

Re-visioning Chandigarh: Densification and Re-development of the City Centre (Sector 17)

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Abstract

Chandigarh was one of the few opportunities for Le Corbusier to express his design principles at a large scale. Created in the 1950s, Chandigarh today is thriving and growing fast, albeit without order. Hence, there is a need to re-think the original design strategies in order to incorporate new housing, additional commercial, institutional and other uses to fulfill the demand of the growing population.

This study presents a visionary proposal for the re-development of Sector 17, the City Centre of Chandigarh, into a Mixed Use “Sustainable” Urban Centre. The existing Sector 17 is predominantly occupied by commercial, institutional and office uses and comprises large “super blocks” with parking surrounding the buildings. There are no through physical and visual connections to the adjoining sectors. Most buildings are in a good condition but are visually unattractive.

Through infill and reinterpretation of Le Corbusier’s design principles, proposing high quality architecture while preserving some of the existing structures the study explores the opportunity to create an improved public realm comprising a multitude of land uses, making the City Centre more vibrant, safe and a “24-7” liveable place.

INTRODUCTION

Chandigarh was one of the few opportunities for Le Corbusier to express his design principles at a large scale. Modernist planning and urban design revolutionized the concept and design of cities, creating its own set of virtues, and problems.

The intent of this study is to prepare a visionary redevelopment framework for Sector 17 to improve the quality of life by creating an intensified, mixed use Urban Centre comprising a multitude of land uses (including residential uses) which are strategically connected to a pedestrian and transit oriented network, thereby providing the opportunity for people to live closer to their work, and meet their daily activity needs. Perhaps this model could be used in other areas of the city to counteract the future challenges and demands of a growing population.

Through the reinterpretation of Le Corbusier’s design and principles and the introduction of new strategic development, there is opportunity to create an improved public realm making the City Centre more vibrant, safe and truly a “24-7” liveable place.

Creative Space
Vol. 1, No. 1
July 2013
pp. 63–77



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GEOGRAPHY AND LOCATION

Chandigarh is located in the fringes of the Shivalik range at 30° 44' 14 N latitude and 76° 47' 14 E longitude. The area falls under the Indo-Gangetic Plain a few miles south of the Shiwalik Hills and between two seasonal hill torrents, the Sukhna Choe and the Patiali-ki-Rao. The land is a flat, fertile tract of alluvial soils. It covers an area of approximately 114 km² and shares common boundaries with the states of Haryana in the south and east, and Punjab in the north and west. Chandigarh has a sub-tropical continental monsoon climate characterized by a seasonal rhythm, hot summers, cool winters, unreliable rainfall and great variation in temperature (0 °C to 44 °C). In winters, frost sometimes occurs during December and January. The average annual rainfall is 104.8 cm. It also receives occasional winter rains from a western disturbance.

VISION OF LE-CORBUSIER AND OTHERS

Le Corbusier produced a plan that conformed to modern city planning principles in terms of division of urban functions, an anthropomorphic plan form with a hierarchy of road and pedestrian networks. This vision, contained in innumerable conceptual maps, notes and sketches, had to be translated into reality. Le Corbusier's plan was broadly similar to the one prepared by Albert Mayer and Matthew Nowicki, except that the shape was modified from one with a curving road network to a grid with a reduction of the land area for reasons of economy. Buildings were characterized by an "honesty of materials". Thus, exposed brick and stone masonry in its rough form and unfinished concrete surfaces, became the architectural characteristic of Chandigarh, set amidst landscaped gardens and parks.

The city plan was conceived as a post-war 'Garden City' wherein vertical and high rise buildings were ruled out, keeping in view the socio-economic conditions and the local culture in mind

THE HEART OF CHANDIGARH, SECTOR 17

The existing City Centre (Sector 17) is the heart of Chandigarh's activities. It comprises the Inter-State Bus Terminus, Parade Ground, District Courts, etc. on the one hand, and a vast business and shopping center on the other. Generally, the 4-storey concrete buildings house banks and office uses on the upper floors and showrooms/shops with wide pedestrian concourses at the ground level. The City Centre is an "island", around 250 acres in area, surrounded by arterial roads with a limited direct access to the adjoining neighbourhoods. Most of the local streets terminate into surface parking lots (Figure 1).

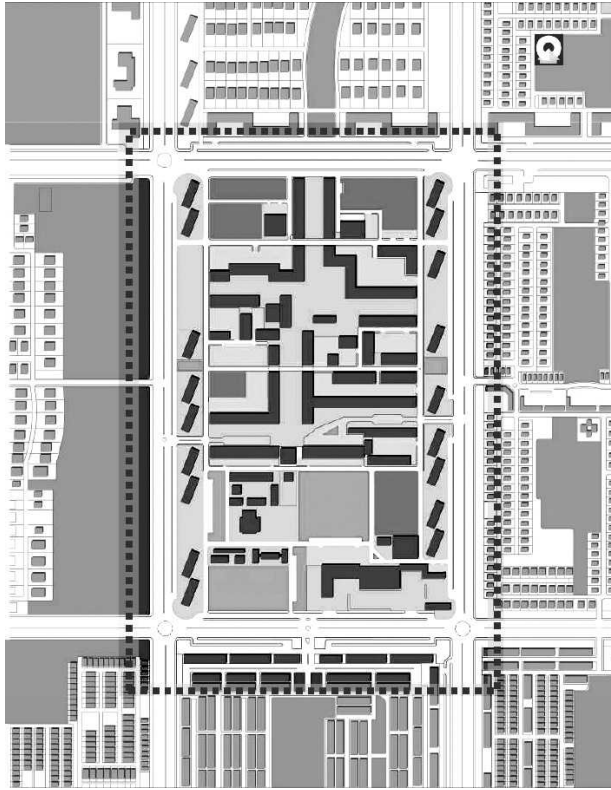


Figure 1: The City Centre is an “island” with limited access to adjoining neighbourhoods.

STUDY OF CITY CENTRE’S FAILURES:

Existing land uses comprise of commercial and employment, with little residential, makes it a quiet space after 5 pm. Some of the characteristics noted can be enumerated as under:

1. **Large block size:** Existing blocks are large in size and make it difficult for the pedestrians to move around the City Centre quickly. (Figure 2)
2. **Undefined under use of spaces:** Presently, the large blocks have vast undefined open space at grade. It is evident that the existing uses at ground level need more defined programs at grade to create a more vibrant and animated City Centre.
3. **Large distances between buildings:** The existing buildings in the City Centre are placed on vast open spaces, mostly used as surface parking lots,

which make it visually unattractive and creates challenges for pedestrians to move around with ease within the sector 17.

4. **Inadequate shade for people in summer:** Summer season can be very hot. Existing conditions have very limited opportunities for pedestrians to walk in shade while walking within the City Centre. Walkways are mostly undefined and rarely shaded by trees or other adequate shade.
5. **Surface parking dominating the open space:** As previously noted, the spaces around the buildings are mostly used as surface parking lots which are visually unattractive and occupy large areas. Specifically, these spaces have a potential to become vibrant plazas/open spaces, if parking areas were better managed. Summer season can be very hot. Existing conditions have very limited opportunities for pedestrians to walk in shade while walking within the City Centre. Walkways are mostly undefined and rarely shaded by trees or other adequate shade.
6. **Undefined street edge:** Buildings along the streets lack in animation and vibrancy and there are very few opportunities for pedestrians to walk along the street edges with confidence. That is, in several areas the street edges are undefined and without adequate sidewalks, or there are boundary walls or fences along the property lines which create barriers between the pedestrian and the building.
7. **Sector 17: Potential to become a vibrant public domain of the city:** The City Centre is the symbolic as well as the functional heart of Chandigarh. It has a potential to become a great space, one that could uplift spirits, generate civic pride, create economic value and resonate with activity.

WORK

Much of Chandigarh's future employment growth is in the information technology, communications and other "creative" sectors. These jobs symbolize a new class of workers – in design, arts and culture, and new media. A key characteristic of this workforce is that its employment base is generated as much for lifestyle considerations as economic factors.

The City Centre has an opportunity to connect with this new workforce by creating a dynamic urban environment, supportive of arts, culture, and diversity. Urban characteristics such as low social barriers to entry, provision of a creative environment for artists, and industry-university linkages -- all contribute as attractors of innovation and economic growth. As Sector 17 is an important lifestyle factor for these workers, nearby residential opportunities are key parts of a business attraction strategy.

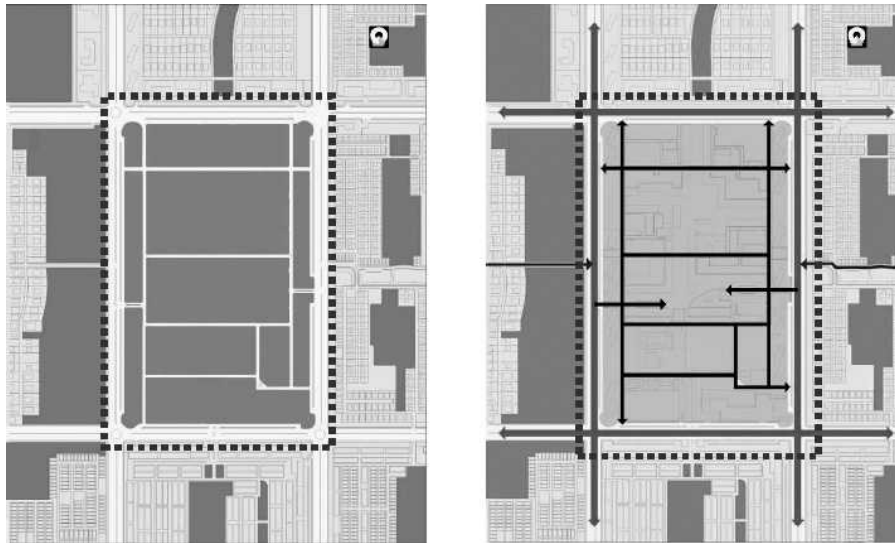


Figure 2: Existing Block Pattern and Street Pattern

LIVE-WORK

The key to ensuring a high quality of life for occupants of Sector 17 is about creating a mixed-use centre that will, not only serve the business sector, but also include a major residential component. In other words, a centre that provides the necessary services and amenities to support residential life and a sense of community. Essentially, the City Centre should be part of a ‘complete community’, which accommodates diverse business and residential populations, with places to live, work, and gather. Places which will contain community facilities such as schools, daycares, parks, recreation centres, libraries, retail markets, all within walking distance with appropriate transit links.

STREETSCAPES

Striving for a beautiful City Centre requires recognizing streets as significant public open spaces and the primary way in which we experience and formulate our impression of urban places. Streetscapes should provide a coherent and cohesive experience that balances all modes of movement (pedestrian, vehicular, transit, cycle, etc.), reinforces the retail element, ensures sun penetration with breaks of shade, and reinforces visual and physical connections to other important civic destinations.

TRANSIT

An economically-active City Centre depends on both destination and everyday traffic to support businesses, a broad range of civic, cultural and recreational activities, and high-quality employment opportunities. This ensures activity at all hours and through all seasons, increasing public safety and efficient use of existing and planned transportation network. Enhancing the quality of existing connections and creating new ones, and through a variety of choices for movement, will be critical to encouraging greater use of Sector 17. Fundamental to enhancing accessibility is ensuring strong physical and visual connectivity through the City Centre and to the surrounding neighbourhoods.

INTENSIFICATION

Being a great city is as much about culture, arts, night life, and a diverse social demographic, as it is about nice neighbourhoods and a healthy economy. Not only must Sector 17 accommodate these aspects, it must provide the infrastructure to nurture and cultivate them. These characteristics can enhance the city's distinction; assist in retaining a young, creative and talented workforce; and are the basis of tourism and economic development. The Heart of Chandigarh should continue to direct a strong concentration of civic and cultural attractions to the city core; by improving the quality of the civic infrastructure; and through a targeted strategy of mixed use and intensification. The best and most enduring urban destinations are vital communities that are dense with activity and people at all hours and seasons – a community that theme parks, museums, stadiums and casinos alone cannot build.

Comment: Sector 17 should be a destination for everyone: open, accessible, convenient and a place to spend the whole day, evening or night. It should welcome all to walk, shop, eat, linger, and explore everything it has to offer. Investing in a high-quality urban environment through strategic development and intensification premised on a live-work condition for a diverse community, will result in an economically sustainable future for this area. (Figure 3)

THE NEED FOR RE-DENSIFICATION AND RE-DEVELOPMENT

Chandigarh was planned for a population of half-a-million. In Phase I, 36 sq km of land was acquired by the city administration for construction of 30 sectors. Land for seventeen additional sectors (Sector 31 to 47) was acquired and developed during the second phase to accommodate a population of 350,000. The predominance of 3 to 4 storey apartments in the second phase provided for



Figure 3: Sector 17 should be a destination for everyone

higher population numbers. However, Chandigarh has now grown beyond its planned capacity. Hence, development in the third phase has started in sectors 48 and beyond. Demographic data indicate that between 1961 and 1971, the population increased by 145 percent, one of the highest for urban areas in India. According to 1981 census, it grew by another 76 percent, followed by 42 percent in 1991 and by 40 per cent in 2001 (with a total population of 9,00,635). By 2021 the population of Chandigarh is projected to be around 19.5 lacs (1.95 Million, at current rate of growth), which is almost four times the original planned population.

Chandigarh is growing fast, albeit without order; hence there is a need to re-think the development strategies in order to incorporate appropriate new housing, additional commercial, institutional and other uses. Looking outward to “Greenfield” development would be a quick and easy solution but it means urban sprawl, low-density and auto-dependent development in the outskirts, and loss of valuable rural and agricultural land. However, by appropriately redeveloping Sector 17 into a Mixed-use Urban Centre creates the opportunity for people to live closer to work and reduce commuting distances.

As noted earlier, the existing Sector 17 is approximately 250 acres and is predominantly occupied by commercial, institutional and office uses with

negligible residential uses. The existing block pattern is comprised of large “super blocks” with parking generally surrounding the buildings. There are few through physical and visual connections to the adjoining sectors. Most of the existing buildings are in good condition but are visually unattractive and have been sited on undefined open spaces often used as surface parking.

The development of a Mixed-Use Urban Centre would require excellent design and architecture, and would include the preservation of the majority of existing structures. The hybrid composition of building elements would be shaped by various factors: urban and climate considerations, economies of structure and materials as well as the proposed heterogeneous programs all combined into the design as a refined expression of their synthesis. (Figure 4)

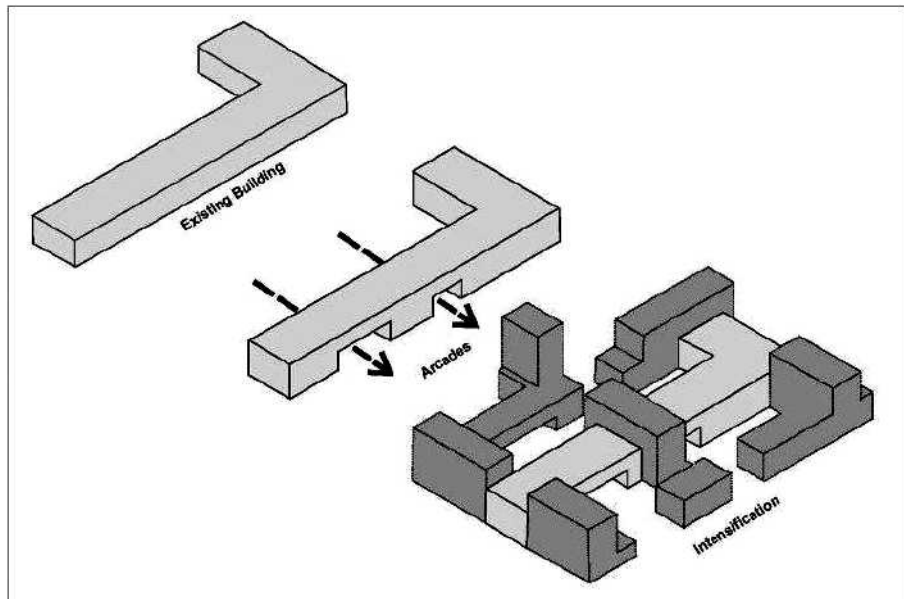


Figure 4: Intensification Strategy

THE URBAN DESIGN VISION AND ITS KEY STRATEGIES

Urban Design vision provides direction to the broad cross-section of components that are the building blocks of the City Centre and that work in concert to establish the function and the “look” and “feel” of the Heart of Chandigarh. The following vision and strategies are set to help guide decision-making relating to the redevelopment of Sector 17.

THE VISION

The vision is a broad mission for the intended role, function, character, look and feel of the Heart of Chandigarh. It builds on the area's inherent assets and potential strengths to set the overarching objective for the City Centre.

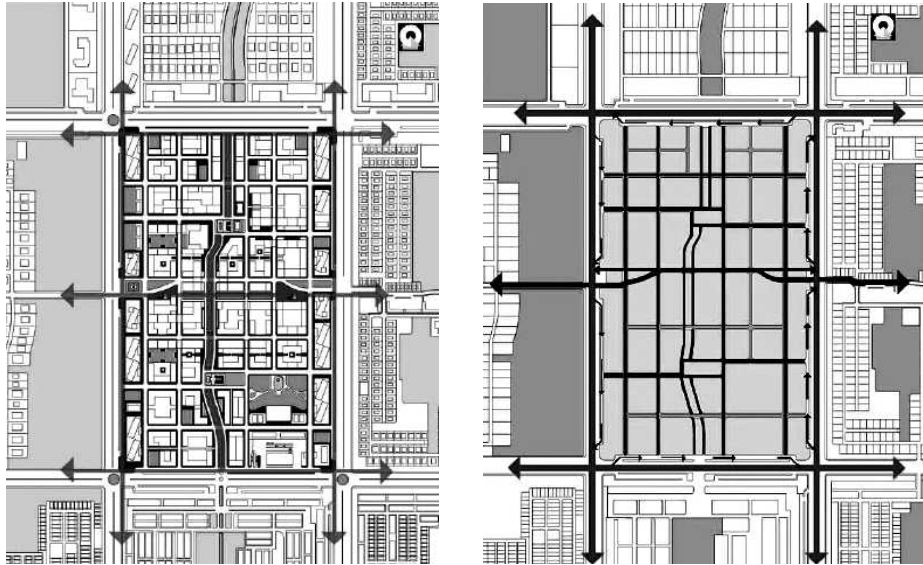
- The City Centre, or heart of Chandigarh, is characterized by its variety of residential, commercial, institutional, cultural and recreational components that firmly establish the role of the core in relation to the greater Chandigarh community.
- City Centre will be distinguished by its architecture, streets, parks, neighbourhoods and landmarks, which are expressions of the cultural heritage and community values that are unique to Chandigarh. Sector 17 is thus both a creative source and an expression of community identity and pride. Change and growth should strive to strengthen these roles and build on the best qualities that define this urban environment.
- City Centre will build on its distinctive character to nurture an urban context that will create broad benefits with respect to social, cultural, educational, environmental and economic vitality, and, will serve to enhance the quality of life for all Chandigarh citizens.
- The vibrancy of Sector 17 is rooted in its diverse population. It will strive to be an open, safe, affordable, accessible and welcoming public place. This social diversity will be embraced and celebrated through urban design, architecture and the day-today function and role of the City Centre.

THE 5 KEY URBAN DESIGN STRATEGIES

- Accessibility / Permeability – Through streets and links to adjacent sectors
- Mixed – Use (Commercial and Residential) – Promoting 24/7 urban life
- Shade and Pedestrian amenity - Shelter from sun, rain & sense of security
- Introduce water – Quench the body and the spirit
- An unobtrusive parking

Strategy 1: Accessibility / Permeability – Through streets and links to adjacent sectors

It is envisaged that physical and visual connectivity to adjoining sectors will be improved by introduction of a further defined grid pattern, dividing the existing super blocks (Figures 5 & 6). Streets, as the largest and most important public open space, will have the greatest impact on the image and success of Sector 17. To ensure comfort, convenience and appeal to pedestrians, all City



Figures 5 & 6: Proposed Street Network and Connections to Adjoining Sectors

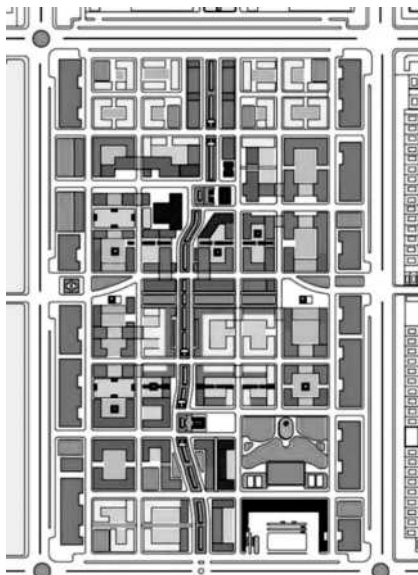


Figure 7: Proposed Mixed-Use

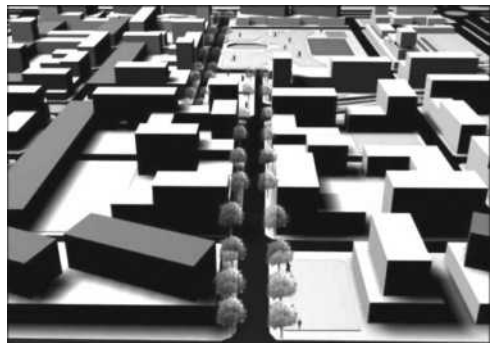


Figure 8: Shade and Pedestrian Amenity

Centre streets will be designed with the pedestrian in mind. An abundance of trees will provide a break from the wind, shade and add visual appeal. Broad sidewalks, street furnishings and clearly defined crosswalks will ensure amenity, safety and convenience. The City Centre street grid will provide for enhanced movement and accessibility by vehicles, transit, on foot or by cycle. An excellent pedestrian and cycling network will improve connectivity to the wider city by bridging arterial roads, dead ends, and property enclosures.

Strategy 2: Mixed-use – Promoting 24/7 urban life

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A key strategy for Sector 17 revitalization is the creation of a mixed-use centre, 24-hour per day, 7-days per week (24/7) environment for living, working, shopping and entertainment. The “24/7” City Centre will be a complex and rich opportunity for building the economic health of The Heart of Chandigarh.

What could be the elements of a 24/7 vibrant Live-Work-Play Environment? It must be dynamic, interdependent on other sectors, and manageable. The community must work together on building a “City Centre” that includes a mixture of incomes; creating open and recreational spaces, provide meaningful employment for all types of people; providing entertainment and cultures; creating vibrant shopping opportunities; investing in transportation and helping new residents use transit; maintaining quality; and, creating a safe environment. (Figure 7)

The strategy includes intensification of existing form, which would be achieved by re-using the existing built form. The goal is to save maximum number of buildings and propose new built form that will compliment the existing one; only such buildings that lack characteristics of Le-Corbusier’s design principles would be demolished.

Strategy 3: Shade & Pedestrian amenity – Shelter and sense of security

Shade is a necessity for people walking in hot weather conditions. For Sector 17 to thrive in being an exciting urban centre there is a need to develop defined, shaded walkways that would connect different areas within the City Centre. (Figure 8)

Streetscape design is generally concerned with the function and appearance of the public right-of-way with a focus on improving the quality of the pedestrian realm. For all streetscapes in Sector 17, natural shade will be a high priority, but could be challenging to achieve in some areas. Therefore, canopies, awnings, umbrellas, overhangs and other built/portable structures are encouraged to increase available protection from the sun.

Street activity is intimately related to outdoor climate conditions. Comfortable outdoor conditions contribute to a liveable and prosperous community. In the case of outdoor hot discomfort the first action to be implemented is the minimizing of direct solar radiation by providing shade.

Shade will help reduce Urban Heat Island Effect; shading of buildings, pavements, parking lots and roofs will assist in cooling surface temperatures and releasing moisture into the air. Trees in the City Centre, planted strategically, will lower ambient air temperatures, slowing smog formation and improving air quality, help to mitigate climate change, act as a carbon filter and reduce the amount of CO² in the atmosphere. This will, in return reduce demands for air conditioning; and and foster participation in physical activity, promoting better active and passive use of parks/ open spaces and streets by the public.

The design would aim to establish the north-south green connection, establish a physical east-west connection to the adjacent areas which is non-existent in the existing plan; and propose a pedestrian central green spine.

Strategy 4: Introduce water – Quench the body and the spirit

“Water features for everyone and everywhere in The Heart of Chandigarh”. Recycled and chlorinated water could be used for the water features across the City Centre to create microclimates that would provide refuge for the visitor during the hot summer months (Figure 9). If designed correctly, water features incorporated into streets and other public spaces will serve many purposes besides creating pleasant places. It would reduce the Urban Heat Island Effect and bring benefits such as healthy trees, soils and hydrological systems. There are other natural processes that healthy trees, soils and water systems provide include retaining storm water in root systems; filtering air and water; replenishing healthy soils with nutrients; and supporting a diversity of species and the related healthy food chain web in the City Centre.

Vegetation will also provide a natural system for filtering and retaining and cleaning up the air and contributing to a healthier environment for people. The Heart of the City designed with these natural systems in mind can also be beautiful and inviting places that will encourage people to walk enjoy and participate in the urban centre.

Strategy 5: An unobtrusive parking

Parking will be nestled under Sector 17 to provide shade and security to the cars otherwise parked under the sun during hot summer months. These ‘parkades’ will be as unobtrusive as it gets. Parking garages will be connected to the courtyards that will have mixed use buildings enclosing it. (Figure 10)

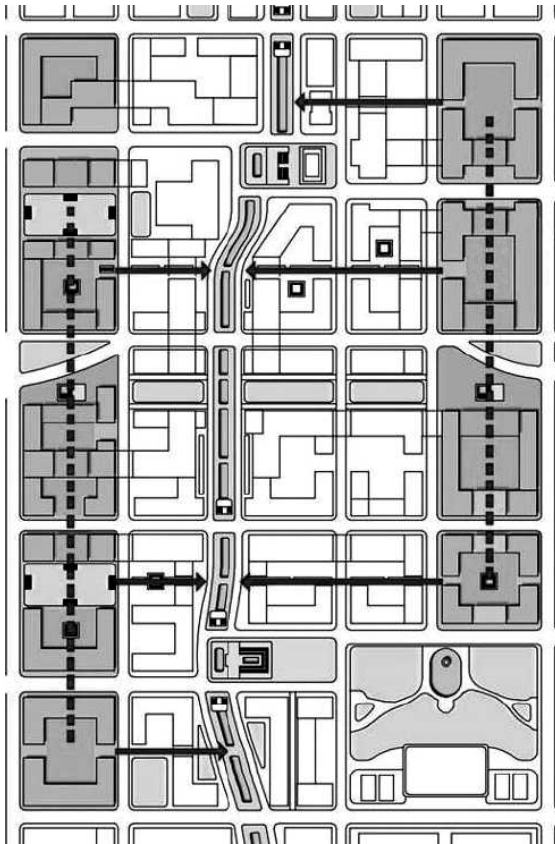
Figure 9:
“Water features
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Re-visioning
Chandigarh:
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Centre
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Figure 10:
The Unobtrusive
Parking System



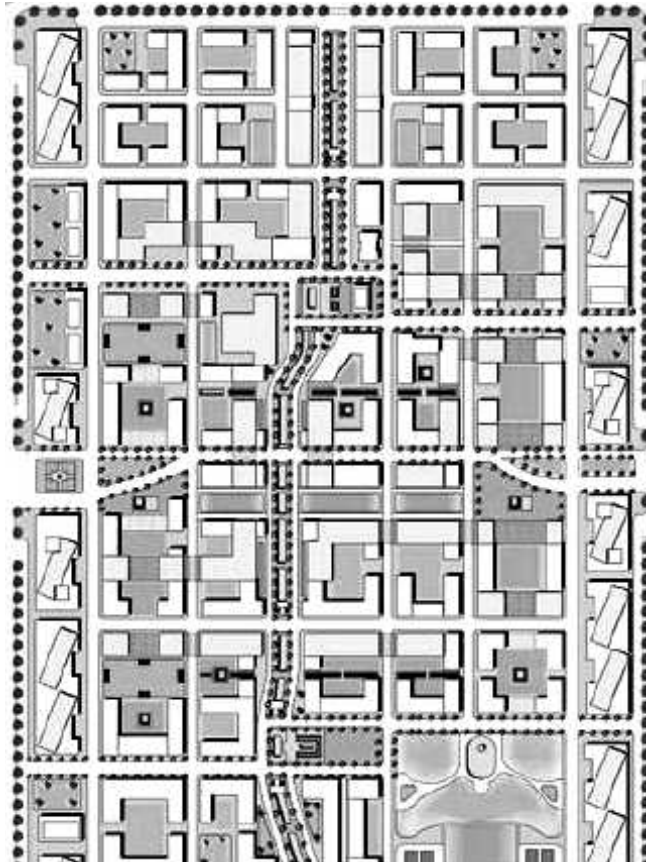


Figure 11: The Master Plan for Redevelopment of Sector 17



Figure 12: Aerial View – Transformation of Sector 17



Figure 13: The Urban Design Vision for Redevelopment of Sector 17

The idea is to place the parking underneath the City Centre and will be achieved by burying the parking garages partially into ground. Parking structures for the City Centre wouldn't take up valuable sector space, but would centralize parking and help reinvigorate the Heart of Chandigarh. The east and north facades of the garages will be exposed to pull in natural day lighting and ventilation in order to reduce energy use by mechanical systems. Through design and careful thinking these structures will be strategically located and will humanize what might otherwise be just enormous, soulless structures.

DEMONSTRATING THE STRATEGIES -- THE MASTER PLAN

The Master Plan (Figure 11) demonstrates an outcome that is consistent with "The Vision" and "The 5 Urban Design Key Strategies". The Master Plan allows for many possible variations of how Sector 17 could actually transform while meeting the same objective illustrated in the rendering. The two perspective views (Figure 12 & Figure 13) illustrate how the City Centre may evolve over the long-term with its implementation.