

an incremental mode of development reflecting the ever-evolving and dynamic process of Singapore throughout time.

The concept-driven proposals touch the sustainable aspects of future urban form, the car-restricted zone as the downtown interchange, downtown campus space as the knowledge interchange and a fine-grain boulevard environment as an urban connector. Due to the clarity of the plan, the responses throughout public meetings were meaningful and thoughtful. The three downtown design concepts critically reconsider the planning principles of the existing Singapore CBD development and the New Downtown plan in order to propose some alternative scenarios for future development with different urban characteristics. It also responded to the island-wide Concept Plan 2001, which emphasized the ideas of rail-oriented development, high-rise city living, global business centre and the issues of identity (Singapore URA, 2001b).

From plan clarity to plan effectiveness

The three distinctive urban design proposals, Downtown Interchange, Campus City and the Boulevard tried to seize the attention and imagination of designers and policy makers by their clear urban form, spatial concepts and distinctive visions. At the final stage, a practical approach was adopted by the NUS studio team for making the final urban design scheme more feasible and implementable. The final urban design proposal was prepared based on the following three major urban design components.

Final urban design master plan

By reorganizing the previous three conceptual designs, a final proposal was drafted by coordinating the design and planning principles of the three conceptual schemes. Some of the design concepts were further developed by the NUS studio team, including the encouragement of small-scale enterprises through fine-grain strategies for mixed-land uses, a vertical zoning policy for the downtown campus, the transformation of the retail landscape by injecting new urban form and activities along main routes and by providing the boulevard with new open landscapes. Three final schemes, the City Campus, the City Boulevard and the City River, were proposed which comprise the overall urban design master plan.

Urban design guidelines

Urban design guidelines, in the Singapore context, are a governmental tool for achieving expected performance and spatial quality of possible urban form. By looking at the more detailed block-scale massing study and design, some aspects of urban design quality were achieved by developing a visibility analysis, a built form and streetscape study, connectivity consideration of vehicular and pedestrian access and the implementation strategies for development programmes. The traditional ways to deal with urban design guidelines such as design control plans and sections were applied. New techniques of describing three-dimensional (3D) urban quality, such as 3D massing rendering, were also tested for illustrating the criteria and guidelines of the design area.

Design for strategic urban sites

For the purpose of demonstrating how the urban design guidelines work, more detailed architecture and landscape designs were done in some strategic urban sites in order to show the potential quality of urban space and to test the requirements of the proposed urban design guidelines.

Conclusion

The incredibly fast urban transformation of Singapore's downtown is a good example for rethinking urbanism in an Asian urban context. This provides a different experience from European and North American urbanism in terms of urban form, driving forces and alternative future scenarios. The reflections on Singapore downtown urban design and development have some implications for governmental sponsored urban design studios. A series of questions were raised through the critique of functional planning, which stimulated design thinking during the process. It is a reminder of what might be missing in the contemporary urban life of Singapore. The urban reality contains many conflicting values of old and new, short-term interests and long-term visions, profitability and the public interest, aesthetics and functions, all of which are sometimes hidden in Singapore planning and urban design. An approach towards a more sustainable downtown urban form was proposed by the urban design studio through a few design strategies: the car-restricted zone, campus downtown space, finer-grain urban fabric, small business and small-scale development, a rich mix of land use, the emphasis on streetscape rather than large-scale open space, releasing the control of spaces and the decentralization of ownership, small and incremental development process rather than