve a community's flood preparedness.

The establishment of an educational program would benefit from an interdisciplinary approach, whereby planners work alongside GIS technicians to assess actual risk and communications officers to establish an education outreach plan. () <sup>1</sup> Story, R., Pomeroy, J., Askari, M., Weltman, P., Brown, P. & Scrim, J. (2016). Estimate of the average annual cost for disaster financial assistance Arrangements due to weather events. Office of the parliamentary Budget Officer, Ottawa: Canada. Retrieved from http:// www.pbo-dpb.gc.ca/web/default/files/Documents/ Reports/2016/DFAA/DFAA\_EN.pdf

<sup>2</sup> Oulahen, G. (2015). Flood insurance in Canada: implications for flood management and residential vulnerability to flood hazards. *Environmental management*, 55(3), 603-615.

 <sup>3</sup> Brown, C., & Seck, S. (2012). Insurance law principles in an international context: Compensating losses caused by climate change. *Alta. L. Rev.*, 50, 541.
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<sup>5</sup> Abebe, Y., Kabir, G., & Tesfamariam, S. (2018). Assessing urban areas vulnerability to pluvial flooding using GIS applications and Bayesian Belief Network model. *Journal of Cleaner Production*, 174, 1629-1641.
<sup>6</sup> Kellens, W., Terpstra, T., Schelfaut, K., & De Maeyer, P. (2013). Perception and communication of flood risks: a systematic review of empirical research. *Risk analysis*, 33(1), 24-49.



**Meghan Birbeck** is a Master of Science Candidate in Rural Planning and Development at University of Guelph.



ACADEMIC

## 2019 Student Case Competition

#### BY ROB KIRSIC

n a chilly March morning, undergraduate and graduate planning students from Ontario's accredited planning programs gathered at York University's Keele campus for OPPI's day-long Student Case Competition. The competition is an opportunity for planning students to apply their education to work through a case study prepared by clients – in this case, York University and the City of Toronto.

## Winning the case competition was amazing

With the opening of the Toronto-York Spadina Subway Extension in late 2018, a new transit corridor now runs through the Keele campus.

#### ightarrow words of wisdom



## Tips for next year's participants

Michelle Diplock from the winning team has some advice for next year's participants: "Take some time to have fun with the project! Our team made sure to take a coffee break during the competition to walk through the campus, understand the surrounding area, and talk through our ideas in a space outside the traditional classroom."

Words of wisdom from the judges: "It's easy and convenient to work within a familiar environment, but it's important to push yourself beyond your comfort zone to engage with new and different groups within your organization and beyond to broaden your knowledge, expertise, and networks," says Silver. "Seek out mentors throughout your professional career, as it may act as an invaluable and rewarding experience. Finally, I want to emphasize the importance of good public speaking and presentation skills and abilities for all planning practitioners because, no matter how great your work is, if it doesn't capture the intended audience's attention, it will potentially impede your success."

To prepare for this, back in 2009, the York University Secondary Plan was updated with a land use planning framework for future building along Steeles Avenue to the north and Keele Street to the west and on existing lands southwest of the campus. This day's case study focused on lands along Steeles Avenue near Pioneer Village station. Through community consultation, six themes emerged to guide this development:

- mixed-use neighbourhood
- amenities, shops, and services nearby
- safety
- active transportation options
- sense of community
- places to work

After about eight hours of teams huddled away working through the case study, the time came for a make-or-break 10-minute presentation. Five teams made presentations, but, of course, there can only be one winning team – graduate students from Ryerson: Michelle Diplock, Hayley Oleksiak, Nicole Pal, Elaha Safi, and Ryan Taylor.

"Our group wanted to develop a solution that focused on understanding the existing attributes while looking towards implementation strategies for the future... rather than the physical design of the site, because we wanted to address the key part of any development: how the project will actually be built and who York University would need to partner with to make it happen," said Hayley Oleksiak. "Winning the case competition was amazing. Being able to test our urban planning skills and have the space to creatively explore the practice of urban planning was challenging but very rewarding."

To ensure its long-term success, this investment in transit infrastructure needs mixed-use neighbourhoods where people can live, work, and play. The opportunity to view this project through the eyes and experiences of student planners was not lost on long-time practitioners.

"As seasoned practitioners who deal with development approvals and policy studies on a daily basis, and who have been involved with York University's development for years, the opportunity to do something different, to see another side of planning – the academic side – and to benefit from insights by 'fresh eyes' compelled us to... volunteer our time to the OPPI 2019 Student Case Competition," said Diane Silver and Helene Iardas, who, with Kelly Graham, judged the proposals.

#### Our participation reaped huge benefits to us in terms of re-igniting our passion for planning

"Our participation reaped huge benefits to us in terms of re-igniting our passion for planning as well as pride in being able to contribute in some small way to another generation of professional planners."

The winning team will also present their proposal at OPPI's 2019 Conference in Toronto October 1-3 and contribute a post to OPPI's Planning Exchange blog.

"The planning student teams all did an incredible amount of work in a very short time - by the end of the day, each team had created and presented a fulsome proposal. They should all be proud of their work," says Iardas. "[The Ryerson Graduate team presentation] impressed us with its strong vision statement, use of international examples, thorough planning framework analysis, neighbourhood design framework, integrated contextual approach, and corporate and community partnerships. The proposed partnerships approach resonated strongly with [us] as municipal city-builders often faced with the problem of how to provide much-needed community benefits while having access to limited funding sources."

OPPI would like to thank the all participating student members, the City of Toronto planning department and York University who served as competition clients, our RPP judges – Helene Iardas, Diane Silver, and Kelly Graham – and OPPI's Student Liaison Committee for putting on another great event. We look forward to seeing you at next year's competition!

<sup>03</sup> Left to right: Kelly Graham, RPP (Planner with SvN Architects + Planning and one of the judges), Michelle Diplock, Ryan Taylor, Hayley Oleksiak, Elaha Safi, Nicole Pal, Diane Silver, RPP (Senior Planner with the City of Toronto and one of the judges), and Helene Iardas, RPP (Senior Planner, Urban Design with the City of Toronto and one of the judges).



#### **GLOBAL**

**Stockholm's Royal Seaport:** Closing the gap between energy and urban planning

BY DANNY BRIDSON

very day, our cities around the world waste an unfathomable amount of energy. We produce heat we don't make use of, we miss opportunities to produce "free" electricity from byproducts, and natural temperature variance goes unharnessed. Electricity, heat, and cooling are considered essential comforts of modern urban life, yet we have managed to devise our energy systems and urban environments largely in isolation from one another. This failure to capitalize on synergies between built form and energy networks is indicative of the modern era, and it carries societythreatening consequences.



Within this context, the City of Stockholm is developing one of Europe's largest development sites: The Royal Seaport. The 236-hectare site is primarily industrial brownfield, but over the coming decade, the area will transform into an urban district housing 12,000 people and 35,000 jobs. The goal of the Seaport is to be fossil-fuel free by 2030, and the lessons learned from its design and construction will help lift the rest of Stockholm to that goal by 2040. To achieve these targets, the district is striving to design individual units, buildings, and neighbourhoods that prioritize synergy. Maximum overlap for minimal waste.

#### SMART ENERGY CITY

In the development's early phases, Swedish companies, academic institutions, and

governmental bodies came together to start the Smart Energy City research program. The goal of the program is to establish how to build smarter electricity networks and energy-efficient homes. One hundred and fifty-four families live in Active House units outfitted with the latest in-home technology. They are testing washers and dryers programmed to only run when the grid is pushing clean energy, automatic temperature and lighting systems that prompt users to reduce energy use, and interactive readouts that allow users to track the environmental and financial impacts of their energy decisions. Together, the systems psychologically reconnect residents to the invisible networks that power their lives.

Not far from Active House, Stockholmhem's Plus Energy House is nearing completion. The innovative building was restricted from the neighbourhood's district heating network and had to establish separate solutions for heating and cooling. The result is a building that generates power from its rooftop PVs, extracts heat from a variable-speed geothermal heat pump, has closable balcony "micro-climate" zones and an efficient airtight building shell, and collects food waste for use as biofuel. The building provides 1.3 kWh/m2 per year back to the grid, completely reversing its role in the traditional energy and building relationship.

Perched on the hilltop overlooking the emerging district sits the Värtaverket KVV8 cogeneration plant, which was completed in 2017. The 100 per cent bio-fuelled plant is one of Europe's largest and produces 1,700 GWh of heat and 750 GWh of electricity per year by burning the waste and residue of Sweden's forestry industry. This output provides enough heat for 200,000 apartments. The plant processes its fuel and ash in a completely closed system to minimize issues with dust, noise, and smell. Because of this, the facility has been integrated into an existing neighbourhood, and the building has been recognized for its architectural design and qualities.

So far, the Royal Seaport has been successful in reducing greenhouse gas emissions by 60 per cent below the Swedish baseline, and they believe 80 per cent is within reach. The results are being achieved by reconsidering the relationship between urban form and energy at every scale of analysis. We have become comfortable with the idea that energy networks are planned around the needs of our cities, but we are quickly heading towards a future where cities are planned around the needs of our energy systems – and it can't come soon enough. (§)



Danny Bridson, is an urban planner and designer for the Stockholm, Sweden-based studio Mandaworks. He studied urban and regional planning at Toronto's Ryerson University before completing an MA in Sustainable Urban Design at Lund University in Sweden.

#### **CELEBRATING 25 YEARS**





Tony Usher, RPP, of Anthony Usher Planning Consultant and former OPPI President



Mark Dorfman, RPP, FCIP, of Mark L. Dorfman Planner Inc. and first President of the Canadian Institute of Planners

## DECEMBER 9, 1994: THE DAY PLANNING CAME OF AGE

On December 9, 2019, OPPI celebrates the 25th anniversary of the Registered Professional Planners (RPP) designation in Ontario. The work leading to that landmark 1994 designation began on November 24, 1989 in Toronto, when the late George Rich and Mark Dorfman disrupted the OPPI AGM and put forward a motion "That Council establish a working group to bring forward an application to the Ontario Legislature for a private bill recognizing OPPI and professional planners." This was unanimously accepted by an excited group of younger planners who wanted legal professional recognition.

A Private Bill Working Group was tasked with the initial drafting and reviewing of the bill. The bill received royal assent and was passed into law as the *Ontario Professional Planners Act* on December 9, 1994, and with that, the RPP designation was legally recognized and protected.

Tony Usher, RPP, of Anthony Usher Planning Consultant and OPPI President from 1992 to 1994, and Mark Dorfman, RPP, of Mark L. Dorfman Planner Inc., were instrumental in the passage of the Ontario Professional Planners Act of 1994.

#### Y Magazine: Was there a unified planner group prior to 1986 when OPPI was established? When did RPP designation become a mandate?

**Usher:** It is a fairly little-known fact that an Ontario-wide organization, the Institute of Professional Town Planners, was founded in 1948. This was folded into CIP (the Town Planning Institute of Canada) when CIP was revived in 1952.

From 1952 to 1970, TPIC members in Ontario had no separate corporate identity. In 1970, TPIC, or CIP as it soon became, established four affiliated chapters in Ontario: Central, Southwestern, Eastern, and Northern. The chapters cooperated at the leadership level, but there was no "unified" Ontario group.

Undoubtedly, Ontario planners started thinking about professional title protection and legal recognition as early as the first half of the 1960s, when their Québec and Saskatchewan colleagues were so recognized. However, those Ontario planners who thought seriously about professional recognition knew it was not a realistic objective until there was a single Ontario organization.

At the time of OPPI's foundation in 1985-86, the priority reasons given for establishing the Institute did not include statutory recognition. However, I have no doubt this was in the minds of at least some of the founding directors, and it soon came to the fore once the Institute's immediate organizational priorities had been accomplished.

**Dorfman:** In the mid to late 1960s, the Ontario Association of Planners existed as a pseudo affiliate of the CIP. I sat on the executive of this organization. However, it was not a membership-oriented organization.

In the 1960s and the 1970s, TPIC and CIP were held by members as their organizing body. In the late 1960s, TPIC navel-gazed and Gary Davidson and I produced the "Future of the Institute" report. The Canadian Institute of Planners was legally established in 1974.

#### Y Magazine: Thinking back to the period between 1986 and 1994, what were some of the key issues planners faced?

Usher: There is no definitive list. Many issues we think of as issues for today are the same issues as then, just in somewhat different clothing. What's affordable housing? If for low-income and incomeinsecure people, the issue has always been with us. If for middle-income people (and one could argue about whether "affordable housing" should even be about those folks), yes, housing is less affordable than in the 80s, which is why we now have an elastic definition of "affordable housing" and politicians say their sole reason for existence is to benefit the "middle class."

As for climate change, we know a good deal more about it today, but we knew enough in 1986 that the issue was staring in the face those who chose not to ignore it.

I would mention, though, in terms of issues specific to Ontario and specific to the 80s:

- Lack of overall planning policy direction from the Province;
- Lack of control over urban sprawl, or as we now would say, lack of growth management; and
- Some environmental challenges were top of the list then and have been better addressed since, such as acid rain and surface water quality.

**Dorfman:** These were heady times. Growth seemed to be unlimited and, outside the Toronto orbit, municipalities were shaping their official planning policies. There were no provincial-led policies at that time. The *Planning* Act was under review with planners wondering where the profession was heading. In 1995, we were confronted with the "Comprehensive Set of Provincial Policy Statements" and, a year later, a much more sensible first Provincial Policy Statement was in effect.

#### Y Magazine: Are there any challenges that are likely always going to be challenges for planners?

**Usher:** How to manage change at a community, regional, and provincial level, when so much of it is dictated by environmental, economic, and social forces beyond those boundaries.

How to conduct and represent ourselves as expert advisors seeking accommodation among competing interests in a society increasingly distrustful of experts and elite accommodation.

How to conduct ourselves professionally. As I wrote in the Nov-Dec 2017 Ontario Planning Journal (OPJ), "[our] sense of belonging to a profession and what that means are much more profoundly understood now than when I started out." But that has barely kept pace with society's changing expectations of professionals generally and planning professionals specifically.

Some changes since 1994, and more broadly since the 1970s, have had virtually nothing to do with self-regulation and professional recognition, the most obvious being the technological revolution in how we undertake the business of planning.

**Dorfman:** Planners must focus on how to be "able and willing to acknowledge that we are independent and objective experts." Since the role and rules of the L.P.A.T have changed, we are obliged to embrace independence in our daily vocation. Our moral obligation in the Code of Ethics is to "provide independent professional opinion to clients, employers, the public, and tribunals; perform work only within their areas of professional competence." If not the Tribunal, then to the public and clients!

This interview with Anthony Usher and Mark Dorfman is continued on the Planning Exchange Blog at ontarioplanners.ca/blog/ planning-exchange.

#### PROFILE



In following the career path of Iain Myrans, RPP, some common themes emerge. He studied urban economic geography at the University of Toronto, then attended Ryerson's planning school and was a research assistant for Professor George Kapelos, RPP, in the architectural science department.

He worked with former Toronto mayor David Miller to evaluate the Clean and Beautiful City program. He then focused on energy and infrastructure mapping and planning at the Canadian Urban Institute, where he worked with Glenn Miller, who was a mentor and his sponsor for OPPI membership.

## Registered Professional Planner

NAME: **Iain Myrans,** rpp

LOCATION: GTA

POSITION: Policy and Government Affairs, Canada, Tesla Motors Canada ULC rom 2010 to 2016, he was director of policy in various minister's offices across different government departments and worked on some major projects, including the electrification of Go Transit and the Cap and Trade Program. By 2017, planning issues and climate change had become a real passion for Myrans.

"In my view, the climate change problem, in a place like Ontario and Canada, is, for the most part, an urban planning problem," says Myrans. "It's a challenge of where and how we live, where we work, and how we move between those places that make up the vast bulk of our greenhouse gas emissions."

And what better private-sector company to work with in that respect than one on a mission to accelerate the world's transition to sustainable energy: Tesla.

#### Tell us about Tesla and what it seeks to do?

At Tesla, we've developed an entire ecosystem of products to let you capture the energy of the sun, store it in your home, use it to charge your vehicle, or inject that power onto the grid when it's needed. I see Tesla's role as enabling net zero carbon emission communities, and I see that as the future. Electric vehicles are a key component of that and are perhaps the piece that is moving the fastest. Of course, when there are new technologies that come into any setting, there are always new planning opportunities and challenges that might arise. For example, where will people plug in their vehicles and how do we address the charging infrastructure needs?

## Are some municipalities moving faster than others to accommodate new technologies?

When I think about where the state of public policy is at with regard to EV-charging infrastructure, it's interesting to note that Canada is really at the forefront. It's not Canada-wide - it's at the municipal level - but there are some real bright spots of world-leading public policy on this. For example, in 2018, the City of Richmond, B.C. introduced a parking standard, a planning tool, to mandate that every new building constructed, or any time a property is rezoned, 100 per cent of parking spaces are required to be equipped with EV-charging equipment. This policy was later adopted by Vancouver and now most of the lower B.C. mainland is looking at it.

#### Are any communities in Canada aiming for net zero carbon emission?

We certainly see some municipalities encouraging net zero energy developments. Those are the places you'll start to see that full suite of technology adopted. We have a long way to go here though. Fortunately in Ontario, the electricity system is very low carbon already – it's a very clean source of power from which to charge a vehicle or power a home.

#### What role can municipalities have in supporting the adoption of clean technology?

Planning tools can be very, very useful in helping to support the adoption of new technologies. Whether it's official plan policies – or secondary planning or at the zoning and parking standard level – it's extremely important for municipalities to use the tools available to them.

For example, the City of Barrie made a very conscious effort and undertook a community energy plan many years ago and had set its sights on being a leader in electric vehicle technology. Barrie actually worked with Tesla and our charging team on the policy team to deploy over 50 charging connectors that will serve all brands of electric vehicles on city properties parking lots.

For Barrie, this was also an opportunity to attract travellers on Highway 400 who may be moving between the city and cottage country to come into the downtown, to spend an hour or two charging their car and patronizing businesses. To be clear, these aren't the ultra-fast Superchargers – these chargers are ones intended for people who are coming into a destination for a few hours so they can charge their car while having a meal, for example. Charging infrastructure was felt to be key to the longterm revitalization and growth of businesses in downtown Barrie, including by the Downtown BIA itself.

#### Do you have a message for RPPs in Ontario?

My experience has been that whenever EV policy initiatives or infrastructure initiatives are undertaken by a municipality, the planning department is key. Planning departments in many communities are leading the way within city governments, are encouraging the adoption of clean technologies, and are solving many of the challenges. RPPs have a very key role to play in the fight against climate change. In the context of urban regions, perhaps one of the most important roles.

And, don't underestimate the toolkit we as planners have and can work with – whether it's the analytical skills and approach to problem solving we are trained with and that is part of our "planner DNA," or the tools municipal planners have in the form of official plans, secondary plans, zoning, parking standards, and so forth. This is a very, very important and proven toolkit to support the adoption of clean technology and to address climate change.

#### **Final thoughts?**

One thing we have to be conscious of is that the development of new technology is often moving at a faster pace than the regulatory environment. Planning cycles are quite long so it's really important that when opportunities arise to support the adoption of clean technology, we look towards the likely future state of the technology, as planners should, and not just at the current state.

As a planner, I feel we have a real responsibility to get it right today to the best of our ability: to look into the future and plan as best we can for these emerging clean technologies, so we don't impose costs – retrofit costs, for example – on our communities in the future. ()



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#### **OPPI NEWS**

#### 2019 Member Service Award Winners

OPPI Member Service Awards recognize extraordinary service and significant contribution to the Institute by OPPI's volunteer leadership. Awards can be given to members honouring their accumulated service over a long period of time, performing a key or integral role with a special project or program, and representing OPPI and the planning profession extraordinarily well in a provincial or national forum.

Earlier this year we asked members and District Chairs, on behalf of District Leadership Teams, to submit nominations for each District.

With the nomination period now closed, we are pleased to announce OPPI's 2019 Member Service Award winners:

- Thora Cartlidge, RPP
- Brenda Khes, RPP
- Nancy Farrer, RPP
- Pamela Sweet, RPP (Ret.)

Please join OPPI in congratulating our 2019 Member Service Award winners. For more information on our winners and their contributions to the Institute, please visit our Member Service Award webpage.

If you want to congratulate Member Service Award winners in person, OPPI will be recognizing winners at OPPI19: Beyond25 at the Beanfield Centre in Toronto. If you haven't already, register today and join us to help recognize the accomplishments of our winners and celebrate in person.

#### **OPPI AGM:** Notice of meeting and agenda

The 2019 Annual General Meeting of the Ontario Professional Planners Institute (OPPI) will take place Wednesday, October 2, 2019, at the Beanfield Centre in the City of Toronto at 1:00 p.m. for the purpose of:

- Reports of the Treasurer and President
- Items for Membership Consideration:
  - Appointment of Auditor
  - Approval of Actions of Council
  - Motions Submitted by Members
  - Election Results and Introduction of 2019/20 Council

Notification of the Call for Nominations of Directors was sent to all members by way of the Members e-newsletter in February and March 2019 and posted on the OPPI website. Nominations for the election of Directors at the AGM are received in accordance with section 3 of the OPPI General By-Law.

#### MEMBER PROPOSED MOTION

A request for submission of substantive motions for the Annual General Meeting was sent to all members by way of the Members e-newsletter in June and July 2019 and posted on the OPPI website. No motions were received by the Registrar by the deadline of July 15, 2019. Motions concerning substantive issues that were not provided in writing by the above date will not be considered at the AGM.

## **DAT NOVEMBER** 7<sup>TH</sup>, 2019 TORONTO PLANNING DINNER

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#### **OPPI NEWS**



Danielle Desjarlais and Kateri Lucier-Laboucan, Indigenous Design Studio at Brook Mcllroy Inc. The graphic is based on the Prophesy of the Seven Fires of the Anishinaabe and the idea that we are currently in the time of the seventh fire, when a choice will be made that will determine the future. This is highly relevant to the issue of planning and climate change. This is why the seventh fire at the top of the graphic is without colour. The outcome is up to us as a collective.

#### Indigenous Planning Perspectives Task Force Report and Website

On March 23, 2018, OPPI Council invited Dr. Sheri Longboat, Calvin Brook, RPP and Elder Dr. Duke Redbird to contribute to an Indigenous Planning "Generative Discussion." The Indigenous Planning Perspectives Task Force (IPPTF) was created and over the course of the next year, held meetings and consultations with a wider advisory group, related professions and professionals working with and for Indigenous communities and organizations, as well as Aboriginal, Métis and Inuit Peoples.

A report was produced establishing context and outlining recommendations for moving forward respectfully and in collaboration with Indigenous Peoples, communities, and planners in response to the Truth and Reconciliation Commission of Canada's Calls to Action. OPPI is pleased to announce that the final report has been received by OPPI Council and an implementation plan is being developed.

A section of the OPPI website has been dedicated to Indigenous Planning Perspectives to enable updates and developments as the recommendations are implemented. While the implementation plan is being developed, members are encouraged to review the report and visit https://ontarioplanners.ca/inspiring-knowledge/indigenousperspectives-in-the-planning-profession/introduction.



**New student delegate:** Catherine Tran

OPPI is pleased to welcome Catherine Tran as our 2019-2020 Student Delegate, succeeding Keith Marshall, for a one-year term.

Catherine, who previously served on OPPI's Student Liaison Committee (SLC), is a fourth-year student at Ryerson University obtaining a bachelor's degree in urban and regional planning, with interests in land use planning, housing, and sustainability. As OPPI's Student Delegate, Catherine will chair the SLC, which serves as a leadership network linking students across the six accredited planning schools to OPPI.

"I believe it is important for OPPI to maintain a strong connection to young/ future planners, as it enables future planners to be aware of the 'planning world' they are entering and bridges the gap between past, current, and future planners," says Catherine.

The SLC meets throughout the school year and promotes the benefits of OPPI membership and events and programs targeted to students: scholarships, participation in our annual event, the Student Case Competition, and nominations for student representatives and our next Student Delegate.

Please join us in thanking Keith Marshall for his volunteer service over the past year. We look forward to working with Catherine and the SLC this year.

## Welcome to the newest RPPs

Every year, OPPI welcomes new member RPPs from variety of backgrounds. Only full members of OPPI are authorized to use the RPP designation. The newest RPPs followed and completed the certification process administered by the Professional Standards Board allowing them to practice as RPPs in Ontario.

Congratulations to the RPPs. We applaud your achievement, dedication, and commitment to informing choices and guiding the public decision makers and stakeholders on the journey to creating inspired communities.

Learn more about our newest RPPs under the "become an RPP" header at ontarioplanners.ca.

#### Members resigned or removed from the register

#### THE FOLLOWING FULL MEMBERS HAVE RESIGNED IN GOOD STANDING FROM OPPI FOR THE 2019 MEMBERSHIP YEAR:

- Curwood Ateah Andre Darmanin William Hughes Helen Lepek Harvey Low Michael Mallette James McEwan Alan McNair Kelly O'Brien
- Ray Poitras D'Arcy Rahkola Leonard Rodrigues David Smith Janet Smolders John Spencer Gary Templeton Jason Thompson W. Carson Woods

#### THE FOLLOWING FULL MEMBERS HAVE BEEN REMOVED FROM THE REGISTER FOR NON-PAYMENT OF MEMBERSHIP FEES FOR 2019:

John Andrew Michael Benson Wing-Tak Chan Henry Chow Stephen Couture Stuart David Janet Dawson Shahrzad Faryadi Michael Foley Merwan Kalyaniwalla Geoffrey Keyworth Lee Koutsaris Michelle Kwok James Kyle Samantha Lahey Pierre Malo Zainab Moghal Karen Nasmith Calvin Nelson Scott Nevin David Powers Beth Savan Kristen Sullivan Brian Sutherland Jay Thatcher Ryan Vandenburg Martyn Wayne Diana Yakhni

#### THE FOLLOWING FULL MEMBERS HAVE BEEN REMOVED FROM THE REGISTER FOR NON-COMPLIANCE WITH OPPI'S CONTINUOUS PROFESSIONAL LEARNING REQUIREMENT:

Daniel Eusebi Adam Lennie Pierre Mercier Renee Pettigrew Siu Hang (Carlson) Tsang

Note: This notice is accurate at press time. For questions, email Rupendra Pant at membership@ontarioplanners.ca.



# PREVIEW.

#### NEXT ISSUE PREVIEW: AFFORDABLE HOUSING

As house and condo prices continue to make ownership impossible for a growing segment of the population, communities across Ontario are struggling to provide adequate housing for residents. At the same time, conventional concepts around home ownership and zoning regulations are being challenged in order to meet the demands of an increasingly diverse – and an increasing – population.

From senior co-housing, community housing, and the missing middle to the impact the sharing economy and short-term rentals have had on zoning, housing is a topic that affects everyone. But how is affordable defined? Does the emphasis on owning versus renting need to change? And how are planners helping to address the challenges?

In the Winter 2020 issue of Y Magazine, we'll dig deep into some of the stories behind affordable housing and the planners who are working to inform the choices made by communities across Ontario.

> Toronto MLS<sup>®</sup> stats for July 2019 indicate an average house price of \$913,509, up 4.7 per cent from the previous year. The average price for a two-bedroom condo is \$727,000 up from \$694,000 a year ago. www.zolo.ca/ toronto-real-estate/trends



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## THANK YOU TO OUR SPONSORS

**OPPI19:** Beyond 25 would not be able to take place without the generosity of our sponsors. The Ontario Professional Planners Institute would like to thank the following organizations for sponsoring the most popular and talked about planning event of the year in Ontario.



Note: This sponsor list is accurate as of press time. More information about our 2019 Conference sponsors is available at ontarioplanners.ca.



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