



Cellular development

Key points

- *The primary goal of cellular development is to increase the accessibility to a variety of destinations that people would visit on a daily or weekly basis.*
- *Coupled with proximate access to mass-transit and walkable streets, this development framework creates successful, self-sustaining communities, thus reducing the need for trips made by private cars.¹*

Cellular development explained

Cellular development, often referred to with the mixed-use development, is based on the concept of a cell or village that integrates a variety of destinations, including housing, retail, office and entertainment, as well as educational, cultural and religious destinations into a smaller, denser area.

How it works

The concept can be applied in a variety of situations and environments, whether in a large metropolis or smaller town centre or suburban setting or whether for new planned development or for infill projects.

- **Macro level:** The concept can be put in place around a large transit-oriented development or mass transit hub. It is ideal to have the cells in a city, region or community linked by transit to allow better access for all its residents.
- **Micro level:** The cellular concept integrates a short walking radius from a centre point, and development radiates around the centre point to include a careful mix of uses and building types. Within that range, the mix of uses allows citizens to walk or bicycle to many of their daily destinations and the services that they require.
- **Retrofitting projects:** The cellular development concept can be applied in a way that supplements the existing core to provide communities with employment opportunity, shelter, schools and shopping malls.

Strengths of cellular development

- **Increases walkability:** By structuring cellular development around a central nucleus and promoting mixed-used, high to medium density, and a range of amenities, a cellular development creates walkable environment, while reducing the need for driving.
- **Reduces urban sprawl:** By concentrating all community amenities and land uses into a dense, cellular development with specified boundaries, the protection of surrounding green areas from sprawl becomes possible.
- **Reduces energy consumption, emissions and traffic from automobiles:** By creating a more walkable community with close proximity to where residents live, work, and interact, the need to drive longer distances is eliminated. Due to the fact that a mass-transit hub acts as the nucleus of most cellular developments, the need to drive to other communities is also reduced.

¹ International City/County Management Association, *Smart Growth Network: Getting Smart about Climate Change* (Washington D.C., 2010).

Challenges to cellular development

- **Conflicting land use policies:** If a comprehensive, compatible set of land use policies is not adopted, developments can only be partially implemented and cells can be consumed by infill development and sprawl.
- **Land use codes and zoning regulations:** Over the past century, land use codes and zoning regulation promoted fractured development, with large amounts of land zoned for specific uses. These policies are often static, inflexible, and can inhibit creative solutions.

Weaknesses

- In the event that a large number of automobiles are in a cellular development, major traffic problems may arise.
- If not properly designed, noises and pollutions from shops and vehicles may negatively affect the daily lives of people.

Implementing strategies

Instigate site analysis and land use plans: The design of the cell begins with proper zoning. This process should begin with a comprehensive analysis of location, including existing natural environment and topography, the scale and scope of the desired cell, anticipated traffic flow, urban-growth boundaries, and potential future trends that may require further zoning changes. Consideration for access and commuting time between various residential, commercial and industrial locations should be considered throughout the planning process.

Enforce regulations: Once a comprehensive site analysis is completed, the appropriate combination of mixed-use, mixed-income and density regulations should be implemented.

Set complementary measures: Urban design standards and policies that focus on streetscapes, walkability, public space and traffic flow should be compatible with the land use plan and desired growth. Due to the fact that the each community, city and urban region is unique, with their own needs and desires for future growth, a range of techniques and strategies should be investigated and created.

Examples

Kuala Lumpur Sentral, Malaysia: Kuala Lumpur Sentral is an exclusive urban centre built around Malaysia's largest transit hub. The 72-acre development is designed to be a "city-within-a-city, including numerous office towers, hotels, condominiums and a shopping mall.²

Annapolis, Maryland, United State of America: The town centre of Annapolis serves as a model redevelopment to turn an expansive surface parking lot with no access to mass transit into a mixed use centre. The freed up land has turned into various public places such as plazas and outdoor cafes, encouraging more street level vibrancy as well as adding economic vitality.

Further reading

Mixed-Use Development Handbook, by Dean Schwanke, Second edition (Washington, D.C., Urban Land Institute, 2003).

² Kuala Lumpur Sentral website: www.klsentral.com.my/Home.aspx (accessed 27 February 2012).