THE CHANGING PLACE SENSIBILITY OF AN ARTERIAL NEIGHBOURHOOD: CASE STUDY – DUPLICATION ROAD, BAMBALAPITIYA

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Dissertation submitted in partial fulfilment of the requirements for the Master of Urban Design

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Declaration

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Abstract

The creation of a secondary arterial connection parallel to but less significant than Galle Road, in the late seventies cut through the Colombo suburbs of Kollupitiya and Bambalapitiya, breaking neighbourhood connections and dividing families. Unlike Galle Road, this second artery had no associated spaces or services that could help build its urban character or its edge condition, it cut through the urban fabric without regard for what was on either side. Even its name suggested its duplication of function rather than amenity. Another road running parallel – Marine drive was introduced subsequently along the coast also to take the load of the traffic in Galle Road.

This dissertation proposes to study how a second sub-arterial road, Duplication Road, introduced in the early 1970's has impacted the forms of neighbourhood character sustained by the urban relationships that were formative for Bampalapitiya's Place-Sensibility.

Dedication

I dedicate my research and dissertation in memory of my beloved parents- Michael and Therese Fonseka who always guided and supported me in my education and work, and for their belief in my ability to do my best.

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INTRODUCTION

Background to the study

Study area- The neighbourhood of Bambalapitiya- Is limited to TWO Grama Niladari divisions in the City of Colombo, Western province, namely Milagiriya and Havelock Town, with their edge conditions clearly defined. The extent of total area is 1.93 SQ. KM.

Its physical character is determined by its coastal location and penetration by a major arterial road and rail route along the south-western coastline, a sub-arterial, Havelock Road along the Eastern edge, links it to suburbs to its immediate north and south. A second sub-arterial road, Duplication Road, was introduced in the early 1970's.

Historical background

In the mid-19th Century Colombo was a green city and its zones were similar to smaller villages consisting mostly of Coconut and cinnamon plantations. (St. Michael's church in Kollupitiya still has the name St. Michaels' 'Polwatte"). Within this backdrop in the early 20th century luxuriant villas and manor houses were situated owned by wealthy businessman and established families in the area. Kollupitiya itself was an urban village with stately mansions and large gardens with large majestic trees that had large canopies, dotted in-between with cart tracks which later became by lanes. At that time families of all four ethnic communities of Ceylon namely Sinhala, Muslim, Tamil and Burgher families owned property in the stretch between Kollupitiya and Bambalapitiya.

In the 1930's when Scottish botanist and urban planner Patrick Geddes visited Colombo and after seeing the large open garden spaces and tree lines minor roads, and in his belief of "the uniqueness of places" while seeing how the people believed in the rural spirit while expressing their love for gardens, proposed Colombo as a "garden village" and thus the phrase "Garden city of the east" was coined.

He also visualized with the advent of the motor car that the existing Galle Road will not be able to handle the influx of vehicles into the country. And therefore, proposed a "relief road" to Galle Road to take over the spill over traffic of Galle Road and this road was named Duplication Road. He further proposed a building line of sixty-six feet to this road and widening at intervals as lane sidings for public safety.

In early 1970's the reservation kept for Duplication Road was evoked and work for the construction of this relief road or Duplication Road commenced. Currently the road commences from the military Barracks near the previous Ceylon Cold stores better known as "Elephant House" and winds its way through Kollupitiya, Bambalapitiya to the Wellawatte canal behind St. Peters College. The first stage of Duplication Road ended at Dickman's Road in Bambalapitiya and stage two saw it extended to the boundary of the Wellawatte Canal. This was done to ease the vehicle congestion on Galle Road.

Many crossroads connect Galle Road to Duplication Road and also Duplication Road to several other roads notably Havelock Road towards the East. It has intersected the previous areas of coconut estates, woodlands and large stately gardens of a colonial era, neighbourhoods, families, schools and well-known establishments have now been changed into large middle and high-rise residential and commercial establishments in the present day.

Duplication Road frontage itself has become mostly commercial with the residential complexes selling out to commercial ventures and establishments with many middle and high-rise buildings facades creating a mixed-use ribbon development and a characterless frontage.

Research Gap.

No study has been done in reference on the critical social and physical impacts of Duplication Road in the neighbourhood of Bambalapitiya.

Research Questions and Research Objectives

Hypothesis

Bambalapitiya's physical character and place sensibility has developed historically as a positive response to its coastal location and Galle Road connectivity. Its neighbourhood character and place sensibility responded to these macro urban features through an intricate local street network that knitted together the fabric into a recognizable morphology.

The subsequent introduction of Duplication Road has impacted this neighbourhood character sustained through these physical features in ways that many residents identify as being negative.

Research problem

This dissertation proposes to study how a second sub-arterial road, Duplication Road, introduced in late 1970's has impacted forms of neighbourhood character sustained by the urban relationships that were formative for Bampalapitiya's place-sensibility.

Research Questions

1) How did its coastal location and arterial connections come to define the physical morphology of Bambalapitiya as a coherent neighbourhood?
2) How is this (above) evident in the ways that residents and daily users experienced and identified this neighbourhood and its amenities?
3) How did the Introduction of Duplication Road impact neighbourhood cohesion?
4) Can this case study be meaningful for understanding arterial development in other coastal neighbourhoods?

Objective

To Gain a better understanding of why Duplication Road is believed by residents to have impacted the place-sensibility of Bambalapitiya, adversely, or has it contributed positively?

Methodology

Due to the exploratory nature of the research problem, a qualitative research approach was used and accordingly an in-depth literature survey was carried out to understand two parameters namely, Place Sensibility and Arterial Neighbourhoods. Therefore, the literature survey is in 2 chapters.

In Chapter 1 the parameter Place Sensibility was analysed and defined and parameters related to the case study area in Bambalapitiya were identified.

Chapter 2 reviewed literature on Arterial Neighbourhoods looking at international and local precedent studies that built on ideas of place making along arterial corridors to gain an understanding of how they built place sensibility.

Based on the literature surveys on the 2 chapters a theoretical framework was derived as a basis to access the case study area of Bambalapitiya. Two definite periods that date from before and after the introduction of Duplication Road was introduced. The data collecting methods used for this were, analysing historic maps, Photographs, interviews, semi structured surveys and personal observations.

The conclusions arrived at, will be supported by the methods above and further recommendations to mitigate impacts were made by the author.

Limitations and Scope of study

The research will be limited to the selected study area, the boundaries being, Duplication Road from Bullers Road to Wellawatte canal (Near St. Peter's College), North South and Marine Drive to Havelock Road East West, consisting of two Grama Niladhri wards.

CHAPTER 1

LITERATURE SURVEY - PLACE SENSIBILITY

1.1 Chapter outline

This chapter discusses the first of the Literature survey material being on Place Sensibility and the related qualities and concepts as defined in this study to help support the Duplication Road artery and its environs so that conclusions could be supported in the case study with the specific subject matter.

1.2 Place Sensibility, Place Making

1.2.1 What is Sense of Place and Place Making

Much has been written by on the topic of "Sense of Place" by many authors.

It simply means how people relate to different paces.

In this sense it relates to

a) The quality of place

b) The impact place has on different individuals

Firstly, how a physical aspect of a place is perceived and how brings about different reactions are tested. Concepts such as' place identity, place attachment, 'spirit of place' or 'genius loci' are some of the aspects for the dimensions of place are discussed.

Sense of place is also important for the liability of a place in a particular geographical location. -people look for places of quality to live in.

Key words some of the authors who researched on Sense of Place used,

Relp (1976) introduced the concept of placelessness of (non-place)

Auge (1995) talked about non places – place concepts were defined not only by what they include but what they exclude too

Heidegger (1927) and Foucault (1977) did much research on idea of dwelling the concept- Notion of Dwelling" inspired his theme of rootedness

Norberg-Schulz (1980 & 2000) –who talked of "Genius loci" followed the philosophy of Heidegger to throw light on the concept of 'dwelling' which says that places are the spaces which life occurs. The former uses the word "Genius loci, or spirit of place, to identify with the authenticity of a place.

The human identity springs from the 'identity of place**,** tried to create a phenomenology of architecture.

Rivlin (1982) - studied how a group of people in an urban environment identifies with a sense of belonging.

Place making strengthens the connection between people and place by simply transforming public places. Qualitative public places should promote people's health, happiness and wellbeing.

A place could be a city a town, neighbourhood, street or other.

A successful city has a destination – This gives it an identity and image and attracts people to buy, rent dwellings, commercial and recreational life to develop life.

The destination may be a square, a shopping street, a coastal recreational park, a water front or even a high number of prestigious schools.

Project for public spaces, a non-profit organization in New York, mentions 4 attributes that make a space great, namely (Refer fig 1.1)

a) They are accessible and well connected to other important places in the city
b) They are comfortable and project a good image
c) People get attracted to participate in activities there
d) The environs are sociable and attract people to gather and revisit many
e) times [1]

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[1] Project for public places

Figure 1:1: The attributes of great places
Source: Project for public paces booklet 2018

The following parameters were identified from above 1.2.1 which are applicable to the case study

a) Accessibility and connection to other important places in city
b) Attracts people to participate in events
c) A successful city has a Destination place- open to waterfront, many prestigious schools etc.

1.2.2 Phenomenology of Place and Place-Making

Phenomenology is a philosophical approach initially developed by Edward Husserl and Heidegger that centers on understanding consciousness and experience. Phenomenology is drawn on as a way of exploring people's direct experiences of the places they inhabit.[2] In short how people institutively respond to a place. The place connects with the natural, personal and cultural aspects of the environment as one whole entity.

Philosopher Norberg Schulz has also discussed 'place making' as derived from the phenomenological understanding of a sense of place and incorporated into an understanding of how users transform places and imbue them with meaning and the ways that designers contribute to these processes.

However, this case study does not reflect the above parameter and therefore will not be used in the final summary.

1.2.3 Place Identity and Place Attachment

Identity is usually connected with self, culture, religion and language to mention a few. Place identity is a concept linked with spatial planning and design. A place is a spatial location and has meanings and values for example a place can be connected with security, freedom, poverty etc. It links individuals, people with a particular environment. Research based on environmental Psychology has shown emotional bonding with a place and its environment led to a sense of belonging and wellbeing. The emotional bonding between people and places has been defined as place attachment by Altman and Low in their work "Place Attachment" (1992).

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[2] https://en.wikipedia.org/wiki/Phenomenology_(philosophy)

Altman and Low (1992) defined theoretical typologies of place attachment in 6 points[3]

1) Genealogical attachment (Ancestry, family heritage)
2) Economic bonding (material ownership)
3) Attachment via loss or destruction of a place
4) Cosmological bonding
5) Bonding through religious and cultural activities
6) Narratives – (Stories, folklore, legends)

In his book on place identity "The city and self-identity" Proshansky summaries that physical environment influence self-identity as a result of the interaction between a person and a place.[4] One could be called a 'Londoner 'a Sri Lankan' at a country level, 'from down south 'at a district level or "Bamba boy" at a neighbourhood level, pertaining to the case study area of Bambalapitiya.

Place attachment also has an effect on human well-being and behaviour, in a two-way relationship. While one can grow into ones' identity in a place one can also change, create or maintain their physical surroundings in a way which reflects themselves. Therefore, it could be said that the physical environment reflects the identity of its users.

The following parameters were identified from above 1.2.3 which are applicable to the case study

a. Place attachment
b. Genealogical
c. Economic bonding
d. Attachment via loss or destruction of a place
e. Bonding through religious and cultural activities
f. Narratives

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[3] Aiterman and Low in their work " Place Attachment " (1992)
[4] Halod M. Proshansky "The City and self identity" 1978
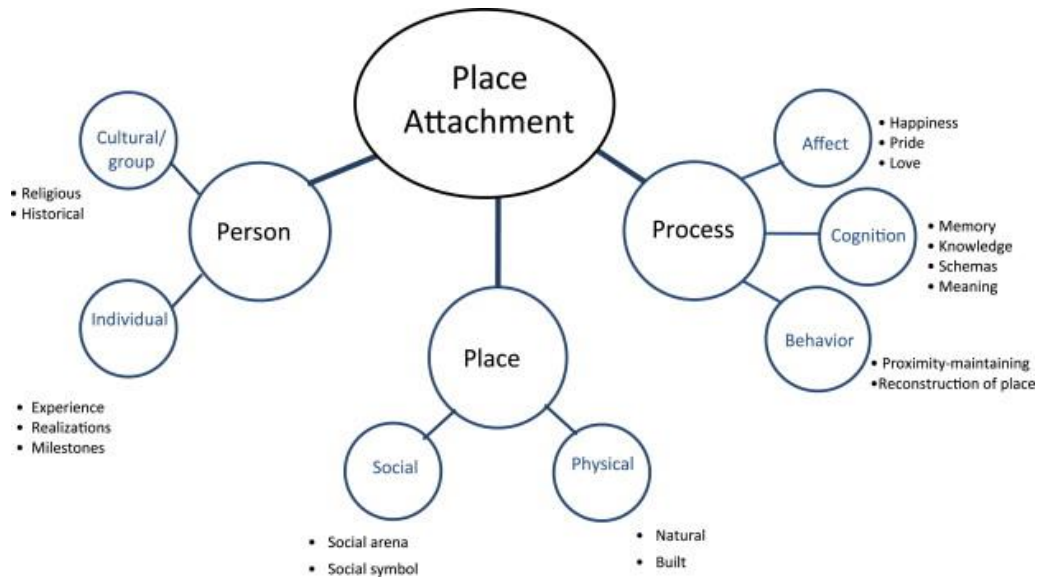
1.2.4 Place and Neighbourhood character

Neighbourhood is an urban element which is limited in area and structured round a centre. It consists usually of areas for residences, offices, shops, schools, religious buildings, leisure areas and parks.

Principles of an ideal neighbourhood would be,

a) It has a centre and an edge- can be natural (Forest, sea, lakes) or manmade (Infrastructure)

b) It has a mixed use of buildings (dwelling, public buildings, leisure, a network of streets and open spaces It gives centre stage to public space which is usually in the centre of the urban area.

c) It combines and structures the built environment and traffic on an intricate network of interconnecting streets

d) A neighbourhood gives pride of place to public space and gives importance location of civic buildings

However sometimes due its geographical location it can be near a shoreline, a transportation corridor or an area with a lovely view which helps in mental wellbeing.

If a neighbourhood is pedestrian friendly and transit oriented,

a) It gives its citizens the freedom not to rely on cars alone.

b) This is turn gives access to educational, cultural and social institutions in the city.

c) For those who are unable to drive and are dependent on others for mobility - like the young it's an opportunity to walk or cycle to schools, shopping and other nearby activities. Even the elderly could before they lose their ability to walk, can age in place with dignity rather than enforced into retirement housing. E.g. A well know and much liked elderly lady English teacher in a prestigious girls school in Bambalapitiya used to cycle to the school, shops and places of utility, keeping her mentally and physically alert till her demise.

Neighbourhood streets of varying types should be designed to give ease and equitability for pedestrians and vehicular movement. The traffic movement in some neighbourhoods is more concerned with speeding traffic through a place than the quality of the place itself- in short, the safety and comfort of the pedestrian is not considered. Slowing the speed of the vehicles will help in increasing pedestrian activity and encourage the casual meetings that forms the bonds of community.

Three components of: a place, a social group and activities found in the place are important in creating a neighbourhood identity, which is made over a period of time after related connections between the place and its residents.

In summary, neighbourhoods were formed and created organically through history.

The idea of the neighbourhood has been used as a planning tool through the past century, and put forward by Clarence Perry's regional survey of New York and its environs.[5] During this process, the various aspects to the concept of neighbourhood, such as lifestyles centred around schools, neighbourhoods being defined by placing arterial roads along its perimeters, safe walkable internal streets which discourage through traffic, have clarified its multi-dimensional nature.

The following parameters were identified from above 1.2.4 which are applicable to the case study

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[5] Perry C (1998): The neighbourhood unit (1929) reprinted Routledge/Thoemmes (London)

a) It gives its citizens the freedom not to rely on cars alone.

b) Gives access and centres around educational, cultural and social institutions in the city

c) Ease and equitability for pedestrians and vehicular movement.

d) Walkable safe environment for all

e) Discourages through traffic in internal streets

f) Slowing the speed of the vehicles will help in increasing pedestrian activity and encourage the casual meetings that forms the bonds of community.

1.2.5 Place making and community

What the neighbourhood context gives you is a sense of community. One has to identify what is important to that neighbourhood. – Shopping? Religion? Education? Entertainment and of course streets?

Community is often found amidst the way you identify with the spaces actively.

When the community in a city/ neighbourhood is involved in place making it inspires people as a collaborative group to design and organize the public places as the centre or heart of that particular neighbourhood or town. This is the collective process which people shape their environments and public places, which further strengthens the connections and bonding between them. When community participation is its prime motive, the place making process uses a local community's assets, inspiration, and potential, this results in the creation of quality public spaces that increases people's psychological wellbeing.

'Project for Public Spaces' in their survey to find out what was important to people about place making discovered that it was a very special process for those who were closely connected to the places in their lives. It helped them to reconceptualise everyday spaces and to see anew – parks, streets waterfronts, plazas, public buildings and markets.

Therefore, – the neighbourhood, their living environment provides a conducive framework for creating a sense of community.

In the same manner, Hester (1990) relates the creation of everyday life by community designers as an enhancement of community life as these places are close to people's daily lives. Places such as Parks, Children play areas, open spaces, neighbourhood shopping or employment centres which are close to home and where many people visit constantly and are found to be important to their psychological wellbeing.

The following parameters were identified from above 1.2.5 which are applicable to the case study

   a) It heightens the bonds between people (how they socialize) and the places they share
   b) Refers to a connected team effort by which they can invent their public realm
   c) Community places are in close proximity to residences where many people spend most of their time.in Eg. shopping, recreational centres etc.

1.2.6 Place and Public realm/ space

Public space is multi-scale and can be experienced in a city and in a neighbourhood. Public spaces are considered a necessity and are the heart of a city where social, cultural, and economic activities take place. It brings people in a city together and provide openings for recreation, relaxing, socializing, gathering, performing arts, public art and cultural activities. They create a sense of community and heighten city life- a place to meet, greet, be free to choose your activity and basically bond with friends and family, since of recent times public spaces show a decrease in importance due to lifestyle changes, where people spend most of their time in digital spaces. This has affected the identity of a city environment. Basically social interactions and activities occur in public spaces where it is also a place where people can be themselves and express themselves and where individuals and groups get to know the city more freely. This helps in heightening and strengthening to their mental and physical health which is important in their total wellbeing. It further helps in developing and maintaining both self-identity and place identity. Therefore, it can be said that the loss of public space will reduce the quality of life and damage social interaction.
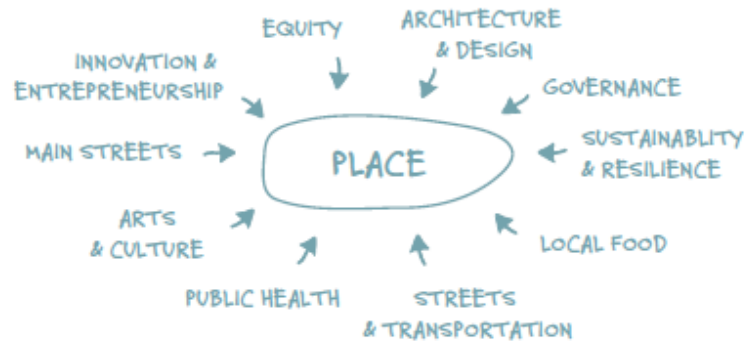
Figure 1:3: Project for Public Spaces'- Interface between house and businesses
Source: Project for public spaces booklet 2018

A very good public place has good connections to its surroundings like the great plazas and piazzas of Europe and

a) Is accessible and easy to get to. Eg- St. Mark's Square in Venice, Covent Gardens in London and in the United stated the much used and loved Central Park.

b) One can also see what's happening around and there are good visual links.

c) What draws people to a public space is how its edges are detailed – for example a cluster of shops at an edge draws people like magnets more than a blank wall would. A row of shops will also make the area feel safe and give one a feeling of connection to others using these spaces.

d) Should be easily accessed by pedestrians, the handicapped and close to bus terminals or train stations / public transit while also having parking areas**.**

e) Should inclusive ad not exclusive. E.g., Central Park in New York or Galle face and Viharamahadevi Park in Colombo.

In these places people gather for leisure, connectivity, bonding and health and wellbeing.

The following parameters were identified from above 1.2.6 which are applicable to the case study

    a) Public spaces are where social interactions and activities occur

    b) They benefit and add to the mental and physical health

    c) Good connections between the retail areas that connect to the public place with good pedestrian linkages.

    d) Close to bus terminals or train stations / public transit while also having parking areas

1.2.7 Morphology and Typology /Place in a coastal neighbourhood

Urban morphology refers to the main built spaces that structure and mould the city including streets, squares (the public space), street blocks, plots, and buildings, to name the most important.

Typology is where you look at the type of building and their grain and pattern.eg. Religious, commercial; and social buildings, apartment blocks and bungalows, gardens and all of these spaces figure ground diagrams.

A good example of a costal neighbourhood was the design done for Seaside, Florida in 1979, Andres Duany and Elizabeth Plater-Zyberk.by the New Urbanism couple architect it contains a town centre with shopping areas and restaurants. An important aspect is that residential areas and offices are within walking distance to the town centre. Seaside's commercial area is centrally paced. There are huge park*s* and green areas*,* thereby making it an attractive public place where public and social events occur. The radiating street pattern helps pedestrian movement in alleys and open spaces. There is a mix of users with residential buildings being a higher percentage. Most importantly the streets and neighbourhood were designed so that people can walk and interact with each other face to face, foster community and where diverse people of all classes and race could; live together in the same neighbourhood. [6]

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[6] https://urbanhotblog.wordpress.com/2018/03/11/struggles-of-the-new-urbanist-community-seaside-florida/

New York architect John Massengale, author of the book '*Street Design*: *The Secret to Great Cities and Towns'* explains the success of Seaside by quoting "It looks like the places we used to have before cars took our streets away from us."[7]

Figure 1:4: A neighbourhood- Seaside Florida
Source: urbanhotblog.wordpress.com

The following parameters were identified from above 1.2.7 which are applicable to the case study

a) Walkability is encouraged by the town centre being located in close proximity residential areas and offices.

b) Seaside's commercial area is centrally paced. There are huge parks and green areas,

c) The streets and neighbourhood were designed so that people can walk and interact with each other face to face, foster community

d) Creates health and well being

e) Where diverse people of all classes and race could; live together in the same neighbourhood.[8]

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[7] https://www.cnu.org/publicsquare/2019/05/14/how-florida-beach-town-changed-how-we-live

[8] https://urbanhotblog.wordpress.com/2018/03/11/struggles-of-the-new-urbanist-community-seaside-florida/

1.2.8 Liveable Streets

Streets are different from arterial roads as the former is local element. However, it can lead to an arterial road.

Streets play a major role in ensuring public realm as an unavoidable public space.

Streetscapes play the most important role in generating the city image (Jacobs, 1961; Bentley, 2013; Lynch, 1960).

Allan Jacobs in his book Great Streets analyses streets in differentiates of the world using

Plans drawings sketches and photographs.

In his book he believes that good cities are made of good streets "and explains that

The following parameters from the above book will be used in comparing at the case study level

Great streets should,

a) Help make community- help people to interact

b) Be accessible – easy to find and easy to get to

c) Be inclusive

d) Be a place more desirable to be, spend time, to live, play or work

e) Be places for activities that bring people together

f) Be comfortable and safe (not worried about being hit by a vehicle or tripping on a pavement, being mugged or robbed)

g) Cooler, shadier and more pleasant to be in on a hot day

h) Have visibility to see people

i) Have interesting buildings (Glass fronted shops, cafes, restaurants, Community spaces)

j) Encourage participation-people stop to talk or just sit and observe others or what's going around them

k) Be remembered (they leave positive long continuing impressions) – one can think of a particular street and have a desire to be there or introduce their friends to be there. We are attracted to them not because we have to go there, or use them but because we want to' BE THERE'.

l) Finally, it can be one that is representee – the epitome of a type – the best of its kind[9] "Great urban streets are often great streets to drive along as well as great public places to walk, and walking is the main focal point". Nevsky Prospekt

1.2.9 Accounts of Colombo in Literature (Historical records) - "Bamba' Days – A walk though Bambalapitiya in the sixties by Fasil Sameer

Bambalapitiya was affectionately known to its residents as 'Bamba'- a small town that is situated on both sides of Galle Road between Colpetty (Colombo 03) and Wellawatte (Colombo 06). It's bounded on the west by the Indian Ocean, east by Havelock Road North by Bullers Road up to Thunmulla Junction and south by the Wellawatte Canal.

Bambalapitiya was in the nineteen forties and early fifties was a 'happening place' and nucleus of activity, where the residents were Burghers and a group of expatriates drawn from a mix of nationalities.

Galle road was classified as the A2 highway starting from Galle face and winding its way 100 km down South hugging the coastline, taking 2 lanes of traffic -one up and one down with an island in the middle at first. After the introduction of Duplication Road, it has become one way from the South border (from the Wellawatte canal) and the Savoy cinema to Kollupitiya junction, at the liberty Cinema. The parallel street, Duplication Road (Now named R.A de Mel Mawatte) West of Galle Road was also made one way to distribute traffic smoothly.

The advent of Duplication Road created some encumbrance to the residences between these two points but has helped to move the vehicular traffic smoothly in both directions. Bambalapitiya's street morphology is similar to many other towns along Galle Road in Colombo, parallel streets commonly referred to as lanes separated by tracts of land and houses ran at 90 degrees to the beach. All these Lanes end just before the southern Railway tracks bordering the ocean. The railway stations of these seaside towns dot the coastline built in a similar fashion at the junctions of the town and are

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[9] Great streets- Alan B Jacobs

connected to Galle Road by 'Station Road. The station was an important connector to the main Railway hub of Fort and Maradana from which one could travel to different parts of the island. Many office workers and those working for public services travelled to the city via this southern rail line – in other words it was a cheaper form of transport and connector to the city 'for many office workers and commuters.
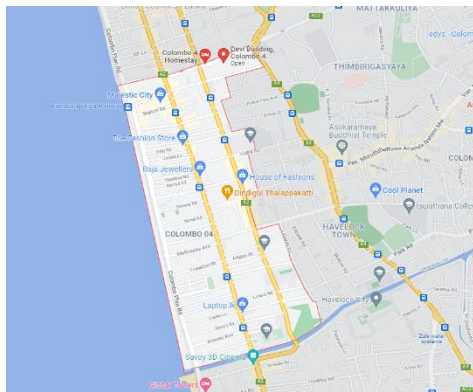
*Figure 1:5: P*lan of coastal area
Source: www.google.com

Figure 1:6: coastal railroad
Source: www.gettyimages.ca

Figure 1:7: Ariel view of coastal area Source: http://colombofort.com/

Galle road, on some festive and religious occasions had elephants and white cows joining festive parades (like the Vel festival) with people dressed in glittering costumes on their ritualistic journey from one temple to another.

While Galle Road has always the busy road years ago with the advent of Duplication Road the serene neighbourhood quality of connecting by lanes have become a bustle of activity with many commercial outlets being developed in what used to be the stately old homes of yesteryear. Traffic rushes down the access roads from Galle Road to both Marine drive and Duplication Road. High rise condominiums, restaurants, telephone communications service and mobile cafes are the results of urbanism out of a quiet old town of over six decades. The tall wide canopies of trees of old that were once part of large stately gardens of old gracious villas are quietly disappearing with the clearing, and blocking, of land in the name of development. Many of the old landlords have sold to developers and the demand for more housing in the form of apartments and business premises is stretching the limits of the urban landscape.

Some of the favourite landmarks on the town's borders were the Savoy Theatre (now refurbished) on the southern border by the Wellwatte canal, IC drug store and opposite it- the massive Foam treads advertising hoarding later converted to the much known and recognized ELASTO board which acted as an impromptu landmark, with its shiny flickering pieces of aluminium which clicked with the sunshine on the Buller's Road / Galle Road border had now developed to a 20 storey 5-star hotel. On the southern border next to the Kirulapana canal- the once sprawling Spinning and weaving mills now developed to a massive housing complex project called 'Havelock City' offers high-rise apartments in beautifully landscaped gardens at soaring prices. [10]

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[10] Bambal days – Fazil Sameer

The following parameters were identified from above 1.2.9 which are applicable to the case study
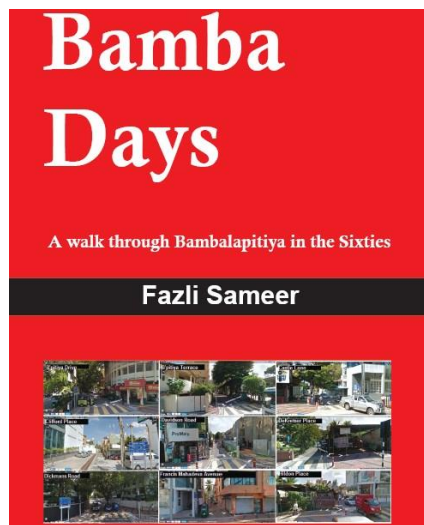
Figure 1:8: The cover of book – " Bamba days" Source: Fazil Sameer

Figure 1:9: Elasto board at corner of junction of Bullers rd / Galle rd Source: facebook.com

Before Duplication Road

a) Different communities and ethnic groups lived together in harmony

b) A good street network of 90 degrees to the shoreline, went down to the coastline and was connected to the railway station which was a hub bringing in people from outside the city and connecting from the city outwards

c) Religious and cultural Festivals and processions along the Galle Road brings community together -encouraged participation and helped people to stop and talk

d) Quiet town with sprawling mansions and gardens, mostly residential areas with large shady trees

e) Favourite landmarks which people could identify with

f) Streets were comfortable and safe

After Duplication Road

a) Fast moving traffic created some inconvenience to the residents

b) The serene and slow-moving ambiance of connecting by lanes have become a bustle of activity with many commercial developments coming up in what used to be the stately residences of yesteryear.

c) Loud sounds of traffic down the access roads from Galle Road to Duplication Road

d) High rise condominiums, restaurants, telephone communications service and mobile phone shops are now a part of the cityscape.

e) The tall wide canopies of trees of old that were once part of large stately gardens of old gracious villas is slowly disappearing with the clearing, blocking, of land in the name of development.

f) Overcrowding and the demand for more housing and commercial premises

g) Some favourite and much-loved landmarks now brought down and developed to medium and high-rise buildings

1.3 Chapter summary

The literature related to the different aspects the place sensibility assessment framework derived in this chapter, are discussed in detail, further improving the robustness of criteria which can be compared against the characteristics of same in Duplication Road and its environs/ neighbourhood.

The first step was to identify the most relevant parameters written on sense of place In aspects related to the case study.

After reviewing the works identified in this first chapter of literature survey, the parameters were summarized to include place image, place identity, place attachment, and place in the neighbourhood.

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                        ┌─────────────────────┐
                        │  CHAPTER 1 SUMMARY  │
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PLACE ATTACHMENT	SENSE OF PLACE – PLACE	LIVABLE STREETS	NEIGHBOURHOOD CHARACTER	MORPHOLOGY OF COASTAL NEIGHBOURHO0D
Genealogical attachment

Attachment via loss or destruction of place

Bonding through religious and cultural activity | Transforming public places to strengthen and connect people

A successful city has a destination eg. Prestigious Schools, water fronts etc.

Great spaces are accessible and well connected to other important paces in the city | Helps connect the people/ residents/visitors

Is inclusive and walkable

Comfortable and safe

Have wide well laid pavements

Cooler and shadier and pleasant to be on a hot day

Visually to be able to see people

Has interesting buildings eg Cafes, shop fronts etc.

A place you can remember and want to come back to | Access to educational, social & cultural Institutes in the city

A structure around a centre and edge (Could be open space or water)

Gives prominence to public space

Pedestrian friendly walkable safe environment

Transit oriented

Freedom to citizens not to rely on cars

Slowing speed of vehicles with help increasing pedestrian activity. | Good network of streets that are permeable and legible

Commercial hub centrally placed & walking distance from homes and offices

Streets designed for people to walk and interact face to face

Fosters community activity.

Diverse people of all class and race live together. |

Figure 1:10: Summary table of Sense of Place
Source: Author

CHAPTER 2

LITERATURE SURVEY - ARTERIAL NEIGHBOURHOOD

2.1 Chapter Outline

This section will review literature on arterial neighbourhoods. It additionally looks at 5 international and 2 local design responses that build on ideas of place making along activity corridors to gain an understanding of how they build place sensibility. It looks at how arteries,

a) Defined their space around arterial neighbourhoods
b) To check how a neighbourhood worked around an arterial spine – was it positive or negative?
c) Was the arterial spine there before or was it introduced and what was the place before such an urban intervention and after it?
d) Did the neighbourhood benefit or did the quality of life get affected?
e) What are the salient points I can use for my writing in the study I am embarking on?

2.2 Arterial Neighbourhoods

'Liveable neighbourhoods' connectivity services and integration is to achieve safe, efficient, and attractive street networks. Promote several major differences from conventional suburban street systems. It emphasizes the main point is to maintain a street that is inclusive, for vehicles, public transport and the edge conditions conducive to be used by pedestrians, cyclists and the disabled. The street system should be successfully interconnected. Arterial routes generally form central spines of neighbourhoods and towns rather than the edges. Arterial streets are detailed to be inclusive rather than separate or exclusive. It should allow for development rather than developing plots with their backs to the arterial's routes.

2.2.1 What is an arterial road?

The main function of an arterial road is to allow smaller routes access to freeways of access ways and between urban centres. Arteries are limited access roads while major routes have high accessibility due to the use of large amount of land which make them attractive urban places.[11]

In traffic engineering hierarchy, an arterial road delivers traffic between collector roads and freeways and can be termed

The Traffic Engineering Handbook describes "Arterials" as being either principal or minor. Arterials are laid out as the backbone of a traffic network and should be designed to afford the highest level of service, as is practical, according to the above mentioned "Traffic Engineering Handbook".[12]

Appleyard's (1981) analysis showed how pedestrian mobility on and across the street was compromised as both the speed and quality of motorized vehicles increased. Jacobs (2001) argued that the street bonded the community together and should be inclusive.

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[11] https://en.wikipedia.org/wiki/Arterial_road
[12] Wikipedia- traffic engineer's handbook

2.2.2 Shared space and other developments in arterials

    a) Shared space

Traffic engineer Hans Modderman (2005), the father of 'shared space movement' in his 'Shared Space' project, argues for integration rather than segregation. His main thrust was to highlight the importance of a street. He argued that by following traffic calming methods, a street as a can become a place for economic and social transactions. To prove his point his projects in the Dutch province he works in, removed traffic signage, and re-designed streets to act as shared spaces. [13]

Monderman (1945–2008), stated that by reducing traffic laws road safety could be improved.

He stressed that the importance of improving road safety could be done only by having lesser traffic regulations and increasing people's responsibility. This thought process has been coined 'Shared Space and used in many parts of the world.

Figure 2:1: Oost Road junction has been converted into a shared space where all types of vehicles mix together, negotiating right of way by means of informal social rules rather than by defined traffic regulations
Source: Peter Biľak

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[13] https://en.wikipedia.org/wiki/Hans_Monderman

b) Other developments

Spanish urbanist Soria Y.Mata developed a linear patter on arteries called 'Ciudad Lineal'. It was an extension between a tramway and parallel running thoroughfare. Here he did not advocate ribbon development but stressed on concentric nodal development similar to 'beads on a string' on the linear artery.

Summary: The shared space culture although a novel concept in Holland, would not work in the local environment in Colombo, as being an Asian culture traffic rules and guidelines help better flow of vehicles.

The concentric nodal development by Soria Y Mata is advised in one of the local arterial precedent studies.

More will be explained on arterial roads and neighbourhood in detail in this chapter in the sections below.

2.3 Arterial roads and the environment

As Traffic volumes can be relatively high, and traffic operating speeds are often low to moderate, a key environmental consequence of an arterial road is air pollution. Some of the main causes for environmental pollution and especially sound pollution are,

a) Sound pollution can be considered a relatively high amount due to medium to high capacity of traffic which are part of arterials.
b) Speed of traffic
c) Surface of roads
d) Poor maintenance of especially public transport
e) Geometry of buildings that might block wind patterns which mitigate the sound
f) Heavily signalized arterials promote braking and
g) Most of the buses in Colombo are not maintained and green tests may not have been done as they spew out much black clouds of exhaust and further pollute the air quality.

In one case of roadway noises on arterials in the United States of America, the plaintiff sued the Virginia department of transportation on the grounds of polluting of air quality, noise and neighbourhood disruption. As a result, a more streamlined highway design with transit element and extensive noise mitigation was agreed to. [14]

The following parameters were identified from above 2.3 which are applicable to the case study,

Arterial/ road design should consider environmental pollution causes-

a) High level of sound
b) Speed
c) Surface of road (maintained or not)
d) Tire quality
e) Poor maintenance of transport – especially public transport
f) Considerable braking and acceleration due to heavy signalling

When designing to mitigate disruption to neighbourhoods the roads run through.

2.4 Character of an arterial neighbourhood – Precedent case studies

To get a better understanding of how arterial neighbourhood's turned negative aspects to positive liveable areas. I will be looking at 5 international case studies and two local studies.

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[14] https://en.wikipedia.org/wiki/Roadway_noise

A) International design responses to arterial developments

2.4.1 Precedent study 1- Old Marine Drive-Mumbai

[Sustaining historical uses and associated place sensibilities by diverting traffic flow]

In the first historical example of Mumbai's Marine drive – because this place develops horizontally the proposal was how to try and preserve the character of the historic neighbourhood while finding ways to deal with the traffic congestion which threatened to disrupt the previous harmony.

The proposal is to try and relieve traffic congestion and the high-speed traffic is being diverted.

In the Mumbai costal road project, they included a tunnel and bridge that takes the high-speed traffic away from the drive and thus reclaim the character of the Marine drive.

Mumbai's Marine drive was famous and most loved for many reasons in a bygone era. The citizens loved walking along it – it gave them the freedom of the stresses of live, one of the jewels among the art deco buildings along 1/3 of the promenade with its wide streets are the Art décor apartments where the wealthy boasted of an address offering undisturbed and panoramic views of the Ocean- In a previous time, residents remember only a few cars and many pedestrians but now it is jammed with the rush hour traffic. In short, the car had taken over the street.

Buildings that came up in the area during the 1940's other than the art décor style apartments were hotels, cafes, boarding houses, jazz bars, and upmarket Bombay clubs and smaller hotels boasted a rich variety of entertainment that the rich and famous rushed to purchase dwellings

The above description of the character of the place gives a reason as to why the authorities wished to retain the ambience of the area.

The old Marine drive had become a place where the built environment offered an escape from the routine of the busy city of Bombay and spoke of an identity of gracious and luxurious living.

The following parameters were identified from above 2.4.2 which are applicable to the case study

The city authorities wanted to preserve the historic character of the neighbourhood and sense of place with its art décor buildings, cafes and bars and this was the motivation to divert the traffic not to try and solve the traffic congestion but to retain the social and physical character of the neighbourhood and divert the flow of vehicles.

Figure 2:2: Old Marine drive- Mumbai
Source: A.L Syed

Figure 2:3: Marine drive- with lesser cars
Source: www.firstpost.com

2.4.2 Precedent study 2- Orchard Road Singapore

[Use of underground link ways and broad public pedestrian frontages to sustain retail activity on two sides of a busy thoroughfare identified as a major tourism attractor]

Orchard road a major 2.5km road is Singapore's retail heart best known street an upscale shopping area and famous tourist attraction -for shopping, dining and entertainment. Also, for cultural and religious festivals and processions.

Jane Jacob in her book 'The death and life of great American cities' says- "Streets and their sidewalks, the main public places of a city, are its most vital organs. In a city what is most important – It's streets. If its streets looks interesting the city looks interesting if the streets look dull the city is dull".[15]

It was found in a study done by Wai Chung Yeung and Victor Savage after questioning many Singaporeans that good legibility gives people an important sense of emotional security in their movement within a physical environment.
Two research aspects are used to understand Legibility of the street:

    a) The image of the city- the theory of Legibility by Kevin Lynch
    b) Urban landscape studies. - a) Tangible elements - Urban morphology and
                                                     every-day events

                        b) Intangible elements –

                            i) Landscape symbolism

                            ii) Spirit of place, known as genius loci

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[15] The death and life of great American cities- Jane Jacobs
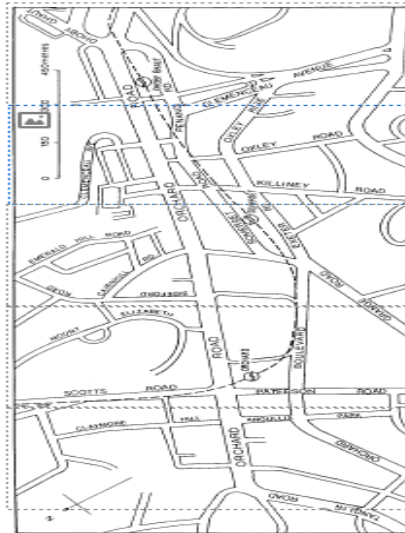
Figure 2:4: Map of Orchard Road
Source: Henry Wai-Chung Yeungy &
Victor R Savage

People interacting with the Morphology of the street and landscape translated their subjective response to a cognitive image

Orchard road was considered legible under three conditions

1) A mental schema has been created in the minds of the inhabitants of Orchard Road due to the interaction with the landscape, allowing them to organise elements in the physical environment

2) There is a relative ordered and clear structure.

3) Its inhabitants have a functional sense of place.

'Orchard Road is a heavy duty busy and wide vehicular artery which Interrupts pedestrian activity. Therefore, to make it a pedestrian friendly road,

a) Pedestrian walks were wide comfortable and welcome as the government had paved the sidewalks making it an almost paved linear park

b) Pedestrians are connected to both sides of the road via underground pedestrian pathways

c) Activity in buildings on both sides in terms of shopping, entertainment food and people- an entertainment place for gaiety, gathering and celebrations

d) There is a barrier between the Street and pavement making walking safe

e) Large tree canopies provided shade and cooling.

f) Interesting buildings of the destination street with shopping and restaurants made walking pleasant

g) Grid pattern in an area show the legibility of a place [16]

The following parameters were identified from above 2.3.2 which are applicable to the case study

Orchard Road is a destination street with wide busy vehicular artery, but the pedestrian activity is created by wide tree lined pavements almost akin to a linear park, a barrier between the street and road, making walking safe. Legibility and pedestrian connections across the street are through underground links. The pedestrian activity is enhanced by interesting buildings of shopping and entertainment on both sides of the streets.

Figure 2:5: Orchard Road- sidewalk under shade
Source: Glen Bowman

Figure 2:6: Orchard road with building edge condition
Source: www.garuda-indonesia.com

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[16] The legibility of Orchard Road in the eyes of Singaporeans -Henry Wai-Chung Yeungy & Victor R Savage

Figure 2:7: Orchard Road- wide sidewalks with barrier
Source: Glen Bowman

2.4.3 Precedent study 3- 16th Street Transit Mall in Denver

[Pedestrianizing a busy public thoroughfare into a continuous linear plaza as a public amenity]

In 1977 I.M. Pei Associates proposed a 13-block pedestrian mall connected by a light rail with rapid transit station. Then in 1985 the same street was transformed into a major public space, with emphasis on the pedestrian and integrating of the public transit stations. This major development became a guideline for other downtown developments. Sidewalks on either side of the 22-foot wide transit way was well paved for ease of pedestrians and signboards giving direction to people, good paving, eye level lighting, streetlamps – all to invoke a sense of place and identity.

Project for public spaces (PPS) in their studies summarized the 4 main conditions for successful public spaces, as per this case study,

a) Accountability - was the foremost success of the revamping of the space.
   The mall was a short distance to major offices, stores, hotels and performing art centres and attracted people to its space also by its visual connectivity. People could get there by regional busses, connected by transit stations, or by

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cars as there was adequate parking too. There were mixed development buildings incorporated in the spaces top.

The following characteristics were present,

b) Comfort- Well landscaped streets were comfortable for pedestrians and the streets were full of vendors, places to eat, movable seats, - many such attributes make the pedestrian friendly and a longing to linger in the space.

c) Activity – Crowds were attracted towards the plaza due to its activity and ease of getting there. During the day there would be a bustle and high activity-walking, jogging, etc. and such and in the night, it was a different ambiance with dining in the many in cafes and restaurants it helped people relax and bond.

d) Sociability- grew from a plan-based place to a people sensitive place. Here it is seen a good mix of excellent planning, design management makes an once transit-oriented road a vibrant people / pedestrian friendly place where people gathered to relax, be free and enjoy themselves. [17]

The following parameters were identified from above 2.4.3 which are applicable to the case study,

a) 13 block pedestrian mall transformed into a major public space and integrating with public transport stations

b) Wide walkways on either side well paved for ease of pedestrians

c) Legibility – good signage giving legibility to people

d) Good lighting, special street lamps and good visibility at night

e) Adequate Parking created at transit hubs

f) Accessible and easy to get to

g) Good interaction between people and much entertainment and street vendors

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[17] "United States : 16th Street Mall Project Advances to Final Design and Construction." *Mena Report*, 6 Apr. 2021, p. NA. *Gale Academic OneFile*,
link.gale.com/apps/doc/A657577722/AONE?u=unimelb&sid=bookmark-AONE&xid=a6bb96dc.
Accessed 3 Oct. 2021.

Figure 2:8: Pedestrianized area
Source: www.portfoliodenver.com

Figure 2:9: Transit & pedestrianized area co habit
Source: Laura Gilmore
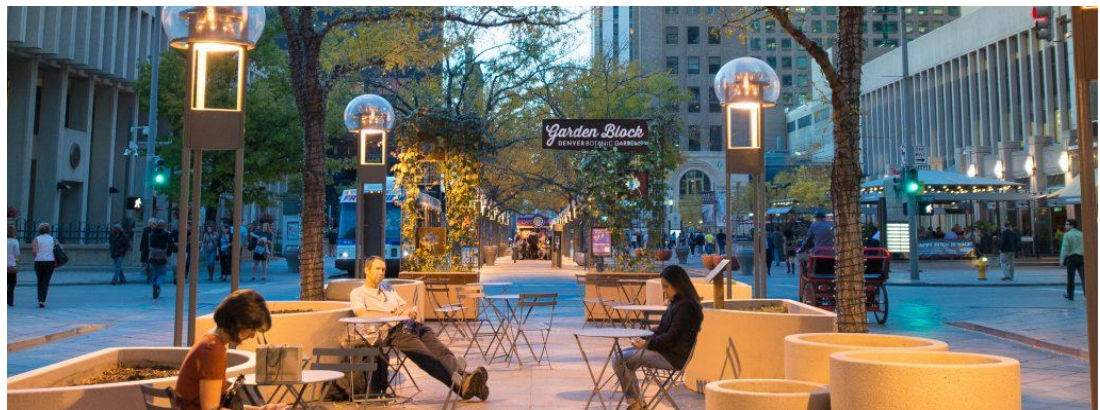
Figure 2:10: Centre seating & lighting
Source: arthousedenver

2.4.4 Precedent study 4- Highline New York

[De-industrialization and adaptive reuse of industrial infrastructure for a public amenity and elevated park through public interest design]

Rather than dismantle a piece of Industrial Infrastructure the City of New York decided to retain it because it had nostalgic memories and significance for the community who had been involved in the meat industry.

Through public interest design this non-use structure was converted into a world-class linear park. Where the public activated the design, the designers have to work with them to achieve their requirements.

Preserving industrial infrastructure and creating an amenity that is landscape in an area of New York where here are few parks. Because of this amenity the area has been gentrified and people are critical about it. Additionally, the many tourists that crowd to visit the park has changed the neighbourhood character and govern it a new sense of place. [18]

The highline is an iconic urban landmark with a difference, it is the now famous 'elevated landscaped promenade' in New York. This new public green space was possible due to persistent activism by the neighbourhood group of activists and the mayor of the city and his council. It has breathed a new spirit of place and life to a neighbourhood which had a once dilapidated and unused Rail track which was about to be pulled down. The space is an extremely popular accessible park at an upper level and much visited and used by both the towns' people and tourists around the word. The successes of the project are many with raised tourist arrivals, enjoying an undisturbed view of the city while added revenue to the city and increase in the property market, and stimulated gentrification, and heightened interest in the role of art and creative practice in popularizing the space.

The following parameters were identified from above 2.3.4 which are applicable to the case study,

A functional piece of arterial infrastructure which was an elevated railway for the meat packing industry which had affected the lives of the people in the neighbourhood.

[18] Elevated railway and urban park -Brain Rosa and Christopher Lindner

When the industry stopped and the city wanted to dismantle the rail structure the community felt the memory would get erased and thus retained the structure and created an elevated linear park which became public amenity that enhanced the quality of the neighbourhood and gave it a new sense of place. This is also akin to Place Attachment under Sense of Place in chapter 1, spoken by Alterman and Low.

Figure 2:11: Larger context of highline in neighbourhood source: www.re-thinkingthefuture.com

Figure 2:12: Meeting people face to face (bonding) Source: Jason Farago

2.4.5 Precedent study 5- Serangoon Road Singapore

Serangoon road was designated as a heritage site and the activities are on either side of the slow-moving vehicular road are maintained in order to keep the ethnic identity of the area. The Indian community have their temples along the road and on weekends the temples serve free food. The south Asian community gather for the free food and then congregate on the sidewalks or in nearby parks to socialize and relax. Lively ethnic groups around make the place busy and crowded. Slow moving traffic makes it easier for the groups to gather and cross the road.

The sidewalks give place identity, although the road is a traffic thoroughfare. The shops and restaurants along the road are Indian and south Asian- this further attracts the south Asian community, and they feel they have an affinity with the place.

It's important to note that the area caters to a different class of people – not only to the middle and upper classes, but also the working class. It is very inclusive, it has place identity, and ethnicity.

The following parameters were identified from above 2.4.6 which are applicable to the case study,

Place identity-

a) The street is a destination for people to meet- conversion of a historically linear ethnic neighbourhood into a heritage district that acts as a weekend gathering place for the South Asian guest worker community thus sustaining its unique identity as Little India Heritage District and providing amenities for the South Asian migrant community.

b) Slow moving traffic enables pedestrian mobility.

Figure 2:13: Road with vehicles
Source: www.pinterest.com

Figure 2:14: Temple facades as active road edges
source: c1.staticflicker.com

Figure 2:15: Slow traffic and mingling of pedestrians
source: Wikipedia

The above 5 foreign precedent case studies on arterial neighbourhoods were examples of the urban interventions used in arterial neighbourhoods to mitigate the loss of sense of place.

B) Local designs - responses to arterial developments

The following two examples are

a) Early local developments to arteries
b) A proposal to a main artery which is in fact a part of the city area this research is based on and is considered a guiding asset, which throws fresh insight into the developing of the new artery -Duplication Road and its environs.

2.4.6 Precedent study 1- Historical Developments of roads and town centres in Sri Lanka

In early human settlements, where statistics showed one third of the global population living in small urban localities, towns played an important part where administration and public buildings were situated. [19]

Formal "Urban Planning" initiatives can only be found in these towns since the post-independence period (1950's) of Sri Lanka. Planning agencies found that most urban areas in the island are "spontaneous" growths with no rationale, and exhibit unorganized characteristics.

The most frequently stated disorder is the linear growth (or the ribbon development) along main transportation routes, which obstructed both vehicular and pedestrian movements.

The British commenced development of gravel road networks in 1830 and thereafter in the late 19th century - the railway system had changed the landscape of the island. As small towns started developing along these roads having their administration centres the advent of the motor vehicle created congestion on the narrow roads which

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[19] Planning and self-organizing in the case of small towns in Sri Lanka – Jagath Munasinghe

previously bullock carts used. As vehicular traffic increased in the late 1960's the road authorities developed roads and created by passes for detouring of traffic in the town areas.

The main activities of the town were located along the firstly cart track and then vehicular in a linear pattern, making most of the contact between the buyers and sellers of goods and services. The road, was flanked by buildings, and the main street became the space of the town that provided the venue for all important meetings, gatherings, celebrations, and protests. Thus was the advent of the 'main street 'or Maha Veediya'.

In the 19th Century with the development of the railway in Sri Lanka, many of the towns had a railway station and the town centre developed around this hub. With the railway developing, pedestrian movement increased along these 'station roads that's connected the station to the main road and developments and population shifted near the stations.

This changed the form and the growth pattern of the town, taking it in a new direction. (Ref figs. 2.16 & 2.17 below)
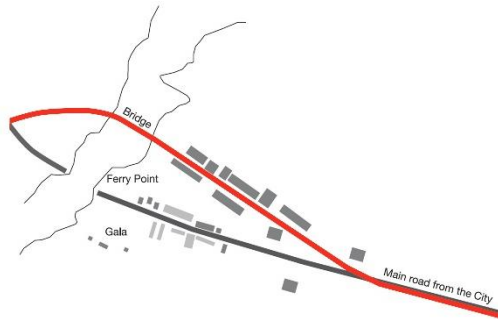
Figure 2:16: first transformation: The bridge and the new road
Source: Jagath Munasinghe
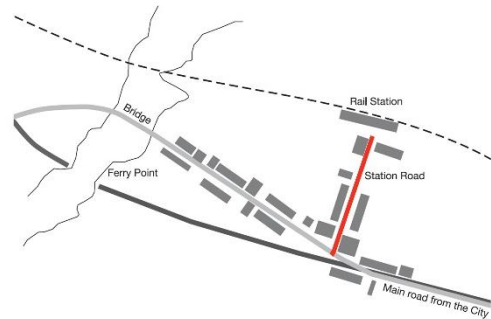
Figure 2:17: 2nd transformation-The Rail station and station road
Source: Jagath Munasinghe

Increasing traffic saw new roads being built together with bridges inside of the old ferries over rivers and the roads became destinations and connecters or thoroughfares to distant locations. Some roads were widened through the demolition of buildings on either side of the road would increase the distance between the buildings, destroying

the sense of place that was experienced by the inhabitants of the town. In some places the road could not be widened as it displaced businesses destabilized structures of the town and would have given way to a loss of sense of place. Therefore, PWD, and later the Road Development Authority (RDA), had no choice but to construct an alternative road, rerouting traffic to avoid the bustle in the town. In some towns however the road widening went ahead with the towns getting a new spatial character. (Ref figure 2.18 below)
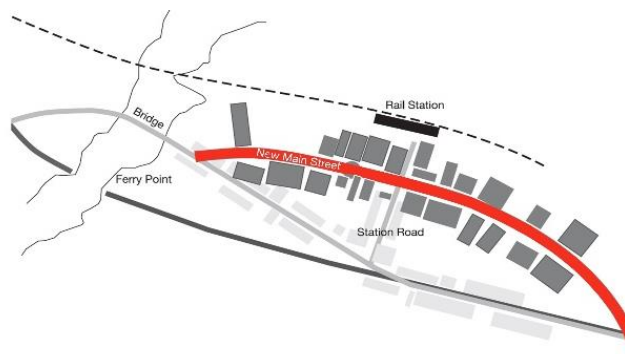
Figure 2:18: Development with new main street
Source: Jagath Munasinghe

In the planning progression of the development of roads above the local agents – residents and interested groups of the town worked in tandem with the authorities, as much as possible to try and keep the identity of the town intact wherever possible

The following parameters were identified from above 2.5.1 which are applicable to the case study

a) When roads were widened to incorporate the growing traffic, where this would destroy the sense of place, traffic was diverted by laying By Pass Roads, thereby retaining the spirit and character of the place.

b) With the advent of Railway and stations a new road- station road connected commuters from the station to the main road.

2.4.7 Precedent Study 2- The Galle Road Corridor plan

Galle Road corridor plan by Author Dr. Justin Samarasekera Associates was a research done giving guidelines to the future development of the Galle Road corridor.

The development proposal for the corridor identifies the major problems in the,

a) Existing land-use

b) Transportation

c) Commercial development

d) Pedestrian convenience

e) Residential development and environmental qualities
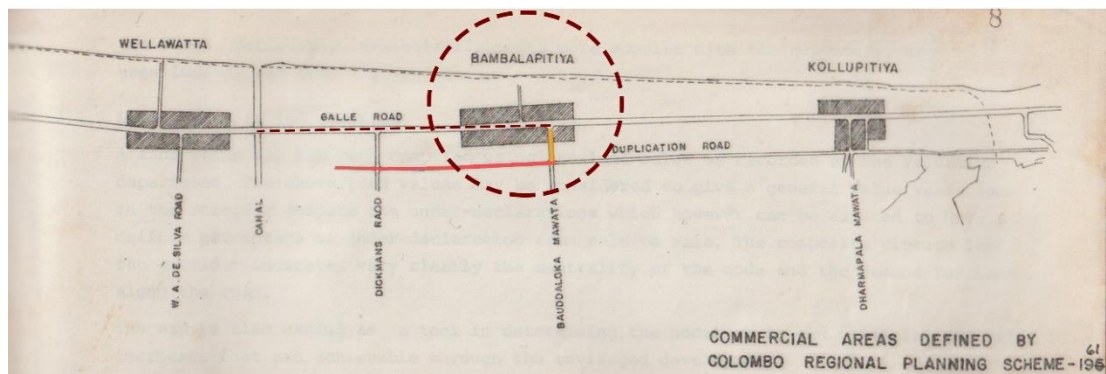
Figure 2:19 : Commercial hubs in larger nodal plan layout
Source: Justin Samarasekera Associates
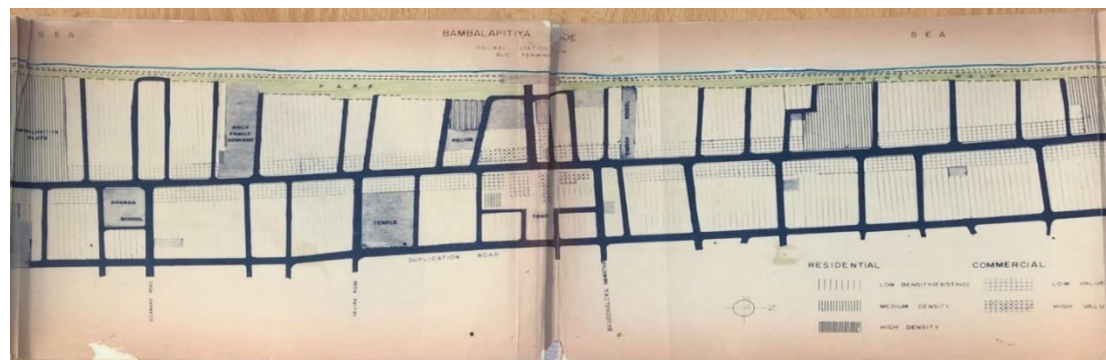
Figure 2:20: Galle road corridor plan street network - 1979 - Bambalapitiya section
Source: Justin Samarasekera Associates

a) Land use

It was specified that to stop ribbon development & commercial development along Galle Road and should be confined to a specific area around road junctions of Kollupitiya, Bambalapitiya and Wellawatte, however shops were built from one node to another as there was insufficient follow up Measures. Therefore, a lack of guidance and incentives to develop nodal point areas led to linear development of stores and shops.[20]
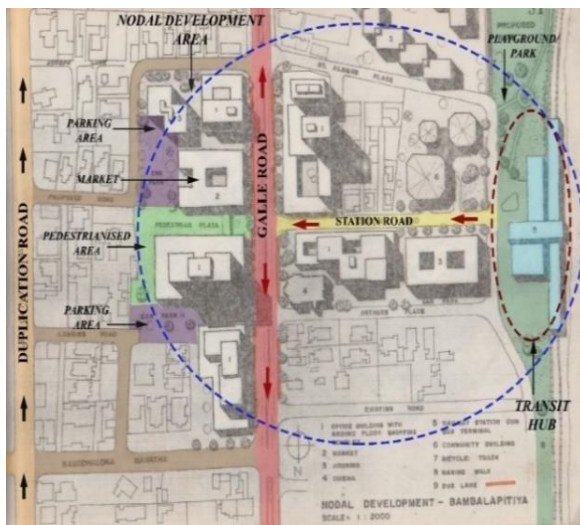
Figure 2:21: Proposal plan of Nodal Development
Source: Justin Samarasekera Associates
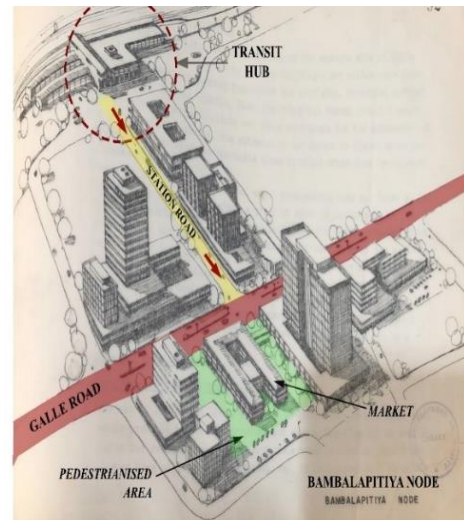
Figure 2:22: Proposal perspective of Bambalapitiya nodal area
Source: Justin Samarasekara Associates

b) Transportation

The significance of the Galle Road corridor was its urban transposition function. The potentials of Galle Road corridor provide adequate opportunities for creating an efficient transportation facility to the city. Main feature is the duality of modes of transport i.e., railway and road which runs close to each other and are connected at Major centres (or nodes) are intersections of roads and entry points to the other parts of the city with satisfactory bus transportation services.

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[20] The Galle Road corridor plan- Justin Samarasekera Associates
A report commissioned by the UN sponsored Colomo master plan project April1979

Elements in the transport functions were.

1. Galle road
2. Duplication Road
3. Parking policy
4. Galle- Colombo railway
5. Road-railway co-ordination
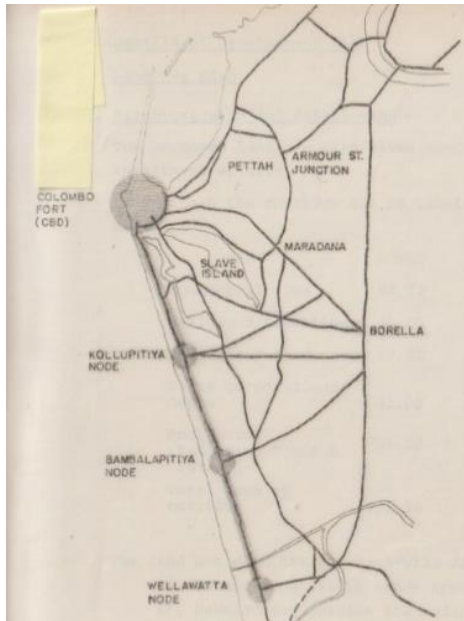
Figure 2:23: Wide connection of Road network
Up to Baseline Road
Source: Dr. Justin Samarasekara Associates
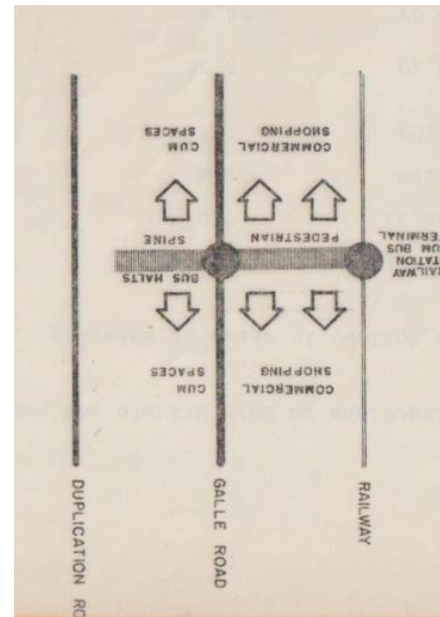
Figure 2:24: Nodal concept in street morphology
Source: Dr.Justin Samarasekara Associates

Duplication Road – This new highway was to play a restricted function of relief traffic route for Galle Road. Research indicated that its usefulness was limited to the corridor between Kollupitiya and Bambalapitiya. The new intersections have created conflict situations which along with other features reason out a limited function of this road. A Constant vehicular flow may create adverse in the residential areas.

Possibilities of linear commercial development have to be avoided as it contradicts the main objectives of providing concentrated shopping facilities in the intersections of Galle Road and thereby halting ribbon development.

Traffic conflicts: "with the opening of Duplication Road traffic conflicts in the corridor had increased. Traffic junctions (for example opposite liberty Theatre) need considerable provisions to ensure accident-free vehicular flow and guaranteed safety of pedestrians. .[21]

Parking policy- The main policy was to stop all street parking. Therefore, for facilitating the traffic flow and to overcome restricted on street parking developers are advised to provide all parking facilities within their own premises. However, within the nodal points common parking spaces were to be planned. This would draw in people who stop and shop, and segregated from the pedestrian movement areas.

Galle road – Colombo railway. The importance of this was to develop the corridor as an efficient public access route to the city. The advantage of the coastal railway line was considered a very important aspect to take considerable note of. Commuters coming into the city found this cheaper and faster mode of transport. Also, stations of the coastal lines were located in such a way that they could be connected with the nodes enabling the commuters to reach the southern and eastern parts of the city.

The following parameters were identified from above 2.5.2 which are applicable to the case study,

Summary of the corridor plan.

a) It Identified the major problems in existing land-use, transportation and commercial development, pedestrian convenience, residential development and environmental qualities and proposals made for the improvement of the above in keeping with a set of objectives

b) Due to the existing spatial linear development of the corridor all commercial development was limited to the nodal areas. Therefore, as alternate investments areas for the CBD, nodes at Kollupitiya, Bambalapitiya and Wellawatte were planned with shopping facilities and safe public circulation. By taking the future need of the area the character of the town was kept.

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[21] Galle road corridor plan – Justin Samarasekera Associates

c) The proposed land use pattern in the Galle Road corridor plan was to develop the main nodes in the junction areas of Wellawatte, Bambalapitiya and Kollupitiya in the Galle Road and filter through traffic ONLY at the road's connections to Duplication Road at these junctions. The residential lane areas were to remain as they were and 'on road' parking along Duplication road and the by lanes were prohibited

d) The most important factor was the improvement to the transportation facilities, with coordinated bus / train transportation, safe movement of pedestrians and commuters, parking restrictions imposed between nodes and common parking spaces provided in the nodal areas only. The connection of the coastal rail and connection of commuters to the city was considered an ideal interaction with the nodal development.

2.5 Chapter summary

After summarizing on the 7 case studies of urban arteries the following check list on a schedule

With the qualities such as accessibility, permeability, place identity, environmental quality and land-use pattern are identified

This in turn will be used as a checklist and measuring guideline to the actual main case study in Bambalapitiya and will also be used as precedents when stating methods of mitigation when laying new arteries through existing neighbourhoods.

Chapter summary- schedule

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                        ┌─────────────────────────────┐
                        │   Arterial neighbourhood    │
                        └─────────────────────────────┘
        ┌───────────────┬──────────────┴──────────────┬───────────────┐
        ▼               ▼                              ▼               ▼
┌──────────────┐ ┌──────────────┐          ┌──────────────────────┐ ┌──────────────┐
│  Legibility  │ │Place identity│          │Environmental quality │ │Land use plan │
└──────────────┘ └──────────────┘          └──────────────────────┘ └──────────────┘
        ▼               ▼                              ▼               ▼
```

Legibility	Place identity	Environmental quality	Land use plan
Good legibility due to grid patterns. This gives sense of Emotional security. Pavements need to be wide with no obstructions There is a barrier between pavement and vehicular road, (Orchard Road) promotes safety of pedestrian Accessibility to other areas in city should be good Transit thoroughfare pedestrianized- good lighting, paving, legible signage, emotional security.	Destination road identity in forms of shopping or commercial as in orchard road or a special shopping and gathering place as in Serangoon Road Kept historic character & diverted high speed traffic (Mumbai Marine Drive) Duplication road to play a restricted relief traffic route to Galle Road and not disrupt residential character. Creating place attachment & identity as in the Highline project- reuse of an abandoned raised structure	Air, sound and visual pollution is high along arteries and should be mitigated. Greenery and foliage in environs of streets helps ease and comfort of pedestrians Lack of public open spaces and parks reduce health and fitness of residents Coastal marine drive area should have wide pavements and interesting building facades' Fast moving traffic compromises pedestrian safety	Keeps Character of town- Main nodal area in Bambalapitiya junction to be developed into a commercial and public realm, with parking. Through traffic not permitted in residential roads Public Parking on residential lanes not permitted as it disturbs residential character- parking garages to be at nodal development areas Railway and station as a hub that filters people to the city and connected to a public realm

Figure 2:25: Summary table of Arterial neighbourhood
Source: Author

CHAPTER 3

THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

3.1 Chapter Outline

This chapter will derive the Theoretical framework by defining the two key words to help analyse the sense of place before and after Duplication Road

Derive a methodology by the analysis of the Theoretical framework and stating methods that will be used in collecting data for the case study

3.2 Theoretical framework

Taking the hypothesis statement "The introduction of Duplication road has impacted the physical character and sense of place of Bambalapitiya negatively, to derive the Theoretical framework I look at the two key terms used in the literature survey, namely,

a) Place Sensibility of Bambalapitiya referred to in the literature survey as sense of place - What are the attributes/ parameters of "A Sense of Place"? How was a sense of place retained in a neighbourhood?

b) Arterial connections in a neighbourhood referred in the literature survey as 'Arterial Neighbourhoods and coastal neighbourhoods – In the 5 international and two local precedent case studies what are the urban interventions used to mitigate the loss of sense of place and retain it?

The theoretical framework will define these two key words to help find out / analyse

i) What was the sense of place before Duplication Road was introduced to the neighbourhood?

ii) What happened to the sense of place after Duplication Road was introduced?

iii) From Above i & ii findings analyse what were the attributes/parameters that were destroyed and this will prove how sense of place was destroyed.

Table 3:1: Theoretical Framework – Summary

AUTHORS								THE THEORETICAL FRAMEWORKS			
1	2	3	4	5	6	7	8	Place Sensibility	Characteristics	Arterial Neighbourhoods	Characteristics
■	■		■		■			**Place Making Place Idendity & attchment**	a) Geneological attachment b) Ownership c) Religious & cultural attachment d) Folklore, narratives e) Attachment via loss and destruction of place f) Successful city has a destination eg. Prestigous schools etc.	**Arterial Neighbourhood 1** Character of historical neighbourhood is kept by diverting traffic **Arterial Neighbourhood 2** Connectivity of pedetrians in a fast moveing artery kept by underground connections	a) Sense of Place in coastal location b) Place Identity c) Place Attachment d) Diverting high speed traffic a) Legible road signs b) Safety and comfort of pedestrians
		■						**Neighbourhood character**	a) Slowing speed of vehicles which help increase pedestrian activity b) Safety and comfort of pedestrians c) Pedestrian friendlty and transit orient d) Closeness to amenities e) Access to educational Social & cultural institutes f) Freedom to citizens not to rely on cars	 **Arterial Neighbourhood 3**	c) Interesting buildings d) Destination streeet a) Ease of pedestrian , wide side walks b) Sense of Place c) Proximity transit hubs d) Good street lighting
		■	■	■		■		**Morphology and Typology of coastal streets**	a)Streets desugned for people to and interact face to face b) Good network of streets that are ermiable & legible c) Walkability d) Intersting Buioldings e) Good viewes f) Connectivity to transit hubs	**Arterial Neighbourhood 4** - Old linear elevated structure made into public amenity give new sense of pace **Arterial Neighbourhood 7**	a) The linear park (new intervention) change the neighbourhood character positively b) Gives new spiri of place c) A destination location d) Gentrification is due to new interventions- negative to citizens a) Place Making b) Place Attachment
		■			■			**Livable streets**	a) Accessability, is inclusive and walkable b) Intresting buildings- cafes, shops etc. c) wide well laid pavements d) comfort and safety of pedestrians e) Interaction and bonding	to Keep neighbourhood character by nodal development at junctions were advised with no on street parking	c) Development of nodes as public realms d) Connection from coastal railway and hub to main street e) Development around transit hub and station road.

1 Norberg - Schultz
2 Heidegger
3 Andre Duany & Elizabeth Plater-Zyb
4 Buttimer
5 Alterman low
6 Allan B Jacobs
7 E Relph
8 Justin Samarasekara

Source- Author

3.2.1 From Theoretical Framework the measurable attributes/ parameters are extracted to describe 'Sense of Place'

1) In Streets (from sense of pace)

   a) Broad streets well paved and easy walkability

   b) Good network of streets and legible

   c) Interesting buildings along streets

   d) For good interaction and bonding

   e) Desirable place to spend time in

   f) Legible sign posts

   g) Cooler shadier with large canopied trees

   h) Pedestrian walkways Comfortable and safe (Not worried about being hit by vehicles)

   i) A destination street – shopping, prestigious schools, public buildings

   j) Close to amenities

   k) Freedom not to rely on cars (Good public transport system)

2) In neighbourhoods and streets (From Arteries)

   l) Streets connected with transit hubs and transit oriented

   m) Slow speed of traffic to improve pedestrian mobility

   n) Underground pedestrian links

   o) Good street lighting

   p) Linear parks enhancing surrounding area

   q) Parking garages in nodal areas

   r) No street parking

   s) Loss of Environmental quality

3) Sense of place attachment and Identity

   a) Ownership

   b) Religious and cultural attachment

   c) Genealogical attachment

   d) Attachment through loss of place

3.3 Research Methodology

This is a qualitative case study approach as opposed to a comparative approach.

It first looks at summarized parameters from place sensibility and how it is applied to this case study

It then looks at the precedent case studies of arterial neighbourhoods and the parameters of how each study mitigated the loss of sense of place

Therefore it will introduce 2 distinctive periods that date from before and after the introduction of Duplication Road and the methods used for studying those different periods and to arrive at a theory to measure sense of place in the Duplication Road, neighbourhood of Bambalapitiya.

Finally it will analyse the above, further with historical maps, photographs and interviews with older and younger residents will be used.

The Analysis of the theoretical framework will be the methodology.

Methodology

Through Literature survey develop a basic framework for analysing Sense of Place and Arterial Neighbourhoods in the precedent case studies

The above is applied to distinctive periods of before and after the introduction of Duplication Road arrive at a theory or parameters to measure sense of place -help Prove the destruction of it

Further analysed by the methods of
a) Historical data progression
b) Cartographic data analysis (Geographical approach) – with survey maps of Ceylon
c) Ethnographic data method
   i) Interviews
   ii) Autoethnography
   iii) Participant observation
   iv) social media and websites
d) Visual data analysis – Historic, progressive and current photographs

Apply above analysis in main case study chapter

Come to a conclusion from above proof/ findings prove the destruction of it how sense of place was lost/ destroyed

From findings above give recommendations as to what steps are to be taken to retain Sense of Place and mitigate destruction of Sense of Place when similar proposed arteries are laid through a neighbourhood

Figure 3:1: Methodology overview diagram
Source: Author

1 RESEARCH OBJECTIVES

To gain a better understanding as to why residents believe Duplication road to have impacted the Place Sensibility of Bambalapitiya.

2 RESEARCH QUESTION

1. How did it's coastal location & arterial connection define the physical morphology of Bambalapitiya as a coherent neighbourhood

2. How was above in (1) evident in the ways that residents & daily users experienced & identified as this neighbourhood & its amenities.

3. How did the introducing of Duplication road impact the neighbourhood cohesion that was formative of Bambalapitiya's place sensibility.

4. Can this case study be meaningful for understanding arterial development in other coastal neighbourhoods?

3 LITRATURE FRAME WORK

A. ARTERIAL NEIGHBORHOODS

- Arterial Neighbourhood 6- Colombo corridor plan (local examples)
- Arterial Neighbourhoods 1
- Arterial Neighbourhoods 2
- Arterial Neighbourhoods 3
- Arterial Neighbourhoods 4

B. SENSE OF PLACE

1. Place making.
2. Phenomenology of space.
3. Place identity & attachment.
4. Neighbourhood character.
5. Place making and community.
6. Place & public realm.
7. Morphology of coastal location.
8. Livable streets.

4 THEORATICAL FRAME WORK

a. Coastal railway hub connected to Galle road and city.
b. Nodal development

a. Sense of place in coastal location & place identity & place attachment

a. Legibility of roads
b. Comfort & safety of pedestrian.
c. Interesting buildings.
d. Destination street

a. Ease of pedestrian
b. Sense of place
c. Parking & transit hubs.

a. New urban linear park
b. Gives new sprit of space.

LITERATURE FINDINGS OF SENSE OF PLACE

1. Place making
2. Place identity & attachment
3. Neighborhood character
4. Morphology of coastal neighbourhood.

5 RESEARCH METHODOLOGY & DATA FINDINGS

A HISTORICAL ANALYSIS

1. Start of railway hub & connection to main road & city.
2. Connection & relationship of Duplication & Galle road.

B. GEOGRAPHICAL ANALYSIS

1. Evolution of Galle road & duplication road in survey maps.
2. Demographics data.

C. SOCIAL ANALYSIS

1. Interviews.
2. Autoethnography.
3. Participants observation.
4. Social media & websites.

D. VISUAL ANALYSIS

1. Historical photographs.
2. Progressive & current photographs.

6 CONCLUSIONS & RECOMMENDATIONS

CONCLUSION — From findings of case study

FINAL CONCLUSION

AUTHOR'S RECOMMENDATIONS & REMARKS.

Figure 3:2: Methodology overview diagram
Source: Author

3.4 The methods of collecting relevant data

Will be as explained below

3.4.1 Historic progression and analysis-

Summarizing the advent of roads and Railway in small towns/ cities in Sri Lanka, going on to the area of the case study of Duplication Road and early history and its connection and Progression of the area long before Duplication Road and after will be explained and analysed

3.4.2 Cartographic data – (Geographical)

a) Survey Maps of Colombo in relation to the study area

Sourced survey Maps of Colombo – from 1878, 1945, 1950, 1959, 1961, 1970 and 1976 is documented and analysed showing area and land use before and after Duplication Road

b) Demographic data
The relevant demographic data will be documented and analysed.

3.4.3 Ethnographic Methods (Social)

a) Interviews   - 4 Interviews were conducted with persons who lived from the 1960's in the Area and a current observation. One was via telephone and the other two face to face. This will be documented and analysed.

b) Autoethnography
An account of the author's memoirs in the years before and after the advent of Duplication Road will be documented and analysed.

c) Participant Observation

Data was collected by having a questionnaire concerning the Duplication Road and environs. The survey/ questionnaire is attached to Annexure 1. The data will be analysed and summarized in chapter 4.

d) Social media and websites

Articles, blogs and websites on the relevant city area concerned will be documented and analysed.

3.4.4 Visual Analysis

Historical photographs and postcards

a) Progressive and current photographs

Historical photographs, postcards, images up to current condition of neighbourhood will be documented and analysed.

DATA ANALYSIS AND FINDINGS -MAIN CASE STUDY – DUPLICATION ROAD -BAMBALAPITIYA

4.1 Chapter outline

This chapter is the main case study area and will analyse the main case study area of Duplication Road and its environs in Bambalapitiya.

The case study is evaluated by checking the details under the data collecting methods which in turn give summaries of the parameters of sense of place before and after the status of Duplication Road.

4.2 Historical progression

4.2.1 Development of small towns and roads

a) As small towns started developing along the early roads having their administration centres, the advent of the motor vehicle created congestion on the narrow roads.

b) As vehicular traffic increased in the late 1960's the road authorities developed roads and created by passes for detouring of traffic in the town areas, to retain the character of the town.

c) With the development of the main street the road, was flanked by buildings, and the main street became the space of the town that provided the venue for all important meetings, gatherings, celebrations, and protests. Thus was the advent of the 'main street 'or Maha Veediya'.

d) With the railway developing, in late 19th century towns had a railway station and town centre developed around this hub. Pedestrian movement increased along these 'station roads that's connected the station to the main road and developments and population shifted near the stations.

e) Some roads were widened through the demolition of buildings on either side of the road would increase the distance between the buildings, destroying the sense of place that was experienced by the inhabitants of the town.

f) In some places the road could not be widened as it displaced businesses destabilized structures of the town and would have given way to a loss of sense of place. Therefore, alternative roads called by pass roads were constructed, rerouting traffic to avoid the bustle in the town.

4.2.2 Early history of Bambalapitiya before the introduction of Duplication Road

In the mid-19th Century Colombo was a green city and its zones were similar to smaller villages consisting mostly of coconut and cinnamon plantations. Kollupitiya itself was an urban village with stately mansions and large gardens shaded by well grown trees with large canopies. At that time families of all four ethnic communities of Ceylon namely Sinhala, Muslim, Tamil and Burgher families owned property in the stretch between Kollupitiya and Bambalapitiya.

In the 1930's when Scottish botanist and urban planner Patrick Geddes visited Colombo, he proposed Colombo as a "garden village" and thus the theme "Garden city of the east"

Predicting Galle Road not being able to handle the extra traffic he proposed a "relief road" to Galle Road to take over the spill over traffic of Galle Road and this road was named Duplication Road.

In the very early 1970's work for the construction of this relief road or Duplication Road commenced from Liberty Plaza at the Kollupitiya Junction.

Many crossroads connect Galle Road to Duplication Road and also Duplication Road to several other roads notably Havelock Road towards the East. Duplication road has bisected the previous areas of large stately gardens of a colonial era, neighbourhoods, families, schools and well-known establishments has now changed into large middle and high-rise residential and commercial establishments in today's context.

Duplication road frontage itself has become mostly commercial with the residential complexes selling out to commercial ventures and establishments with many middle and high-rise buildings facades creating a mixed-use ribbon development and a characterless frontage.

4.2.3 The Introduction of Duplication Road

a)   The Need for Duplication Road

   1) It was constructed most importantly to take the load of the overflow of traffic from Galle Road (It was in Patrick Geddes development plan in the early 1900's.)

   2) It was also used during the 5th nonaligned conference in August 1976 as most of the delegates used this route to arrive at BMICH. 86 nations participated in this conference

b) When it commenced in very early 1970's

   1) The first stretch of road was from Kollupituya Junction at liberty Plaza to Alfred house gardens and then to Buller's Road and thereafter to Dickman's Road where it stalled for a long period before finally leading up to the Wellawatte Canal.

   2) The Sense of Place seems to have got disturbed

      a) Parts of residents' gardens were acquired by the UDA and gardens got smaller or disappeared

      b) Intermediate foot paths were lost

      c) Developers looked at existing residential frontages for commercial ventures and medium rise buildings

      d) Many of the owners sold the property and went abroad or relocated

      e) New owners had no Place Attachment only looked at economic benefits

4.2.4 Outcome/Summary

f) In the mid-19th Century Colombo was a green city and its zones were similar to smaller villages consisting mostly of coconut and cinnamon plantations.

g) In Kollupitiya and Bambalapitiya large villa and stately houses were situated with large gardens shaded by stately trees alongside first cart tracks and then widened to lanes.

h) At that time families of all four ethnic communities of Ceylon owned property in the stretch between Kollupitiya and Bambalapitiya.

i) Botanist Patrick Geddes in 1930 acknowledged Colombo as a garden village due to extensive greenery, large gardens and trees.

j) He also predicted the existing Galle Road will not be able to handle the influx of vehicles into the country. And therefore, proposed a "relief road" to Galle Road to take over the spill over traffic of Galle Road and this road was named Duplication Road.

k) Duplication road frontage itself has become mostly commercial with the residential complexes selling out to commercial ventures with many middle and high-rise buildings facades creating a mixed-use ribbon development and a characterless frontage.

l) Landscape – Previous gardens and greenery has diminished due to the laying of Duplication Road.

m) With the development of the railway in the late 19th century the town center developed around the station area. Station road connected commuters and pedestrians to the main road via this route.

4.2.5 Summary of Historic Analysis - Before and After Duplication Road

Table 4:1: Summary of Historic Analysis

HISTORICAL ANALYSIS -		
Parameters / Sense of place	**Before Duplication Road**	**After Duplication Road**
1) In Streets (from sense of pace)		
a) Broad streets well paved and easy walkability	✓	✓
b) Good network of streets and legible and accessible	✓	✓
c) Interesting buildings along streets	✓	×
d) For good interaction and bonding	✓	×
e) Desirable place to spend time in	✓	×
f) Legible sign posts	✓	✓
g) Cooler shadier with large canopied trees	✓	×
h) Pedestrian walkways Comfortable and safe (Not worried about being hit by vehicles)	✓	50% safe
i) A destination street – shopping, prestigious schools, public buildings	Prestigious schools	✓
j) Proximity to amenities	✓	✓
k) Freedom not to rely on cars (Good public transport system)	✓	×
l) Place of activities to bring people together	✓	×
m) People of different ethnic groups co-exists	✓	50% only
2) In streets (From Arteries)		
a) Streets connected with transit hubs and transit oriented	✓	50%
b) Slow speed of traffic to improve pedestrian mobility	✓	×
c) Underground pedestrian links	In arterial mitigation	In arterial mitigation
d) Good street lighting	In arterial mitigation	In arterial mitigation
e) Linear parks enhancing surrounding area	✓	×
f) Parking garages in nodal areas	In arterial mitigation	In arterial mitigation
g) No street parking	✓	×
h) No ribbon development	In arterial mitigation	In arterial mitigation
i) No through traffic in residential roads	✓	×

3) Sense of place attachment and Identity		
a) Ownership of land and property	✓	50%
b) Religious and cultural attachment	✓	✓
c) Genealogical attachment	✓	50%

Source: Author

✓ - Agrees with the parameter   x - The Parameter is not there anymore

4.2.6 Parameters of Sense of Place that were lost

From the above summary the following parameters from sense of place was lost after the introduction of Duplication Road

1) Interesting buildings along streets
2) For good interaction and bonding
3) Desirable place to spend time in
4) Place of activities to bring people together
5) Cooler shadier with wide tree canopies
6) Different ethnic groups living together (Now only 50%)

4.3 Geographical analysis

4.3.1 Cartographic data - Survey Maps of Colombo

Below are old survey maps starting from 1878 – 1939 where the road morphology does not have Duplication Road.

The 1976 Survey map shows the first part of Duplication Road from Kollupitiya Junction to Dickmans Road.

Thereafter it extended from Dickmans Road to the bridge of Wellawatte Canal bisecting St. Peter's College land area

Figure 4:1: A survey map of 1878- Survey General's office Colombo, City of Colombo1878 – Courtesy Anoma Pieris

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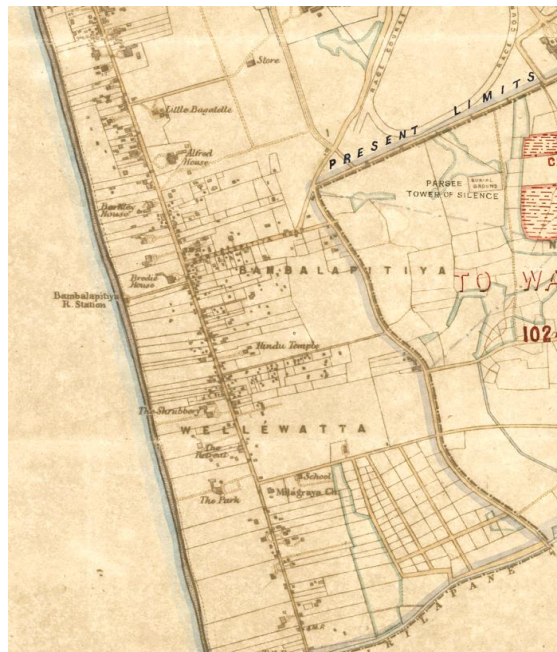
Figure 4:2: Part survey map of Colombo - 1893
Source: Colombo National Archives

Figure 4:3: Part of Survey map of Colombo - 1904
Source: Colombo National Archives

Figure 4:4: Part of Survey map of Colombo - 1916 Source Colombo
National Archives

Figure 4:5: Part of Survey map of Colombo - 1939
Source: Colombo National Archives

The 1976 Survey map shows the completion of Duplication Road up to Dickmans Road

Figure 4:6: part of Survey map of Colombo - 1976
Source: Australian National Library - shows the advent of Duplication Road

Final stage of Duplication Road was constructed from Dickmans Road to bridge of Kirulapana canal which then connected to the Galle Road. Duplication Road is now known as R.A De Mel Mawatha.
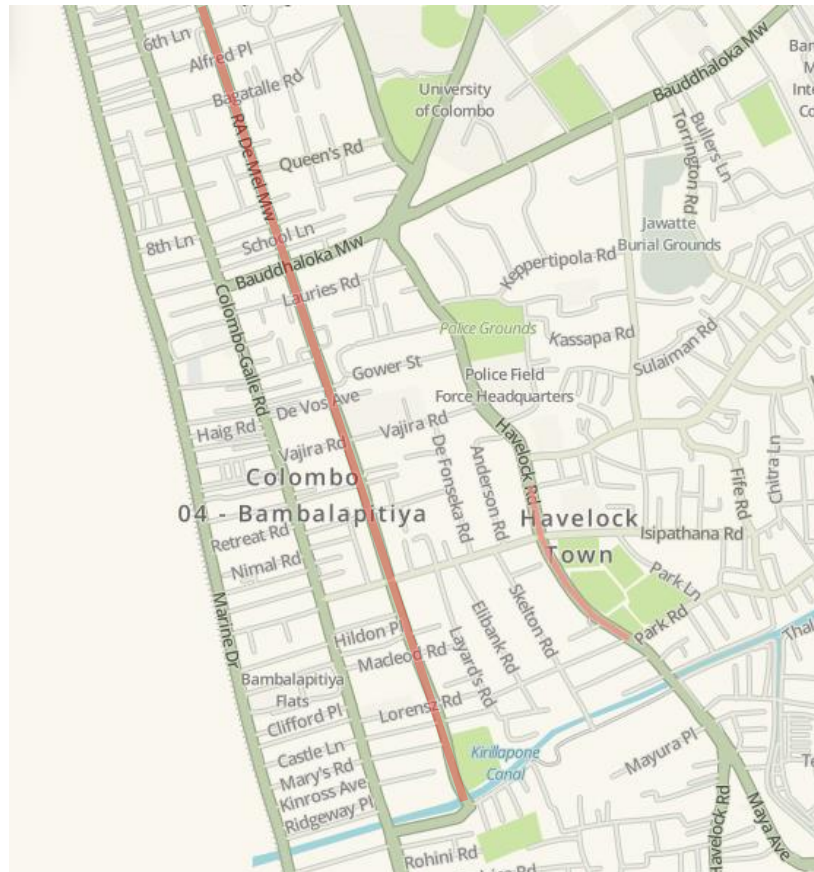
Figure 4:7: Map of Colombo 04 with Duplication Road - R.A De Mel Mw Present status
Source: https://www.waze.com/en-AU/live-map/directions

4.3.2 Demographic data
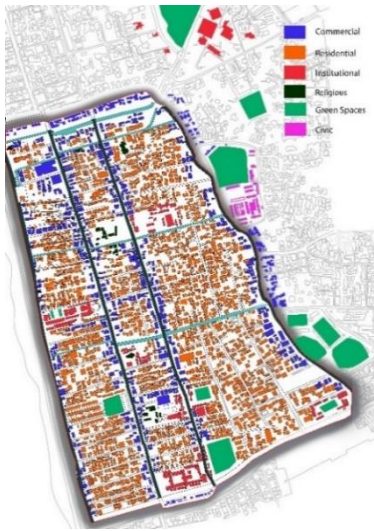
Figure 4:8: Land use map

LAND VALUE

- 9-10 MILLION PER PERCH
- 10-12 MILLION PER PERCH
- 11-13 MILLION PER PERCH
- 12-14 MILLION PER PERCH
- 13-15 MILLION PER PERCH
- LOW INCOME SETTLEMENTS
- RELIGIOUS BUILDINGS
- SCHOOLS

Figure 4:9: Land value map

EXISTING LAND OWNERSHIP

- RELIGIOUS BUILDINGS
- GOVT. OWNED SCHOOLS
- PRIVATE OWNED SCHOOL
- UDA OWNED LAND
- PRIVATELY OWNED LAND
- GOVT. OWNED LAND
- CMC OWNED LAND
- PARTLY OWNED BY GOVT
- NHDA
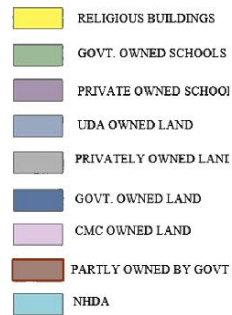
Figure 4:10: Land ownership map

- SCHOOL
- PLAY

Figure 4:11: Open spaces and Schools plan

48%

52%
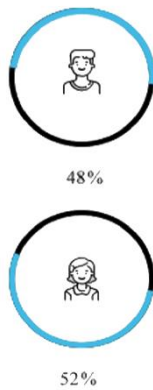
Figure 4:12: Gender distribution

20%   17%

63%

- LESS THAN 15
- 16-59
- 60 AND ABOVE
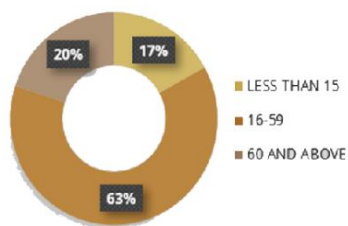
Figure 4:13: Age Distribution

5 2%

16%   30%

20%

27%

- ISLAM
- HINDU
- BUDDHIST
- ROMAN CATHOLICS
- CHRISTIANS
- OTHER
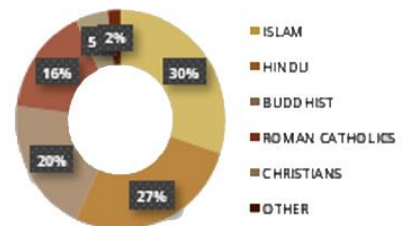
Figure 4:14: Religion

4.3.3 Outcome

a) Up to 1976, the land use in the proposed Duplication Road area is totally residential after which it dropped down to 15% residential by 2021.

b) The character of that neighbourhood was mostly residential with narrow streets leading up to the main artery – Galle Road

c) Large tracks of garden/ open area

d) Through traffic use Galle Road and Havelock Road only and have Laurie's Road, Vajra Road and Dickmans Road as the only interconnections between Galle Road and Havelock Road

e) The width of Galle Road before Duplication Road was less than current status and crossing the road was easier, keeping the sense of place.

f) It's coastal location with Galle Road and the intricate network of street morphology made it very permeable and easy access to the Coastline and Ocean

g) Before Duplication Road, the people who lived there were mostly Muslims, Burghers and Tamils with some Sinhalese.

h) In the maps of mid and late1900's the coastal railway shows strong connections with the road network. From the station it connects via Station Road to Galle Road and then via the main street of Lauries Road to Havelock Road. Commuters could connect with bus route in Havelock Road as well. In this sense mid 1900's maps show Lauries Road as a major street.

4.3.4 Summary of Geographic & Demographic Analysis - Before and After Duplication Road

Table 4:2: Summary schedule of Geographical & Demographic analysis

SUMMARY OF GEOGRAPHICAL/ DEMOGRAPHIC ANALYSIS		
Parameters / Sense of place	**Before Duplication Road**	**After Duplication Road**
1) In Streets (from sense of pace)		
a) Good network of streets and legible and accessible	✓	✓
b) Cooler shadier with large canopied trees	✓	×
c) People of different ethnic groups co-exist	✓	50%
2) In streets (From Arteries)		
a) Linear parks enhancing surrounding area	✓	×
b) No ribbon development	✓	×
3) Sense of place attachment and Identity		
a) Ownership	✓	50%
b) Religious and cultural attachment	✓	50%
c) Genealogical attachment	✓	25%

Source: Author

✓ - Agrees with the parameter   x - The Parameter is not there anymore

4.3.5 Parameters of Sense of Place that were lost

From the above summary the following parameters from sense of place was lost after the introduction of Duplication Road

1) Cooler shadier with wide tree canopies
2) Different ethnic groups living together (Now only 50%)
3) Linear parks enhancing surrounding area
4) Genealogical attachment down to 25% due migration
5) Owners selling property and leaving (Place Attachment)

4.4 Ethnographic/Social Analysis

4.4.1 Interviews

Three short faces to face interviews were conducted.

1) In an interview with a gentleman who lived in Arthur's place (abutting the current Majestic City) he narrates, in the early 60's the area in which Unity Plaza currently is, was once a bare land and owned by Mr. Gulam Hussain and leased to Mr. Donovan Andree, the well-known showman and organizer of large entertainment events. This was a place where the residents in the surrounding areas came together for the functions. The later had a mini circus there and at the bottom of the site which stretched to the coast line was a banana grove where all the neighbourhood youngsters played games of cricket and shared much bonding. A smaller building that housed the Majestic cinema was a place where the neighbourhood families and youngsters gathered to watch movies, and was a highlight and outing specially in the weekends.

2) Russell Kern of Bambalapitiya flats talks of the 'good old days of Bambalapitiya flats in the early 1960's – of the excellent community life they shared. The vibrant neighbourhood and the central green open places were inclusive. He explained "On Friday nights it was movie 'night' where a projector beamed on current popular films on to the walls of Block G, of the apartment blocks, and many of the" flatters gathered to watch the movie. Saturday nights was the 'street dance night'. All the leading musicians of the

Bamba flats would play and there would also be a D J. Food was shared with each household making a dish". They had many friends who all played outside their homes and the environment was safe as parents could see their children at play and neighbours were well known through the years.

3) More currently in early 2022 an interview with an expat couple comeback to live in Sri Lanka talk of the dangers and nightmares of walking on the pavements of duplication road during peak hours. They narrate how on quite a few times when walking they were grazed or almost knocked down by either motor bikes and three wheeler vehicles who used the pavement to get ahead to the traffic lights, indifferent to the pedestrian safety and breaking traffic laws.

4.4.2 Autoethnography

"Those good old days" a life lived before and after the advent of Duplication Road'- Author's perspective

The early years of my life was at Lauries Place which in 1974 became a part of 'Duplication Road'. The narrow tree lined lanes were perpendicular to a less wide Galle Road which crossed over through a narrow street to the coastline and beach. In the 1960's Galle Road was less busy, 2 ways of traffic of two lanes each were the norm. The rickshaw together with the red 'double decker' bus used to ply the Galle Road. I, together with my three siblings, cousins and four other friends walked to Holy Family Convent, for secondary education. There were many parks along Havelock Road – Police Park where we could walk and Brownrigg Park where my father said he and his friends played cricket in the late 1940's and my brother and his friends – rugby in the mid 1980's. This park is now the school premises of Sirimavo Bandaranaike Vidyalaya, named after Ceylon's and the world's first woman Prime Minister. With the takeover of the park the last of the inclusive park lands were lost the neighbourhood.

My family moved to Joseph Lane in the mid 1960's to a house my farther built and which road was marked in the 'Galle corridor plan' (mentioned in the local artery section) as the end of the main nodal area or city centre' of Bambalapitiya. The advent

of Duplication Road in the early 70's saw the widening of Joseph Lane and the felling of many large trees, making our large garden shorter by 15 feet. That was the time some of the many live fences which marked the boundary of our homes allowing for visual connections to the street possible before it became taller with actual masonry walls. The weekend was a time to look forward to. Then our childhood play time was on the by lanes and inter connecting lanes/ paths. The streets were the physical social bonding place in the neighbourhood. Our friends were of many ethnic groups, namely - Sinhala, Tamil, Burger, Sindhi and Parsee- all of them just friends and we never knew them by their ethnicity but just the camaraderie.

Figure 4:15: The street was the activity & meeting area of friends from the lane 1972
Source: Unknown

Figure 4:16: Neighbourhood by/ lanes a place for meeting & bonding with 1972
Source: Unknown

In July we eagerly awaited the Kavadi cart and Vel cart which came along Galle Road from the Kovil in Pettah to the Bambalapitiya and Wellawatte Kovils. The colourful street festival was watched 'at the top of the road' with many of our friends down the lanes. In December the Church feast of St Mary's would end with a procession winding its way on the streets outside and surrounding the church, heralded to the neighbourhood with the chimes of many large bells, was indeed a colourful and interesting sight to all.

Figure 4:17: Processional Religious festival - Catholic Church
Source: newsfirst-staging.3cs.suppor

Figure 4:18: Vel Festival in possession to Kovil
Source: Deshan Tennekoon

On Sundays we would be dressed in our' Sunday best' and walked along Lauries Place (Now Duplication Road) flanked on both sides with one or two storey residences to the pedestrian side entrance and up some steps to the church. Even in 1992, more than a decade of the advent of Duplication Road 85% of the facades of Duplication Road were residential.[22]

Figure 4:19: Interesting facades on Duplication Road (Previously Lauries place, in 1992
Source: Author

Time went slow and the weekend itself was free- free to play on the street outside one' house or free to walk to a friend's place 'down the road'. Extended family lived down the road and beyond which is now separated by duplication road and we had plenty of cousins and friends to form teams for competitions and matches- cricket, badminton and for cycling.

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[22] Research for student (author) design project at year 5 in 1992 , along Duplication Road

These are some of the precious memories that linger in my mind and makes me so glad that I was born in an area where time ran on 'kiros' and not 'chronos' and we all enjoyed the simple and uncomplicated life in a peaceful and safe neighbourhood.

However once Duplication Road was laid, it bisected the neighbourhood layout and caused a physical corridor with the speeding vehicles. Some of us who moved to the bottom of the once connected Joseph Lane, now had to cross the vehicular thoroughfare and to get across to our parents' home and this hindered pedestrian mobility as well as family connectivity.

4.4.3 Participant Observation

The questionnaire, given to 24 participants (Attached in annexures) in and around Duplication Road, Bambalapitiya completed during the survey, and was of two main parts. The first part was concerned with some quantitative facts about the respondents and their stay in, and use of duplication road and its environs. The second part included some qualitative questions, which in fact concentrated on the residents' feelings and assessments about Duplication Road and its environs and identity created by the road and access created.

The analysis was aimed at extracting as many responses regarding their feel of the sense of place. The quality of the neighbourhood was also questioned and access to some amenities in the environs and the legibility of getting to the places of amenities were asked. The availability of Recreation activities and open green spaces that are necessary for the wellbeing of the residents were questioned. [23]

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[23] Detailed questionnaire/survey by author – attached in annexures

The results were presented in the form of charts and tables which show the percentages
and rate of performing particular activities or using especial facilities in the environs.
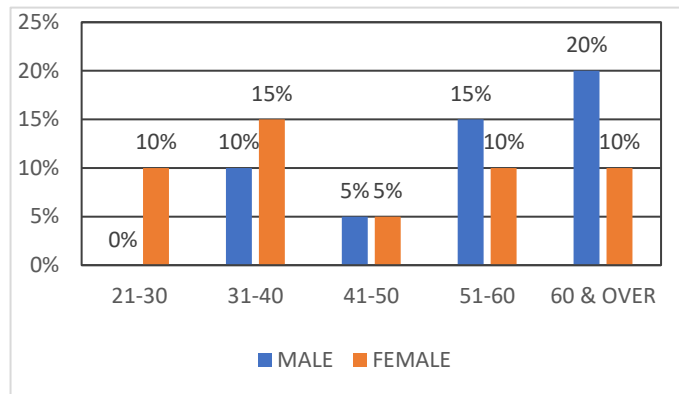
Figure 4:20: Graph - summary of Gender and age distribution
Source: Author
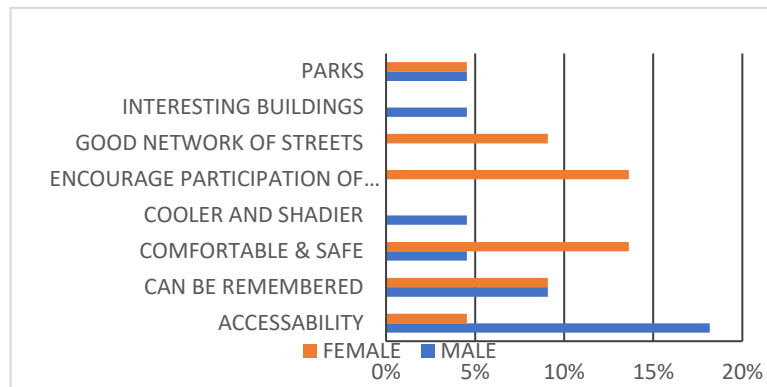
Figure 4:21: Graph summary for Street character
Source: Author
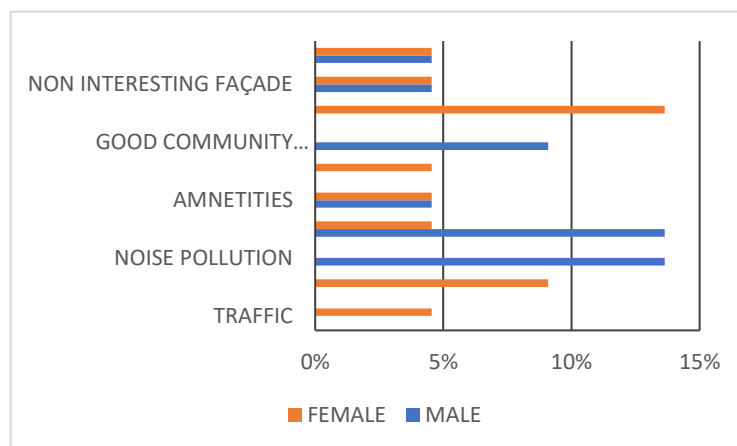
Figure 4:22: Graph summary for Desirable and Undesirable condition in neighbourhood character
Source: Author

4.4.4 Summary of survey in participant observation

The results of the survey are summarized in the above graphs.in order to be compared with the Parameters in Sense of Place and Arterial Neighbourhoods

    i)   Negative aspects noted by participants

In summary the physical assets of the neighbourhood and environs around Duplication Road were questioned by the residents. They felt these elements could have created for a better comfort condition and provide conducive areas for leisure, and entertainment activities.

They maintained that the natural features also improved the serenity, and ambience of the area. Therefore, they suggested the planting of more greenery, tree lined roads and need for parks and public places which were absent from the neighbourhood now.

Nature was mainly seen in the nonexistence of linear and children parks, public open spaces and trees and foliage.

However, many spoke of the parking along by-lanes and the unsafe pavements during the traffic rush hour in the evening where motorcycles and three wheelers used the pavements to overcome the traffic congestion at a risk to the pedestrians.

    ii) Positive aspects noted by participants

The respondents were all happy with the legibility, access and connectivity of Duplication Road to other roads connecting to and from the city.

The access to amenities and supermarkets all within 5-7 minutes walking distance was seen a main convenience of the neighbourhood.

4.4.5 Social media and websites

"A year on in Duplication Road" (From the internet)

A resident in St. Michael's apartment on the border of the selected city area – more towards Kollupitya and writes about the use of Duplication Road as a pedestrian. She names may pitfalls such as open drains, building work/ materials spilling on to the pavement space in new buildings being constructed. Trees been cut down and getting rid of the shade, tree trunks bent too low so that unsuspecting pedestrians and those gone getting off their cars.

She further talks of poorly lit roads and pavement especially at night could be dangerous to the young and old alike.' Another reason that the pavements are a hindrance is that at traffic peak periods motorcyclists and sometimes Three Wheelers ride/drive on the pavements creating great hindrance to the pedestrians, the writer talks about cars reversing to a space smaller than the car and leave it projecting to the pavement. [24]
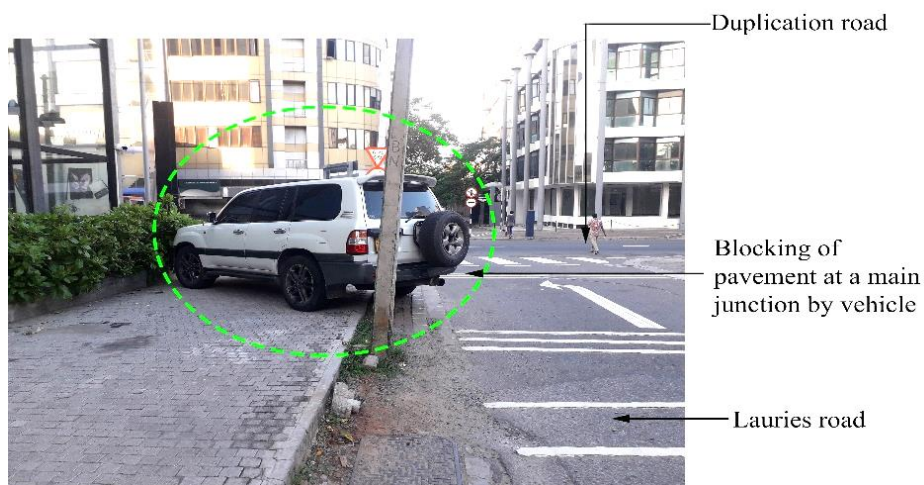
Figure 4:23: A vehicle parks in a space smaller to it and causes high danger to pedestrians at a junction to duplication road
Source: Author

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[24] 'A year on in Duplication Road – https://www.google.com/url?sa=t&source=web&ct=j&url

4.4.6 Outcome

Before Duplication road

1. Some families have lived there through the generations- a sense of pride and attachment of the place and familiarity of the place- neighbourhood relationships, relations friendships throughout the years, with much community activity

2. The 60's and 70's were a time of quiet residential areas and interconnected streets which were pedestrian friendly.

3. There was no through traffic on it's by lanes, only traffic going to the residences. It was a 100% residential area and the building heights were mostly one and two storeys with a few 3 storey buildings

4. There were annual festivals and religious and cultural events such as the Vel and Kavadi festivals, church feast processions and the Katina perahera's to the temples, which was a social event for the residents to gather and mingle

5. There were many schools in the area and most students to these schools were from the neighbourhood.

After the advent of Duplication Road

1. Through traffic moved along the perpendicular by lanes

2. Parking on widened residential lanes affected the residential owners

3. Two-way traffic roads became one-way or uniflow much later– therefore having more vehicles, creating sound, visual and air pollution from vehicles

4. The properties of families get bisected and created a physical barrier between homes

5. By 2015, 90% of the Duplication Road frontages on both sides of the road are commercial buildings- some with no regulated parking and some with inadequate parking which had been approved by the authorities.

6. Therefore, there is a marked parking issue and residences in the neighbourhood suffer the spill over of vehicles along their building frontages

7. Potholes and other obstructions on pavements creating danger to pedestrians- Lack of safety

Figure 4:24: Obstruction of tree stump on pavement
Source – Author

8. Lack of neighbourhood activity and bonding- the growth of many apartment buildings, with previous owners selling properties after Duplication Road, have further added to most residents not knowing their neighbours

Figure 4:25: growth of apartment building
Source: Author

9. Lack of a city centre and dedicated parking as proposed in the Galle road Corridor plan.

10. Unattractive building facades

Figure 4:26: Unattractive building facades
Source –author

11. Many corner/ grocery shops and supermarkets have been situated within 5- 10 minutes walking distance from residences

Figure 4:27: A corner shop bottom of Joseph lane
Source: Author

Figure 4:28: New supermarket near Lauries Road
Source: Author

12. Access by vehicle and foot within neighbourhood and from neighbourhood cuts down travel time using longer routes

13. Lack of tree cover and greenery / felling of large older trees to development

14. Two-way traffic roads became one-way or uniflow much later– therefore having more vehicles, creating sound, visual and air pollution from congested road traffic

15. Speeding of vehicles and in some residential streets, even public buses turning on to residential lanes adding to loss of residential Character (Fig. 4.27)

16. Roads poorly lit at night -lack of safety (Fig. 4.28)

Figure 4:29: Buses travelling through residential Areas
Source - Author
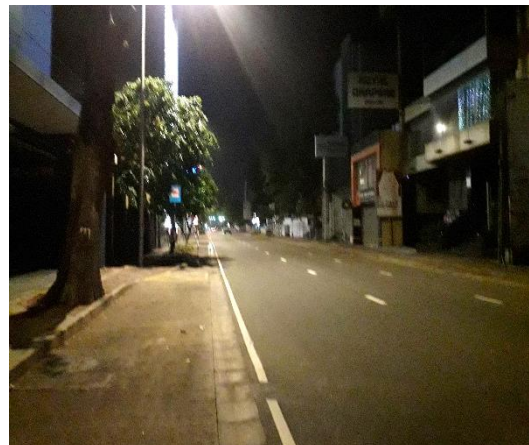
Figure 4:30: - poorly lit road at night- less safe
Source - Author

Summary of social analysis - before and after duplication road

Table 4:3: Summary schedule of Social analysis

SUMMARY OF SOCIAL ANALYSIS		
Parameters / Sense of place	**Before Duplication Road**	**After Duplication Road**
1) In Streets (from sense of place)		
a) Broad streets well paved and easy walkability	✓	✓
b) Good network of streets and legible and accessible	✓	✓
c) Interesting buildings along streets	✓	✕
d) For good interaction and bonding	✓	✕
e) Desirable place to spend time in	✓	✕
f) Legible sign posts	✓	✓
g) Cooler shadier with large canopied trees	✓	✕
h) Pedestrian walkways Comfortable and safe Not worried about being hit by vehicles	✓	Only 25% safe
i) A destination street – shopping, prestigious schools, public buildings	Prestigious schools	✓
j) Proximity to amenities	✓	✓
k) Place of activities to bring people together	✓	✕
l) People of different ethnic groups co- exist	✓	Only 50%
2) In streets (From Arteries)		
a) Streets connected with transit hubs and transit oriented	Connected but not transit oriented	Connected but not transit oriented
b) Slow speed of traffic to improve pedestrian mobility	✓	✕
c) Underground pedestrian links	✕	1 no only for a school
d) Good street lighting	✓	✕
e) Linear parks enhancing surrounding area	✓	✕
f) Parking garages in nodal areas	In Arterial Mitigation	In Arterial Mitigation
g) No on street parking	✓	✕
h) No ribbon development	✓	✕
i) No through traffic in residential roads	✓	✕
j) Environmental pollution – Air, sound and visual	✕	✓

3) Sense of place attachment and Identity		
a) Ownership	✓	Only 50%
b) Religious and cultural attachment	✓	✓
c) Genealogical attachment	✓	Only 25%

Source: Author

✓ - Agrees with the parameter   x - The Parameter is not there anymore

4.4.7 Parameters of sense of place that were lost

From the above summary the following parameters from sense of place was lost after the introduction of Duplication Road

1) Place of activities to bring people together, good interaction and bonding
2) Desirable place to be in Cooler shadier with wide tree canopies
3) Different ethnic groups living together (Now only 50%)
4) Linear parks enhancing surrounding area
5) Street character due to ribbon development, Residential street quality due to On street packing and through traffic
6) Pedestrian mobility due to speeding traffic
7) Good street lighting
8) Genealogical attachment down to 25% due migration due to owners selling property and leaving

4.5 Visual Analysis

4.5.1 Historical photographs and postcards
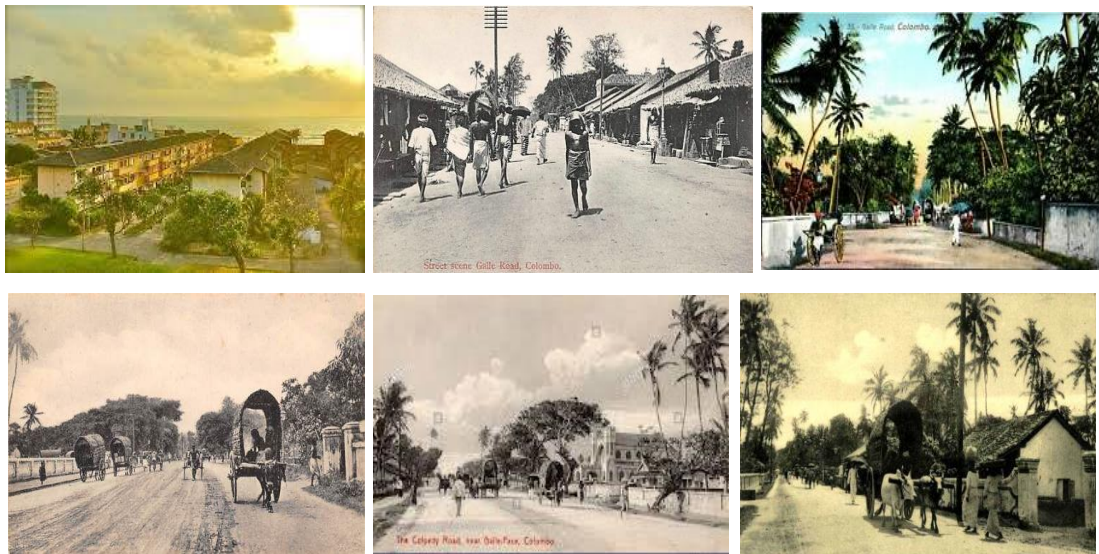
Figure 4:31: Street photographs from 1930, & 1950s of Bambalapitiya & Colpity
Source: lankapura.com and colombofort.com
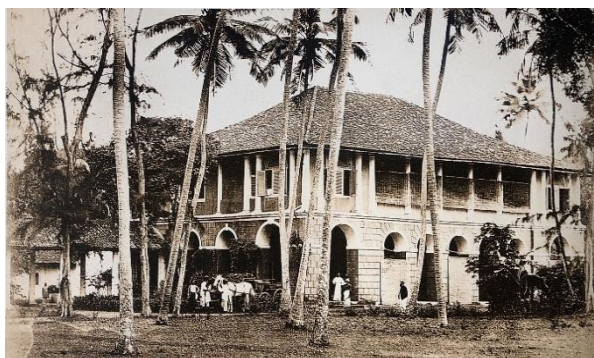
Figure 4:32: Typical residential style Big Bagatelle Colpity
Source: Images of British Ceylon, courtesy Ismeth Raheem

Figure 4:33: Sketch of Big Bagatelle
Source: Sunday observer 8th July 1990

4.5.2 Progressive images

Figure 4:34: Duplication Road- Sea side   (Bottom of Joseph lane) in 1993
Source: Author

Figure 4:35: Duplication Road – sea side (Bottom of Joseph Lane) in 2021
Source: Handuni Munasinghe

Figure 4:36: Duplication Road- land side opposite bottom of Joseph Lane in 1993
Source: Author

Figure 4:37: Duplication Road- land side opposite bottom of Joseph Lane in 2021
Source: Handuni Munasinghe

4.5.3 Outcome

Before Duplication Road

a) Much greenery and large trees along the roadways make walking pleasant.

b) Less traffic on the roads creates a safer pedestrian area.

c) More open area for gathering and socializing.

d) Attractive low-rise buildings of Interesting character makes walking on the pavements pleasant.

After the advent of Duplication Road

e) More commercial buildings and medium and High-rise buildings

f) More traffic on Duplication Road and the residential by lanes

Figure 4:38: Congested traffic – Duplication Road
Source: Author

g) Lack of parking for commercial areas therefore there is a marked parking issue and Residences in the neighbourhood suffer the spill over of vehicles and on street parking along their building frontages.

Figure 4:39: Parking along residential streets (Joseph lane)
Source: Author

Figure 4:40: through traffic along residential
Source: Author

h) Less interesting building facades along Duplication Road

Figure 4:41: characterless building facades
Source: Author

i) Poor lighting at night can make the area not safe

Figure 4:42: poor lighting along streets
Source: Author

j) Most by lanes have a mixed residential character leaning more toward commercial buildings. Therefore, the residential character is lost.

Figure 4:43: 60% commercial buildings along a residential road- Joseph Lane Source: Author

k) Previous lush greenery declined with the demise of large gardens. Duplication Road has arbitrary planting of trees and do not offer shade and comfort for the pedestrians.

Figure 4:44: Ad-hoc planting of trees - Duplication Road
Source - author

l) Many corner/ grocery shops and supermarkets have been situated within 5- 15 minutes walking distance from residences
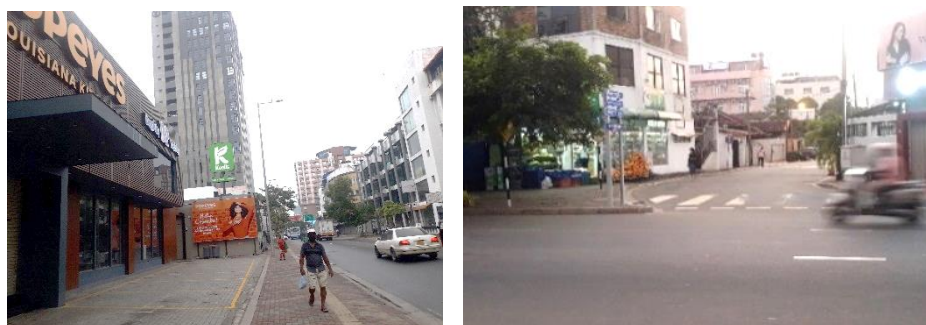
Figure 4:45: Restaurants and supermarkets - bring amenities close to homes
Source: Author

m) Congested traffic during peak hours and school time due to 6 prestigious schools along or connecting to Duplication Road

Figure 4:46: School traffic congestion – in front of Visaka Vidyalaya
Source: Handuni Munasinghe

4*Figure 4:47:* School traffic congestion - in front of Hindu College
 Source: Author

Summary of visual analysis - before and after Duplication Road

Table 4:4: Summary schedule of Visual analysis

SUMMARY OF VISUAL ANALYSIS		
Parameters / Sense of place	**Before Duplication Road**	**After Duplication Road**
1) In Streets (from sense of place)		
a) Broad streets well paved and easy walkability	✓	✓
b) Good network of streets and legible and accessible	✓	✓
c) Interesting buildings along streets	✓	×
d) Legible sign posts	✓	✓
e) Cooler shadier with large canopied trees	✓	×
f) Pedestrian walkways Comfortable and safe Not worried about being hit by vehicles	✓	×
g) A destination street – shopping, prestigious schools, public buildings	✓	×
h) Proximity to amenities	✓	✓
2) In streets (From Arteries)		
a) Streets connected with transit hubs and transit oriented	Connected but not transit oriented	Connected but not transit oriented
b) Slow speed of traffic to improve pedestrian mobility	✓	×
c) Underground pedestrian links	In arterial mitigation	In arterial mitigation
d) Good street lighting	✓	50%
e) Linear parks enhancing surrounding area	✓	×
f) Parking garages in nodal areas	In arterial mitigation	In arterial mitigation
g) No street parking	✓	×
h) No ribbon development	✓	×
i) No through traffic in residential roads	✓	×
3) Sense of place attachment and Identity		
a) Religious and cultural attachment	✓	✓

Source: Author

×- Negative impact,   ✓ - Positive impact

4.5.5 Summary of parameters lost after Duplication Road

From the above summary the following parameters from sense of place was lost after the introduction of Duplication Road

1) Place of activities to bring people together, good interaction and bonding
2) Desirable place to be in Cooler shadier with wide tree canopies,
3) Lack of safety in pavements
4) Different ethnic groups lived together (Now only 50%)
5) Loss of Street character due to ribbon development
6) Lack of Pedestrian mobility
7) Good street lighting
8) Genealogical attachment down to 25% due migration owners selling property and leaving

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Chapter Outline

The aim of this study was to determine and gain a better understanding of why a sub arterial road- Duplication Road is believed by residents to have impacted the Place-Sensibility of Bambalapitiya, adversely, or has it contributed positively?

Importantly the hypothetical statement of whether the Place Sensibility of the neighbourhood was impacted negatively or positively was also tested.

This chapter presents the conclusion based on the findings

a) The first stage of the study was based on a literature survey to develop a basic framework for analysing the sense of place and arterial neighbourhoods in precedent studies

b) In the next stage the above was applied to the two periods before and after Duplication Road and arrived at parameters relevant to the neighbourhood, to measure the sense of place and to check if the findings impacted the neighbourhood negatively or positively.

c) Based on identified methods the parameters were applied to the main case study in chapter 4, before and after Duplication Road.

d) Findings are discussed in relation to the study's objectives and research questions while author's remarks and further recommendations study areas are suggested to address the existing research gap.

A summary of the study is given in the schedule below

5.2 Concluding evidence for negative impact in neighbourhood

From the analysis in chapter 4 under the different methods of comparison of before and after Duplication Road context - the parameters which destroyed the sense of place in Duplication Road in the neighbourhood of Bambalapitiya area was identified.
How did the existing sense of place in the neighbourhood before Duplication Road get destroyed after the advent of it?

The comprehensive summary schedule below shows clearly the parameters that were positive and destroyed, after Duplication Road under the different methods of analysis.

5.2.1 Summary of lost parameters in "Sense of Place" in neighbourhood after Duplication Road

Table 5:1: Summary sheet – Loss parameters in sense of place

Parameters / Sense of place	Historic	Geographic / Demographic	Social	Visual
In Streets (from sense of place)				
1) Interesting buildings along streets	×	—	×	×
2) For good interaction and bonding	×	—	×	—
3) Cooler shadier with large canopied trees	×	×	×	×
4) Place of activities that brings people together	×	—	×	—
5) People of different ethnic groups co-exist	Only 50%	—	Only 50%	Only 50%
6) Linear parks enhancing surrounding area	—	×	—	—
7) No ribbon development	—	×	×	—
8) Broad streets well paved and easy walkability	✓	✓	✓	✓
9) Good network of streets and legible and accessible	✓	✓	✓	✓
10) Legible sign posts	✓	—	✓	✓
11) Proximity to amenities	✓	—	✓	✓
In streets (From Arteries)				
12) Slow speed of traffic to improve pedestrian mobility	✓	—	×	×
13) Good street lighting	—	—	×	×
14) No on street parking	—	—	×	×
15) No through traffic in residential roads	×	—	×	×
16) Loss of environmental quality	—	—	×	—

Sense of place attachment and Identity				
17) Ownership	Only 50%	Only 50%	Only 50%	Only 50%
18) Religious and cultural attachment	✓	Only 50%	✓	✓
19) Genealogical attachment	Only 25%	Only 25%	Only 25%	Only 25%

Source: Author

X – Negative impacts   ✓ - Positive impact

Therefore, from the findings of the above schedule, it could be said **that the negative impacts far outweigh the positive impacts** found after the laying of Duplication Road and due to this finding, the **Sense of Place and character of the neighbourhood was destroyed or lost.**

5.2.2 The larger problems due to the negative impact

Due to the negative Impact of the destruction of the above stated parameters the following larger problems affected the neighbourhood

Table 5:2 larger problems in the neighbourhood

Negative impact	larger problem in neighbourhood
1) Destination street – traffic congestion 5 prestigious schools and 3 smaller schools in the vicinity or facing Duplication Road	a) Parking along Duplication Road and residential roads on street parking creates traffic congestion. b) Traffic congestion increasing Environmental pollution
2) Reduction in ownership – and owners selling properties after Duplication Road was introduced	a) Linear or Ribbon development rise of commercial b) Growth of apartment buildings (some not keeping to proper building regulations c) Lack of bonding in neighbourhood d) Less genealogical attachment e) Commercial buildings out number residential in the lanes abutting/ connecting to Duplication Road.

Source: Author

5.3 Recommendations and Remarks

5.3.1 Policy decisions and recommendations

Based on this project's findings that the sense of place and neighbourhood character of Bambalapitiya was destroyed due to the creation of Duplication Road, the author looks at recommendations to mitigate the negative impacts of arterial interventions on a locality's sense of place, and proposes policy recommendations that can be followed when introducing future arterial roadways to existing residential neighbourhoods. Whereas Bambalapitiya was selected because the introduction of a second artery uniquely altered it during the 1970s, the continual introduction of arterial infrastructure as a feature of urbanisation in Sri Lanka suggests the importance of such a study. These recommendations are particularly significant because coastal towns in Sri Lanka have responded organically to arterial connections and benefitted from these responses in the past. The perceived problems occur due to planned interventions that are insensitive to neighbourhood character and behave only as vehicular thoroughfares. These recommendations hope to encourage greater sensitivity to the reciprocity between the locality and the arterial roadways that pass through them, but also to protect aspects of that locality from the invasive nature of increased vehicular traffic.

5.3.2 How can a positive impact on the neighbourhood be achieved when laying of future arteries across existing neighbourhoods?

If policy makers, stakeholders and government bodies had taken the necessary precautions when laying of Duplication Road such as encouraging good liveability in neighbourhoods and active land users the negative effect could have been avoided.

Therefore, for policy recommendations that will help create a positive contribution and minimize the negative impact in the laying of future arteries through an existing neighbourhood, while keeping the morphology of the area intact the author looks at useful urban design interventions that were made in the precedent case studies in Chapter Two of Arterial Neighbourhoods, the following interventions could be used as typologies.

5.4 Recommendations with reference from chapter 2- precedent case studies in Arterial neighbourhoods

5.4.1 Promoting character and sense of place

An important urban design intervention is to cultivate and promote an identity and sense of place – therein to create a well-integrated pedestrian scaled community and easy access to daily amenities, by providing a pedestrian system that links parks and streets, further enhancing the existing conditions and promoting safe and convenient connectivity between these spaces. Streets are the known connecting tissue of a community. Street environments define the public realm and describes cultural identity and community pride. Streets are also important in the sense that they give access to Commercial developments, schools, places of worship, corner shops, and supermarkets. These facilities, which are landmarks of a city, provide the physical spaces for people to gather and create a more identifiable, humane and connected city. The challenge in designing arterial neighbourhoods is in preserving street-based linkages rather than severing them. The examples introduced in Chapter 2 suggest that a more complex understanding of the different functions and hierarchy of vehicular and pedestrian streets and how they are connected or separated is critical for sustaining a sense of place. One of the arguments posed by this research is that the creation of an artery need not destroy a neighbourhood's sense of place if the development is integrated into the morphological structure of the neighbourhood. This may require some negotiation and compromise between the localities sense of place and the utilitarian need to pass through it or decisions might be made of segregating these spaces, but always with the continued social cohesion of the locality as the primary concern.

5.4.2 Creating street-oriented community spaces for meeting and interacting

Social cohesion can be achieved with greater sensitivity to the function and meaning of streets as places. Streets could be designed to encourage social interaction on two sides of the arterial roadway. Thus, the following proposals are recommended, among which increasing pedestrian activity is paramount. This above all was the key omission

in the design of Duplication Road. Pedestrian activity translates to "Eyes on the Street" and an enhanced sense of belonging and place-consciousness. One of the problems of an arterial roadway is that pedestrian activity is marginalized and becomes disconnected on either side of the street.

1) Enhancing pedestrian connectivity across the arterial roadway– the use of underground connectors or links. As in the precedent case study of Orchard Road as a destination street with wide busy vehicular artery, the pedestrian activity is enhanced by connections across the street through underground links.

    There are already two precedent pedestrian's links- one underground and one overheard pedestrian link connecting two major schools in the neighbourhood which were bisected by Duplication Road, namely, St. Peters College (Underground link) and Muslim Ladies College (overhead link) and prove to be successful. However, these are only used for the teachers and students of the school and not a public link and therefore exclusive.

    Elevated Pedestrian links or EPL's could be planned in high density areas with high foot traffic to complement the at-grade pedestrian network and to provide seamless connectivity between developments. The network comprises walkways along the 1st storey development. Extra floor area ratio could be granted, if incorporated in buildings. Elevated walkways are better than underground walkways because they encourage visual connections and our environmentally more pleasant, but their feasibility depends on the width of the roadway and nature of vehicular traffic along it.
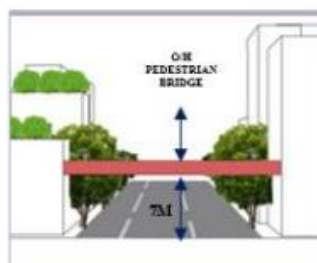
*Figure 5:1:*Elevated pedestrian link over Duplication Road
Source: Author

2) Enhancing edge conditions on both sides of the road - by reducing traffic speed and diverting traffic in segments – similar to the Denver Mall and the Serangoon Road environs. This encourages visual connectivity and facilitates pedestrian movement at designated points.

3) Setbacks –

Developments along major Boulevards required to be set back from the lines of the road reserves to allow for a wider pedestrian walkway to provide landscaped buffer between edge of street and adjacent land. Visibility with street and building should be encouraged -and the planting of an additional row of trees to create a tree-lined boulevard character.

Creating tree lined Broad sidewalks on destination street with interesting buildings for pedestrian comfort As in Orchard Road (arterial precedent study 2), which was a destination shopping street with wide busy vehicular artery, the pedestrian activity is created by wide tree lined pavements almost akin to a linear park which helped comfortable and easy mobility of the pedestrian in a safe environment the pedestrian activity is further enhanced by interesting buildings of shopping and entertainment on both sides of the streets.

Figure 5:2: Wide sidewalks and large tree canopies (Thurstan Road)
Source: Author

4) Good street lighting – This creates a safe and comfortable environment and gives Unimpaired mobility and good visibility at night to pedestrians which enhances the environment- as talked about the special street lamps and ambiance created in the 3rd precedent arterial case study (the transit mall in Denver)

5) Adequate Parking –to encourage participation in neighbourhood activities, so that it is seen as a destination, more than a thoroughfare.

      i) Created at transit hubs, with pedestrian links to neighbourhood.

      ii) All commercial buildings to have their own required parking within the premises.

      iii) Identified and designated parking sites which can be selected from empty sites in the neighbourhood as mentioned in the 16th Street Mall in Denver and the Galle Road corridor plan by Justin Samarasekaera Associates

      iv) Where possible. On-street parking opportunities will be very limited and only encouraged in areas of commercial and institutional uses.

6) Ease of access and walkability and to encourage a variety of modes of transport which are sustainable and reduce the impact of the automobile.

7) Providing a multifunctional, multimodal street scape network –

      i) Walkability to amenities and for leisure is paramount- it's how a successful community will function currently and in the future. Advocating cycling with cycle tracks for locals and tourists and streetscape to incorporate this.

      ii) Giving importance to Multimodal network is necessary for ageing demographics in the area. The most active transit routes are also prime "commercial corridors" that present new opportunities to provide mixed-use development and added ridership.

      iii) Transit oriented development urban design should emphasize compact development, enhance pedestrian safety, and encourage 'street-sharing' between pedestrians, cyclists and

vehicles, balanced with increased density along major transit corridors. This will provide transportation alternatives including active transportation, public transit, and enhanced inter-regional transportation connections Projections. 60% of journeys to be made by public transport.

8) Making the ground and first floor spaces of commercial buildings public spaces - coffee shops, photocopy places banks and shops so it helps the community to meet and interact and enlivens the street edge. Give provision for an additional floor if this guideline is followed

9) Connection of streets by making the ground level public eg. Similar to Majestic city connecting of two streets, so that a hub is created for meeting of people outside of one's home.

10) Incorporating co- working spaces inside of a building and renting out as opposed to total corporate areas. Corporate spaces can be 80% and other spaces 20%

11) Buildings with a floor on upper levels opening up for lunch areas, gyms, pool areas, and office lounges, and meeting places in the building so working people can meet and interact within the building.

5.4.3 Sustainable greening strategies

Sustainable thinking must be a core part of city building, and urban design presents a real and tangible way of implementing more sustainable practices

Ranging from larger scale planning initiatives to detailed design treatments, urban design can work to reduce the carbon footprint, increase oxygen production, reduce the urban heat island effect, increase urban tree canopy, reduce storm water runoff, and reduce energy demands. Among the main problems created by an arterial thoroughfare are noise and pollution, increased heat reflecting bitumen surfaces and related climatic conditions including flooding due to poor drainage, degradation of road surfaces, and the larger open area denuded of trees.

1) Reducing amount of non-permeable surface –

    i)   A high quality of landscaping and pedestrian paving materials is to be achieved in order to minimize the impact of parking areas on development.

    ii)   Major pedestrian routes through parking areas shall be defined through differentiated paving materials

    iii)   Where larger parking areas are used and their use cannot be avoided, landscaped islands at regular intervals, and pedestrian pathways and crosswalks should be used to mitigate their impact.

2) Encourage roof top gardens and green roofs specially in apartment complexes that mitigates the heat island effect and is a very good meeting and gathering space.

3) Large car parks of new supermarkets to have large canopied trees on its perimeter to create shading and maybe a small children's play area environmentally enhancing, which could double up as a parklet.

Figure 5:4: Car parks not environmentally sustainable
Source: Author

Figure 5:3: Parklet area can be created under the trees in front of parking
Source: Author

4) Urban heat island and microclimate –

    i)   One of the most prevalent impacts of the build environment is the creation of the urban heat island effect. The development of microclimatic conditions can help mitigate the urban head island and create more comfortable outdoor conditions. Buildings can be designed

to include shade structures and green roofs to help cool the building's exterior spaces.

ii)   Landscaped areas and water features should also be part of any public exterior space planning to help ensure that microclimate can reduce immediate effects of the heat island on extreme days. At the urban scale one of the most important measures to protecting against the heat island is creating an "urban forest". Therefore, tree planting should be a priority through the streetscape design, and parks development process.

5) Storm water management –

Streetscapes, site development and subdivisions all can play an important part providing storm water infiltration on site and reduce the need to direct runoff to nearby ponds and watersheds. The management of these sites can result by way of the development of bio-swales and rain gardens to help offer localized storm water management. These facilities will provide localized plant beds providing both storm water relief and aesthetic features in the wider landscape. Storm water ponds are also important in developing important relief to the watershed at times of peak flow, while also providing community amenity.

5.4.4 Improving neighbourhood character through linking connector streets

1) Nodal development, with amenities, small scale employment, shopping and services, with parking garages- Concentrate commercial and public parking in nodal developments in Junctions as mentioned in the 2nd local precedent study in arteries. In the Colombo corridor plan it is stated that when a local neighbourhood is taken and a public artery is laid one has to be careful in not being invasive where the connecter roads link up to the main Artery - This is specially to keep the residential character and be mindful of where the circulation gets connected. Therefore, the corridor plan proposes nodal development. It will also be beneficial to create the above within walking distances to public transport, with pedestrianizing some of the areas within the node.

2) Main motivation should be to be protecting the social and physical character of the neighbourhood (buildings and landmarks) - rather than the emphasis being on making an artery and enabling traffic flow. As in precedent arterial case study 1 – The Bombay Marine drive." An intensive traffic flow may be disruptive to the residential environment.' (From Galle Road corridor plan)

3) Mitigation of school traffic from neighbourhood streets – There are 6 prestigious large schools which allow for parking of vehicles along Duplication Road and the larger residential roads and thus creates major traffic congestion. A traffic proposal should be planned to take off all on street parking (which is also advised against in the Colombo corridor plan) and have the school parking located in allocated sites while maintaining a shuttle service from the parking area to the school.

5.5 Concluding Remarks

In the past 30 years or so change in the urban context has been inevitable. However, change must be progressive and in keeping with the authenticity of a city's neighbourhood to make it uniquely localized.

In conclusion taking the proposed interventions and policies, mentioned above in this chapter, if Duplication Road was created as a primary organ of a community, the heart rather than the artery, it could have reflected and built on the neighbourhood values that were previously present and, in many ways, unique to the locality. Therefore, it is important that streets/ low order arteries are created to be more than just local streets but also places where social interaction is encouraged. Streets including arterial roadways need to be understood not as functional urban elements connecting point to point, or merely as thoroughfares, but as complex social places through which neighbourhood character can and must be sustained.

Taking the above recommendations in this chapter planning authorities and urban designers should develop economic development master plans for the existing neighbourhoods that have proposals for the laying of arteries to enhance neighbourhood liveability by encouraging active land uses of these arteries and maintaining the safety and cleanliness of liveable streets and liveable arteries.

Finally, and very importantly these urban design master plans should be followed and implemented by policy makers, stake holders and government bodies to have the best outcome for the neighbourhood.

Annexures

AUTHORS								THE THEORETICAL FRAMEWORKS			
1	2	3	4	5	6	7	8	Place Sensibility	Characteristics	Arterial Neighbourhoods	Characteristics
■			■		■			**Place Making Place Idendity & attchment**	a) Geneological attachment b) Ownership c) Religious & cultural attachment d) Folklore, narratives e) Attachment via loss and destruction of place f) Successful city has a destination eg. Prestigous schools etc.	**Arterial Neighbourhood 1** Character of historical neighbourhood is kept by diverting traffic **Arterial Neighbourhood 2** Connectivity of pedetrians in a fast moveing artery kept by underground connections	a) Sense of Place in coastal location b) Place Identity c) Place Attachment d) Diverting high speed traffic a) Legible road signs b) Safety and comfort of pedestrians
		■						**Neighbourhood character**	a) Slowing speed of vehicles which help increase pedestrian activity b) Safety and comfort of pedestrians c) Pedestrian friendlty and transit orient d) Closeness to amenities e) Access to educational Social & cultural institutes f) Freedom to citizens not to rely on cars	**Arterial Neighbourhood 3**	c) Interesting buildings d) Destination streeet a) Ease of pedestrian , wide side walks b) Sense of Place c) Proximity transit hubs d) Good street lighting
		■					■	**Morphology and Typology of coastal streets**	a)Streets desugned for people to and interact face to face b) Good network of streets that are ermiable & legible c) Walkability d) Intersting Buioldings e) Good viewes f) Connectivity to transit hubs	**Arterial Neighbourhood 4** - Old linear elevated structure made into public amenity give new sense of pace **Arterial Neighbourhood 7**	a) The linear park (new intervention) change the neighbourhood character positively b) Gives new spiri of place c) A destination location d) Gentrification is due to new interventions- negative to citizens a) Place Making b) Place Attachment
		■			■		■	**Livable streets**	a) Accessability, is inclusive and walkable b) Intresting buildings- cafes, shops etc. c) wide well laid pavements d) comfort and safety of pedestrians e) Interaction and bonding	to Keep neighbourhood character by nodal development at junctions were advised with no on street parking	c) Development of nodes as public realms d) Connection from coastal railway and hub to main street e) Development around transit hub and station road.

1 Norberg - Schultz
2 Heidegger
3 Andre Duany & Elizabeth Plater-Zyb
4 Buttimer
5 Alterman low
6 Allan B Jacobs
7 E Relph
8 Justin Samarasekara

① RESEARCH OBJECTIVES

To gain a better understanding as to why residents believe Duplication road to have impacted the Place Sensibility of Bambalapitiya.

② RESEARCH QUESTION

1. How did it's coastal location & arterial connection define the physical morphology of Bambalapitiya as a coherent neighbourhood

2. How was above in (1) evident in the ways that residents & daily users experienced & identified as this neighbourhood & its amenities.

3. How did the introducing of Duplication road impact the neighbourhood cohesion that was formative of Bambalapitiya's place sensibility.

4. Can this case study be meaningful for understanding arterial development in other coastal neighbourhoods?

③ LITERATURE FRAME WORK

A. ARTERIAL NEIGHBORHOODS

Arterial Neighbourhood 6- Colombo corridor plan (local examples)

Arterial Neighbourhoods 1

Arterial Neighbourhoods 2

Arterial Neighbourhoods 3

Arterial Neighbourhoods 4

B. SENSE OF PLACE

1. Place making.
2. Phenomenology of space.
3. Place identity & attachment.
4. Neighbourhood character.
5. Place making and community.
6. Place & public realm.
7. Morphology of coastal location.
8. Livable streets.

④ THEORITICAL FRAME WORK

a. Coastal railway hub connected to Galle road and city.
b. Nodal development

a. Sense of place in coastal location & place identity & place attachment

a. Legibility of roads
b. Comfort & safety of pedestrian.
c. Interesting buildings.
d. Destination street.

a. Ease of pedestrian
b. Sense of place
c. Parking & transit hubs.

a. New urban linear park.
b. Gives new sprit of space.

LITERATURE FINDINGS OF SENSE OF PLACE

1. Place making
2. Place identity & attachment
3. Neighborhood character
4. Morphology of coastal neighbourhood.

⑤ RESEARCH METHODOLOGY & DATA FINDINGS

A. HISTORICAL ANALYSIS

1. Start of railway hub & connection to main road & city.
2. Connection & relationship of Duplication & Galle road.

B. GEOGRAPHICAL ANALYSIS

1. Evolution of Galle road & duplication road in survey maps.
2. Demographics data.

C. SOCIAL ANALYSIS

1. Interviews.
2. Autoethnography.
3. Participants observation.
4. Social media & websites.

D. VISUAL ANALYSIS

1. Historical photographs.
2. Progressive & current photographs.

⑥ CONCLUSIONS & RECOMMENDATIONS

CONCLUSION
From findings of case study

FINAL CONCLUSION

AUTHOR'S RECOMMENDATIONS & REMARKS.

**TITLE: THE CHANGING PLACE SENSIBILITY OF AN ARTERIAL NEIGHBOURHOOD:
 CASE STUDY – BAMBALAPITIYA**

Dissertation - 2022 - Master of Urban Design - Faculty of Architecture - University of Moratuwa.

The creation of a secondary arterial connection parallel to but less significant than Galle Road, in the early seventies cut through the Colombo suburbs of Kollupitiya and Bambalapitiya, breaking neighbourhood connections and dividing families. Unlike Galle Road, this second artery had no associated spaces or services that could help build its urban character or its edge condition, it cut through the urban fabric without regard for what was on either side. Even its name suggested its duplication of function rather than amenity. Another road running parallel – Marine drive was introduced subsequently along the coast also to take the load of the traffic in Galle Road.

This dissertation proposes to study how a second sub-arterial road, Duplication Road, introduced in early-1970's has impacted forms of neighbourhood cohesion sustained by the multi-scale urban and suburban relationships that were formative for Bampalapitiya's Place-Sensibility

QUESTIONAIRE FOR SURVEY:

1) How long have you lived in the Bambalapitiya area?

2) Do you own the property or are you renting it?
3) Do you work in the neighbourhood?
4) Do you shop in the neighbourhood? Where?
5) Do you buy your daily/ weekly amenities in the neighbourhood?\ if yes or no where do you buy them from
   -
5) What institutions in the neighbourhood do you visit?

6) What are the public places you visit?

   ----

7) Do you do any sports/ physical exercise? What are they?

----

8) If yes to (8) do you use the places in the neighbourhood or go outside for same?

9) Are there any recreation places/clubs/ grounds OR parks in the neighbourhood you use?

----

10) Are there children's play areas in the neighbourhood?

----

11) Are there good entertainment places in the neighbourhood? Do you visit these places?
----

12) Are there good cafes, restaurants? What are the restaurants / cafes you patronize?

, -----------

13) Do you participate in Community activity? If yes, what type is it?
----

14) Did you or your children go to school in the neighbourhood?
----

15) Do you think Duplication Road is safe?

   a) As a pedestrian, -------------------------------
   b) As a vehicle owner ---------------------------------

   c) As a public transport user ------------------------------------

16) Give reasons for your choice in above (16)

   - ---

17) Are the sidewalks in duplication road wide enough safe enough?

18) Is it interesting to walk along the sidewalks?

    a) The buildings create interest   -----------------------------

    b) They don't create interest   ------- ------------------------

19) Are there cycle tracks on Duplication Road, or Marine drive? If no, would you advocate to have same?

    …………… ………………………………………….

20) Do you use a vehicle or public transport to get around?

    ------------------ ---------------------------------------

21) What other mode of transport would you use?

    ----

22) If you don't own a vehicle, can you easily get about your neighbourhood for your daily needs?

    ----

23) Does your neighbourhood have a transportation hub? Bus, Train station?

    ----------------- --

24) Is your neighbourhood easy to navigate? Is it Legible? To get around?

    ----

25) If you lived before duplication road was introduced, do you think it created a positive impact or negative impact after its introduction

    ----

26) Please give reasons for your answer to no 26

    Its created the ease of access, but the residential part was destroyed

    ----

27) In your opinion has the introduction of Duplication Road created a positive, negative environmental impact? Is there

a) Noise pollution   ……………………
b) Air pollution   -----------------------------
c) Visual pollution (too much of Signage, lighting,etc.) ……………….

28) What would you say the neighbourhood is well known for?

a) Good education (Many reputed schools) ……………………..
b) Shopping…………………………….
c) Entertainment …………………………………
d) Leisure………………………….
e) Healthy environment   ……………………..
f) Other (Please specify) ………………………………

----

29) What do you like most in your neighbourhood? What's your favourite place?
----

30) What would you do to improve the neighbourhood?

------------------ ---

31) Does your neighbourhood have a city centre?

----

32) If you selected the neighbourhood to live (buy property or rent) what are the main reasons?
----

33) If you had to leave the neighbourhood and relocate, would you look for similar characteristics
As your neighbourhood or different in the new location?
----

34) Please give your reasons for answer in 34

When it is a semi-commercial area it ruins personal living conditions, through traffic pollution, sound pollution etc

----

……………   ………..…

Name: Date:

Note: This survey is solely for research and not for any other use.

THANK YOU FOR YOUR TIME AND PATIENCE

PARTICIPANTS	GENDER	AGE	PLACE		PLACE NEIGHBOURHOOD		ACTIVITIES (PHYSICAL)	STREETS/CONNECTIVITY		IDENTITY		DUP. ROAD ENVIRONS		PLACE ATTACHMENT	BUILDING AESTHETICS	IMPACT OF DUP. RD	PUBLIC INSTITUTION VISITOR	ROAD POLLUTION
			LIVED	WORKED	CITY CENTER	GROCERIES		LEIBILITY	SECONDARY EDUCATION	RESON FOR SELECTION	UPGRADES	RECREATION	SAFETY					
PAR 1	M	70		YES	NO	NO	BIKING/WALKING GYM	YES	YES	CENTRAL	REDUCE NOICE CONTROL / STOP SUB DIVISION OF LAND	NO	50%	NO	PARTLY	NEGATIVE	NO	YES
PAR 2	M	52		NO	NO	YES	WALKING	YES	YES	CONVENIENCE	STOP STREET RACING	YES	NO	YES	NO	POSITIVE	CHURCH/BANKS/DIV SEC	75%
PAR 3	M	30		YES	YES	NO	NO	YES	NO	CONVENIENCE	STOP POLLUTION EXCESS FUMES OF TRAFFIC	NO	YES	YES	YES	POSITIVE	CHURCH	YES
PAR 4	M	70		NO	NO	YES	WALKING	NO	YES	CENTRAL	BRING UNIFORMATY TO ARCHITECTURE	YES	50%	NO	NO	YES/NO	CHURCH/BANKS	YES
PAR 5	F	50		NO	YES	YES	NO	YES	YES	CONVENIENCE	STOP POLLUTION FROM TRAFFIC	NO	YES	YES	YES	YES/NO	CHURCH	YES
PAR 6	M	65		YES	NO	NO	WALKING/YOGA/GOLF	YES	YES	CENTRAL	HAVE COMMUNITY CENTER AND ACTIVITIES/DURATION OF TRAFFIC LIGHTS	NO	NO	NO	NO	NEGATIVE	TEMPLE	YES
PAR 7	F	25+		NO	NO	NO	TT/TENIS/ CAROM	YES	NO	CONVENIENCE	MORE STREET LIGHTS TO LANES	NO	YES	YES	NO	-	CHURCH	YES
PAR 8	M	40-50		YES	YES	YES	CYCLING/JOGGING/WEIGHTS	YES	NO	CONVENIENCE	REDUCE TRAFFIC PLANT MORE TREES	NO	NO	YES	NO	NEGATIVE	BANKS	YES
PAR 9	M	50+		YES	YES	YES	PHYSICAL EXERSICE	YES	YES	EASE OF TRNSPORT	MORE GREEN BUILDINGS AND TREES ON ROADS	NO	YES	YES	NO	POSITIVE	CHURCH	YES
PAR 10	M	60+		YES	NO	YES	JOGGING	YES	NO	CONVENIENCE	GOOD PAVEMENTS/PARKS/JOGGING TRACKS	NO	YES	YES	PARTLY	NEGATIVE	?	YES
PAR 11	F	30-40		NO	NO	YES	GYM	YES	NO	HOMELY	IMPROVE WALKING PATHS	NO	YES	YES	PARTLY	POSITIVE	RESTAURANTS	50%
PAR 12	F	30-35		YES	-	YES	TENIS/CYCLING	YES	YES	CONVENIENCE	PLANT MORE GREENERY	YES	YES	NO	PARTLY	POSITIVE	?	YES
PAR 13	F	60+		N/A	NO	YES	YOGAWALKING	YES	NO	CONVENIENCE	BETTER TRAFFIC AND BUILDING REGULATIONS	NO	NO	YES	NO	YES/NO	CHURCH	YES
PAR 14	F	60+		YES	YES	YES	WALKING/CYCLING/YOGA	YES	YES	CONVENIENCE	BETTER GARBAGE COLLECTION & STREET REGULATIONS	NO	YES	NO	NO	YES/NO	POSTOFFICE/BANKS	YES
PAR 15	M	50+		YES	YES	YES	BASKETBALL	YES	YES	ACCESS	PLANT MORE GREENERY/HAVE COMMUNITY ACTIVITY	NO	YES	YES	NO	YES/NO	CHURCH	YES
PAR 16	F	25		NO	YES	YES	NO	YES	YES	-	PLANT MORE GREENERY	NO	50%	YES	YES	-	CHURCH/MC/NBOOKSHOPS	-
PAR 17	F	50+		YES	NO	YES	WALKING\	YES	YES	CENTRAL	INTRODUCE GUIDELINES	YES	NO	YES	NO	POSITIVE	TEMPLE	YES
PAR 18	F	40-50		NO	YES	NO	NO	YES	NO	CONVENIENCE	PUBLIC PLACES,PEDESTRIAN FRIENDLY AREA, NIGHT MARKETS	YES	YES	YES	YES	POSITIVE	CHURCH	YES
PAR 19	M	30-40		YES	YES	YES	JOGGING/BASKETBALL	YES	YES	CONVENIENCE	PLANT MORE GREENERY,DEDICATED BUS LANE, PARKS,CYCLING TRACKS	NO	NO	NO	NO	YES/NO	CHURCH/POLICE/ MARKET	YES
PAR 20	F	30-40		NO	NO	YES	WALKING	NO	YES	CONVENIENCE/CENTRAL	STRICT BUILDING REGULATIONS,PARKING REG, SERVICE MAINTAINANCE	NO	NO	NO	NO	YES/NO	CHURCH	YES
PAR 21	M	60+		N/A	YES	NO	WALKING	YES	NO	CONVENIENCE/CENTRAL	IMPROVING THROUGH TRAFFIC,OPEN SPACES PARKS, 15 MINS CITY	YES PARTLY	NO	YES	NO	YES/NO	BANKS/TEMPLE	YES

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