waterfront access and view corridors that attract private development (housing, offices, retail, and entertainment).

Reconstruction provides an opportunity to rebuild using the best technologies in sustainable planning, building design, and energy efficiency. The question for Lower Manhattan is – does the political will exist to overcome the current state of reluctance by some developers to use such technologies? Most New York City civic groups are committed to lobbying the government for high performance and green building practices that seek to reduce environmental impacts while increasing the well-being of occupants and saving overall life-cycle costs. Projects that design-in optimal building performance, such as investments in energy efficiency, day-lighting, and good indoor air quality, provide human resource returns in terms of occupant health and productivity. This, in turn, increases the long-term value of real estate. To help accomplish this, nature can be used to power buildings and mitigate atmospheric heat. For example, greening buildings, incorporating private green spaces within buildings, such as courtyards, terraces or planted roofs; incorporating power generating technology such as windmills and solar panels; designing site plans that create public spaces at the ground level for parks with areas for heavy planting and grey water-pools, are measures to help reduce temperatures.

Other changes can be made on a larger scale, such as recognizing the importance of Lower Manhattan's waterfront for parks, recreation, and boating; designating the area carbon neutral; and requiring that CO_2 emissions are substantially offset by carbon absorbing planting. High-efficiency centralized systems using co-generation technology can support mixed uses and 24-hour activity. They also can reduce dependence on oil and fossil fuels.

Sustainable legislation

Civic groups argue that the redevelopment of the WTC site must achieve zero-net CO_2 emissions for energy used at the WTC site, and a rating of platinum under the Leadership in Energy and Environmental Design (LEED) programme of the US Green Building Council. Lawmakers have regulatory powers to mandate the application of environmental design guidelines. Today, the *Battery Park City Authority Environmental Design Guidelines* are required for all construction in the Battery Park

City neighbourhood, built across the street from the WTC. Here, the recently built 'Solaire' apartment building (2003) is the nation's first sustainable, residential, high rise, a result of the mandatory guidelines.

Community node organization

Neighbourhood nodes grow organically in large, dense mega-cities, like New York. It is a unique phenomenon of such cities. These nodes tend to grow naturally around the intersection(s) of public transportation. Consequently, they can be planned as part of a combined urban plan and transport strategy. The larger the transportation network, the more populated and diverse the neighbourhood is likely to be. These intersections are the areas that require public investment for civic amenities (Figure 10.7).

A neighbourhood node consists of a population large enough in number to create a self-contained community that is eligible for schools, health care, police, fire protection, postal services, banking, and open spaces for playgrounds and parks. It is small enough for professional and commercial services to be within walking distance and delivery services such as groceries, restaurant food, and laundry to be available.

In Manhattan's vertical urbanism, a neighbourhood node of high- and mid-rise buildings usually includes offices, or apartments, or hotels – all with retail at ground level and with limited parking facilities. Some of these buildings may contain schools and health facilities. Tall buildings result from the desire of many people to live and/or work in the same location. People choose places for a variety of reasons: to mix with people sharing similar work; cultural or entertainment interests; or to live near the woods, mountains, or the beaches; or to enjoy a certain type of climate. Whatever the motivation, towering residential and office buildings are attractive to a large number of people. In conjunction with a willingness to live vertically, people make practical decisions about the quality of urban life and employment, as well as the availability and cost of housing, schools, health care, recreation, and entertainment.

In New York's urban area, it is the small things associated with the quality of life that make life acceptably livable. Trees, plants, and flowers on sidewalks, small parks, and building planting are as essential as secure, clean, well-kept streets.