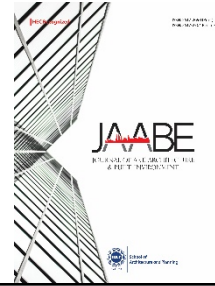





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Rethinking Future: A Potential Solution for Encroachment and Illegal Bazar around Shalimar Gardens, Lahore

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Abstract

The infrastructure of streets is the lifeline of any developed city. If one wants to experience the urban culture of any city, then the streets are the best place to wander for this. Thus, the streetscape of a city remains a decisive element in its success. In any city, "its streetscape" not just adds to the experiential quality of the built space but also portrays the natural built fabric of the street. Stakeholders, such as hawkers, cyclists, pedestrians, and vehicles utilize the streets. Likewise, occupants living on a specific street also play a significant part in helping to analyze the nature of that specific street. The current paper discusses the problems with the streets of Shalimar Gardens, Lahore (a world heritage site). Furthermore, it provides a redesign solution for these streets marred with the issues encroachment and illegal Bazar using streetscape methodology, which is an important rejuvenation endeavor for the streetscape of the city.

Keywords: encroachment, redesign, rejuvenation, streets, streetscape, Shalimar gardens

Introduction

Shalimar Gardens, a historic world heritage site, is losing the height of construction work due to drain water, illegal Bazar, and public encroachment. The surrounding walls of the gardens are in a miserable condition. Massive rains and poor drainage system are causing rainwater ingress in the foundations of the walls, which are already on the verge of collapse, with high decay in many places visible from the outer side wall, as the area is currently underneath the ordinary ground level (Mubin, 2013). It makes evident the negligence of archaeological preservation authorities and governmental bodies, which are supposed to preserve this masterpiece and save it from illegal encroachments and the surrounding bazar. As indicated by a report issued by the Government of Pakistan in February

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2004, the social/historical legacy of Pakistan is protected under the Antiquities Act of 1975. The enactment of a 200-foot cradle zone around the secured landmark is characterized by this act (UNESCO, 2004).

Figure 1
Master Plan of Existing Shalimar Garden

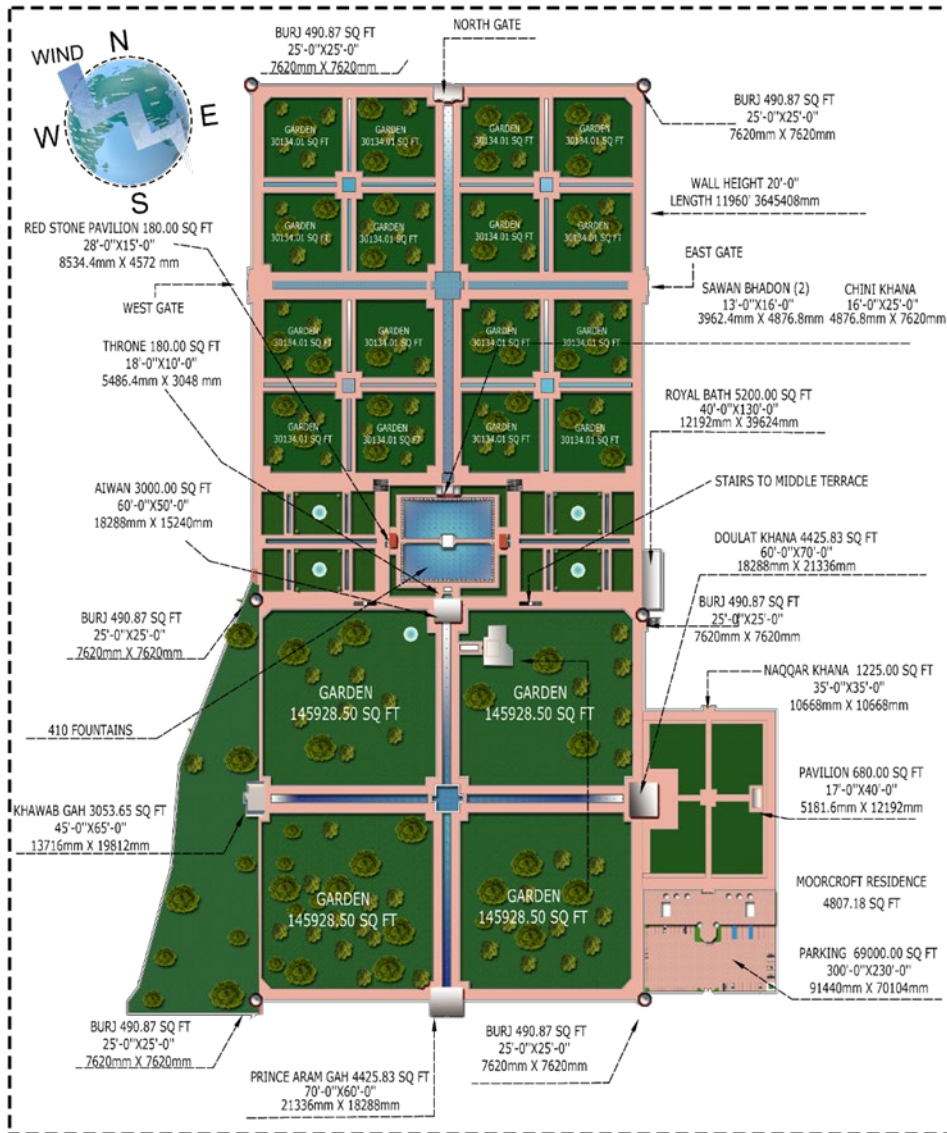


Figure 2
Site Plan of Shalimar Gardens

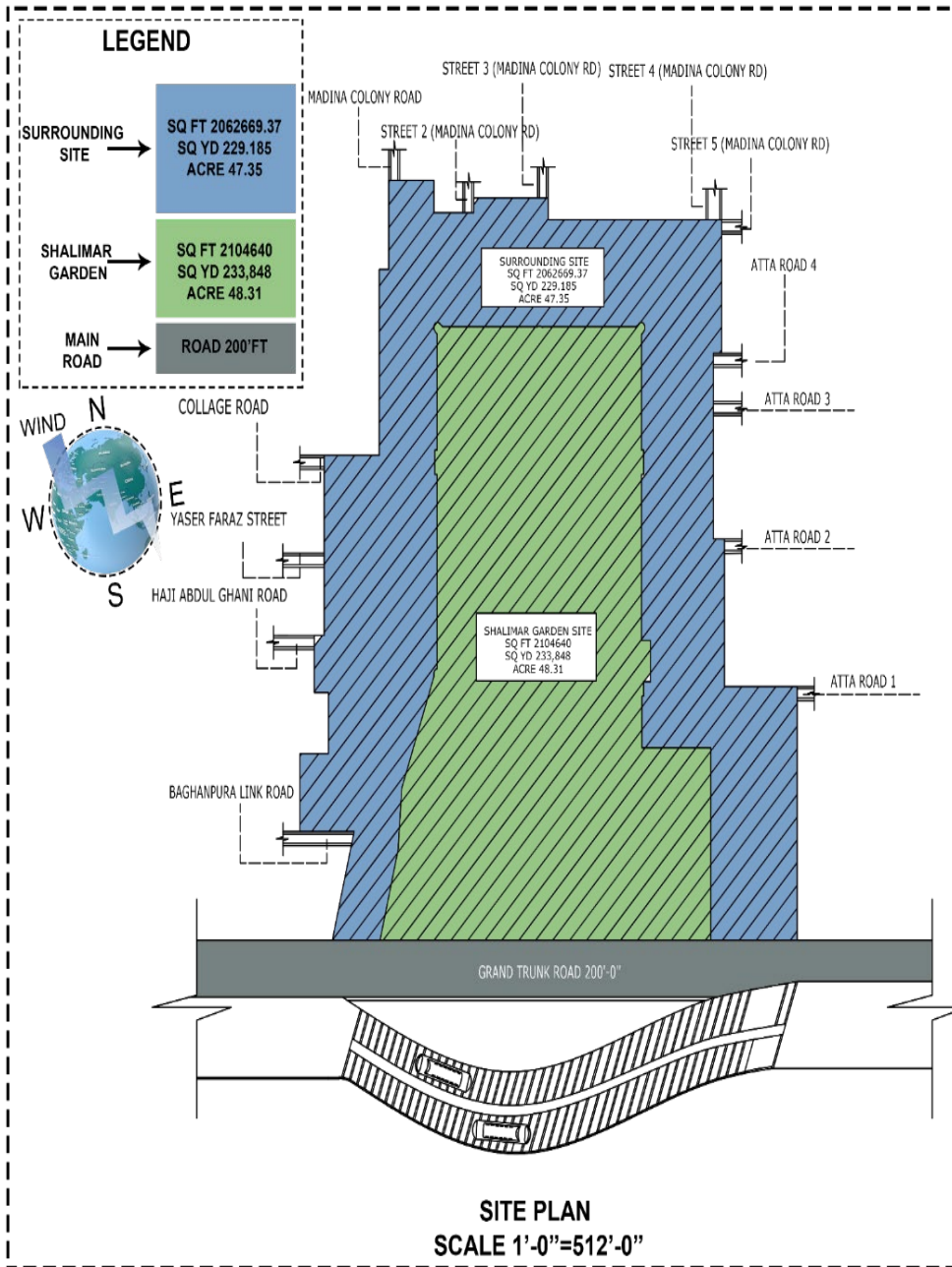
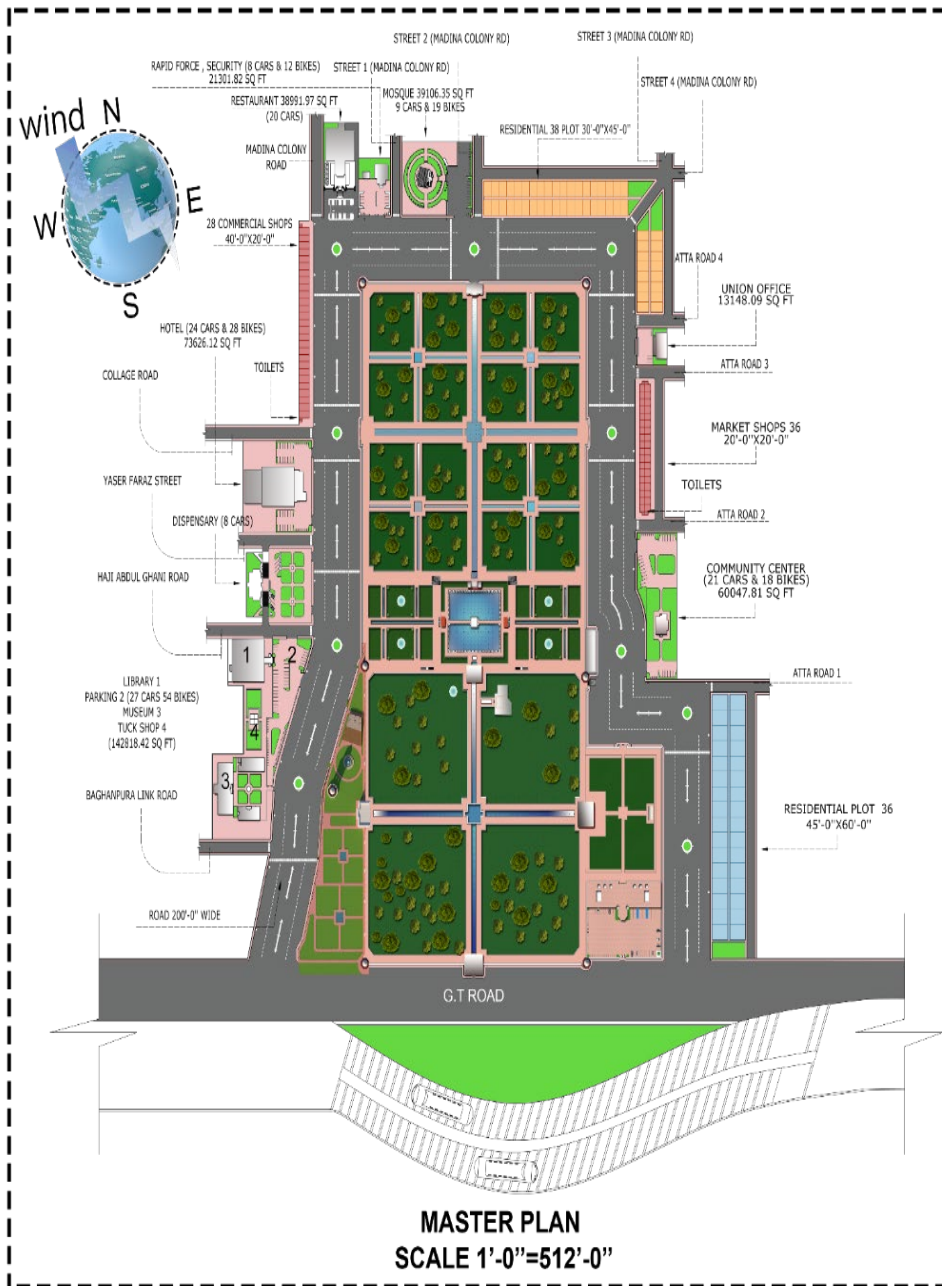


Figure 3
Proposed Master Plan of Shalimar Gardens



The surrounding streets of Shalimar Gardens have the appearance of slum areas, with no proper infrastructure, damaged and narrow roads, the damaged drainage system of houses around the heritage, and encroached construction impacting the world heritage site in a negative way. It is shocking for everyone to notice that there is no concept of landscaping around garden which gives it the appearance of being located amidst a concrete jungle (Fitz, 2023). The design plan suggested in this research for the Streets of Shalimar gardens may help to improve this situation. The changes are necessary to achieve a more comprehensive streetscape design and would help to meet sustainable streetscape principles. The design begins with the master plan of Shalimar Gardens, the site plan, and the proposed Shalimar Gardens plan. In the proposed plan, the author gives a proper design solution using streetscape methodology, to help removes encroachments and gives a proper solution to streets design problems.

Literature Review

The current case study is placed in historic Lahore's district, popularly referred to as the "city of gardens" (Khaskheli, 2021). In addition to achieving shared objectives including safety, economic well-being, and social destinations, streetscapes can offer and support local visions for social interaction. Additionally, streetscape influences people's enduring perceptions of towns and locations. Streets with a rich urban heritage most historic street have undergone revitalization, but this is not an accident; rather, urban environment is the product of ideas and policies put into action by local government-backed heritage committees and their thought processes (Yunus, 2015). Heritage shop owners must fully participate in the process of "living up the almost dead of outdoor space" the area between historic streets. Heritage awareness is also necessary.

An element behind the "renewal of shopping style" that brings life to the streetscape is the development of cultural shopping streets. Securing the preservation of individual heritage shop lots is insufficient; proactive measures are required to maintain and improve the quality of outdoor activities. An abandoned area between historic structures requires public awareness, rather than being abandoned as a blank space (Zalina Samadi, 2018). Occupying vacant spaces can be beneficial for both locals and tourists, particularly when it comes to street vending, marketing, and shopping.

The goal of public space revitalization program, which combines physical change with conservation, is to foster intercultural understanding among communities (Matthew Carmona, 2003). The revitalization of the streets around Shalimar Garden's is crucial since these streets are important asset for the city's environment, social structure, and economy and should be incorporated into the historic city manager's vision and goal. In order to ensure that heritage assets fulfil practical needs and trends rather than merely serving as historic symbols of the modern city, a constant effort to improve the physical and spiritual aspects of outdoor ambience would support the urban renewal and regeneration process. Then utilization of urban public space within historic streets is vital for revitalizing cities through the streetscape methodology. Certain measures must be taken to this end. By promoting neighbourhood activities and special events that comprise an essential component of urban heritage, it is hoped to create a sense of place, belonging, and community.

Streetscape Methodology for Shalimar Gardens

Data was collected in order to document the current conditions and functions with regard to the appropriate implementation of streetscape elements. Streetscape methodology is used worldwide, wherever there is a need for developments in terms of facilitating people, such as the need for pedestrian facilities for walkers (Ewing, 2016). Streetscape refers to the design and condition of urban roads, as it affects both road users and nearby residents. In the streetscape methodology, road dividers are designed for plantation, which is suitable for the weather as well (Asaduzzaman, 2020). Other elements, such as solar energy-based lights, camera security system, and seating are also suggested in the redesigned streets of Shalimar Gardens.

Problems around Shalimar Gardens

According to by-laws, there should not be any kind of construction around world heritage sites by 200 feet (Mughal, 2011). Such constructions around Shalimar gardens in the form of narrow roads, illegal Bazar, and encroachments, have been completely ignored by governing bodies. The three streets around Shalimar Gardens including Murshid Rd, which has satellite coordinates (31.588843046610442, 74.38316920859747), Street no 176 with coordinates (31.58984768159023, 74.38148993436103), and Major Jameel Shaheed Rd, which has satellite coordinates

(31.588629870776497, 74.38021429438322) have been completely neglected by the authorities. By-laws are followed only on the sites facing Grand Trunk (GT) road.

Figure 4

Flowchart of Streetscape Methodology at Shalimar Gardens

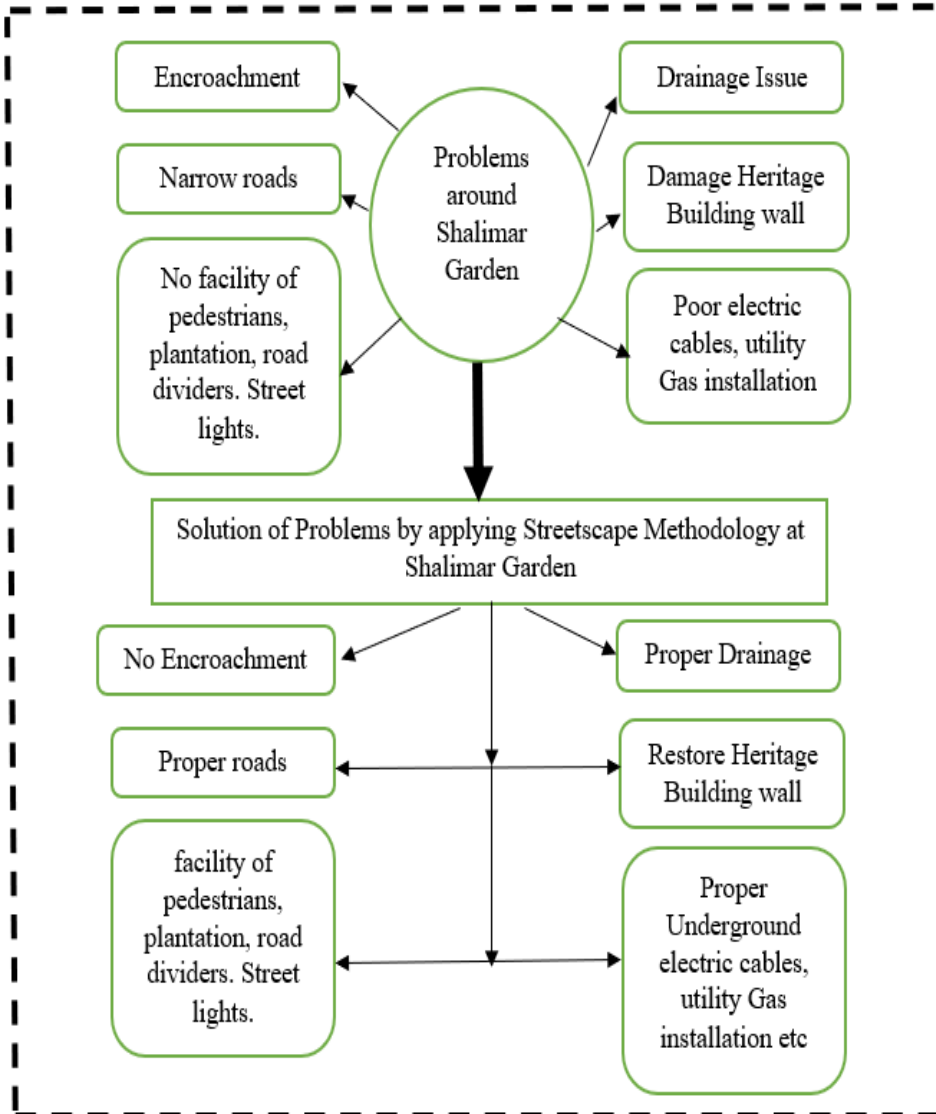
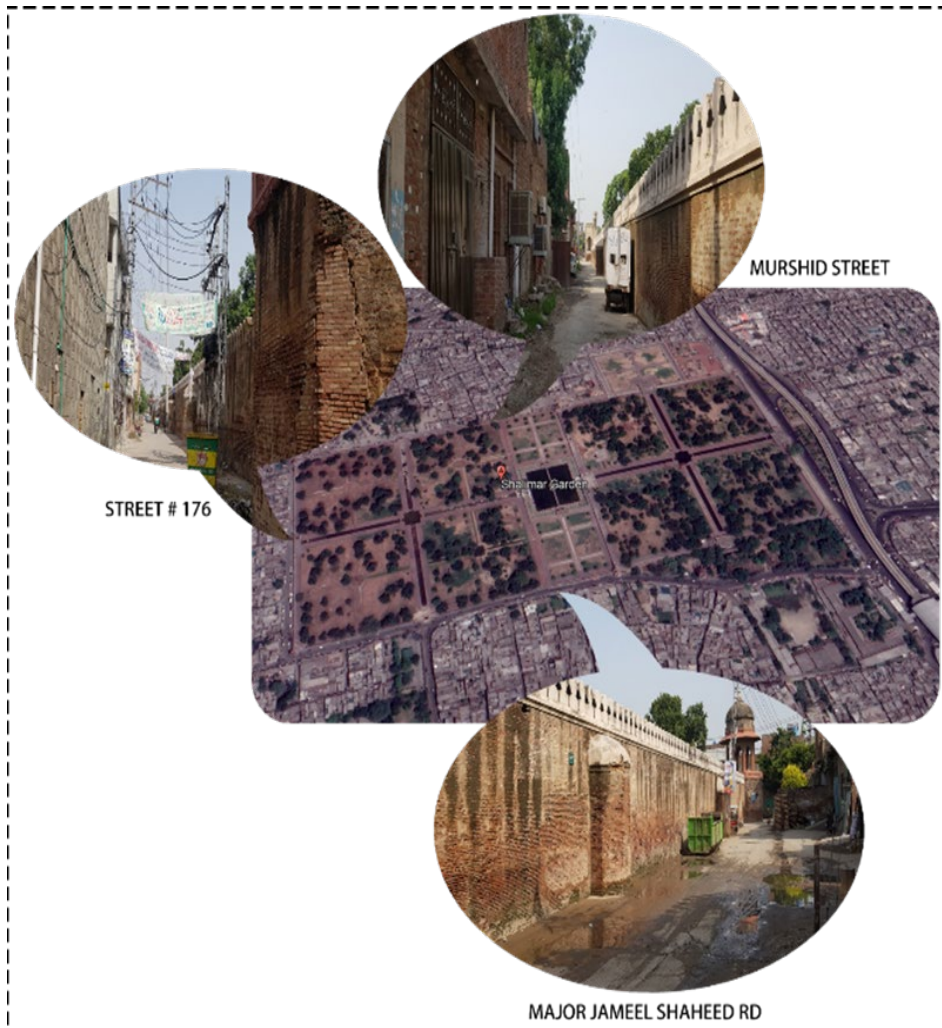


Figure 5

Satellite View of Shalimar Gardens, Showing Surrounding Encroachments



According to the settlers living around Shalimar Gardens, they have been living there since before the creation of Pakistan in 1947. Moreover, they do not want to move from there. On the other side, statements made by Archaeological officials' are on the record stating that in the master plan of the restoration of Shalimar Gardens, there would be zero tolerance of encroachments and evacuees would be compensated accordingly.

Unfortunately, such statements have had no practical effect on the plan until now.

Figure 6

Close View of Encroachment at Shalimar Gardens



The negligence of governing bodies in the shape of the illegal bazaar around Shalimar Gardens. According to the deputy director-general of the archaeology department, they don't have a mechanism to stop the people from setting up stalls near the garden walls. In case of forcing people away from the premises of Shalimar Gardens, they would still set up stalls inside the encroached area around the garden.

Figure 7

Illegal Stalls and Bird Sellers at Shalimar Gardens



Massive encroachment around Shalimar Gardens have narrowed down the roads of above three streets narrow, that is, these streets are narrower than 30 ft, approximately. According to by-laws, there should be no construction up to two hundred feet near to the heritage. There are no facilities for pedestrians including footpaths and water drainage system is lacking as well, unlike the GT road facing side.

Figure 8

Narrow streets and poor drainage system at Shalimar gardens.



A Potential Solution for Encroachment and Illegal Bazar Around Shalimar Gardens (Redesign the Streets)

Capturing Life in a city is vital. The general public street areas are the embodiment of any city, and, therefore, the planners can't ignore the image they reflect. Any reconfiguration of streetscape should not only involve improving street life aesthetically but should also take a sustainable approach. The streets and roads are public property. It is fundamental that, the user should feel a sense of belonging to the streetscape. Therefore,

streetscape is an important component of urban design that has the strength to transform a mere path into a lively space. Any street revitalization or streetscaping should be made possible by keeping in view the components that contribute towards creating a better environment (Rehan, 2013).

Figure 9

Adopted Streetscape Elements at Shalimar Gardens



Adopted Elements of Streetscape Redesign

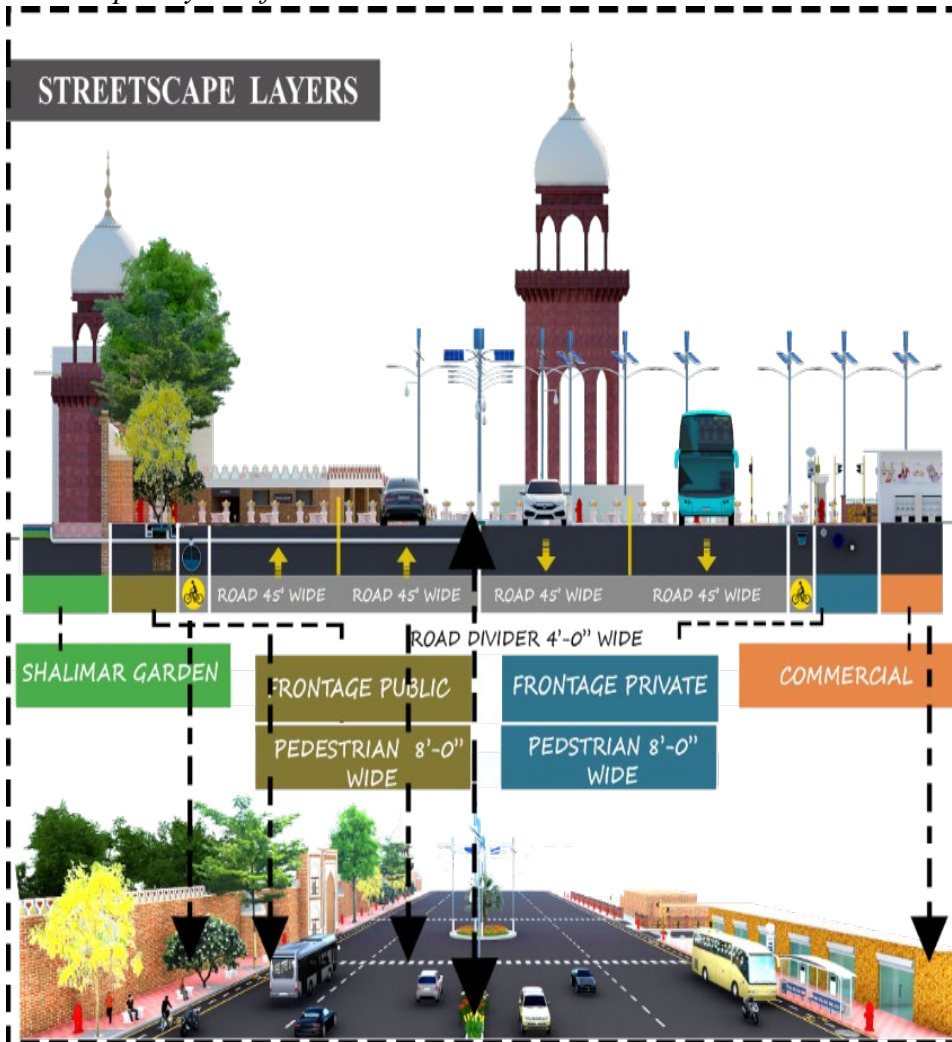
Streetscape Handbook (Spellman, 2008) incorporates; street corners, walkways, curb extension, scene strips trees, planters, seating, waste/debris containers, public expressions, screening, building veneers, fences and dividers, unique activity, and occasion spaces, rear entryway, unoccupied spaces, installations/utility zone, lighting, painting, and signage. It very well may be summed up in the adopted elements below.

Elements of streetscape design ought to build up a decent environment for individuals to visit and gather in order to be at the center of the community. Social, cultural, and economic connections are aggregate destinations/dimensions of a respectable streetscape metropolitan design (Pegler, 2006). Streetscape character overall corresponds with the appearance and relationship of the external arrangements of the city and the planned parts of its streets that choose its particular character (Meetiyaoda LA, 2016).

As a three-dimensional metropolitan space, streetscape comprises construction façade of one side of the road, which includes three layers, as demonstrated by the author.

1. Vehicular paths are the space starting with one really take a look at them onto the next (of course, in the event that there are no controls, from asphalt edge of one side to the asphalt edge of the contrary roadside), which are mostly used as roads including travel ways and halting ways.
2. Public-facing is the uninhibitedly guaranteed space between the private plot limits and the edge of the vehicular ways that may join each other (walkways or pathways, intersections and check expansion, street cultivator, trees and one more vegetated organizing, public expressions, trash vaults, establishments/utility zone, utilities, seating, and street furniture). It is generally called the roadside.
3. Private-facing is the elite land between the construction outside and the private plot. Its furthest reaches may join the arcades, decks, stoops, dividers, back road, in-consume spaces, exceptional activity spaces, remarkable event spaces, and yards.

Figure 10
Streetscape Layers of Shalimar Garden



Details of Adopted Elements

The details of adopted elements mentioned above in Figure 9 are stated below.

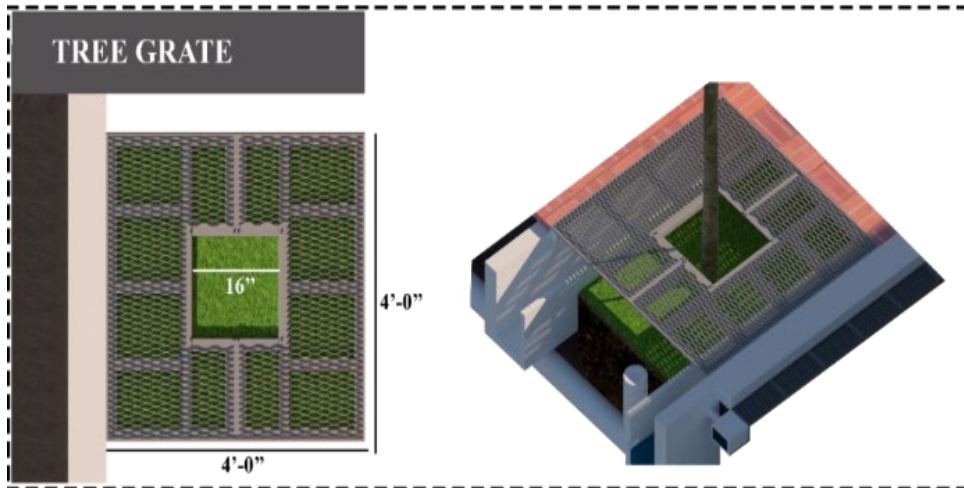
Tree Grate

A tree grate is a metal grate introduced at the same stage as the sidewalk around the tree. It permits the soil to remain non-compacted and the

pedestrians to walk near the tree without tracing the ground. The grid slots permit tree roots to absorb air, water, and sunlight. At the same time, they shield the ground from the effect of people walking through. The grids make a defensive boundary, providing the land and development space that are not compatible with tree roots. They likewise serve as a decorative feature along ceremonial streets, matching the personality and design style of the street (Tan X, 2022).

Figure 11

Tree Grate to Protect the Plants



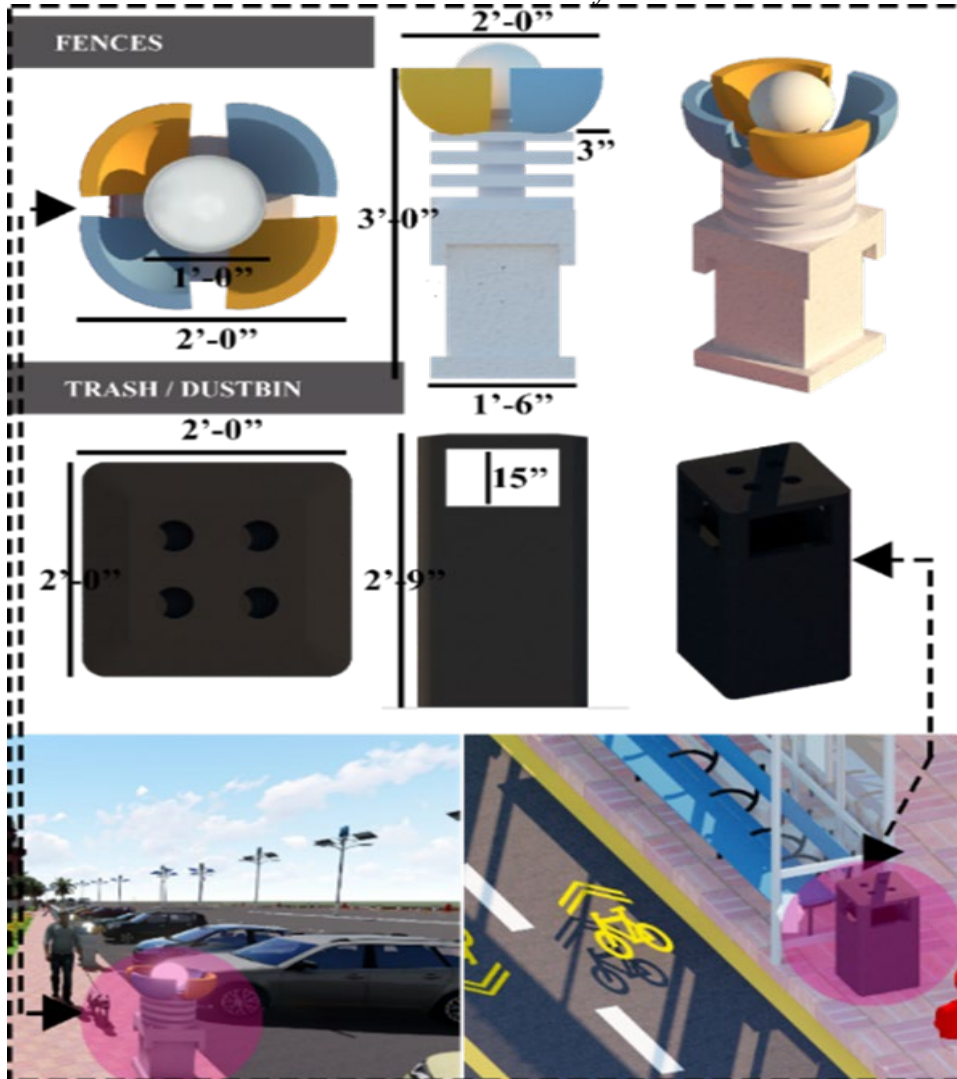
Fences and Dustbin

Pedestrian fencing is utilized within the median or on the side of the road to confine pedestrian access to the carriageway, thus decreasing clashes between pedestrians and motorized vehicles. Fences are used to guide pedestrians to a preferred formal crossing point and to discourage them from creating dangerous crossing movements in which visibility can be limited. Innovative solutions are suggested on the streets of Shalimar Gardens through a good road design using urban furniture, plantation, and public art, with the aim to drive and direct pedestrian movements. Projects must take into account the needs of vulnerable road users and people with reduced mobility (Martin.A, 2006). Garbage disposal has always been a chronic problem in the streets of Shalimar Gardens. Without dustbins in public places, people end up throwing garbage at street corners or on the

road, thereby messing up most of the streets. The author is able/suggests to provide a dustbin facility throughout the streets of Shalimar Gardens.

Figure 12

Fences and Dustbin Facilities on the Streets of Shalimar Gardens

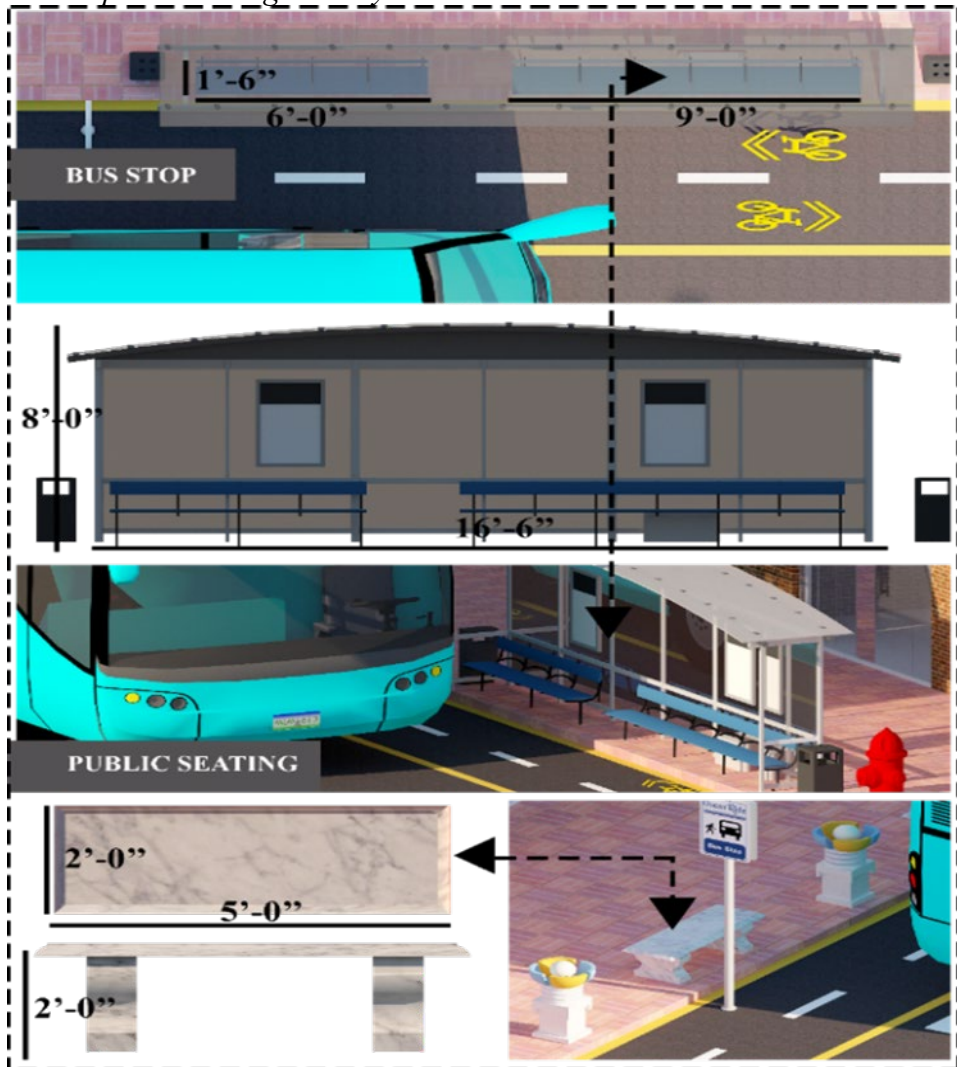


Bus Stop and Public Seating

A Bus Terminal at Shalimar Gardens is a designated location where a bus starts or ends its intended route. A terminal is a designated place from which a planning of a route is scheduled (Saka, 2001). Termini is located at

the edge of the G.T road and within a 1-minute distance of the railway station terminal. Seats are one of the most basic features at the Shalimar Gardens transit stop. The seats provides a chance to integrate beautiful design and durable materials into a transit stop, as well as for those who walk on the footpath. Seats are designed based on comfort in relation to the expected waiting time and for relaxing purposes, which greatly improves the comfort level of the passengers and others (Mumcu S, 2016).

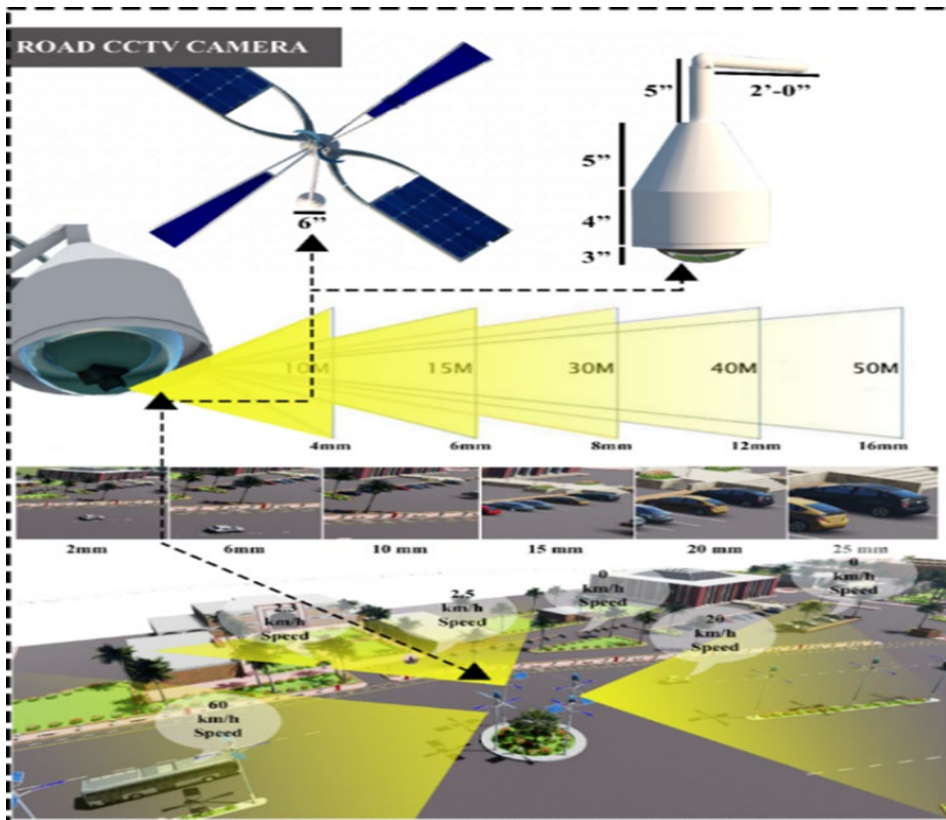
Figure 13
Bus Stop and Seating Facility



Camera

Video surveillance is used by many countries as the main tool to monitor the movement of the population in order to prevent all types of crimes in both sectors, that is, public and private (Yue H, 2022). The role of video surveillance cameras is evaluated in this study, that is, the role they play in improving security and safety on the streets of Shalimar Gardens, it is a necessary step to protect the tourists who move freely and can enjoy the heritage without any fear and apprehension. Closed-circuit television (CCTV), also known as video surveillance, is the use of video cameras to transmit a signal to a specific location, on a set of limited monitors. The system of CCTV cameras is connected to a security building which is linked with rapid force for instant action against any perceived threat.

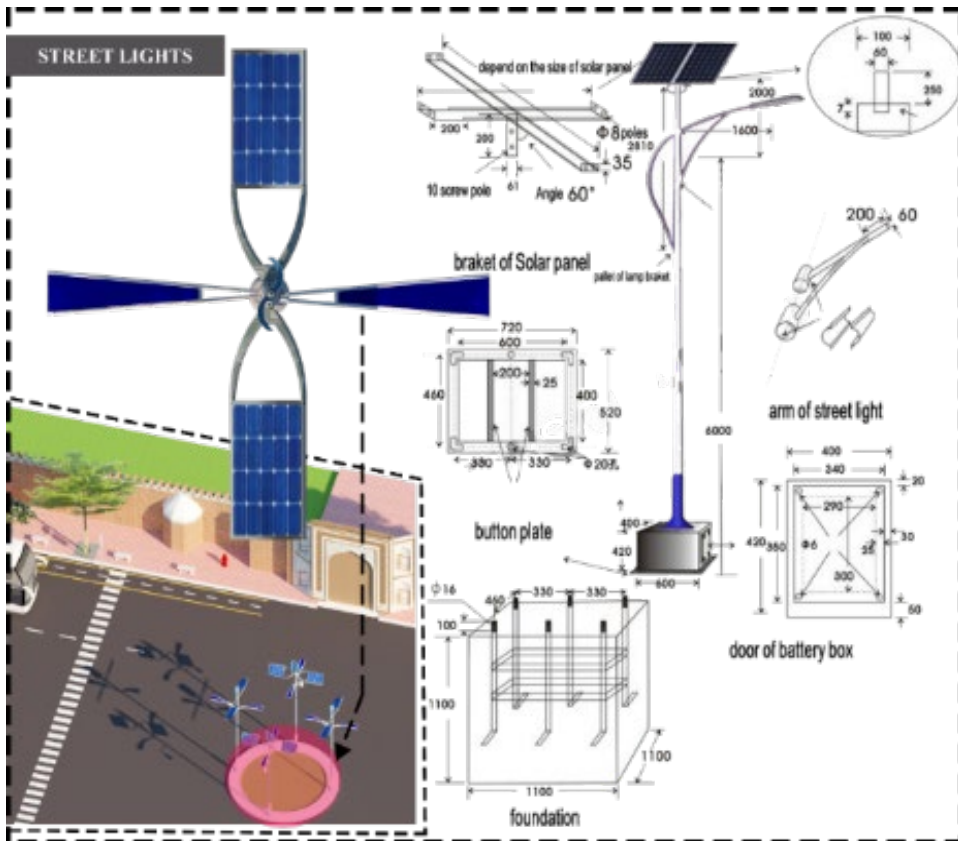
Figure 14
Surveillance Facility at Streets of Shalimar Gardens

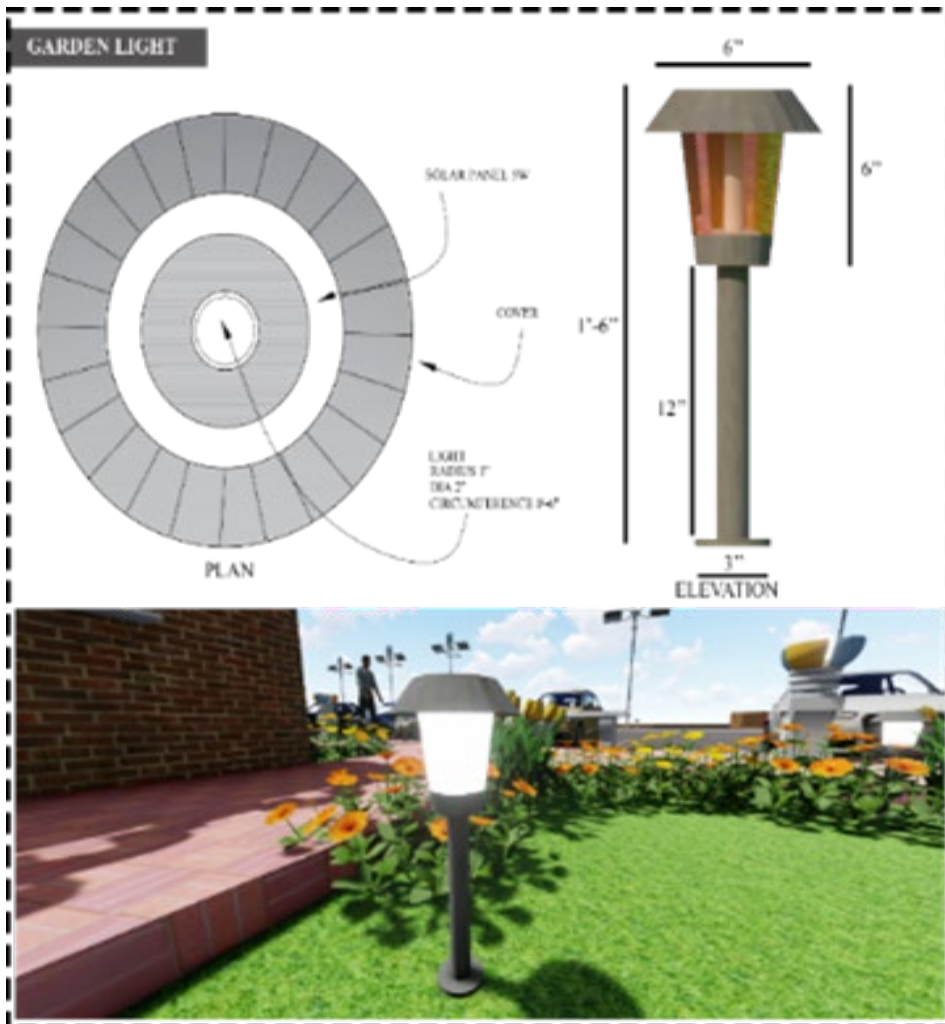


Landscaping Lights

Solar street lights are weather and water-resistant and have low glare and low insect friction. Solar panels convert solar energy into electricity stored in the built-in battery and used for dusk-to-dawn lighting operations. -Solar energy-based street lights not only reduce the costly electric bills but also contribute to green energy environment. A green energy environment is necessary for the city of Lahore, as its the most foggy and environmentally unfriendly city of the world, currently. Garden lighting alludes to the utilization of outside lighting of public landscapes and private gardens. They are used for the purpose of improving security, safety, accessibility, aesthetic night, recreation, and social activities (Moussa RR, 2017).

Figure 15
Landscape Lights Facilities at Shalimar Gardens





Side-Walks

Sidewalks by the streets of Shalimar Gardens are “pedestrian lanes”, which offer people a space to circulate on/walk besides the public roads, separate from vehicles. An 8-foot buffer zone is desirable to separate pedestrians from the road. Sidewalks provide spaces where people can run, walk, skate, and play (Capitanio M, 2019).

Figure 16

Side-Walks besides the Streets of Shalimar Gardens

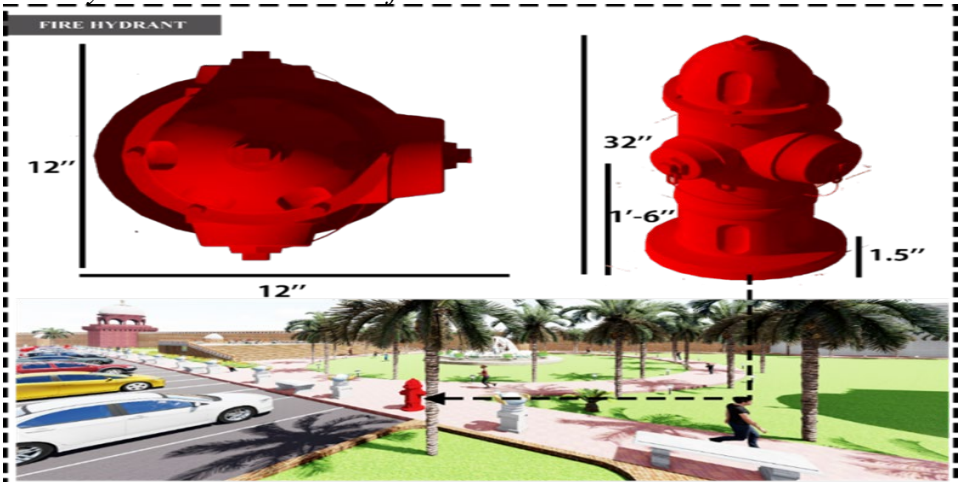


Fire Hydrants

Fire hydrants constitute a connection point at the streets of Shalimar Gardens through which firefighters can tap into a water supply. It is an element of active fire protection. Hydrants should be provided along the access routes to the required fire fighting equipment and adjacent public routes (Zhu, 2009).

Figure 17

Fire Hydrants on the Streets of Shalimar Gardens



Trees and Landscape Strips

A landscape strip comprises an area for trees and other plantings inside the public road. It is generally located between the sidewalk and the curb (Rehan, 2013). At Shalimar Gardens, the author proposes a beautiful landscape along the walls of the garden as well as landscape strips as dividers of roads. Trees should be planted along the walls of garden and landscape strips should be implemented wherever suited. This would enhance the beauty of the heritage and convert the overall structure from a concrete to a green environmental infrastructure.

Figure 18

Trees and Landscape Strips on the Streets of Shalimar Gardens



Building Façade and Wall

Buildings around the garden must not bear an improper design and must follow the design in such a manner that doesn't impact the beauty of Shalimar Gardens. A commercial Tuck shop along with the wall of the heritage site has no impact on it. In fact, it enhances its beauty due to keeping the theme that matches with heritage site (Askari, 2018).

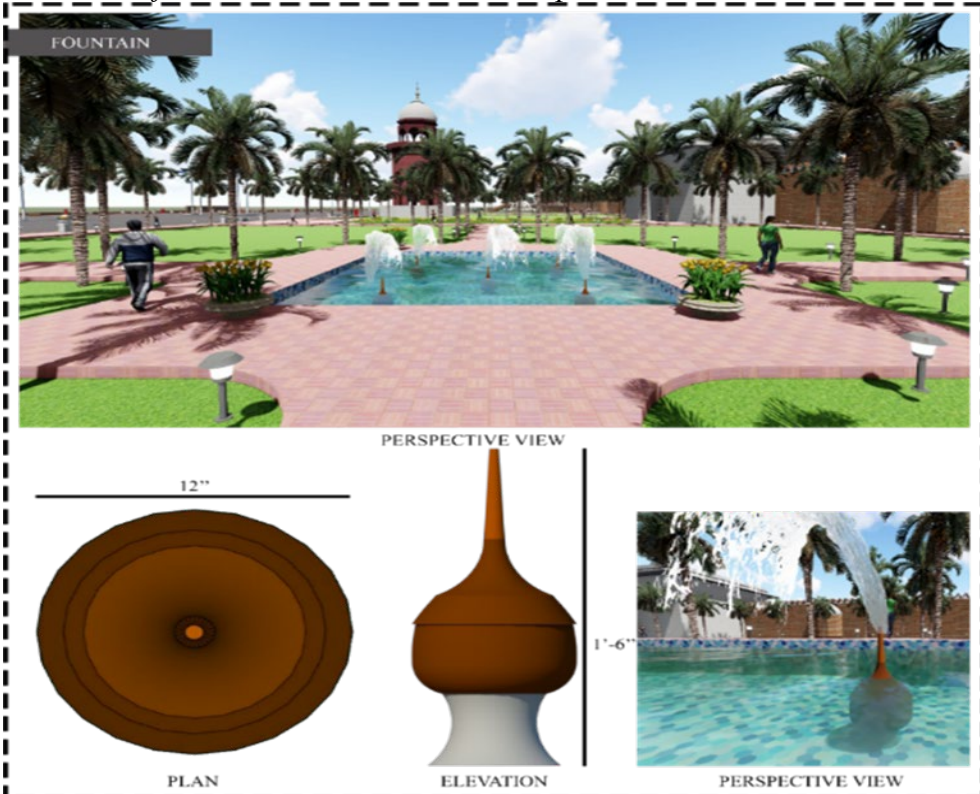
Figure 19

Façade of a Commercial Tuck Shop Building with Shalimar Gardens Wall



Figure 20

Fountains of Shalimar Gardens in Landscape Area



Fountain

Fountains are used along with a landscape area at the streets of Shalimar Gardens to honor individuals or events, for recreation, and for entertainment. Fountains are the elements of Mughal architecture. The author proposes to use them besides the streets of Shalimar Gardens to enhance the environmental effect (Bensley, 2012).

Traffic Facilities

Traffic facilities at streets of Shalimar Garden should incorporate all facilities installed to assist the flow of traffic and to maximize complete road safety such as traffic signs, signal lights, zebra crossing, traffic cones, and so on.

Figure 21

Traffic Facilities in the Streets of Shalimar Gardens



Under Ground Utilities Solution

Underground utilities are part of public service infrastructures installed below the ground in the streets of Shalimar Gardens. They are usually installed underground for convenience, safety, and aesthetics. Underground utilities include telecommunication and data cables, electric cables, water supply, gas pipelines, and sewer pipelines. These utility lines in the streets of Shalimar Gardens are often act as lifeline and help the community to function properly (Whitford, 2013). The water drainage system at Shalimar Gardens is the biggest need to save the heritage site from seepage. The author proposes a solution of storm water to be connected with other overflows in case of heavy rains. Due to a lack of no proper drainage, gas line damages also occur. An underground solution for Water drainage, Sewer lines, Gas pipeline, Electric Cabling, water supply, and optical cable is suggested. Figure 9 shows the proper underground installation of overflow trench pipe connected from inside the Shalimar Gardens with the planting areas of Streets, gas pipeline, electric cable system, fiber optics, and sewer system.

Figure 22

Underground Utilities

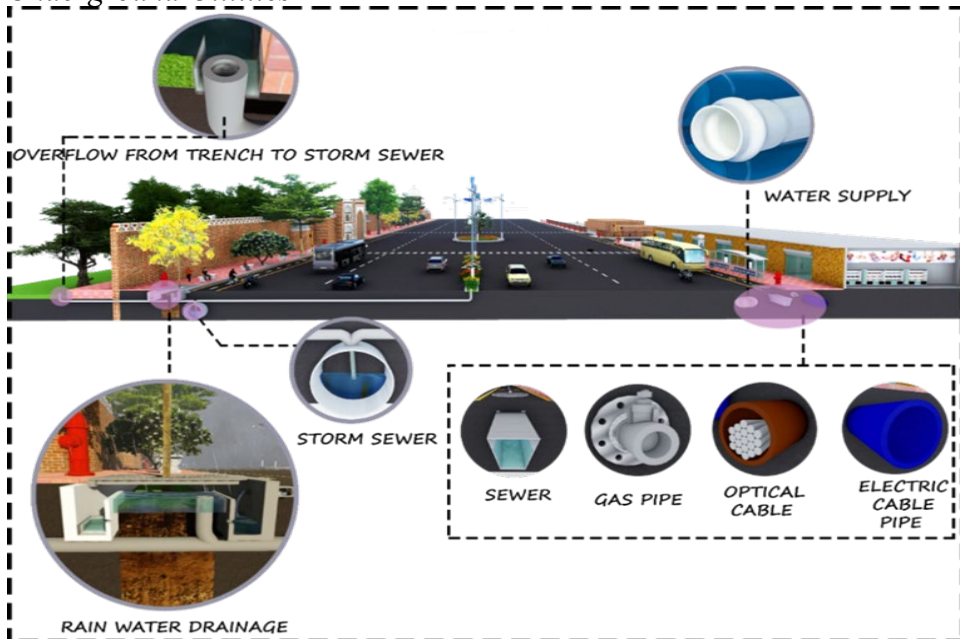
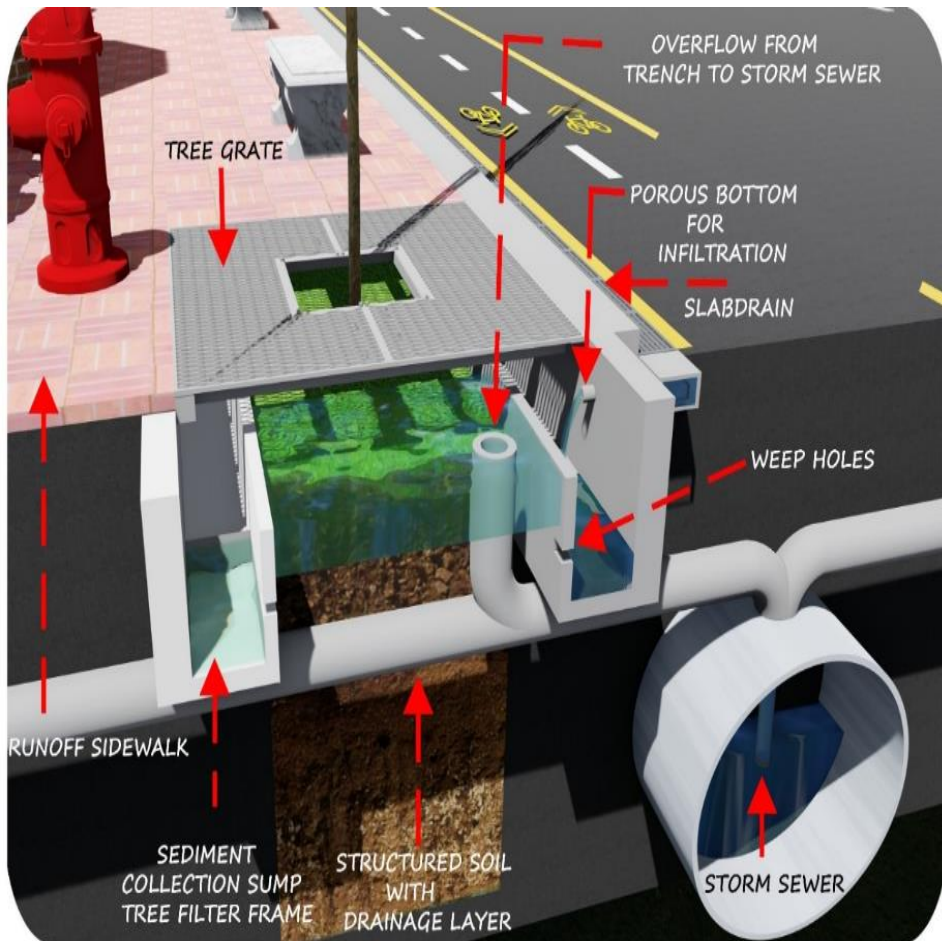


Figure 23 shows the configuration of irrigation water used for plants, in case of overflow due to heavy rainwater, it has a connection with a stormwater drainage pipe.

Figure 23

Configuration of the Rainwater Drainage System at Shalimar Gardens



Landscaping around Shalimar Gardens

Landscaping ideas around Shalimar Gardens or any popular building increase its environmental value. Such type of landscaping in architecture enhances the beauty of the heritage and gives it a natural living feeling. The Communities living around Shalimar Gardens and the tourists striving for a healthy atmosphere, neighborhood, and economic vibrance have identified

numerous positive values associated with urban landscaping, including the effects of street trees. The integration of trees at the roadside of Shalimar Gardens offers many benefits and well-recognized aesthetic enhancement.

Figure 24

Landscaping of Empty Space Around Shalimar Gardens

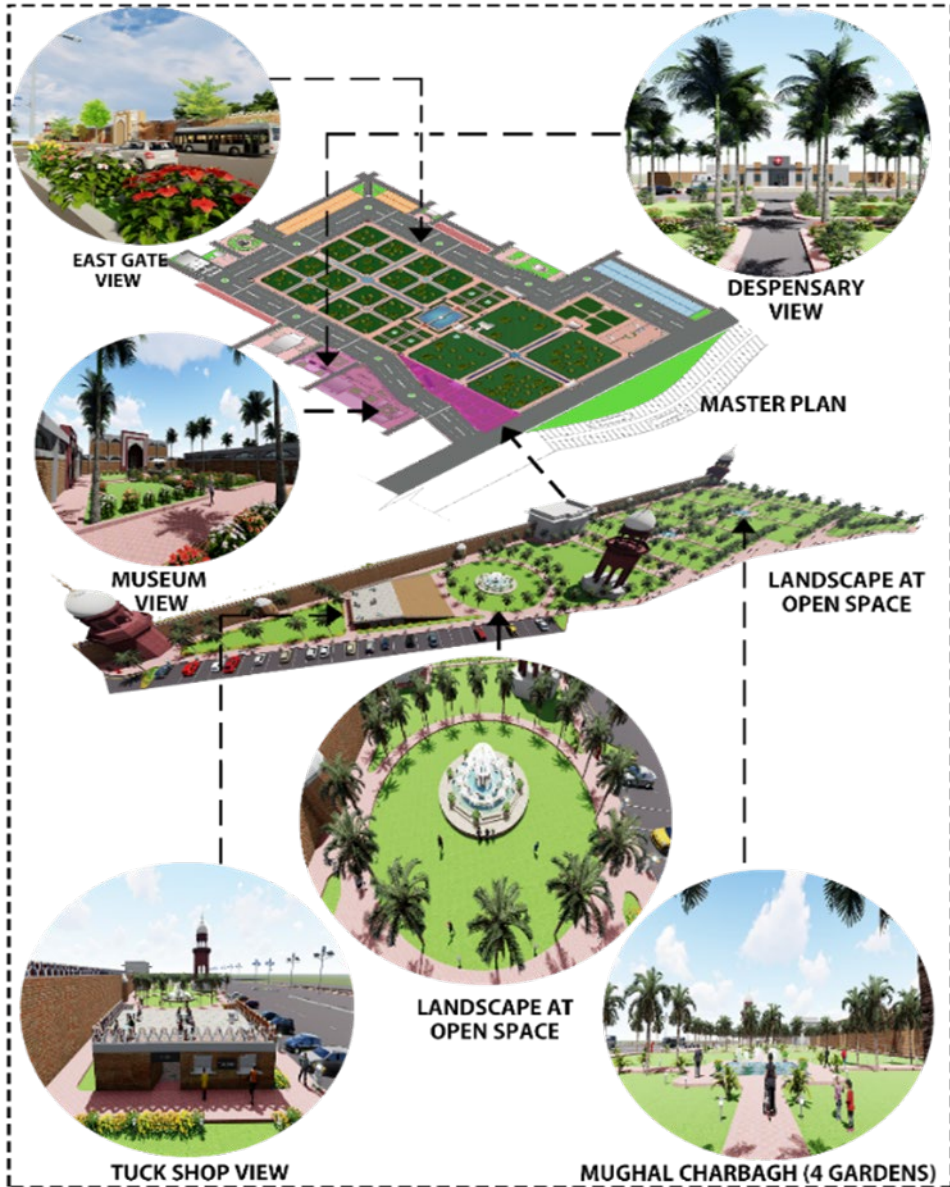
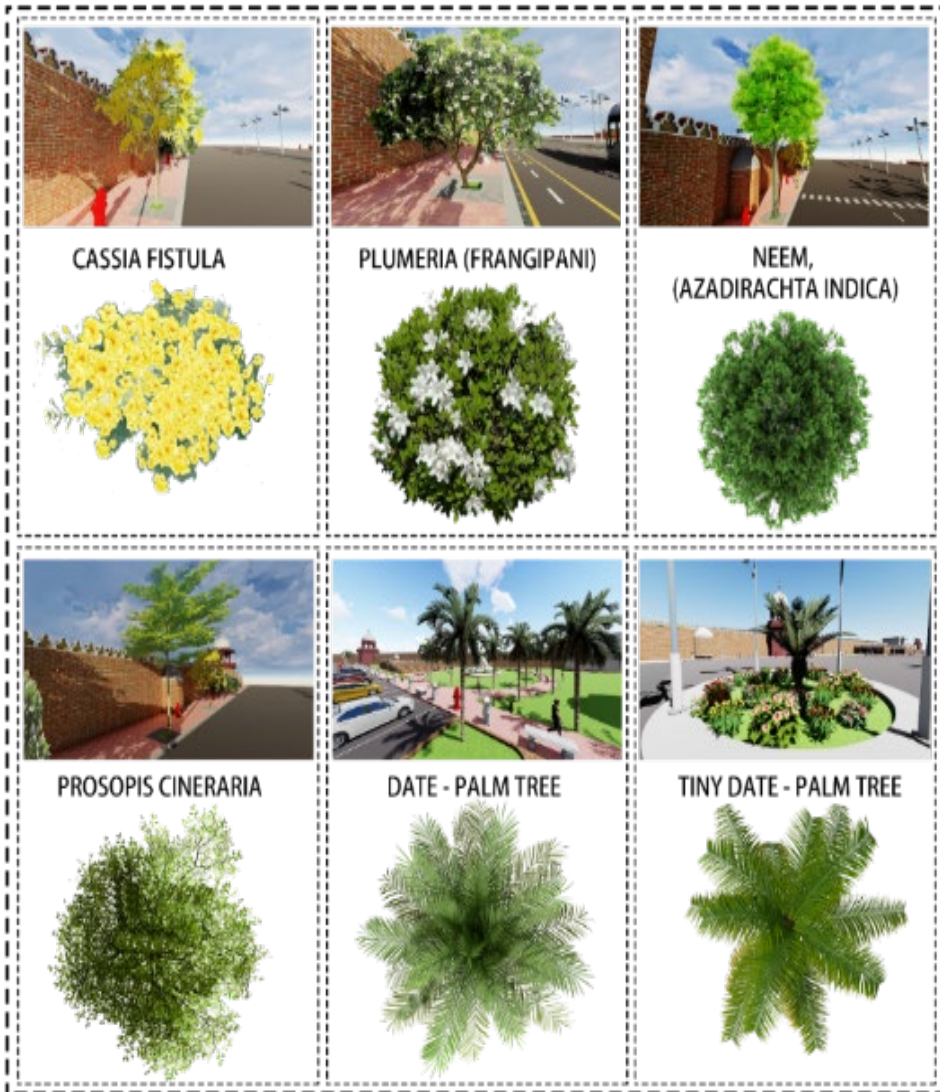


Figure 25

Perspective View of Plantation at Shalimar Gardens



The eastern exterior of Shalimar Gardens is fully damaged. Together with the conservation and preservation work of the wall, the author aim to provide landscaping along with the pedestrian facility and also intends to restore the damaged main gate.

Figure 26

Restored Eastern Wall of Shalimar Gardens with Landscaping

CONSERVATION AND PRESERVATION

CONSERVATION AND PRESERVATION OF THE EXTERIOR WALL OF SHALIMAR GARDEN, BURJ, AND ENTRANCE GATE ALONG WITH THE REDESIGN STREETScape ELEMENTS.

CURRENT SITUATION ANALYSIS

- EXTERIOR OF EAST SIDE DELHI GATE

MAP

BEFORE

EXTERIOR OF EAST SIDE WALL BURJ WALL

AFTER

EXTERIOR OF EAST SIDE WALL BURJ WALL

Results and Discussion

The current study investigated the execution of streetscape redesign standards at Shalimar Gardens. The issue is fraught with extraordinary difficulties. The inputs of the redesign process of streetscape are varied and different. Theoretically, as shown by figure 14, three aspects should be considered in order to overhaul the neighborhood's social character by redesigning the streetscape,

1. Community Context Understanding
2. Community Character Observation
3. Redesign Standards

When considering the cultural, socio-economic, urban context and ecological, the primary outcomes of streetscape redesign processes are associated with the cultural character of the city. The character of the community serves as a necessary framework for process redesign. The community's identity will be strengthened and maintained after the conflict between upholding the historically significant image and satisfying current material, activity, and technological needs is resolved. The guidelines for streetscape redesign are in line with the urban design standards found in heritage materials. It presents the key ideas that define the quality of outputs and serve to direct and regulate design processing. The main elements of the urban landscape, which on the whole come together, are as follows:

1. Redesign of building facades
2. Components and exercises of expulsion and expansion
3. Redesign signage, Painting, and Lighting
4. Redesign elements of Furniture

Streetscape guidelines at Shalimar Gardens are the commitment of the redesign cycle, the research concluded with the following findings, which are shown in table 3, after presenting the primary outcomes of streetscape redesign, which are replaying to the common principles.

Figure 27

Speculative Outcomes of the Streetscape Redesign Cycle Aimed to Develop Neighborhood Character

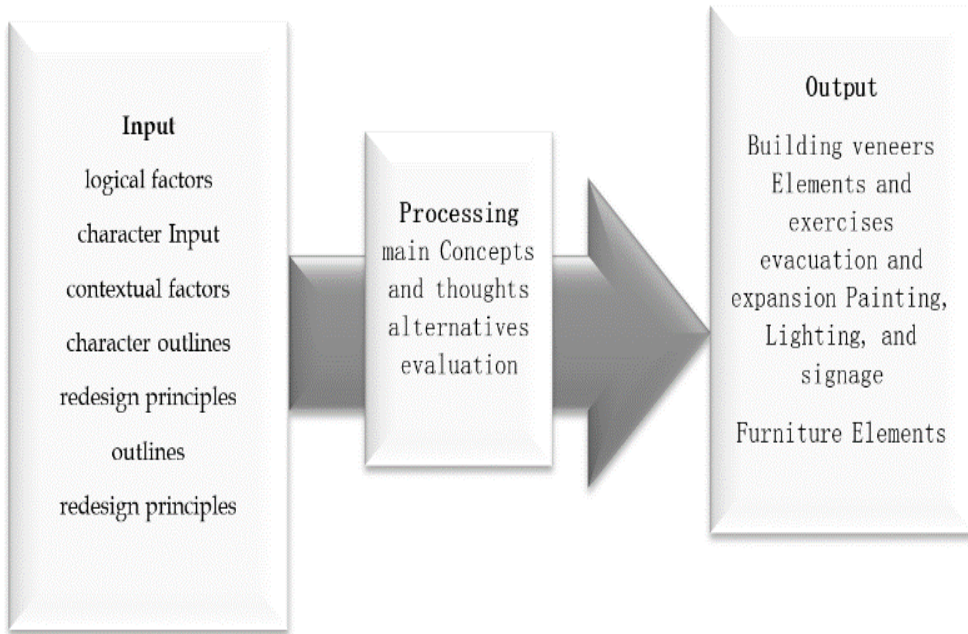


Table 1

Fundamental Differences in Yields Resulting from the Application of Updated Criteria at Shalimar Garden Streets

Outputs evaluation regarding redesign principles	Streets of Shalimar Garden Redesign Project
Building façades redesign	<ul style="list-style-type: none"> • Building components along with the streets of Shalimar Gardens are wide range intervention to provide a distinctive appearance. • The yields were centered around the residential, business exercises, and marketplaces exterior upgrades to add compositional components identified with the Mughal design style.

Outputs evaluation regarding redesign principles	Streets of Shalimar Garden Redesign Project
Elements and activities removal and addition	<ul style="list-style-type: none"> • The project policy relies more on additions than on deletions to produce a unique character that preserves and emphasizes the important uniqueness of the heritage site. • New augmentations incorporate streetscape components that meet the local area needs and character improvement at Shalimar Gardens.
Landscape Lighting, Cameras and signage redesign	<ul style="list-style-type: none"> • Signage and solar lighting were intended to create character; signage was associated with the activities of businesses and bazaars, while solar lighting was associated with sidewalks and street furniture. • The CCTV is a critical intercession to monitor the live situation so that could encounter any unknown or not-likeable activity in advance at Shalimar Garden.
Redesign Furniture elements	<ul style="list-style-type: none"> • The primary idea behind the furniture's design was to use architectural additions to revive the street's lost identity. Materials, colors, sizes, and symbols with historical significance were used and reintroduced in a new configuration.

Conclusion

The definition and utilization of streetscape redesign standards to improve nearby social culture require a profound comprehension of the streets' metropolitan context, existing constructed environment, as well as

financial, natural, and social conditions. Celebrating character components, layers, and imageability along the streetscape is necessary in order to emphasize the community's character, which is linked to important values and identity. The primary intervention strategies to improve neighbourhood character and identity along main streets are identified in accordance with the redesign principles for streetscape. These guidelines range from eliminating insensitive components and actions to planning the infill structure and any extensions. It presents theoretical recommendations for historic street development and revitalization. Each of these concepts has a specific value and efficacy based on how they apply to the current urban settings on a street. The key question is how to apply the right redesign ideas to a cityscape in accordance with the conditions that define its character. In order to preserve local traditions, cultures, and identities, historic cities worldwide must work hard to preserve and revive their unique streetscape character. With the help of the streetscape methodology, this study proposes the proper underground utility solution, proper road infrastructure, and all other necessary streetscape elements which enhance the living standards in areas surrounding the Shalimar Gardens.

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