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## **THE EFFECTIVENESS OF STREET CHARACTERISTICS FOR CREATING A CITY IMAGE; A study of Galle road, Colombo**

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### **Abstract**

The "Image" of the Asian city is associated with its street character, forms and patterns and it is distinctively different from its Western counterpart. The "Streets" play a dominant role in the formation of a city's unique identity. With the changes taking place in the urban development the street characteristics are undergoing significant changes having impact on the city image and its uniqueness. This study explores the importance of street character for enhancing the city image. Segments of streets along Galle Road, Colombo are investigated to observe the street characteristics and street users' perceptions on city image. Doorstep and street corner interviews were conducted among a random sample group. Findings revealed the most significant street characteristics such as width of the road, façade identity, visual exposure, functionality, boundary characteristics, physical form, activities, scale, visibility, height, unique shape, variation of setbacks, the sound, smell and greenery as important for enhancing and preserving the city Image.

**Keywords:** *Asian city, street characteristics, city image*

### **1. Introduction**

When one thinks about the city, the element that first comes to mind is the 'street' (Jacobs, 1961). According to Strom (2007), streets create a direct network and link between the urban residents and city landscape (as cited in Cheng et al., 2017). Thus, Gehl and Jahn (2002) describe the street as an essential channel in an urban context that creates a network for movement. As discussed by (Lynch, 1960) path is a main element of the city. He defined path may be streets, walkways, transit lines, canals, railroads. Therefore, streets are part of the city and influencing the building up of the city image interconnecting all other elements of the city. Appleyard, Donald (1981) and Yeung, H. Wei Chug, Victor Savage, (1996) shows, that streets can be considered as the showcase of the city. It creates a perception and first impression about the city in the visitor's mind. Streets which are very attractive become popular adds to the city image. These types of streets demonstrate the positive characteristic of cities. (as cited in Hartanti et al., 2016).

Urban environment has grown in a less reasonable way since the beginning of the 20th century. More consideration has been paid to urban design in terms of functional aspects neglecting the real requirement of the inhabitant. Application of such concepts has resulted in disappearing the meaning, identity and character of 'street as a place'. As well as these facts caused to create gray streets and other isolated places, therefore early social bonds of the society were fractured. It has created human centered community. Therefore, "people in modern cities experiencing a feeling of isolation and loneliness, lack of social ties and hostility to community" (Jacobs 1961, Ton kiss 2005)

An imageable street of the city can be changed quietly but a great street will lose its identity and significance it has attained so far once changed and thus creates a negative impact on the image of the city. Similarly it also changes the perception of the person of the image of the city. (as cited in Hartanti et al., 2016) Always new street developments are followed by the growth of the city. Thus, new activities and attractive places are developed within it. Therefore, people can obtain many opportunities through the different street environments, hereby increasing the city image.

The rapid haphazard growth of the Urban environment has resulted in neglect in the meaning, identity and character of ‘street’ as a ‘place’ creating gray streets and isolated urban spaces. Therefore, “people in modern cities experience a feeling of isolation and loneliness, lack of social ties and hostility to community” (Jacobs 1961, Ton kiss 2005). The major cause is related to the lack of awareness and disregards of what constitutes architectural integrity and character of streetscapes among inhabitants and also professionals who are responsible for design, construction and maintenance of the urban context. Compacted haphazard developments, illegal construction, and disregard for Architectural integrity have caused chaos in urban streets of Colombo depriving its users of comfortable and pleasing streets for human activity. It is also damaging the image of the city.

Hence this paper aims to explore the important street characteristics for enhancing city image, the street characteristics that needs to be preserved and enhanced, based on the perceptions of the street users. Such study will lead to understanding the critical indicators for preserving street quality and city image, informing professionals on how cities are to be developed while sustaining and restoring the qualities that are critical for sustaining city image. The study is limited to a study of segments of Galle Road in Colombo; but a wider range of street zones varying in street types would be more beneficial to make inferences for the whole city of Colombo.

## 2. Literature Review

### 2.1. CITY IMAGE

Many factors contribute to making a successful and unique city image. Kevin Lynch (1960) identified three components of the environmental image: identity, structure and meaning. (Refer Table 1)

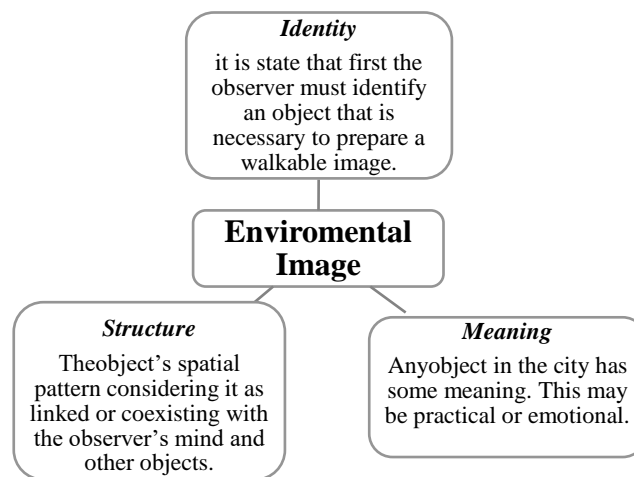


Table 1, Components of Environmental Image (Source: by Author)

**Legibility:** According to the Kevin Lynch (1960), Legibility is a factor that contributes towards the city image and visual quality within the city. Cities are easily identified by means of using districts, landmarks and pathways and thus can easily grouped into an over-all pattern. Hence, legibility or clarity cannot be provided a proper or definite meaning yet stands as an important property of attractive city. Legibility has a special importance when considering the size, time and complexity of the environment in an urban scale.

**Imageability:** According to Kevin Lynch (1960), physical qualities of the city create characteristic of identity and structure in the mental image. It can be identified as the ‘imageability’. Thus, imageability of the physical objects of the city creates a higher opportunity in making a strong image in any observer’s mind. Shape, color and arrangement of the physical object are also direct impacts to the mental image formed of the environment in the city. They help to create different identifications and a strong structure for the mental image.

### 2.2. MAIN ELEMENTS THAT IMPACT ON CITY IMAGE

Kevin lynch grouped these features into five main elements. (Refer Table 2). They are considered as the main part of the skeleton of the urban image of the city (Bentley, 1985).

Element	Descriptions
<b>Paths</b>	<ul style="list-style-type: none"> <li>- A channel that is used for the observer's customary, occasionally and potentially movements.</li> <li>- Connect and arrange other environmental elements in the city.</li> <li>- If major paths lack of identity and consists a more confused structure, then the overall city image becomes difficult to perceive and thus will face various issues.</li> </ul> <p><b>Ex: streets, walkways, transit lines, canals and railroads</b></p>
<b>Edges</b>	<ul style="list-style-type: none"> <li>- Linear elements within the city are rather secondary and are nor used nor considered as a path by the user.</li> <li>- Act as the boundaries between two phases /linear breaks in a country or act as barriers which are penetrable and may conceal one region from another.</li> <li>- Adjacent orientation rather than organize axes.</li> <li>- Plays a role in holding generalized areas in the boundaries of a city together by either a wall or through water.</li> </ul> <p><b>Ex: shores, railroad cuts, edges of developments, walls.</b></p>
<b>Districts</b>	<ul style="list-style-type: none"> <li>- Demonstrate unique identification of the city.</li> <li>- Perceived by the observers as "inside of" while noted as those that carries a particular common identity amongst them.</li> <li>- Always consists an identifiable inside form.</li> <li>- Can be used as a reference from outside if seen from out of boundaries to the observer.</li> </ul>
<b>Nodes</b>	<ul style="list-style-type: none"> <li>- City consists of points or strategic spots where people can enter.</li> <li>- People travel through these intensive foci.</li> <li>- Being the reductions of some usage or physical character.</li> <li>- Some are focal and essence points in the city.</li> <li>- Identified as symbols of the city.</li> <li>- Considering overall nodes can be identified as the core.</li> </ul> <p><b>Ex: Main junctions stop used as a break in transportation, a crossing or convergence of paths moment of shift from one structure to another, markets squares</b></p>
<b>Landmarks</b>	<ul style="list-style-type: none"> <li>- Different types of points unlike nodes.</li> <li>- Do not enter the within them but identify them from an external space.</li> <li>- Have typical and different angles and distances and most of the elements' tops are small.</li> <li>- Help to find directions and thus act as symbols in the city.</li> <li>- Identified as local and are only visible to the restricted localities and are of convinced styles.</li> <li>- Increasing the value of the identity and structure, of the image of the city.</li> </ul> <p><b>Ex: Some different shapes of buildings, signs, stores, mountains, Isolated towers, golden domes and grate hills</b></p>

Table 2, Five Main Elements of the City (Source : by Author)

### 2.3. STREET CHARACTERISTICS AND CITY IMAGE

Several street characteristics are defined by many scholars as important for establishing imageability. Such characteristics are summarized below. (Refer Table 3)

Physical Street Characteristics		
• Form	-	Lynch, K (1960)
• Shape	-	Lynch, K (1960), Appleyard(1981)
• Building Line	-	Worskett(1969)
• Building Height	-	Worskett(1969), Tugnuff&Robertson(1987)
Social Street Characteristics		
• Activities	-	Lynch, K (1960)
• Functions	-	Lynch, K (1960)
Visual Street Characteristics		
• Arrangement of Elements	-	Appleyard(1981), Rapoport A.(1987), Tucker (2004), Cullen(1961), Worskett(1969)
• Colors	-	Appleyard(1981), Cullen(1961)
• Textures	-	Tucker (2004), Cullen(1961)
• Pattern/ Style	-	Cullen(1961, Kropf(1996)
• Materials	-	Worskett(1969), Tugnuff&Robertson(1987)
Landscape Street Characteristics		
• Landscape Features	-	Appleyard(1981), Marcus & Francis(1998)
• Tree Canopy	-	Marcus & Francis(1998)
• Sky Line	-	Worskett(1969)
• Visibility	-	Lynch, K (1960)
• Surrounding Environment	-	Lynch, K (1960), Appleyard(1981), Rapoport A.(1987), Tucker (2004), Cullen(1961), Marcus & Francis(1998)

Table 3, Street Characteristics (Source: by Author)

### 3. Methodology

#### 3.1. CASE SELECTION CRITERIA

Segments of Colombo – Galle Main road is selected for the case study as it connects to many streets, by roads, lanes in the city of Colombo. The area was divided into five zones within 1km distance based on a 10-minute walking distance. The study was repeated in the 5 selected zones namely: zone A, zone B, zone C, zone D, zone E (Refer Figure 1)

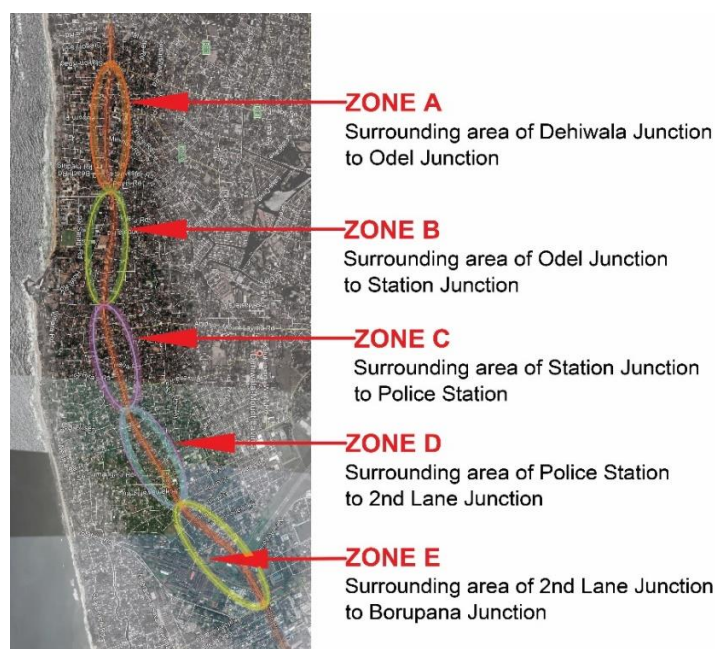


Figure 1, Case Study Area (Source: by Author)

### 3.2. DATA COLLECTION TOOLS

The views and memories about the local area in which they live in was explored using "doorstep" interview method. In addition, "Street Corner" Interviews were done to explore the perceptions of visiting population - street users on their views, memories of the street. The Data gathered were based on their perceptions on city image (streets, edges, nodes and landmarks). Further to the interview systematic observations were done to record the street characteristics of the five selected segments of the streets. The observations in all 5 segments were mapped.

## 4. Analysis and Discussions

### 4.1. MEMORABLE PATHS

**Zone A** - Kawdana Road has a considerable increment of width than other paths and the narrowness is smaller when compared to Auburn Side and Dudley Senanayaka Mawatha. The old buildings around the Kawdana Road also creates an impact in making the area memorable than others. It affects visually

The observed street characteristics are width of the road, surrounding environment and function.

**Zone B** - When considering the Wattarappala road, the width of it seems to be wider than other streets thus creating a more comfortable space for the users of the road. As it allows easy accessibility and more suitable space when considering the anthropometric characteristics as well. Further it was noted that it doesn't demonstrate a narrowness like Pinthaliya road, which was noted as a more insecure place due to its narrowness.



Figure 43, Entrance of the Wtarappala Road  
(Source: by Author)



Figure 44, Entrtance of the Pinthaliya Road  
(Source: by Auther)

The observed street characteristics are width of the road and visibility.

**Zone C** - In this section, The Templer's road and around that road demonstrates a very busy condition due to the situation of the public market in Mount Lavenia as well as the landmark for the bus halt of 255- Mount Lavenia- kottawa route, near that road.

Pirivena road is a memorable one. The main reason for this also was further noted as the constant use of the road by the students and members of the Engineering faculty in Rathmalana as well as the existence of the Pirivena at the close proximity. This area also depicts a satisfactory dimension in the road providing a wide space for both pedestrians and the vehicles.

The two religious statues alongside of the St. Rita road mainly has impacted in making memorable place. That statures are made spiritual feelings. Bandaranayake Mawatha isn't highlighted much because it is a narrow road which is small in width situated near the Police station.

The observed street characteristics are width of road, surrounding environment, visibility and activities. The existence of places for Religious significance as well as important community-commercial buildings such as the market has impact on memorability among the users.

**Zone D** - The Aththidiya road consists a wider pathway than other paths. Those characteristics also can be seen in Chakindarama road. In other paths there is an average width and a rather narrowness.

Situating next to the Maliban factory and among few medium sized and non-compacted buildings, spreading in a large area and existing of a color light can cause to being memorable of the width of main street near Aththidiya road. The increase of the width of the main street near the Aththidiya road also impacts to making the Aththidiya road memorable.

The observed street characteristics are width of the road and arrangement of elements.

**Zone E** - Even if , the Kadawala Mw has a rather wide pathway it has not become an effective reason to be memorable. The area consists of complex and compacted commercial buildings. From which a continuous building façade has been created around this path. Therefore, Kadawala Mw will be more memorable within the area. Similarly, the new airport road was identified as a memorable pathway because of the increase of the width. The situation of Rathmalana airport beside the Kothlawalapura Road is less memorable because of the narrowness of the road. Those reasons also create an impact to being memorable. Thus, comparatively the 5th lane is not highlighted, as the height of the buildings situated alongside is less but those located in the 4th lane is higher and has created a better impact in people's memory.

The observed street characteristics are width of road, functions, activities and surrounding environment.

Width of road, surrounding environment, functions, activities – in terms of commercial or religious significance, arrangement of elements and visibility are observed street characteristics of the all Zones.

#### 4.2.MEMORABLE EDGES

**Zone A** - Mount- Lavinia Cemetery Boundary is linear boundary, use of greenery which is visually appealing to the passersby, creates a unique feeling which is less harsh and more aesthetically appealing to any pedestrian or motorist, entirely different view to the user when compared to cemeteries in the early days which had only a simple barbed wire or a short wall as a boundary that easily created the “eerie” feeling within a passerby making the space unwelcoming and more of negative atmosphere thus not allowing the passersby to walk peacefully and breaking down the continuity of the building façade.



Figure 45, Mount Lavinia Cemetery Boundary (Source : By Author)

The observed street characteristics are linear patterns, soft landscape features, surrounding environment.

**Zone B** - The tree line situated near the boundary wall near the court complex has become the most prominent edge. It plays role of noise barrier. This has created a shady area giving a tranquil atmosphere while preserving the dignified atmosphere of the court. This is the only area which includes greenery in a noticeable quantity in the neighborhood.



Figure 5, Boundary wall of Mount Lavinia Court Complex (*Source : by Author*)

Comparatively discussing it can be identified that though the boundary wall of St. Tomas College works as an edge, its memorable percentage has reduced due to its untidiness and unattractiveness.

The observed street characteristics are soft landscape features and tree canopy.

**Zone C** - Though the edges in zone C cannot be identified clearly the narrow linear edge opposite the Vision Care was suggested as one that demonstrates a boundary characteristic enhanced with its simple landscape with short green bushes creating a rather “cool” vibe.



Figure 6, Front View of the Vision Care (*Source : by Author*)

The observed street characteristics are arrangement of elements, soft landscape features.

**Zone D** - Fence of the Maliban factory is linear and demonstrates a boundary characteristic. The fencing that allows visual connection to the expanse of open space and greenery has played a major role in creating a significant impact in people’s minds.

The observed street characteristics are linear pattern, landscape features and visual connectivity.

**Zone E** - The tree line in the center line of the main street is identified as a significant edge. This consists trees of massive size which are enhanced by the carpets of grass underneath it. The road is divided into two parallel lines and thus demonstrates a boundary characteristic.



Figure 7, Tree Line middle of the Street (*Source : by Author*)

The boundary wall in Rathmalana airport is another highlighted edge in this zone. This acts as a long linear graphic wall thus, it has become an edge with a unique identity which stands out and instantly is perceived by those passing it. Boundary walls of technical college and Timber Corporation are long and linear yet are not easily identified separately as well as lacks attractiveness. This is due to the fact that both walls consist of the same characteristics in visual height and color.



Figure 8, Open Space in Front the Airport (Source : by Author)

The observed street characteristics are arrangement of elements, linear patterns, landscape features, and materials.

Surrounding environment, soft landscape features, linear pattern, arrangement of elements, tree canopy are observed street characteristics of all Zones in the study.

#### 4.3.MEMORABLE NODES

**Zone A** - The most functional surrounding junction is observed along the Kawdana road. This is due to the fact that this junction was found to be one of the most memorable junctions compared to others. Most of the people in this area use this junction as a “village junction” thus it has developed the area near Kawdana Road as a commercial area or if stated in simple terms it has attained an identity of a typical junction in a village known as a “Handiya”. This junction stands out as a very busy area as many people uses the Kawdana Road as a shortcut. All other junctions are less noticeable because they are much more narrow roads when compared to the Kawdana Road.



Figure 9, Area of the Kawdana Road Junction (Source : by Author)

The observed street characteristics are the function and activities in terms of land use types such as active commercial activity.

**Zone B** - The building facade alongside the Wattarappala road junction consists of rather small buildings. There is considerable variation in building façade, and a considerable amount of open space is created. Above factors have also created an impact to the Wattarappala road to be the most memorable among many junctions. This junction has become very busy due to the frequent use of motorists. Situation of almost all other memorable paths mentioned above can be a reason for being memorable.

The observed street characteristics are surrounding environment, visibility, building height and functions.

**Zone C** - The Templer’s road junction and Station junction around that road demonstrates a very busy condition due to the situation of the public market in Mount Lavenia as well as the landmark for the bus halt of 255- Mount Lavenia- kottawa route, near that road. A vehicle congestion can be seen because of the color light at the Templer’s road junction.





Figure 10, Templers Road Junction  
(Source : by Author)



Figure 11, Station Road Junction  
(Source : by Author)

The observed street characteristics are surrounding environment, activities and functions.

**Zone D** - The Aththidiya road junction has become the most memorable one due to be a very busy junction and being a three-way junction made by well using the space. The dimensions of this junction have also created a prominent image to it within those who see it. The aroma of the freshly baked biscuits is experienced near the Maliban factory, which is the main reason for this junction to be in many people's memory.

The observed street characteristics are smell of surrounding environment, visibility and functions.

**Zone E** - The junction that's situated near the Kadawala Mw has become popular as Belekkade junction due to the existing situation within this junction that has turned out to be more of a daily market area. Therefore, this junction always demonstrates a busy condition crowded by the residents as well as those regular outsiders. It should be taken into consideration that the characteristic created in this area with the small boutique type shops and compacted nature has also contributed in making this a memorable junction. Thus, it has stood out as one of the most memorable locations in the zone.

The airport junction which has connected to the new airport Rd has become memorable due to the surrounding environment. Therefore, an open space has created around the area of airport which is also a reason to making the area memorable. This junction is also popular due to the situation of the Kothalalwala Defense University and Telecom.



Figure 12, Kadawala Mawatha Junction  
(Belekkade Handiya) (Source : by Author)



Figure 13, New Airport Junction  
(Source : by Author)

The observed street characteristics are surrounding environment, activities and functions.

Surrounding environment, functions, activities, visibility and building height are observed most dominant street characteristics of the all Zones in the study. These street characteristics are directly influence to the create memorable nodes.

#### 4.4. MEMORABLE LANDMARKS

**Zone A** - The cemetery as a memorable landmark, in present, the cemetery has picturesque, attractive landscaping with flowers and those highlights the cemetery as a more appealing place. This also effects the emotional bond between people and cemetery in a positive way. This is further enhanced by the quiet and calm environment around the cemetery.

Arpico Super Centre on the other hand depicts a more memorable space than the cemetery discussed above. The main reason for that was observed as the color of the building, and the volume and scale bring a specific look. Thus, it has become a memorable landmark in the area.



Figure 14, Entrance of the Mount Lavinia Cemetery (Source : by Author)



Figure 15, Building Form of the Arpico Super Center (Source : by Author)

The observed street characteristics are landscape features, surrounding environment, shape, volume, color, building height, visibility.

**Zone B** - The huge Mara tree in the middle of the three-way junction is highlighted as a prominent landmark, while providing a unique form at the junction by its shape, characteristics and color of flowers. The Mara tree due to its prominent features and height, is a well visible element to any person even from a 100m distance specially when looking towards Galle from the Colombo side it is easily noticeable and thus creates an instant welcoming impression in a passerby.

Mount Lavinia court complex has become a memorable element due to the tree line in front of it as discussed previously. This has emphasized the silent nature around the court complex.



Figure 16, The Mara Tree in the Odel Junction (Source : by Author)



Figure 17, Entrance of the Mount Lavinia Court Complex (Source : by Author)

The KFC building is also considered a memorable landmark due to the building structure, building faced variations and colors used. The outdoor gathering space near the KFC favors the characteristics that highlights this building.

It is also noted that the Dharmendraramaya temple was a place which was in the memory of majority of the people. It can be concluded that the Dakshinarama temple has become memorable due to the good visibility of the stupa to the road, the white color and the smell of incense sticks that bells from the temple.



Figure 19, Dharmendrarama Temple  
(Source : by Author )



Figure 20, Building Form of the KFC Building  
(Source : by Author)

The observed street characteristics are form, shape, color, building height, surrounding environment, visibility, tree canopy, landscape features and functions.

**Zone C** - The Buddha statue and the Christian statue which are situated alongside the beginning of St. Rita road have taken the spaces of higher percentage of people's memories due to the unique identity that the statues have added to the road. The "memory" of this is also enhanced by the religious statues.

Nawaloka Clinic Center has become the most outstanding building in that area due to its massive height, but attractive colors or a form cannot be seen in that. Except all these, commercial buildings such as McDonalds, Pizza Hut, Keels Super Center and Chinese Dragon have remained in people's memories due to their different colors and different forms. Sometimes the aroma around them has also impacted in making the place memorable as most of them are restaurants.

The observed street characteristics are building height, smell of surrounding environment, visibility and functions such as places of religious significance.

**Zone D** - Building form isn't the reason for the Maliban factory to be highlighted. But the garden and the lawn area opposite it has created a positive impact in identifying the building as a unique landmark. The aroma of the freshly baked biscuits is experienced near the Maliban factory, which is the main reason for this junction to be in many people's memory. In addition to that, the statues opposite to the Maliban factory also helps to enhance the area as a landmark. When considering the statues apart from the building, people don't identify the junction as a landmark due to the insufficiency of its scale.

In addition to that, even if the scale of the Buddha statue which is situated in Silva place is not large, it stands out as a prominent landmark as a Buddha statue and the white color also was identified as a reason to enhance this statue. But this is not visible directly to a person that walks in the street because Silva place is a narrow path which doesn't consist a wide road.

The Samsung building is a commercial building which is less memorable as a landmark because the height and the scale of it, is not in a considerable level as it blends with the other buildings around it when considering its height where as its blue color has created the significance in the building and thus highlighting it amidst the other similar buildings.

The observed street characteristics are color, arrangement of elements, smell of surrounding environment, visibility and functions.

**Zone E** - Rathmalana airport is highlighted in zone E also as a landmark because of its large scale and the inexistence of the huge buildings and trees which all in all creates an open area. In this area, along the edge of the center road divider line, there are no trees except only the lawn has been maintained. Therefore, a more open space has been created around the airport than other places. Impact of all these factors, has made the airport to a memorable place with a unique identity.

The massive Buddha statue which is situated near the station Rd in Belekkade junction to be one remembered by most of the passersby. Though there exists the Dharmendraramaya temple near this

statue it is not remembered by most people while the statue has captured all the attention of this particular place, because of its considerable height and scale. Apart from the buddha statue, the form of the “Pilima ge” also contributes in creating the memory within this area.

The blind school in Rathmalana has been noted as a prominent and well-known landmark in almost every person’s mind who passes the area. As it is a special school situated at the Rathmalana junction the knowledge of the speciality of the school also creates an awareness in specially the drivers minds when passing the area, making them drive more consciously thus subsequently turning into a memorable place known by many.

The Lanka Sathosa building which is a commercial building that consists of a large parking area in front of it which attracts the passerby though the building doesn’t have a strong attractive characteristic the open space amidst the other walls and building facades has implied a specific “change” along the road.



Figure 21, Buddha Statue in the Belekade Junction  
(Source : by Author)



Figure 22, Building Form of Lanka Sathosa  
(Source : by Author)

The observed street characteristics are form, shape, color, building height, landscape features, surrounding environment, visibility and functions.

Form, shape, color, building height, surrounding environment, visibility, tree canopy, landscape features and functions are observed most dominant street characteristics of the all Zones in the study. These street characteristics are directly influence to the create memorable Landmarks.

## 5. Conclusion

The study revealed several street characteristics associated with inhabitant’s memory of the city which is noted as important characteristics for sustaining the city image.

Road Width and Building Heights: open wider street scales, with good visual accessibility are memorable and important for creating a memorable street. Façade Identity: in terms of the treatment of facades such as physical form, scale, visibility, height, unique shape, variation of setbacks play an important role in the perceptions of street users. Functionality and Activities: Places of religious significance, communal significance and also commercial significance are important for lasting memory of pedestrians. Boundary characteristics: Street edges lined with trees, greenery and landscaping are the key characteristics for city image.

These characteristics were found to be the most significant characteristics of streets that enhanced their memory of streets and City Image. Thus, such characteristics need to be preserved, enhanced and considered in the development strategies of the City of Colombo. But this study is limited to study of segments of streets from Galle Road in Colombo. Further expanded studies of other parts of Colombo are required for confirming the above for the whole of the city of Colombo.

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