

TAXONOMY OF URBAN SITES

From the four charrette case studies featured in the previous section come virtually hundreds of design strategies that address issues pertaining to air, water, people, and affordability. As a means of organizing these strategies into a coherent and useful framework we developed the Taxonomy of Urban Sites. The taxonomy is structured, on the one hand, by scales of urban design – district, corridor, block, and parcel – and, on the other, by sustainable design performance categories – ecological infrastructure, social infrastructure, movement, and cost. In this way, the charrette design strategies can be understood in terms of (1) the degree to which they address the specific sustainability challenges of air, water, people, and affordability, and (2) the scale, or unit of development, to which they are most applicable.



Drawing Credit: Bob Worden, Ramsay Worden Architects, Ltd.

PART TWO

A Design Method

In producing this manual, we poured over the results of work done here in British Columbia as well as in other parts of North America. We were looking for a way to organize and distill the vast number of sustainable design strategies into a logical and useful framework. At the same time, we wanted a framework that would be relevant to a variety of site situations and that would encompass the broad range of issues that bear on sustainable site design. For this reason, we chose to feature the case study results of the four charrette projects described in Part One.

What emerged from each of the four charrettes were clear and practical ideas for making our communities more sustainable. These design strategies are not new - they are grounded in years of research and public policy. They include designing mixed-use, compact communities around transit; designing interconnected streets to encourage walking and to reduce dependence on the car; and providing affordable and appropriate housing in a mix of forms and at a mix of densities. They also include a strong imperative to protect aquatic systems and their green infrastructure tributaries that are the neighbourhood streets.

Taxonomy of Urban Sites

In the process of distilling the charrette outcomes into a useful framework, we ran the risk of repeating the same failure we had identified in previous efforts: disintegrating the very thing we wanted to preserve - the whole cloth of sustainable urban communities. Consequently we have taken pains NOT to organize this work according to functional categories such as transportation, housing, storm-water systems, green space, and so on. What we offer instead is a two-tier taxonomy that is organized, on the one hand, by the **urban design scales** of *the district, the corridor, the block, and the parcel*, and, on the other hand, by the **sustainable design categories** of *green*

infrastructure, social infrastructure, movement, and cost. The principles embedded in these four categories were distilled from seven principles outlined in the East Clayton Neighbourhood Concept Plan (2000) (see pp. 46-47).

Urban Design Scale

taxonomy of urban sites

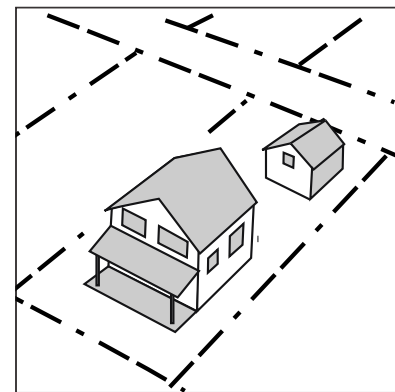
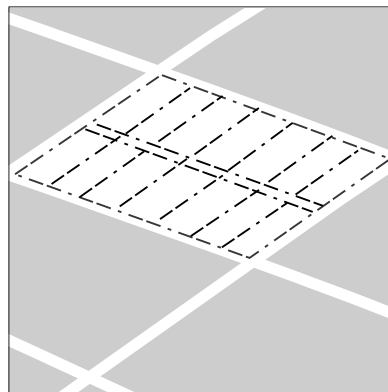
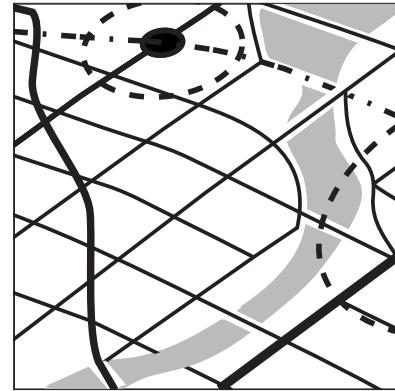
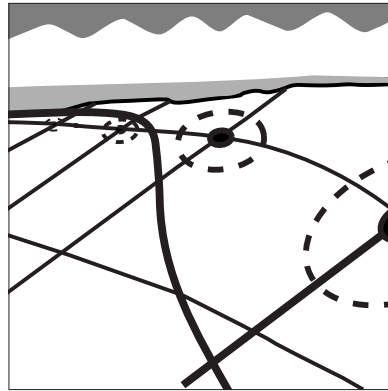
The district, corridor, block and parcel taxonomy is based on functional principles of urban design. Together and in pieces these units can be organized and configured in many ways to produce either more or less sustainable results. For each scale there are many different types of units. For instance, orthogonal blocks that form gridiron street patterns are one type of block, polygonal blocks that form radial webs are another, and green centered large blocks that allow natural landscapes to penetrate deeply into the fabric of the community are a third. In this and other respects, application of functional principles overrides adherence to any one stylistic urban design pattern.

District

Districts are the geographic and social units that collectively comprise our urban regions. They are the places where we live, work, play, and exchange. They often represent the most local level of government (e.g., electoral wards). How districts are shaped and function can affect the entire region. Districts that concentrate services, housing, transit, and other activities of daily life within a walkable distance of residences benefit the region by reducing auto use and by distributing services evenly.

Corridor

Corridors are the conduits for moving materials, energy, and resources within and between neighbourhoods, districts, and regions. Be they streets, lanes, boulevards, pathways, or streams, corridors need to reflect their unique and specific functions. Regional transit corridors should be designed to coordinate and concentrate growth where it is most appropriate. Local corridors should be designed to be walkable and to connect residents to commercial services, transit stops, and natural areas. Laid over the urban fabric, a system of interconnected transportation corridors can and should yield to natural stream corridors without unduly compromising street interconnectivity.



FURTHER RESEARCH

The concept of “green infrastructure” is becoming more widely accepted for maintaining the ecology, economy, and affordability of new and retrofitted communities, for minimizing maintenance costs of systems over the long term, and for eliminating a site’s downstream impact on streams and natural areas. For further research into this topic, please see:

Moffat, *City Green: A Guide to Green Infrastructure for Canadian Municipalities*.

Block

Blocks are the chunks of developable land that are available after a street pattern is imposed. Smaller blocks result from a more integrated (or net-like) street system, while large super-blocks are the result of a disintegrated dendritic (or tree-like) street system. The smaller the block, the finer the grain of development and the more permeable the neighbourhood.

Parcel

The parcel is the smallest increment of development. However, what happens at the scale of the individual house and yard has important social, economic, and environmental implications for the rest of the district. The post-1950s emphasis on the automobile has resulted in a whole new set of dimensions that demand ever-wider parcels to accommodate driveways and garages. Wider individual parcels mean less density in the aggregate, translating into more expensive infrastructure per individual parcel serviced. It also translates into a context that becomes, over time, so car-dependent that even the simplest of everyday needs cannot be satisfied without an automobile.

Sustainability Categories

taxonomy of urban sites

While the word sustainability defies absolute definition, it has commonly come to represent that which balances social, ecological, and economic imperatives. When we apply sustainable thinking to problems of urban design, these imperatives translate into the interrelated categories of ecological infrastructure, movement, social infrastructure and cost. It should be emphasized that these four categories were derived from an original set of seven principles outlined in the East Clayton Neighbourhood Concept Plan, 2000 (see pgs. 46-47).

Green infrastructure

Green infrastructure refers to the ways in which natural systems are integrated into the structure of a community. Green infrastructure can mean using the naturally absorptive areas of the streets, forests, and open areas to allow rainwater to infiltrate the ground. It can also mean integrating stream systems with large natural areas (such as park and school sites) with greenways, as well as with bike and pedestrian trails, in ways that preserve and enhance their ecological function.

Movement

Organisms need a constant and efficient flow of materials and energy in order to survive. When this flow is interrupted or altered, the organism's health is compromised. So too with communities. Communities designed with an interconnected network of green streets, lanes, pathways, and streams provide ways to travel, provide rainwater with an opportunity to be dispersed and absorbed in many locations, and provide streams with the protection and nutrients needed to support essential fish and wildlife habitat.



Social infrastructure

Communities with a healthy social infrastructure are complete communities. Healthy social infrastructure means that housing, jobs, and services are clustered and that residents can walk to a transit stop or to a corner store. It means that housing is available and affordable for a variety of income groups and family circumstances within the same neighbourhood and even on the same street. It also means that public spaces are enriching and add quality, identity, and meaning to the fabric of a community. A healthy social infrastructure creates a community in which people want to remain.

Cost

Sustainable communities are affordable communities. This means that they contain homes that citizens can afford; provide an equitable and reliable distribution of services; provide a reasonable return on investment over the long term; and minimize the cost of restoring the environment, tax rates for citizens, and future capital costs to local governments.

FURTHER RESEARCH

Several North American urban design theorists use this framework of physical spaces as the key organizing principle for functioning communities. Please see:

Duany and Plater Zyberk and Company, Version 2.0. *The Lexicon of the New Urbanism*.

Calthorpe, *The Next America Metropolis*.

CHARRETTE STRATEGIES

The charrette strategies in this section are organized according to a common format that corresponds to the two-tiered “Taxonomy of Urban Sites” (outlined on pgs. 52-53). Each page outlines four strategies for addressing sustainability at the scale of either the District, Corridor, Block, or Parcel with a fourfold focus on the categories of Green Infrastructure, Movement, Social Infrastructure and Cost.

Sustainability Category
This identifies the sustainability category addressed by the strategy.



Charrette Strategy
This identifies a specific strategy for addressing the sustainable design category.

Illustration
This illustrates visually how the category was addressed.

Description
This describes why the strategy meets the sustainable design performance standard and how it was achieved.

Charrette Strategy ID
Urban Design Scale
This identifies the urban design scale at which the charrette strategies apply.
Charrette Name
Charrette Icon

E Corridor
southeast false creek

E1 Create urban gardens
Green Infrastructure
Even a high-density residential area can provide habitat for songbirds, amphibians, plants, and insects. The image below demonstrates how this is done. The street system in the image is actually a linear habitat corridor that links to habitat areas along and just off the shore. Extensive planting of fruit and nut trees and fruit-bearing plants in and along these public ways provides the community with a “garden landscape” that is not only beautiful, but also edible!

E2 Create safe and comfortable streets
Movement
Designing streets for safety and comfort will encourage more people to use them. The cutaway view of this local street shows how this may be accomplished. A narrow roadway (approximately 6 m wide) accommodates two travel lanes. Moving traffic is buffered from pedestrians by parking, located within grass verges, on either side of the street. Street trees provide areas of shade and create a strong edge between the roadway and the sidewalk. The “zero” setback of the buildings gives the street an even stronger edge while balconies provide a means for further animating the street.

E3 Use streets to frame views
Social Infrastructure
Grid street patterns usually protect long views, modified grid street patterns can protect long views and/or emphasize key structures or locations within the district. In the plan detail shown, the street orientation and design ensures that views to local landmarks such as the North Shore mountains, city hall, the downtown core, and Science World are maintained. The street wall – a three-to-four-storey continuous building wall set closely to the road – contributes to the impact of these views by “framing” the street.

E4 Centre activity on a “Main Street”
Cost
A primary through-corridor can become the commercial heart of the community. Team Two took the position that a centre could be linear and connect to the rest of the city along an active street corridor. Above, retail, services, and working spaces animate the Main Street while serving neighbourhood residents and those that pass through by foot, car, bicycle or streetcar.