MASTER PLANNING

for the Future of Independent Schools and Colleges

By Elie Newman

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Today, private and independent institutions are dealing with many demands. They must stay at the forefront of their fields, continually attract the families and students who make up their base, and evolve for an expanding and diverse population. Not the least of these demands is the necessity to modernize and develop an institution's physical facilities. This imperative is not only to suit changes that have occurred, but to also be forward-looking and flexible enough to meet the ever-changing future of education.

The demands are numerous—sometimes conflicting—and may include technical infrastructure, program developments, sustainability and resilience, health and wellness, and, of course, budget constraints. They require construction projects with diverse scopes and scales, and although some are simple, many are actually quite complex mixes of renovations, remediation, and new construction.

For these private institutions, who may not have internal strategic and facilities planning departments, master planning studies can be an invaluable resource to sort through conflicting priorities and establish a vision that suits their specific character and objectives—a roadmap geared to their institutional culture. These studies are dynamic documents that lay the groundwork for the future; establishing a foundation for new projects, and a rational plan to realize the vision over time.

Architectural and urban design practices with a good foundation in holistic design of built environments at different scales are uniquely qualified to create these strategies, and assist private educational and other institutions through master plan studies.

Many priorities need to be considered and integrated in the context of an ever-changing world. These include:

- maintenance of aging facilities and buildings;
- modernization of technical infrastructure systems;
- ongoing evolution in educational thinking and programming;
- the desire to improve the quality of educational space;
- the need to increase sustainable building design and operations and improve them; and
- address changes in health and wellness.

A quick review of these factors will give one a sense of the complexity these institutions face.

Age and facility maintenance

The postwar boom saw unprecedented growth in the construction of institutional facilities, both public and private. Many of Canada's private educational facilities were built between the 60s and 80s and continue to the present day. Many others started even earlier and occupy heritage structures. A mix of heritage buildings and late 20th century structures and modern facilities is not uncommon. Though some facilities built recently are up-to-date, a lot of institutional infrastructure are 30 to 50 years old while some are even older.

During this period there was also a growth of private, independent schools, colleges, and training facilities, and so many of these buildings are now in a position of requiring not just ongoing repair and maintenance, but also substantial remediation or upgrades to major elements of their infrastructure.

Modernization of infrastructure systems

There has been a lot of evolution of building components and systems in the interim. These developments have been seen across the board from structural and envelope elements (cladding, windows, and roofs) to internal systems (HVAC and plumbing, controls, electrical power plants, and distribution and life-safety systems). The world of communications has seen explosive growth with huge developments in data and voice systems. These have had major impacts on education. The evolution of audiovisual (AV) systems and their integration into education continues to undergo change. Since these systems are constantly changing, they require upgrades or complete replacement, sometimes demanding substantial capital costs periodically.

Educational institutions must deal with many demands. Master planning studies can help sort through conflicting priorities and establish a vision that suits an individual school's needs.

Most recently, the onset of COVID-19 has accelerated the acceptance of some forms of virtual learning and the integration of technology into educational methods and assignments. Even with a return to in-person schooling, the developments in this area are certain to progress and demand more infrastructure.

Many of these infrastructure developments require additional space or spatial reconfiguration, whether it is for physical equipment and servicing space, or pathways for distribution. Being aware of these necessities during big-picture master planning is key to its viability later on.

Evolution and developments in educational program and methodologies

A lot of traditional theories and methodologies still contribute to the foundations of modern educational thinking. However, there have been huge developments in educational delivery and programs in the decades since many of these facilities were built, and they are having an influence on its design. An emphasis on developing critical thinking, experiential and collaborative learning, self-directed research, and integrating diverse subjects has changed the whole environment of education.

These developments require a built setting with the spatial characteristics to foster their success and the flexibility to adapt to ever-changing conditions. How does it translate into the design of space? Well, classrooms designed for simple frontal delivery with desks lined up in rows or old-fashioned science labs with permanently fixed lines of lab desks is simply not practical anymore. Design needs to account for a more diverse and flexible series of spaces: grouped learning environments of different sizes, areas for collaboration, multipurpose zones, STEM workshop studios, convertible arts rooms, outdoor learning environments, and integration of varied athletics.

Although these spaces get configured later during the design of specific projects, at the master planning stage, the change and flexibility in space needs to be considered. Additional space is often required, and the relationships between the various rooms are evolving and the character of that zone, whether in new or renovated areas, is also changing.

Institutional design must consider in grouped learning environments of different sizes, areas for collaboration, and multipurpose zones.

Quality of modern educational space

The changes in education have revised the design of space to suit those methodologies. An emphasis on designing circulation areas as social gathering places; designing informal collaboration spaces as welcoming zones; and including multipurpose areas within facilities can be planned for early on, such as in the master plan phases. Whether as commons areas, seating niches, or actual programmable space, they need to be taken into account when early space programming, budgets, and conceptual layouts are being considered.

Similarly, emphasis on daylight penetration into interior spaces to promote well-being and learning also needs to be considered early. Further, many institutions are exploring the idea of outdoor learning areas.

The importance of designing facilities with some surplus space can be beneficial for achieving flexibility and increased quality in educational programming. Having attractive swing space that educators can count on for breakout sessions or less formal learning has proven invaluable, and should be built in at the master plan stage.

Sustainable and resilient design for the future

Sustainability is no longer a choice; it is imperative. Buildings are a major component of creating a sustainable society. The urban built environment is responsible for 75 per cent of greenhouse gas (GHG) emissions and buildings are responsible for almost 40 per cent of emissions. Changing the way we build and how buildings use energy is crucial if climate change is to be brought under control and meet the Paris climate agreement targets. Architects in Canada, the United States, and other countries have through their organizations, together with engineers and other professional institutes committed to reducing fossil fuel use to achieve carbon-neutral status by 2030. Instituted in 2006, and known as the 2030 Challenge, the commitment involves using innovative and measurable sustainable design strategies to achieve this. Strategies such as offsite and onsite renewable energy, using passive energy, continuous energy modelling during design, and a host of other tools are being applied to meet the commitment.

Whether we are talking about the whole campus or a single building, changing a facility's use of energy to control its interior environment and climatic comfort in sustainable ways is of the utmost importance. Additionally, a facility's resilience to changing weather patterns and increasing storms is becoming ever more crucial.

The technical modernization of energy, water, and material resources for sustainability are important. Adapting existing, seemingly outdated buildings has a positive impact on the sustainable framework of cities. Of course, this cannot be the only consideration, but adaptive reuse of existing building components, even those without heritage character, can often be the wisest choice when broader sustainability implications are considered.

Modernizing campuses and buildings to meet the 2030 Challenge needs to be integrated into design at the very start through master planning before specific building projects are embarked on. Thus, a phased integration of sustainability saves one the costs of future upgrades.

A master planning consultant can help clients resolve the complex series of decisions and policy in innovative ways. Architecture and design firms who are experienced in master planning have developed the skillset to facilitate this process: to work through the inter-related aspects of the issues; lead others through the various considerations; and creatively arrive at solutions that are tailored to the particular needs of specific institutions. Once the master plan is in place, specific projects can be funded and implemented in a rational manner and then revisited in coming years to confirm or refine as new developments occur. The introduction of a creative vision to tie the components together in innovative ways can make the sum so much greater than the parts.

So how does one go about creating such master plan roadmaps? The organizational structure of independent schools and other private

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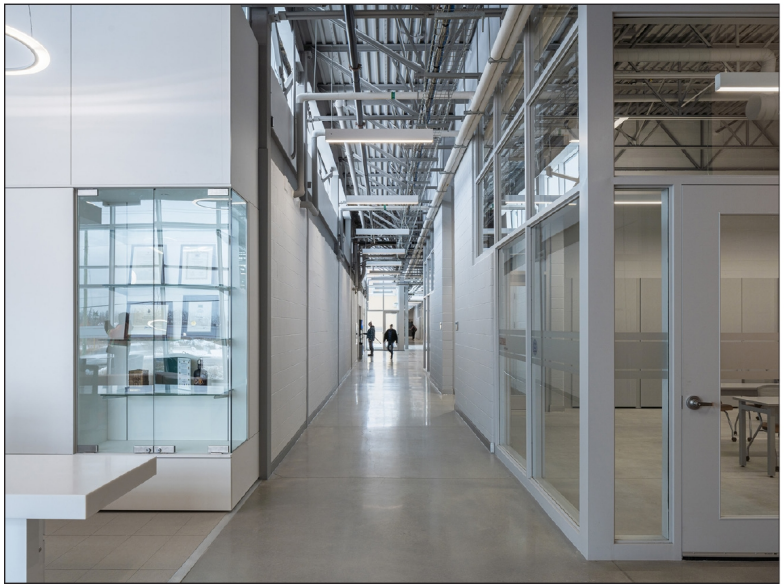
educational institutions is such that strategic planning and visioning for the future involves a lot of players: private boards, foundations, senior administration, parent bodies, staff, and students. The process works best when all the players are consulted because it not only helps them to clarify the goals, but also assists the project team in learning the institution's culture. Most importantly, it contributes to the vision itself and promotes understanding by all of the key priorities and supports buy-in of the eventual master plan.

The process is inclusive and iterative. It starts with a lot of conversation with the various parties to gain understanding on all sides of the many elements, whether technical or educational (*i.e.* goals, the various factors to be addressed and objectives surrounding them, and the priorities that might be attached to them). It is a kind of blue-sky exercise meant to compile a best-of-all-possible-worlds wish list together, with the realization it may not all be achievable. Then meeting in a variety of ways to review, discuss, and together develop the criteria for evaluating different design ideas that will be coming forth.

The project team then develops design options for achieving the mix of objectives in different ways. In this phase, it is important to avoid preconceptions and test different ideas for various components, as may be appropriate. Along with this, analysis is done of how well the options meet the needs, what they might cost, and how they might be realized over time, and often in a phased approach. These alternatives may differ widely or be variations of each other depending on the circumstances. Again, a lot of conversation takes place in different forms—in small group meetings, larger workshops, town-hall get-togethers with several



An institution's master plan must have a built-in flexibility so that it absorbs shifts in thinking and priorities.

players—to discuss these options, design together, and move them forward, until preferred directions are chosen and coalesce into a master plan.

The process itself often energizes the institution by involving all the stakeholders. It serves to clarify the financial and human resources that will be needed by the organization and the timelines for applying them. Master planning does not just create a vision, but also provides a context for the consideration of all the very real construction and infrastructure projects that follow. A master plan gives senior administrators, board leadership and members, project managers, construction groups, and design teams who are working on subsequent projects, the perspective on how and what they are engaged in. It shows how that fits within a larger plan for the institution. This is invaluable and many have said knowledge of the wider picture is crucial in developing the success of specific projects that came later.

One of the most important factors to be considered in developing a master plan is the necessity for it to incorporate change and have a degree of flexibility built in. This is so it can absorb shifts in thinking (whether technical or programmatic) and priorities. The implementation of projects and different phases of a plan by their very nature bring new insights, as does the evolution of thought over the time taken for implementation. The better the plan, the more able it is to adjust to these changes. The time frame for which a master plan remains relevant can vary greatly, but a range of 10 to 20 years is often appropriate.

There is a tendency to think that this kind of all-embracing master plan is necessary and affordable only for large independent schools, colleges, and institutions that have high profiles and abundant resources. This is not the case. Smaller institutions are facing similar issues, albeit on a different scale. The author's firm is currently engaged in master plans for two smaller independent schools. The cost of infrastructure improvements, renovations, and additions is substantial, no matter the scale, and so the time and cost to develop a roadmap for the future pales in comparison to the cost of the projects themselves and the multitude of benefits a good master plan delivers.

Elie Newman, principal at BNKC Architects, is an expert in designing customized academic spaces and has assisted various institutions including the Bishop Strachan School (Canada's first independent School for girls), Royal St. George's College, St. Andrew's College, and the LiUNA Local 506 Training Centre. For more information, visit www.bnkc.ca, or contact him via e-mail at enewman@bnkc.ca.