

Université de Montréal

The exploration of mixed-use principle as an ingredient to improve
the viability and vitality of town centres
in Mauritius

par

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Ce mémoire intitulé:

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Résumé

La mixité d'usage est de plus en plus considérée comme un facteur essentiel au développement durable et à la prospérité des villes, tant par les professionnels en urbanisme, les décideurs politiques et les chercheurs que par tous ceux concernés par la qualité de vie de nos concitoyens. Présentement, on assiste au développement de stratégies et mécanismes en vue de faire cohabiter les diverses fonctions urbaines. Ainsi, cette recherche exploratoire porte sur la mixité d'usage et la possibilité de transférer cette approche, plus particulièrement, dans celui des villes de l'Île Maurice, petit état insulaire en développement. Le principal facteur à l'origine de ce choix est la volonté du gouvernement de mettre en place un métro léger reliant les centres des villes de la conurbation urbaine de l'Île, d'où l'opportunité de réhabiliter ces centres en déclin à travers une plus grande mixité d'usage.

Ainsi, deux cas, Quatre Bornes et Rose-Hill sont analysés. La cueillette des données inclut des entrevues avec onze urbanistes locaux, lesquelles permettent de développer le volet public de la problématique et de bien contextualiser les avenues possibles de solution. Nous constatons qu'un laisser-faire, des politiques inappropriés et diverses interventions publiques ont favorisé la congestion routière et l'étalement urbain et entraîné une perte de diversité des usages dans le centre-ville. Nous identifions ainsi les défis et les opportunités relatifs à la mixité d'usage et proposons des stratégies, dans l'optique d'améliorer la viabilité et la vitalité des centres-villes.

Mots-clés : urbanisme, mixité d'usage, centre-ville, planification urbaine, étalement urbain, conurbation, Île Maurice

Abstract

Mixed-use is increasingly considered as a key principle for sustainable development and prosperity of cities and towns by planners, decision-makers, researchers and many others concerned with the quality of life of our citizens. As such, we are witnessing new strategies and mechanisms to enable different uses to cohabit. Our thesis explores the transferability of the mixed-use concept in the context of the town centres in Mauritius, a small island developing state. The main reason explaining this choice is the government's commitment in introducing a light rail transit system linking the town centres of the urban conurbation of the island. Indeed, the opportunity lies in improving the declining health of town centres through mixed-uses.

In this context, we analyse two case study areas, Quatre Bornes and Rose-Hill. Our empirical researches include interviews with eleven planners in Mauritius, in an attempt to better grasp the institutional problematic and contextualise relevant solutions. We find out that the *laissez-faire* situation, unresponsiveness of policies and government interventions on transport and traffic congestion have favoured urban sprawl and led to the lack of diversity in the town centres. In contemplation, we identify the common challenges and opportunities with respect to mixed-use in the two case study areas and propose strategies in view of improving their viability and vitality.

Keywords: urban planning, mixed-use, planning mechanisms, town centre, out-of-town development, conurbation, Mauritius

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ACRONYMS AND ABBREVIATIONS

| | |
|------|--|
| FAR | Floor Area Ratio |
| LRT | Light Rail Transit |
| ODPM | Office of the Deputy Prime Minister (United Kingdom) |
| TOD | Transit Oriented Development |
| ULI | Urban Land Institute |
| WCED | World Commission on Environment and Development |
| WHO | World Health Organisation |

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INTRODUCTION

The renewed interest in town centres as a major place to live, work and enjoy cultural activities calls for a mixture of land use and activities. According to some planning professionals, mixed-use originated from Jane Jacobs long-standing arguments (since early 1960s) that successful towns and cities are those which by sustaining diverse uses attract significant numbers of people. Nevertheless, other planning experts demonstrate that mixed-use is nothing new with examples as early as the Greek agora and medieval market squares. Subsequently, advocates of mixed-use point a finger to “zoning” which by segregating uses has undermined the compactness of town centres with increased urban sprawl.

The debate may be on-going, but amongst the numerous challenges facing planning professionals in this millennium is how to create better and sustainable communities. A few of the recipes usually referred in contemporary planning practice for achieving this goal is:

- Sustainable and Compact Development in all countries of the globe,
- Smart Urbanism/Growth in North America and
- Urban Renaissance/Regeneration in the United Kingdom

(Urban Task Force 1999: 25; Knox 2009: 67; Herndon 2011: 1)

Although the above-mentioned terms vary, it is generally agreed by planners that the planning principles and theories to reach the goals are “compact form, public participation, mixed-use, mass transit, pedestrian and cycle ways, open spaces” (Grant 2007: 1). This thesis analyses one ingredient of the contemporary planning paradigm, that is, mixed-use.

Mixed-use, with increased density, is undeniably now the gospel of key stakeholders (governments, real estate promoters and owners, planners, architects, urban designers, local authorities) who, directly or indirectly, influence the urban form of our towns and cities. However, although mixed-use is gaining popularity, several planning authors are viewing it as ambiguous in both theory and practice (Hoppenbrower & Louw 2004: 967, Rowley 1996: 85). This ambiguity will be further analysed in our literature review. However, there is a general

consensus amongst professional planners and intellectuals in the planning field that the importance of “mixed-use” is gaining worldwide recognition as an approach for the domineering subject in this millennium, that is “sustainable development” and recently “post carbon towns and cities”.

The United Kingdom’s government has prioritised mixed-use as a public policy through the 1990s and, due to a number of barriers and obstacles believed to inhibit mixed-use, the Office of the deputy prime minister (ODPM 2001) commissioned a study on *mixed-use development, practice and implementation*. This study put attention to the specific situation of town centres, remarking that:

“The vitality of town centres is essential to their attractiveness, and is a characteristic which mixed-use development seeks simultaneously to harness and enhance. A Good Practice Guide on town centre’s strategies would be a useful tool to emphasise the role that mixed use can play in creating an active, dynamic urban setting. A comprehensive review should be carried out of new development plans to examine their treatment of mixed use, and the practical experience of its implementation” (Douglas Wheeler Associates, Ann Flint Associates, Austin-Smith, and Lord Edinburgh College of Art, 2001: 14).

In conjunction of the above, this thesis explores the contribution of mixed-use for the viability and vitality of town centres with the specific case of Mauritius. In the preceding section we investigate a definition of town centre that may be applicable to the Mauritian context - a small island developing state (SIDS) in the Indian Ocean. Then, we spell out the reasons for choosing this country island and outline the general objective of our study. Finally, we provide an insight of the structure of this thesis.

I. Definition of town centre

Before focusing on Mauritius’s declining town centres, it appears useful to understand what is specifically meant by the term town centre. Merlin and Choay (2010: 145) observe that « l’expression centre urbain recouvre une réalité complexe, composite et variable ». According

to them, the heart of the town “*centre urbain ou coeur de ville*” is the fundamental part of the urban character ensuring and injecting both life and activity. For I. Perényi (1973: 119), “owing to their relation to the traffic network and to the distribution of the population they are easily accessible from any part of the agglomeration”. Guy (1994: xvi) points out that a town centre is “an area, central to the town as a whole, in which the main land uses are commercial. In Western Europe, it forms the most important retail area in the town, and may include both unplanned and planned retailing. It also serves a wider purpose as a business, cultural and entertainment focus for the community”. B. Gauthiez (2003: 30) provides a spatial definition of the town centre as being: « Quartier caractérisé généralement par la forte continuité de la densité du bâti, où les activités urbaines atteignent leur plus grande intensité, regroupant les principaux équipements et édifices commerciaux ».

In light of the above definitions, we shall retain Merlin and Choay’s distinction between small, medium and large town centres: « Dans les petites villes, le centre urbain est réduit et multifonctionnel : toutes les activités sont représentées en un espace relativement central, généralement un Carrefour de circulation (...) » (2010: 145). Additionally, Perényi’s and Gauthiez’s emphasis on concentration of activities and intensity of development respectively paints a true picture of the characteristics of the Mauritian situation, where most towns and their centres are small and are located at the heart of the urbanized areas.

Why town centres, their viability and vitality?

Bohl (2002: 9) has observed that “changing market demands, shifting public policy, new urban design ideas, and cultural changes are amongst the key forces which have contributed in the emergence of town centres after a break of 50 years”. According to this author, the perception that main street’s and town centre's projects are unprofitable compared to investment in suburban areas, has in lieu made way for developers and local redevelopment agencies toiling hard “to create successful mixed-use projects in downtown areas” (Bohl 2002: 9).

In similar terms, Hubert et al. point out that « (...) les grands projets urbains alimentent les débats sur le devenir des villes et de leurs habitants. Cela se passe dans un contexte où la concurrence entre les territoires s'est renforcée et a confronté des villes - et particulièrement leurs espaces centraux – à la nécessité de repenser leur positionnement, tant à l'échelle locale (au sein des régions métropolitaines) qu'internationale » (Hubert, Lewis and Raynaud 2014: 7).

These comments lead us to focus on viability and vitality of town centres. These qualities are currently found in the literature, being, for instance, considered as conditions for a healthy town centre. In his reflection on the writings of Jane Jacobs (*1961: Death and Life of Great American Cities*), Neil Ravenscroft's (2000: 2534) refers to the above terms as two interrelated measures with respect to level of 'busyness'. The relationship that he builds is "vitality may be seen as a significant component in new investment decisions that is, viability" and reciprocally "the continued development of new facilities (viability) usually generate an enhanced attraction for visitors (vitality)". Therefore, a town centre in good health would mean one which is viable and vital.

II. Reasons for choosing Mauritius

For sure, the mixed-use approach as practiced abroad (western context and Europe) may not all be suitable and applicable and, if applicable, may need major adjustments in the case of Mauritius. As an urban planning student, I have specifically decided to conduct research on mixed-use and Mauritius' town centres for the main underlying reasons.

In Mauritius, towns emerged from rail transport in the early 1900s¹ and they further developed as a result of the decentralisation of the capital city and construction of the market (Toussaint 1973: 107). Their development was not subject to planning prior to the mid 1970s. The plans were meant for development control purposes only and it is difficult to recollect whether the central

¹In 1964, Rail transport ceased operation in Mauritius.

areas experienced any significant renewal and/or revitalisation project since then. However, it is obvious that they have slowly declined in the last decades. This decline may explain why mixed-use has been introduced in the National development plan (NDS²) of Mauritius in 2004 as a strategy for the urban renaissance of the four town centres of the island. However, nearly ten years after the declaration of the national plans, the planning mechanisms have remained silent on the mixed-use approach. It is now a time-tested fact that during the past decade, the town centres in Mauritius have not thrived.

(a) Suburbanisation

Presently, the country is experiencing urban sprawl through a number of residential gated projects, a phenomenon already witnessed in the North American context. Urban sprawl, which is considered as unsustainable use of land from infrastructural and services point of view is consuming Mauritius island's fertile agricultural land and would in this perspective be contrary to government's of Mauritius ambition in achieving food production and security albeit sustainability. Moreover, gated communities are undeniably attracting a number of town dwellers.

The past decade has also seen a number of offices moving out from town centres to other locations. These are the capital city of Mauritius Island, Port Louis and another office park, Ebene, which has developed at the centre of the island. Additionally, a number of other offices have been constructed at the periphery of town centres.

Historically, the main economic strengths of town centres in Mauritius have been driven by commercial activities. However, since the mid 1990s, a number of out-of-town shopping malls have been set up in Mauritius. This is inevitably threatening the continued business activities of retail/shop owners in town centres. It is clearly noticeable that these big out-of-town outlets are attracting a large number of town shoppers.

²NDS stands for the National Development Strategy of Mauritius and is described in chapter 4

In conjunction of the above, although Mauritius town centres are still characterized by a relative concentration and variety of activities, they are experiencing a decline in trend of uses such as residential, employment and commercial.

(b) The introduction of a Light Rail Transit system linking the four towns

There has been recent Government commitment in Mauritius to introduce a Light Rail Transit (LRT) System as an alternative mode of public transport³ to solve traffic congestion and reduce the growing numbers and usage of the private car. The LRT is expected to serve the core area of the town centres and an international tender has accordingly been floated. It is clear from the planning perspective that the core areas of Mauritius which are small-sized are technically outdated to accommodate an LRT at this point in time. For this reason, the LRT project presents itself as an undeniable opportunity and challenge to come up with practical ideas for improving the viability and vitality of Mauritius town centres through mixed-use.

(c) Mixed-use as a sustainable development principle

Sustainable development is of high-priority on the Government of Mauritius agenda and the Prime Minister's personal commitment to transform the island into a sustainable country (Maurice Ile Durable (MID) project⁴). Mauritius is in fact well known for its world class hotels, pristine coastal areas and exuberant beaches (almost all are located within rural areas). In this context, coastal planning guidelines and regulations have come into effect to preserve and maintain the country's coastal tourism assets. However, the town centres have been neglected through a *laissez-faire* situation. My interest lies in studying the town centres to improve their situation and also increase my understanding (through a critical angle) of the mixed-use approach viewed as an agent of sustainable development.

³Buses are the only mode of public transport in Mauritius.

⁴For more information on MID, see: <http://sustainabledevelopment.un.org/content/documents/4074durable.pdf>

In light of all the above, as a government town planner and citizen of Mauritius, I have the opportunity with this research to carry out an analysis of Mauritius' town centres, which most probably would not have been possible for me in my capacity as a civil servant. Moreover, owing to the fact that mixed-use is gaining popularity in North America and Europe, this topic serves as a leverage to understand the models, approaches in different contexts through a review of the literature. Hence, the thesis provides me the opportunity to carry out an exploratory analysis of factors having contributed to the decline of Mauritius' town centres; to discuss the role of mixed-use in the dynamics of these centres and to investigate if the level of uses needs to be increased, reduced or maintained.

III. General objective of this study

Mixed-use is increasingly recognized in contemporary planning as a necessary ingredient to create both life and activity in town and city centres. However, the concept has been developed in North America and Europe and its transferability to other countries such as Mauritius has not been tested. The intent of this thesis is therefore to:-

- (i) Understand the reasons for mixed-use advocacy, its definition and applications in North America and Europe;
- (ii) Investigate whether Mauritius town centres suffer from a lack of mixed-use and
- (iii) Explore the feasibility of transferring the mixed-use approach in the local context⁵

⁵ The term 'local context' where used in the thesis refers to Mauritius.

IV. Structure of the thesis

This thesis is arranged in three parts:

Part 1 (chapter 1 to 3) presents the literature review and the objectives and methodology of the empirical research. Chapter 1 focuses on “town centres” and emphasizes on town centre definition together with the twin associated terms “viability” and “vitality”. This chapter will also explore the history and evolution of the mixed-use concept to understand the reasoning behind its advocacy. In Chapter 2, we will expose the research conducted on mixed-use theory and its practice in North America and Europe in view of its relevance and possibility of replication in Mauritius. Chapter 2 equally considers the key concepts underlying mixed-use, and investigates the mechanisms and conditions necessary for achieving mixed-uses. The specific objectives and the methodology to be followed with regard to the progress of our research are outlined in Chapter 3.

Part 2 (chapters 4 and 5) focuses on the case study. It is the spinal cord of the thesis where we present the general urban context in Mauritius. More precisely, chapter 4 describes the overall planning system in Mauritius, the emergence of the conurbation, its present situation and the government’s interventions thereat. Two town centres are studied at a larger extent in chapter 5 which enables us to clarify on the urban form and activities therein. Here, we sort out the latter’s common strengths/weaknesses and analyse their situation with respect to mixed-use.

In part 3 (chapter 6), we attempt to identify the challenges and opportunities for the viability and vitality of the two case study areas. Chapter 6 equally explore avenues to improve mixed-use on basis of our empirical research and weigh the pertinence of transferring the mixed-use approach in the local context. In the end, we propose two strategies to guide future planning of Mauritius town centres prior to our concluding remarks.

PART 1: Literature review on mixed-use, empirical research objectives and methodology

Chapter 1: Zoning and mixed-use

This thesis sheds light on the mixed-use movement, as it is gaining increasing advocacy for the urban renaissance of town centres. Mixed-use is certainly not the panacea to all problems faced by towns and city centres. But, if properly planned and implemented it may play a major role in bringing back the latter's lacking dynamism. Prior to embarking in our research, it is important to clarify what is meant by 'viability' and 'vitality' in the context of the study of town centres. Next, we shall consider the evolution of the mixed-use concept to understand the essentials propelling it to the forefront of contemporary planning principles for town centres.

Is mixed-use a new planning approach? Whether the answer is affirmative or dissenting, it is vital to have a gist of its (re) emergence. This shall enable us to shed further light on the reasons for its modernist advocacy as compared to the traditionalist zoning. The definitions underpinning mixed-use and its practice will be further investigated in our literature review (Chapter 2).

1.1 The case for mixed-use

Grant (2004: 2) states that from the early days of the modern town planning movement, mixed-use became part of the philosophy of town planning. She supports her words through Ebenezer Howard's garden city movement. Howard (1902) proposed new towns that would be reasonably self-contained, modest in size with distinct uses and were linked by transportation systems that facilitated mobility. However, history shows that the increase in population, poor housing conditions, and proliferation of industrial activities and outburst of a number of diseases mandated central and local governments to segregate uses (Ferrandi 2013: 43). Planners came up with the solution: "zoning". Zoning led to modern town planning and provided the basis for regulating activities on private properties. The zoning concept gained further support with the case described hereunder.

1.2 The case for zoning

Planning and legal records reveal that the village of Euclid, down-zoned a parcel of land owned by Amber Realty company from industrial usage. The plot was devalued at that time from \$10,000 per acre (0.4ha), to residential which was valued at \$2,500 acre (0.4ha). Amber sued and in 1926, the US Supreme Court validated the concept of 'zoning'. This court ruling marked a milestone in segregation of uses (Euclidian concept) and "became the dictate by local governments" in deciding the future land use patterns under their respective jurisdiction (Ferrandi 2013: 20; US Supreme Court 1926⁶).

In this way, the zoning concept became entrenched in planning regulations and thereafter planning practice assigned land uses according to function. Zoning was seen as an efficient tool to separate incompatible activities, that is, keep residential activities away from work, commerce and entertainment (Miller 2003: 4). Subsequently, with the advent of the motor vehicle in the early 1900s, elements of Howard's garden city model became principles employed for generating residential suburbs. The migration of the bourgeoisie classes followed by an increasing number of middle classes in the suburban areas together with the paucity of land in town centres further encouraged large businesses to set up out-of-town shopping and entertainment facilities. Likewise, government incentives for the relocation of industries to remote areas "were seen as a way of enhancing national competitiveness and economic growth" (Grant 2004: 3). Subsequently, this government philosophy drew employment-generating activities far from the residential areas and encouraged the need for commuting through vehicular traffic. Hoppenbrouwer and Louw (2005: 967) further state that since World War I, the principles of CIAM (Congrès Internationaux d'Architecture Moderne) led by Le Corbusier promoted the concept of the 'Functional City'. This concept advocated the segregation of the four main functions of the city namely housing, employment, recreation and transport. The threat of poor hygienic conditions and pollution urged the followers of CIAM to promote its ideal in

⁶Retrieved 31 May 2014 from <http://supreme.justia.com/cases/federal/us/272/365/case.html>

the planning of new towns and cities. However, there were growing concerns about the “loss of its traditional function since towns are no longer closed units but have spread and scattered all over the landscape” (Pérényi 1973: 10). The zoning concept generated mainly buildings with single use activities.

In 1961, Jane Jacobs released her seminal book on *Life and Death of Great American Cities*. Jacobs argued that fine-grain mixing of diverse uses creates vibrant and successful neighbourhoods. During the late 1960s, progressive planners and environment activists saw mixed-use for urban core of towns and cities as desirable strategies. Governments replicated with urban renewal projects in an attempt to re-create the renaissance of the civic areas in towns and cities. In the course of time, Grant relates that many “North American cities were preoccupied through the recessionary periods of 1970s and 1980s with fighting off mega- malls, and trying to save declining central cities from losing population and business” (Grant 2004: 4).

1.3 Initiatives towards mixed-use

According to Schwanke et al. (2003: 12), a new era of mixed-use projects came into effect from public/private partnership through the Penn Center project in U.S, Philadelphia in the mid 1970s. This project aimed towards the revitalisation of downtown commercial cores. However, the developments were small-scaled targeting specific projects and there is consensus in the literature that these standalone projects did not suffice to rekindle mixed-use. Nevertheless, the literature acknowledges that the launching of the Healthy cities movement⁷ in 1986 at the WHO office played an important part in publicising mixed-use. The movement defined a healthy city as: “one that is continually creating and improving those physical and social environments and strengthening those community resources which enable people to mutually support each other in

⁷Retrieved 31 May 2014 from: <http://healthycities.org.uk/the-healthy-cities-movement.php?s=196>

performing all the functions of life and achieving their maximum potential” (Hancock and Duhl 1986: 24).

The World Commission on Environment and Development⁸ in 1987 and the Brundtland Commission of the same year played the most significant role to encompass the definition of sustainable development in almost all existing field of studies of our planet. The follow up of the 1987 Commission through the Earth Summit (1992) included the ratification of a number of clauses under Agenda 21. These events brought a wind of ‘change and re-invention’ for all professionals, governments and organizations. For instance, “agencies such as Health Canada, Environment Canada, and Canada Mortgage and Housing Corporation initiated programs to encourage sustainability in Canadian communities” (Grant 2002: 75).

1.4 Mixed-use as a planning principle

The Smart growth movement which emerged from the Rio conference of 1992 is agreed by the broad literature as a new synthesis for planning. Smart Growth espoused many of the strategies put forward by the Healthy Cities and sustainable movement following Brundtland’s report (1987). Smart Growth grouped practitioners from varied fields such as urban planners, architects, developers, community activists, and historic preservationists. In their reflection, the movement accepted that growth and development will continue to occur, and their concern was to seek to direct growth in an intentional, comprehensive way for achieving sustainable communities. Smart Growth elaborated a series of planning principles - which championed mixed-use (Schwanke et al. 2003: 27). “Mixed use survived as a principle of smart growth” (Grant 2004: 7).

⁸“The General Assembly of the United Nations, in its *resolution 38/161* of 19 December 1983, *inter alia*, welcomed the establishment of a special commission that should make available a report on environment and the global *problématique* to the year 2000 and beyond, including proposed strategies for sustainable development. The commission later adopted the name World Commission on Environment and Development (WCED). The WCED was renamed as the Brundtland Commission and came up with a report in 1987: *Our Common Future* which defined the term “sustainable development”. Retrieved 6 June 2014 from www.un-documents.net/our-common-future.pdf.

The birth of Smart Growth through the influence of public and private urban planners and other stakeholders encouraged governments to review their planning mechanisms and adopt new sustainability rules.

In the same wave, several authors believe that New Urbanism played a crucial part in entrenching mixed use within North American planning. It includes two streams, both embracing new urban design concepts:

- (i) The Traditional neighbourhood design (TND) proposed by Duany and Plater-Zyberk (1992) which promotes apartments over garages to intensify uses, residential units over stores in a diverse but low-rise town centre, and zoning codes to allow people to work from home.
- (ii) Transit-oriented development (TOD) concepts of Peter Calthorpe (1993) which concentrates development in nodes associated with transit stations. Hence, allowing commercial, office, entertainment, and high density residential to cohabit with residential development – all of which are planned to be within walking distance.

(Grant 2002: 73; Herndon 2011: 8; Miller 2003: 31; Young 2012: 26)

1.5 Conclusion

Our incursion on “zoning” and “mixed-use” reveals the willingness and actions taken to improve and maintain both activity and life in the town centres. The literature perceives that the good health of towns have been affected by “zoning” which encouraged urban sprawl and compelled to drive out mixed-uses from our towns. In the past decades, international movements by reputed organisations together with the Brundtland Commission set forth the sustainable development millennium goals. This promotion of sustainable development made key stakeholders from a myriad of fields realise the need to protect, nurture and care for our planet in view of improving our quality of living and that of our children and generations to come. The planning field and planning professionals responded to the call in the last two decades. Meanwhile, the notable

decline of town centres urged governments and local authorities to re-invent the vintage life and activities these centres were experiencing before the mid-1950s. In this context, reports, desk studies and surveys all pointed out to planning programmes and adopted vocabularies such as urban renewal, revitalisation and urban renaissance. Through all these programmes, mixed-use emerged as a unanimous approach and we are since then witnessing its growing advocacy.

In order to analyse the relevance of the concept in a country island such as Mauritius, we need to better define mixed-use and understand its typology. Our literature review will be further directed within these lines in Chapter 2.

Chapter 2: Defining and applying mixed-use

This thesis intends to have an understanding of the potential of the mixed-use approach in promoting the good health of town centres. The reasons for determining its advocacy and growing influence in both theory and practice in North America and Europe may prove of essence to our research. The need to devise a means for improving the viability and vitality of the small town centres in Mauritius is also considered important for the theoretical academic research work to be put into practice. This chapter fulfills the following broad aims:

- (i) Outline the predominant reasons for mixed-use advocacy and investigate its characteristics and typology;
- (ii) Identify the theoretical and practical conditions necessary in achieving mixed-use; and
- (iii) Find the avenues and means through which mixed-use may improve viability and vitality of town centres.

However, in the first instance we shall attempt to find a working definition of mixed-use.

2.1 The varying definitions of mixed-use

In chapter 1 we saw the evolution of mixed-use. Research on the definition of mixed-use draws our attention to a paper by Herndon & Drummond, who claim that the definition of mixed-use needs clarification. The writers substantiate their words by citing several authors who make the point as follows:

“The terms ‘mixed-use’ or ‘mixed-use development’ are widely used, but seldom defined” (Coupland, 1997); Mixed-use development is an ambiguous, multi-faceted concept (Rowley, 1996); The term mixed-use development has frequently appeared in the planning literature, however, this term is hardly defined (Hoppenbrouwer, 2005); The definition of mixed-use is not as precise as for a single property type (Rabianski, 2009); Although the term appears frequently in the planning literature it is rarely defined (Grant, 2002)” Herndon & Drummond (2011: 13).

Dictionary definition

In the new illustrated book of development definitions, Moskowitz and Lindbloom (1993: 177) describe mixed-use as “the development of a tract of land, building, or structure with a variety of complementary and integrated uses, such as, but not limited to, residential, office, manufacturing, retail, public, or entertainment, in a compact urban form”.

On his part, Cowan (2005: 244) in the dictionary of new urbanism admits that mixed-use refers to “a mix of complementary uses within a building, on a site or within a particular area”. However, he emphasizes that mixed-use may take the horizontal form “side by side usually in different buildings” and vertical form “on different floors of the same building”. According to Cowan, places which have mix uses are likely to be “lively through different times for different reasons, as different people use or pass through them”.

Traditional mixed-use

In this regard, going back to the first principles we remark that Christopher Alexander in *A Pattern Language* (1977: 59) defines the mechanism responsible for mixed-land use in the inner city as follows:

“Urban services tend to agglomerate. Restaurants, theatres, shops, carnivals, cafes, hotels, night clubs, entertainment, special services tend to cluster. They do so because each one wants to locate in that position where the most people are. As soon as one 'nucleus' has formed in a city, each of the interesting services -especially those which are most interesting and require the largest town centre basin - locate themselves in this one nucleus. The one nucleus keeps growing, it becomes rich, various, fascinating”.

Mixed-use development

The fact that the thesis relates to the Mauritian context urges us to ponder on a working definition of mixed-use. As such, in North America the most common referenced definition in the literature is that of the Urban Land Institute (ULI 2003), where mixed-use is defined as:

- “three or more significant revenue-producing uses (such as retail/entertainment, office, residential, hotel, and/or civic/cultural/recreation) that in well-planned projects are mutually supporting;
- significant physical and functional integration of project components (and thus a relatively close-knit and intensive use of land), including uninterrupted pedestrian connections; and
- development in conformance with a coherent plan (that frequently stipulates the type and scale of uses, permitted densities, and related items)”.

(Schwanke et al. 2003: 4)

However, this definition has given rise to a number of debates throughout the past decade due to the first paragraph “three or more significant-revenue producing uses”. The logical questions raised were what about two uses? What if (one of) the uses are not revenue producing? Moreover, some experts believe that the definition is too centred on real estate development. In view of sorting out the above, four reputed organisations⁹ in the United States: BOMA, ICSC, NAIOP and NMHC undertook a cross-organisational mixed-use survey in 2006 and in the same year hosted the first conference where they revealed the working definition of mixed-use development as:

“(...) a real estate project with planned integration of some combination of retail, office, residential, hotel, recreation or other functions. It is pedestrian-oriented and contains elements of a live-work-play environment. It maximizes space usage, has amenities and architectural expression and tends to mitigate traffic and sprawl” (ICSC 2006)¹⁰.

According to Niemera (2007: 54), this working definition makes consensus amongst the four associations (industry-wide) and is a major departure from what the industry previously considered as mixed-use characteristics (i.e. three or more revenue producing uses). However, although broader than the ULI’s definition, this definition is not inclusive, referring mostly to commercial uses.

⁹ “In an effort to formulate an industry-wide definition, the International Council of Shopping Centers, Inc. (ICSC), the National Association of Industrial and Office Properties (NAIOP), the Building Owners and Managers Association International (BOMA), and the National Multi Housing Council (NMHC), collaborated on an ambitious cross-organizational member survey to identify the characteristics among mixed-use developments. The survey was conducted from July 11, 2006 through August 3, 2006 and featured 1,004 respondents” (ICSC, 2006).

¹⁰ Ibid.

Working definition of mixed-use for our research on Mauritius

If we compare C. Alexander's (1977) definition (what we consider as traditional mixed-use) with that of ULI (Schwanke et al. 2003) and ICSC and others (1996); the mixed-use development or mixed-use referred to in contemporary planning; the definition provided by the ICSC (2006) and others seems to be the most pertinent in the case of Mauritius (town centres). We may presume so, as it may be made operational with a list of criteria provided in the definition namely, **“combination of retail, office, residential, hotel, recreation or other functions. It is pedestrian-oriented and contains elements of a live-work-play environment. It maximizes space usage, has amenities and architectural expression and tends to mitigate traffic and sprawl” (ICSC 2006)¹¹**. Moreover, by using the above-mentioned criteria, we may be in a better position to evaluate the mixed-use situation in Mauritius town centres.

2.2 The application of mixed-use

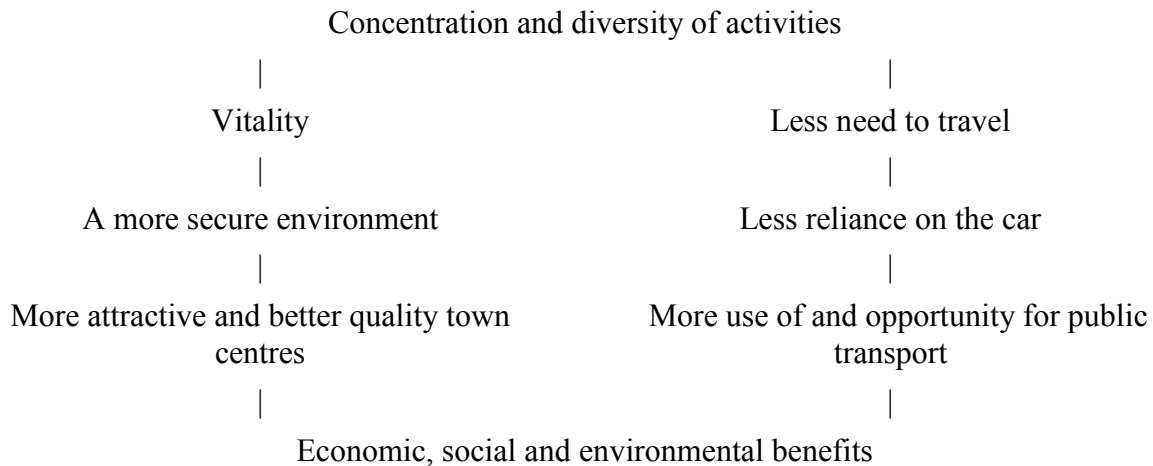
Having defined mixed-use, we shall attempt to quench our interest on the research subject by focussing primarily on main reasons for its advocacy in the case of town centres. Then, we shall investigate the theory and types of mixed-use. Research relevant to our study is lengthily commented by Coupland (1987: 3) on the merits of the UK Government to counter the rising automobile dependency and prevent out-of-town proliferation. Coupland mentions that:

“Efforts are being concentrated on improving the vitality and viability of town and city centres. Similarly there are concerns about the quality of the places that are being created; the liveliness; the level of activity throughout the day; the design of individual buildings and the urban design context in which they exist. Mixed uses offer an opportunity to change aspects of this liveliness and design. A linked worry is about safety and crime levels; again, by mixing uses and having greater activity and therefore observation within an area it is thought that crime-or the likelihood of certain crimes taking place-can be limited” (Coupland 1987: 3).

¹¹ Ibid.

In support of the above statement, Coupland makes reference to the following diagram of the UK Department of Environment (1995a) for supporting mixed-use:

Figure 1: Benefits of mixed-use



Source : Coupland 1997 : 4

We can infer from figure 1 that the two principal goals of the UK government in supporting mixed-use are to attract and retain residents and to promote public transport. Moreover, figure 1 illustrates that the concentration and diversification of activities may be achieved by combining vitality and the reduction of the need to commute. Ultimately, mixed-use will then generate an overall benefit to the three fields guiding sustainable development – “economic vitality, social equity and environmental quality” (Grant 2002: 73).

“Can mixed-use become the norm rather than the exception?” as asked by Coupland (1997: 4) and “is mixed-use achievable?” as questioned by Rowley (1996: 90). Both authors tend to agree that governments may come forward with the best policies, but the final say belongs to the private sector (developers and investors), including the occupier’s cultural lifestyles. Subsequently, the question that arises now is “what sort of mixed-use?”

2.2.1 The components of mixed-use

Although there are no specific answers in the literature pertaining to which mixed-use typology should be implemented in the town centre, there has been a growing concern and challenge in the past two decades for increased residential opportunities and local retail uses such as groceries. In this connection, Grant and Perrott (2010: 178) aver that:

“A century ago, most people could buy their daily needs within easy walking distance of their homes. Today, few people have that choice. Large shopping centres have replaced local shops. Grocery retailers choose to close neighbourhood stores while building big-box formats outside town”.

In this respect, Grant and Perrott’s (2010: 178) reflexions combined with that of Coupland’s (1997: 4) and Rowley’s (2006: 90) generate a ground of belief that the onus for creating successful and vibrant mixed-uses lies primarily on the shoulder of investors and promoters. Indeed, in contemporary planning, mixed-use would be a market driven concept which could be stimulated by a policy-oriented approach as we saw in the example of the UK government’s support. The question: what sort of mixed-use? is best answered by the ULI concept of **market synergy**. Market synergy is made of three synergies: direct support (on site market support), indirect market support and place-making synergy (Schwanke et al. 2003: 83). Direct support refers to instances where office workers, hotel guests, and residents will support commercial activities and eating places (restaurants) same as offices will add to boost hotel businesses and attract residents. Schwanke et al. (2003: 83) remark that “proximity of uses and the project’s pedestrian access are critical for the success of this type of synergy.” Indirect support involves for example, non-residential activities, not providing immediate revenue to office tenants or residents but “creating an attractive and convenient shopping environment and sense of place for hotel guests, tenants, and residents, thus improving the marketability of each component” (Schwanke et al. 2003: 84). Place making is accordingly a synergy “creating a compelling new address and location in the urban landscape”. This synergy may be used to come up with a mixed-use environment at a larger scale and relies extensively on “good urban design judgement and sound planning techniques” (Schwanke et al. 2003: 84). The ULI further provides an

overview of the effects of the market synergy indicating the potential impact of each use with their counterparts through the framework for estimating on-site support and synergy in a mixed-use project shown in table 1.

The synergy of uses and residents' opposition

Retail/entertainment together with cultural/civic/recreation facilities emerge from the ULI's list of uses (table 1) as providing the best (strongest) synergies to counterpart uses. However, in all cases, 'entertainment' includes bars, casinos and shops selling alcoholic products – all of which may not be acceptable by other users in a country such as Mauritius. Grant (2002: 73) makes the point that several attempts to mix uses have revealed significant fears about mixing and refers to the literature for increased NIMBYism (Not-In-My-Back-Yard) with respect to mixed-use (Dear 1992; Hornblower 1998). She further remarks that “agencies that needed to find sites for group homes, day care centres, waste management facilities, high-density housing, halfway houses, or prisons typically encountered resistance from residents”. On his part, Procos (1973: 15) believes that mixed-use “is versatile enough to play an incremental, non-destructive role in which the original land use is maintained and additional uses are attached to it”.

Table 1: Framework for estimating on-site support and synergy in a mixed-use project

| Use | Degree of Support for and Synergy with Other Uses |
|---|---|
| Office | |
| Residential | • • |
| Hotel | • • • • |
| Retail/Entertainment ^a | • • • • |
| Cultural/Civic/Recreation | • • • |
| Residential | |
| Office | • • • |
| Hotel ^b | • • • |
| Retail/Entertainment | • • • • |
| Cultural/Civic/Recreation | • • • • • |
| Hotel | |
| Office | • • • • • |
| Residential | • • • |
| Retail/Entertainment | • • • • |
| Cultural/Civic/Recreation | • • • • |
| Retail/Entertainment | |
| Office | • • • • • |
| Residential | • • • • • |
| Hotel | • • • • • |
| Cultural/Civic/Recreation | • • • • |
| Cultural/Civic/Recreation | |
| Office | • • • • |
| Residential | • • • • • |
| Hotel | • • • • • |
| Retail/Entertainment | • • • |
| 1 = Very weak or no synergy. 2 = Weak synergy. 3 = Moderate synergy. 4 = Strong synergy. 5 = Very strong synergy. | |

Source: Urban Land Institute (Schwanke et al. 2003: 85)

Nevertheless, the synergy framework in table 1 may be considered (perhaps with cultural limitations) in the context of Mauritius town centres to be an important reference material in selecting the type of uses that are compatible to one another, that is, the sort of mixed-use that a town centre may accommodate. It is an example that may be adapted for use as a development control guide by permitting authorities in Mauritius. This would promote town centre activities which likely have a greater degree of support with their counterparts. Moreover, it may strike a degree of balance between different uses in terms of available floor areas per usage (residential, office, retail etc.). Similarly, we need to understand how to physically represent the various synergetic uses in the town centre, which is more fully referred to as ‘typology’ in planning practice. Prior to that, we must investigate if there are other obstacles to mixed-use.

Mixed-use Barriers and Constraints

Neighbours’ opposition to the introduction of mixed-use is largely discussed in the planning literature. With regard to the ‘synergy of uses’ example, it can be said that the introduction of mixed-use needs an understanding of the barriers and constraints associated with its implementation. According to Grant (2002: 80), “while many engineering and planning barriers to mixed-use have fallen in recent years, and planners and local authorities welcome mix; hesitation derives from cultural barriers that planners cannot easily welcome”. In another article, the same author states that “Planning policy in Canada has generally promoted mixed-use, yet studies of practice suggest that relatively little mix occurs” (Grant 2010: 180). Relevant to the obstacles encompassing mixed-use, a research study conducted on behalf of the Government of Scotland¹² point out the following barriers:

“Complex planning applications: the planning application and decision making process is complicated when applied to mixed-use development, takes a long time and discourages developers from considering such schemes.

¹²Retrieved 03 June 2014 from <http://www.scotland.gov.uk/Topics/Research/About/Social-Research>

Differing environmental health requirements: it can be more difficult to reconcile conflicting environmental health requirements - noise, smell, hygiene, etc. - within a mixed-use development scheme.

Institutional investors are reluctant to invest: mixed-use schemes tend to offer poor long-term investment prospects and are typically not large enough to generate the scale of profits sought in comparison with single use projects.

Conflicting activity patterns: conflicting activity patterns of different users within a building or neighbourhood are barriers to quality development and compromise the individual components.

Single use zoning: single use zoning contained in development plans does not encourage mixed use development and adds to the complexity of obtaining planning approval for mixed use”.

Douglas Wheeler Associates et al. (2009: 15)

In light of the above, we conclude that a significant number of barriers and constraints hamper mixed-use. Among these, some have regulatory and procedural connotations including lack of incentives for developers. Moreover, the above list shows that thorough investigations are underway on part of the public sector (North America, Europe) in an attempt to encourage mixed-use but also to resolve problems associated with mixed-use implementation. Hence, understanding the local Mauritian context with respect to mixed-use strengths and weaknesses is dealt with in Chapter 6. We shall next have an insight of the different spatial representations of mixed-use to better understand its theoretical and practical approach.

2.2.2 The spatial dimensions of mixed-use

At least two conceptual models of mixed-use have been developed in the literature as regards its spatial interpretation. The first one was devised by Rowley (1996) and the second one by Hoppenbrouwer and Louw (2005). According to Hoppenbrouwer (2005: 972), Rabianski (2009: 207) and Herndon (2011: 16), Rowley’s model focuses on mixed-use between adjacent buildings termed by experts as horizontal dimension. The second typology, attributed to Hoppenbrouwer (2005), is considered as an expansion upon Rowley’s work with a more important spatial representation.

Rowley's dimensional mixed-use typology (1996)

Rowley states that the texture of a settlement is a major determinant of its character and quality and its key features are grain¹³, density¹⁴ and permeability¹⁵ – derived from the layout of roads, street and paths.

Table 2: Rowley's spatial Dimensional mixed-use typology

| Four types of Grain ¹⁶ : | Four settings: | Three basic approaches to maintain/promote mixed-use |
|-------------------------------------|--|---|
| Fine or close | (1) Within districts or neighbourhoods (2) Within the street and other public spaces (3) Within building or street blocks; and (4) Within individual buildings | (1) Conservation of established mixed-use (2) Gradual revitalisation and incremental restructuring of parts of the town (3) Comprehensive development or redevelopment of larger areas |
| Coarse | Four types of location: | <u>Three influences on mixed-use</u> (1) Public policy and regulations (e.g. land use planning, subsidies and taxes) (2) Property markets (e.g. building society and fund management policies) (3) Cultural ideas and values (e.g. preference for suburbs. |
| Sharp grained | (1) City or town centres comprising the commercial and civic cores | |
| Blurred | (2) Inner-city areas and brownland sites (derelict, vacant or sites to be regenerated) (3) Suburban or edge-of-town locations (4) Greenfield locations (where planning law allows) | |

Source: Rowley's typology (1996) adapted by researcher, April 2014

Rowley's spatial typology refers to the ways in which the elements (people, activities, land uses,

¹³ "Grain refers to the way in which key components – people, activities, land and spaces are mixed together" (Lynch 1981: 265)

¹⁴ "Density refers to the amount of space or number of units contained within a certain area and is a measure of the intensity of land uses" (Herndon 2011: 16)

¹⁵ "Permeability refers to the number of possible routes a pedestrian has to choose from as he/she moves through a given area. This is a function of the layout of the roads, the corresponding size and shape of the blocks, and the placement and design of the buildings and public spaces within each block" (Herndon 2011: 16).

¹⁶ "Historic towns usually possess a fine or close grain whilst modern cities are criticised for their coarse grain. Sharpness is another, though less significant, characteristic of grain. Sharp grained textures have abrupt breaks between one homogeneous area and another; if the transition is gradual, it is said to be blurred" (Lynch 1981: 265)

buildings and spaces) of a settlement are mixed together. The four resulting types of mixture (grains) used by Rowley have been defined by Lynch (1981: 265). According to Rowley (see table 2), the combination of grain, permeability and density, settings (any amongst the four types) and location (between the four types) denotes the various mixed-use situations. Rowley includes another variable in his mixed-use description, that of the “time dimension”. Because different uses occupy various parts of the mixed-use development, people come and go at various time schedules” (Rabianski 2009: 207). Rowley explains that the different activities, land uses and commuting may stimulate varying degrees of vitality (Rowley 1996: 87). Moreover, Rowley’s concept proposes three approaches towards mixed-use and three distinct influences on the mixed-use concept (see right hand side column in table 2). Among the approaches, we note that Rowley urges to conserve the existing mixed-use and its gradual revitalisation rather than undertake comprehensive re-development of areas (as usually vindicated in plans).

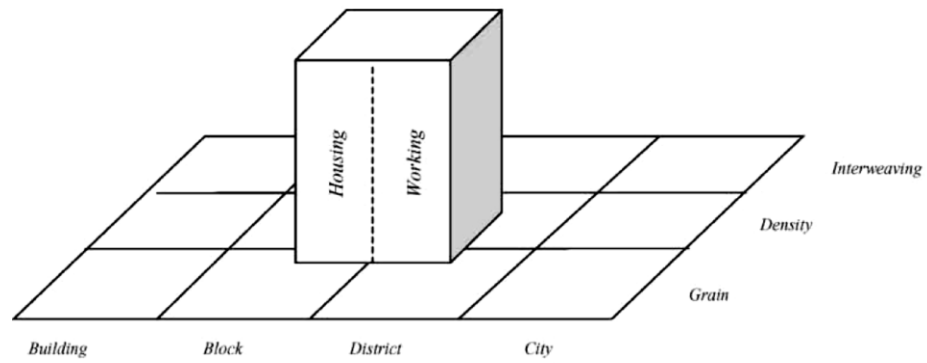
Hoppenbrouwer and Louw’s four-dimensional mixed-use typology (2005)

Nearly a decade after Rowley’s typology, Hoppenbrouwer and Louw (2005) developed a new mixed-use model. The departure from Rowley’s model (referred to as “horizontal dimension”, as shown in drawing II of figure 2) is that mixed-use is symbolized in four distinct ways, namely: with the inclusion of a shared premises dimension (two functions within same wall, see drawing I); the vertical dimension (building underground and multi-level, see drawing II); and the time dimension, see figure IV (“not integrated in Rowley’s model” according to Hoppenbrouwer (2005: 972). The other distinguishing remark is that one of the key features proposed by Rowley, that is permeability, is replaced by interweaving of land uses¹⁷.

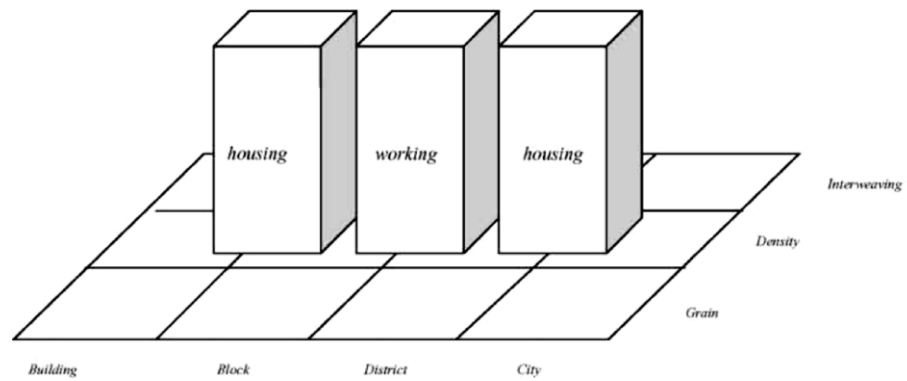
¹⁷ The extent to which urban functions are dispersed within a bonded area (Hoppenbrouwer & Louw 2005: 972)

Figure 2: Hoppenbrouwer and Louw's four-dimensional mixed-use typology

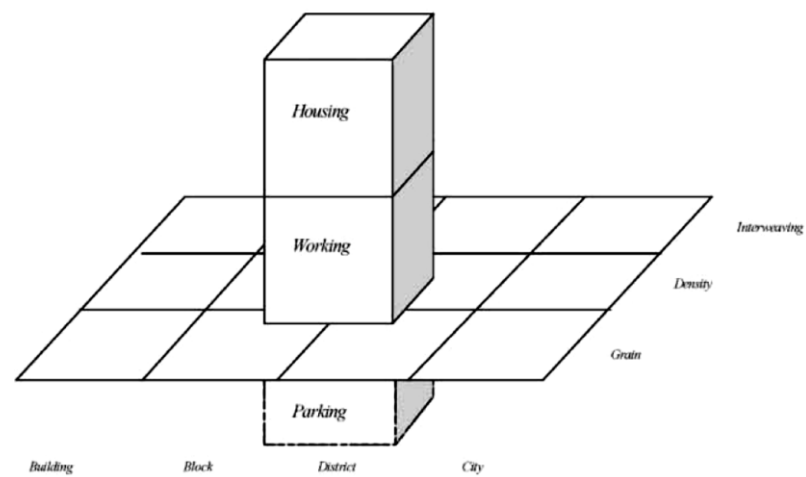
I. Shared premises dimension (point)



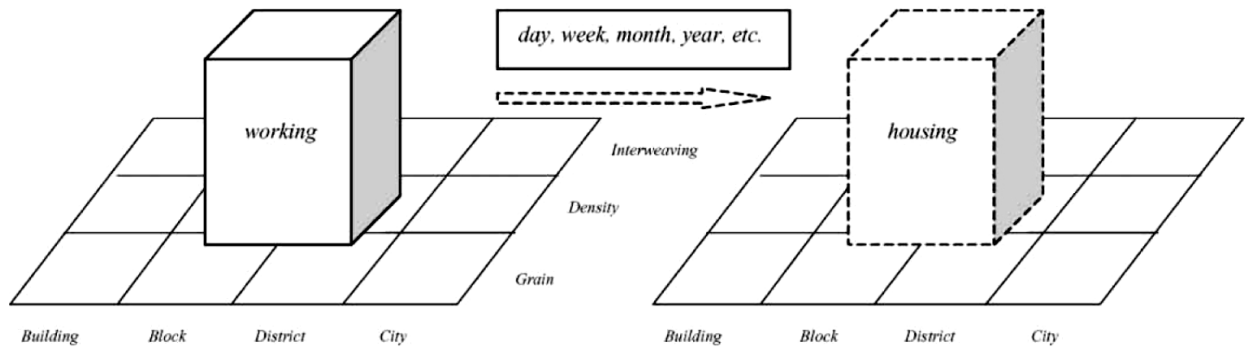
II. Horizontal dimension



III. Vertical dimension



IV. Time dimension



Source: Hoppenbrouwer and Louw (2005: 974)

Hoppenbrouwer and Louw (2005: 974) also came up with two tables. The first table illustrates the relations between the four dimensions and the four scales (Building, Block, District and City). It is observed that mixed-use relative to the horizontal dimension takes place at the 3 larger scales whereas mixed-use in the shared premises dimension is confined within the building.

Table 3: Mixed-use and scales

| | Building | Block | District | City |
|---------------------------|----------|-------|----------|------|
| Shared premises dimension | ✓ | | | |
| Horizontal dimension | | ✓ | ✓ | ✓ |
| Vertical dimension | ✓ | ✓ | | |
| Time dimension | ✓ | ✓ | | |

Source: Hoppenbrouwer & Louw (2005: 974)

In the second table (table 4), the relationship between the four dimensions and the urban texture reveals that density is influential on the four dimensions and therefore stands out as the key urban texture favouring mixed-use. Nevertheless, grain is another important feature that generates successful mixed-use. The interweaving of functions is equally a noteworthy

component but not relevant for shared premises and time dimensions, because “it is about the number of separate territories within a bonded area” (Hoppenbrouwer 2005: 974).

Table 4: Components of mixed-use- dimensions v/s urban texture

| | Grain | Density | Interweaving |
|---------------------------|-------|---------|--------------|
| Shared premises dimension | | ✓ | |
| Horizontal dimension | ✓ | ✓ | ✓ |
| Vertical dimension | ✓ | ✓ | ✓ |
| Time dimension | ✓ | ✓ | |

Source: Hoppenbrouwer & Louw (2005: 974)

According to Hoppenbrouwer & Louw, the interweaving of functions enables to position a wide variety of mixed-use projects. Rabianski (2009: 207) believes this typology might “assist researchers to examine mixed-use developments in a more systematic way”. Nevertheless, Herndon and William (2011: 21) mention that “(...) there is a variety of other factors that influence the conceptualization of mixed-use, and, consequently, there is a near amount of possible mixed-use configurations and characteristics”.

2.2.3 Conclusion

From this section we can see that both the definition and practice of mixed-use has evolved from a traditional natural occurrence of uses into a more limited concept of specialized mixed-use area driven by market needs (mixed-use development). In parallel, physically-oriented models (in opposition to traditional zoning) are proposed in the literature. In all cases, the intent is to encourage different uses to occur within the same building or an area. The focus is also on reducing the need for people to travel long distances by providing them other options (e.g. opportunities for shopping, entertainment) closer to their residence. This motivated our approach to find a working definition of a mixed-use town centre. Coupland’s (1997) referral to the UK government’s initiative to meet the broad goals of sustainable development through the mixed-

use approach has allowed us to illustrate some benefits of the latter. Moreover, we have observed two important factors in operationalizing mixed-use. The first one is investigating the synergy between various uses and classifying their degree of acceptance/support (weak, moderate and high etc.). Secondly, identifying different means to mix uses (e.g. vertical mix, horizontal mix and shared premises) facilitates the understanding of its impact on the spatial environment (within a building, block, street, town centre etc.). Rowley equally foresees that to promote mixed-use, its consolidation and gradual increase in the first instance should be prioritised before considering a more radical intervention.

As pointed out earlier, Mauritius town centres are facing similar challenges as developed countries (e.g UK and US) with regards to proliferation of out-of-town shopping centres, suburbanisation and the need to reduce car dependency. We note from the literature (this section) that the mixed-use approach recommends amongst others creating an appealing urban environment, optimising use of public transport and working out a synergy of uses. These appear pertinent to the local context and pursues the worldwide political agenda alike the Mauritian central government's vision for sustainable development¹⁸. Additionally, the LRT system which is intended to serve Mauritius Island's urban areas paves the way to explore new possibilities for spatial planning of the town centres. Subsequently, Rowley's basic approaches to maintain/promote mixed-uses through different spatial representations (buildings, streets, blocks, public spaces) including Hoppenbrouwer and Louw's four dimensional mixed-use typology (shared premises, horizontal, vertical and time) requires prior study and understanding of the local situation, its opportunities, barriers and constraints. In theoretical terms, the mixed-use principles we explored may be useful to either conserve or remedy the lack of uses/activities in Mauritius' town centres. The context of these town centres will be considered in Chapter 4 and 5 and the applicability of these theories will be discussed thereat.

¹⁸ The Mauritian central government's vision for sustainable development encompasses 'economic vitality, social equity and environmental quality'.

2.3 Conditions for achieving mixed-use

It is understood from the historical point of view of zoning that the main reason guiding policy makers and planners in separating land uses was to prevent conflicting activities. In fact, the outbreak of diseases during the industrialisation period caused the divorce of one of the essential activities like residential from the town and city centres. The automobile and road networks equally played their part on driving households, and retailing more distant from the town centres. Moreover, the re-location of activities such as manufacturing and industrial equally drove away employment opportunities from our towns and cities. This contributed in the scenario of making uses more remote from one another, and, was considered as “progress” and “development” at that time.

However, as we found out earlier in section 1.2, the compartmentalization of uses and the act of even putting compatible uses aside caused multi-faceted harm to town centres. Therefore, what are the conditions necessary for mixed-use to reverse the challenge?

2.3.1 Basic conditions

There is consensus in the literature that Jane Jacobs pioneered the re-emergence of (traditional) mixed-use (Grant 2002: 72; Herndon 2011: 28; Hoppenbrouwer 2005: 970; Rabianski 2009: 205; Rowley 1996: 88). In this respect, Jacobs (1961) defined four indispensable conditions to generate ‘exuberant diversity’ in a city’s streets and districts (town centres in our context). These four pre-conditions were namely:

- “1. The district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must ensure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common.
2. Most blocks must be short; that is, streets and opportunities to turn corners must be frequent.
3. The district must mingle buildings that vary in age and condition, including a good proportion of old ones so that they vary in the economic yield that they produce. This mingling must be fairly close-grained.

4. There must be a sufficiently dense concentration of people, for whatever purposes they may be there. This includes dense concentration in the case of people who are there because of residence”.

(Jacobs 1961: 162)

Moreover, she stressed that “all four in a combination are necessary” and “the absence of any one of the four frustrates a district’s potential” (Jacobs 1961: 163). In addition, Jacobs observed that the following uses provide the best vitality: “grocery stores, pottery schools, movies, candy stores, florists, art shows, immigrants’ clubs, hardware stores, eating places etc.” (Jacobs 1961: 163). These conditions of the 1960s may be considered artistic in laying down the basis of the mixed-use principle and taking same to greater heights in the late 1980s as governments renewed their planning policies and regulations in meeting Jacob’s pre-conditions. We equally note that two words used by Jacobs have been subjects of interesting comments in the literature. Firstly, Grant (2002: 72) point out that as per Jacobs’s arguments, “fine grain mixing of diverse uses creates vibrant and successful neighbourhoods”. Secondly, Hoppenbrouwer (2005: 970) states that Jacobs makes the distinction “between mixed secondary and mixed primary uses”. Hoppenbrouwer explains that the reasoning behind is that primary uses (residential, service and employment) provide the impetus for the growth of secondary uses (shops, restaurants, bars etc.)

We may equally distinguish, in Jacobs’s 2nd pre-condition, the concern for an urban human scale in nature and the requirement to cater for the ease of pedestrian commuters. Finally, the need for “concentration” would infer the requirement for increased density. Jacobs (1961: 221) equally poses the question of what are proper densities? She replies that “the answer to this question is something like the answer Lincoln gave to the question, ‘How long should a man’s leg be?’ Long enough to reach the ground, Lincoln said.” In this sense, Jacob’s avers that density (concentration) is an important criterion for the city (town) to flourish. It is understood that Jacob’s intent aimed towards bringing back both life and activity (throughout the clock) in town’s/cities, in order to generate innumerable economic and social benefits.

Grant (2002: 72) considered the premises of the mixed-use theory enunciated by Jacobs and examined the objectives and strategies used by advocates of mix to come forward with three conceptual levels of mixed-use. These three concepts are namely:

- (i) Increasing the intensity of land uses - by providing a range of choices relating to a 'mix of forms and tenures with the effect of increasing overall density' e.g. aiming social mixing of households (varied income groups).
- (ii) Increasing the diversity of uses – by promoting compatible mix in an attempt to create **synergies** e.g. adding high density residential uses to commercial and businesses offices hence enabling ease of commuting for residents.
- (iii) Integrating segregated uses - by overcoming regulatory barriers e.g. spacing and buffers wherever the uses are compatible and/or mix well.

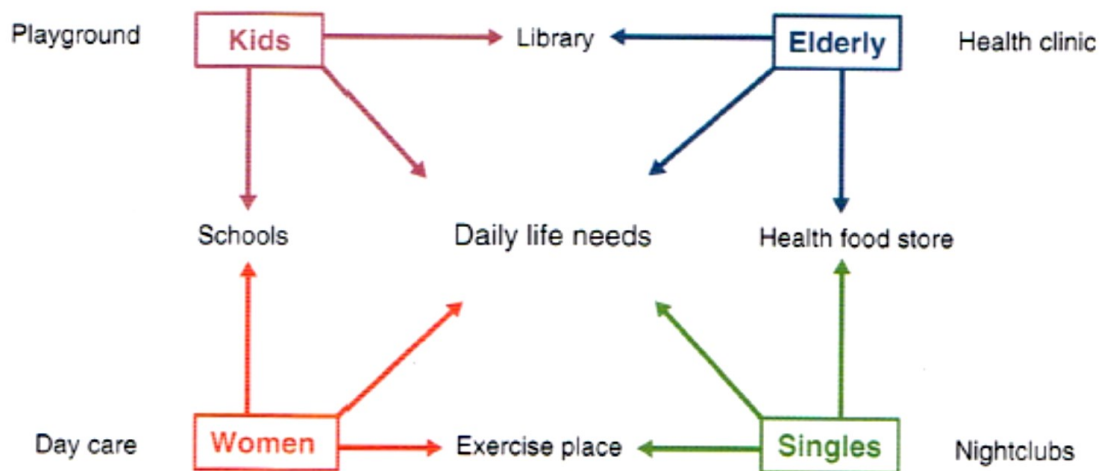
Grant's conceptual model lays emphasis on contemporary planning principles in achieving mixed-use. The increased co-existence of compatible uses makes a more efficient use of the land by providing for a wider range of market offer (supply) to potential buyers. As such, the possibility of introducing affordable housing fits in this concept. But, "intensity does not necessarily denote mixed-use and also refer to mono-functional use, while multiplicity implies multifunctional land use and intensive land use" (Hoppenbrouwer 2005: 971). Moreover, there is consensus in the literature that the increased diversity of uses to create 'synergies' is a determinant factor to make mixed-use effective.

2.3.2 The notion of diversity

According to Talen (2008: 35), diversity provides the impetus for urban vitality because it 'increases interactions among multiple urban components'. In this respect, the author quotes Jane Jacobs 'saying' to the effect that "a close grained diversity of uses provides constant mutual support, and planning must become the art of catalyzing and nourishing these close-grained working relationships" (Jacobs 1961: 14). The typologies we saw previously and both Talen and

Jacobs words confirms the intent of the urban designers, planners and architects to play with the features of ‘grain’ and ‘diversity’. Moreover, Talen who is an advocate of social diversity¹⁹ linked with urban design brings into light that a ‘set of services and facilities are required to keep a diverse population sustained’ (same is illustrated in figure 3):

Figure 3: The complex set of services and facilities required to keep a diverse population



Source: Talen (2008: 135)

According to Talen (2008: 135) to achieve an ideal form of social mix (diversity), one of the avenues is to carry an initial assessment by finding the answers (see figure 3) to the following questions:

“What does the neighbourhood have? Does the mix of services and facilities meet the needs of the mix of people located there? What groups are over or under serviced? Obviously many needs cannot be met from within the neighbourhood; but what could reasonably be added?

On account of Talen’s reasoning (2008: 76) that ‘higher density predicts higher diversity’ associated with large apartment buildings and high racial/ethnic diversity we shall now ponder on the concept of density as another prime factor of mixed-use.

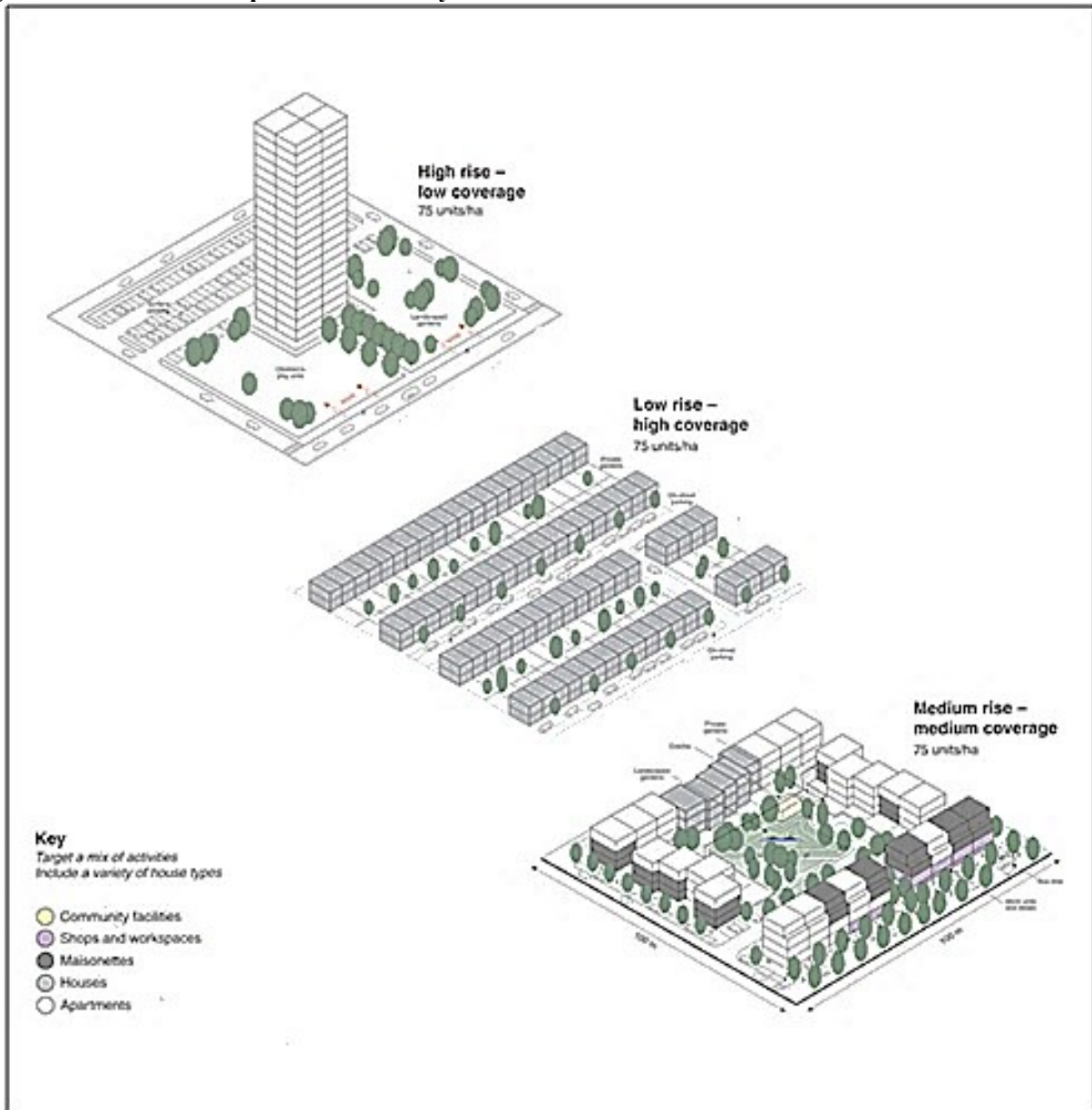
¹⁹ Social diversity is “the phenomenon where diverse peoples share the same neighbourhood, where diversity is defined by a mix of income levels, races, ethnicities, ages, and family types” (Talen 2008: 4)

2.3.3 Density, a blessing for mixed-use

The Urban Task Force (1999) was mandated by the UK Government in the late 1990s to look at the causes of decline of urban areas (towns and cities) in England. In this way emerged a report entitled “*Towards an Urban Renaissance*”. This report is a compendium of key planning practices such as sustainability of the urban environment through architecture, urban design, transport, and judicious use of land assets. Amongst one of the key assignment, the Task Force looked at the relationship between density and design (urban form). The Task Force (1999: 63) concluded that “density per se is not an indicator of urban quality”. Three sketches were drawn to explain this reasoning. In this context, the example taken was an inner-urban density of 75 dwellings per hectare. The three sketches (figure 4) demonstrate that a single high rise development standing freely with surface parking may be transformed into “2-3 storey houses with front and back gardens” but alternatively into a more conducive mixed-use urban area (Urban Task Force 1999: 63).

The third alternative with shopping areas, mix of housing types (maisonnettes, houses and apartments), a community centre, a crèche and a playground also provide opportunities for rear private areas. This third example is also commonly referred in broad literature as the ideal objective to be met as regards achievement of mixed-use and community acceptability towards density. Moreover, the three comparisons give a vivid illustration of how, by varying the design and arrangement of buildings, there is possibility to achieve the same density (75 units/ha). Hence, this contributes to generate a mixed-use area with a vibrant street frontage.

Figure 4: The relationship between density and urban form



Source: Andrew Wright Associates in Urban Task Force (1999: 62)

2.3.4 The specific case of town centres: competition from out-of-town retail centres

It is generally perceived in the literature that dynamics of town and city centres depends on activities on the streets, especially shopping (Montgomery 2007: 4; Mehta 2013: 185). As such, the decrease in vitality in town centres may be attributed to a loss in activities at the expense of other shopping areas, namely out-of-town malls. Relevant to this observation, Bohl (2002: 281), produced a compendium of planning and design ideas for town centres where he emphasizes on Gibbs (1992) “Urbandizing²⁰: A primer on how downtowns can compete with retail malls and strip centres”. Gibbs (1992: 5), ‘Urbandizing’ focuses primarily on shopping activities and includes the following 7 steps:

Step 1: Storefronts - the need for great storefront design with exciting visual appeal

These primarily focus on techniques of window displaying in town centres to capture attention of passers-by (on foot and in vehicles). Moreover, Gibbs adds that “retail follows fashion, and fashion changes frequently. Shoppers will not believe a store has fashionable new clothing on the inside if it is out-dated or worn on the outside”.

Step 2: Circulation – traffic patterns that guide people on the stores

Anchor stores (those which draw most shoppers) should be positioned in a retail walking path where shoppers and visitors have to pass through the smaller retail areas/shops. “Retail flow must not be interrupted” as this would distract attention of town centre users and may make them turn their back to other shop fronts.

Step 3: Strategic tenant mix

According to Gibbs, “main shopping strips are where all shoppers begin their retail journey. It should feature stores that thrive on impulse buying, like shoe stores, fashion stores, and toy

²⁰“Urbandizing” applies the science of merchandising to the real-life needs of main streets and town centres (Gibbs 1992; Bohl 2002: 281).

stores”. He remarks that since restaurants are popular destinations in town centres, they should cautiously be located to positively influence the movement of pedestrians along shop fronts.

Step 4: Streetscape and Landscaping: An inviting, clean and secure shopping environment

Gibbs avers that although sidewalks, paving, benches and trees are important main street shopping elements, “these treatments need not and should not be ornate or overly expensive. Otherwise, they will compete with and distract from shop fronts”. Moreover, he admits that the multiple role of trees guarantees shade, provides a human scale environment and creates ‘an inviting’ shopping experience. Nevertheless, trees “must be landscaped to fit the stores, not the other way round” and they should not cause obstruction to shop fronts or signage.

Step 5: Parking: ample and close-by

Gibbs adduces that, if we want shoppers to come back to town centres, the provision of parking should be adequate and within easy walking reach. He adds that by excluding parking areas and making the price of parking high, may affect the dynamism of town centres.

Step 6: Lighting: regular, generous shopping hours

Gibbs points out that street lighting and indoor lighting plays an essential part in the town centres, day and night appearance. He recommends that “glare from building lights and signage must not be allowed to compete with store-front design or the presentation of merchandise”.

Step 7: Management: the best in marketing, advertising, and management

The author of ‘urbandizing’ mentions that “to prosper, town centre stores should help each other” and should have same operating hours. In this regard, he views that the “establishment of a central leasing agent to negotiate rents, coordinate tenant mix, and promote town centre shopping is crucial”. Moreover, he highlights that “main street stores must share in the maintenance of side-walks, trash cans, windows, and shop fronts, as well as security”. He equally shares the idea that the presence of police officers and security guards in town centres may assure shoppers on prevailing public order aspects.

Robert J. Gibbs seven steps proposal for town centres to compete with out-of-town shopping malls emanates from observing the key forces that contributes to make the latter as successful venues. These seven steps may be further grouped into 3 categories. Such that steps 1 to 3 stresses on positioning of buildings (uses) with emphasis on urban design to attract visitors. Step 4 to 6 refers to provision of appropriate infrastructure (landscaping, parking and lighting) and step 7 refers to management of retail activities.

2.3.5 Contextual factors favouring mixed-use

Besides the direct conditions required in achieving mixed-use, the Urban Land Institute's guide (Schwanke et al. 2003: 27-28) stipulates three factors favoring mixed-use development and projects in the United States. These factors are namely:

(i) Economic and Financial Trends

Real estate developers having the willingness, expertise and the capital (funding) available to undertake mixed-use projects are guided by economic and financial trends. As land costs in town centres have climbed, developers need to “build out their projects more quickly by diversifying uses, which hastens absorption and reduces carrying costs of undeveloped land”.

(ii) Political, Social, and Regulatory Trends

Secondly, new approaches to create mixed-use environments have emerged (in US) as a result of Planned unit development²¹ (PUD) ordinances, mixed-use zoning, and other flexible zoning ideas, which allowed local communities in the 1960s and 1970s to relax single-purpose zoning and permit a mix of uses. In addition, development of higher density mixed-use neighbourhoods is viewed by urban planners, writers and

²¹ “PUD ordinances have been used for many years to allow more creative approaches to development, particularly in suburban communities. Often embodied as part of the local zoning ordinance, they increase flexibility in the design and siting of development” (Schwanke et al. 2003: 147).

other proponents of mixed-use as a means of creating more attractive and functional urban environments. Subsequently, the rise in traffic congestion and air pollution “has forced developers and planners to consider land use patterns that can reduce the need for auto trips and increase pedestrian movement”.

(iii) *Property and Design Trends*

“New urbanism and smart growth design and development have championed mixed-use town centres that are pedestrian-oriented (friendly) and include a wide mix of uses”. Moreover, “office space is usually a cornerstone of a mixed-use project and many of the largest office projects can generate substantial demand for surrounding amenities and uses. Besides, “the larger the office project, the greater the need for amenities like restaurants and retail shops to serve office workers, hotels to provide lodging for business clients, and nearby resident units to house office employees”.

In addition, the ULI guide (Schwanke et al. 2003: 28) points out that main street retailing and urban entertainment centres thrive on dense surrounding locations, strong pedestrian environments, and a mix of uses. Similarly, urban entertainment centres in particular have become major forces on the development scene and provides additional impetus to mixed-use projects.

Schwanke et al. (2003: 29) cites these three above-mentioned factors as essential trends that led “to the emergence and blossoming of mixed-use developments over the past decades (...)” and concurs with factors influencing mixed-use as described by Rowley in section 2.2.2. This shows that mixed-use is influenced by socio-economic trends, political and institutional factors but also technical issues.

2.3.6 Conclusion: implications for Mauritius

Our review of the literature on the conditions for achieving mixed-use shows that there is no universal theory to make mixed-use happen, but what we retain are guiding principles and list of best practices to realise mixed-use. In general terms, three denominators emerge in conceptualising mixed-use, these are: density, intensity and diversity. A combination of these 3 aspects may lead to the good health of town and city centres in theory. But in practice, there are other factors contributing in the vitality and viability of town centres. These factors take into account human scale through urban design, promoting pedestrian walkways, street furniture and public open spaces. Moreover, we found out that varied tenancy and correct positioning of businesses for e.g., within a street block promotes the attractiveness of the area. Amongst other conditions which are vital and seldom recognised is to have a dedicated team that drives through projects and thereafter takes control of managing the mixed-use area. This can reap innumerable benefits in terms of security and constant re-invention (beautification) of the urban landscape to the satisfaction of inhabitants and visitors.

Mauritius has a planning framework which translates central government's intentions, plans and programmes. However, local governments who administer the urban and rural areas of the island through municipalities and district councils are the sole authorities empowered to grant development permits. As outlined above, the factors favoring the mixed-use approach calls for incentives from the public sector and financial risks for the developer. In the Mauritian context, the public sector (central and local governments) and private sector do not have the expertise required to undertake mixed-use projects. Mixed-use is in fact only a recommended policy in the planning documents with no regulations such as mixed-use zones or higher-density mixed-use areas. More important, the town centres lack the pedestrian oriented environment in terms of political and design trends, which is considered to be the at the heart of mixed-use (Schwanke et al 2003: 27).

It is also clear that Mauritius town centres do not satisfy all the four basic pre-conditions outlined by Jane Jacobs (see section 2.3.1) and neither have the country's national and regional development plans followed this philosophy. Nevertheless, the mingling of old and new buildings and concentration of people at key land uses such as the market and bus stations are visible thereat. Similarly, the three conceptual levels of mixed-use (increased intensity, diversity and integration of segregated uses) as developed by Jill Grant may be applicable when assessing applications on a case by case (plot by plot) basis in Mauritius town centres. For instance, intensity is closely related to increased density and this will require a change of mindset by Mauritians who are culturally familiar with only low scale developments. Here, use of urban design principles (see example of the Urban Task Force) may play a significant part in resisting public protests against increased density. Talen's idea for meeting the daily needs of the population of different age groups and gender is also a valid requirement to be considered for viability and vitality of Mauritius town centres.

Subsequently, the seven steps proposed by R. Gibbs are practical in approach and may be transferred in the Mauritian context on account of the following:

- (i) increased awareness on urban design (only buildings greater than 250m² were required to be drawn by architects in Mauritius (prior to March 2013²²).
- (ii) proper funding mechanisms to revive the town centres is set up at both local government/central government levels.
- (iii) participation and regrouping of trade operators (shopkeepers, retailers etc.)

It is noteworthy that the fifth step (parking) remains a definite challenge for Mauritius town centres. There are other alternatives such as park and ride and public transport which may complement the need for ample parking. However, the last step with respect to retail management is quite complex and will be heavily dependent on the municipalities (who

²² Under the Building Control Act 2012 of Mauritius which has repealed the former Building Act 1919, buildings over 150m² now requires to be drawn by Registered Professional Architects of Mauritius.

administer town centres in Mauritius) endeavour and expertise but equally on tenants and promoters collaboration.

In addition to the mixed-use conditions in this section, another approach has been developed in the form of TOD (Transit-Oriented-Development) on a more likely balance of risk sharing, where, transport infrastructure and incentives for development are laid by public institutions in support and intent for compact and mixed-use projects by private parties. We shall therefore provide an insight of TOD in the next section, the more so that the planning schemes in Mauritius have also emphasized the requirement for building TOD projects in and around the forthcoming Light rail transit (LRT) stations.

2.4 Transit-oriented development (TOD) as a mixed-use approach

Mauritius's government is planning the implementation of a rapid transit system through its town centres. Therefore, we have been interested by the Transit-oriented development (TOD) phenomenon, which is high-density development driven by a transit station. In North America, TOD is perceived as the cornerstone for implementing increased density and mixed-use and the basis for envisioning improved quality of both the built improvement and lives of people.

Definition of TOD

Similar to the definition of the mixed-use and town centres we saw previously, TOD has equally varying definitions. The Transit Cooperative Research Programme (2002: 6) undertook a literature review on the definitions of TOD in the United States and concluded that “while such definitions vary in scope and specificity, most TOD definitions share several common elements:

- Mixed-use development;
- Development that is close to and well-served by transit;
- Development that is conducive to transit riding”.

The following definition of TOD summarizes the main characteristics found in the literature:

“A compact, mixed-use community, centered around a transit station that, by design, invites residents, workers, and shoppers to drive their cars less and ride mass transit more. The transit village extends roughly a quarter mile from a transit station, a distance that can be covered in about 5 minutes by foot. The centerpiece of the transit village is the transit station itself and the civic and public spaces that surround it. The transit station is what connects village residents to the rest of the region. The surrounding public space serves the important function of being a community gathering spot, a site for special events, and a place for celebrations—a modern-day version of the Greek agora”

(Bernick & Cervero 1997: 5)

We note from the above definition that TOD seeks to transform the surrounding areas of public stations through application of urban design, sound integration of land use planning and transport strategies into vibrant communities. In this context, emphasis is equally laid on creating an anchor area (e.g. public open space) and reducing reliance on the automobile. In pursuance of the TOD approach, Dunphy et al. (2004: 170) bring forward ten principles devised by a task force (comprising of 17 planning, development, and transit experts) in 2002 under collaboration of the Urban Land Institute. These 10 hereunder-mentioned principles for developing around transit have been elaborated “after book reviews, consultation with communities in Washington D.C and interviews with planners and developers” and have been derived as a best practice guide. (Dunphy et al. 2004: 170).

Ten principles for developing around transit

These ten principles (Dunphy et al. 2004: 170) are namely:

1. Apply it better with a vision: it is recognised that stakeholder collaboration “developers, local businesses, citizens, land owners, elected officials and local governments” is essential in shaping an achievable vision;

2. Apply the power of partnerships: creating public/private and public/public partnerships “provide opportunities to set mutual expectations and to share risks, costs, and rewards; they also provide a framework for conflict resolution”;
3. Think development when thinking about transit: regulatory and financial tools should be worked out and adapted to promote development (on private properties);
4. Get the parking right: parking is seen as a determinant factor and land adjacent to transit should be avoided to be used as parking. As such the authors point out various techniques for reducing impact of parking under the following terms: “move it, share it, deck it, and wrap it”;
5. Build a place not a project: the clue is to seize the transit opportunity with design attractive public spaces, landmarks, “appealing pedestrian environments” and “incorporate a variety of residential uses to ensure round the clock activity”;
6. Make retail development market-driven, not transit driven: the crucial point is “planning for the area surrounding a transit station must keep in mind retail market realities; shoppers will travel only a certain distance to patronize particular kinds of stores”;
7. Mix uses, but not necessarily in the same place: in attempting to create a vibrant community “a transit corridor can successfully integrate a number of activity nodes devoted to different land uses, particularly when they are close together, easily accessible and mutually supportive”;
8. Make buses a great idea: it is believed that “zoning that allowed higher densities and required less parking along well-served bus corridors could create opportunities for development that supports transit, even if developers did not consider such development transit-oriented”;
9. Encourage every price point to live around transit: there is a need to promote (preserve and expand) the construction of affordable housing around transit, “lower-income people often represent the core of transit ridership”; and
10. Engage corporate attention: it should be borne in mind that “major employers can play an influential role in stimulating development around transit”. Moreover, transit allows an option to evade traffic congestion and save both time and money.

Besides, the definition of TOD we outlined earlier, these principles highlight that the success of TOD (which is expected to stimulate mixed-use), depends on collaborative actions and interventions by different parties (points 1, 2 and 10 respectively). These principles also brings into light that it takes a certain degree of pragmatism such as integrating buses, appropriate pedestrian ways, parking and social equity (allowing different income groups around transit places) as some of the important conditions that support the implementation of TOD (points 4, 8 and 9 respectively).

Can the TOD solution as a mixed-use approach be applied in Mauritius Island's town centres? The 10 principles for developing around transit have been drafted by US experts based on a number of studies and researches. As the TOD project will service Mauritius town centres, the following principles would directly be relevant to Mauritius (and probably universally applicable). These are namely: working out a common vision; parking issues; stakeholder collaboration; integration of buses and provision of range of housing types including affordable homes. The other remaining five principles contain an amount of complexity that might be difficult to achieve for a country like Mauritius having no experience on the subject of TOD.

2.5 Setting and Enhancing Mixed-use through Planning Mechanisms

Definition of planning mechanisms

For mixed-use to be successful, the literature reckons that the Public sector's involvement is essential (Schwanke et al. 2003: 137; Niemera 2007: 55; Hirt 2012: 375). In the context of our research, we find the following description of the ULI on public sector's involvement (in mixed-use) of relevance:

“The public sector's involvement ranges from zoning, public reviews, and approvals to assistance through a variety of means, including land assembly, public improvements, master planning, and championing the project before the public. The public sector may

also provide any number of public financial investments or incentives, often participating as an active investor and developer in the project or portions of it, such as development of a city hall or a library. In many cases, the public sector is the prime mover behind the project, assembling land, developing plans, selecting a developer, investing in public improvements and public uses, and streamlining the approval process”

(Schwanke et al. 2003: 137).

Our study in section 1.2 revealed that zoning became firmly entrenched in planning mechanisms and served principally to protect sensitive land uses (e.g. residential) from polluting uses (e.g. manufacturing and industrial). We then saw the reasons underlying mixed-use advocacy and the types of mixed-use generally preferred (e.g. framework of synergies) and, in the previous section, we identified the conditions necessary for improving mixed-use in the perspective of our study. It is understood that in pursuit of re-inventing town centres and working towards their viability and vitality, a number of avenues (strategies, mechanisms, and regulations) are now available to the planning field. However, our aim is to find out examples which may be transferred to the Mauritian local context. Therefore, in view of our experience with respect to the planning mechanisms in Mauritius, we shall concentrate our research on planning regulatory tools and development plans by governments and local authorities in an endeavour to improve mixed-use, namely:

- (i) A conventional way of introducing and promoting mixed-use through local plans.
- (ii) Incorporating urban design practices which favour mixed-use as a criterion for projects to get approved.
- (iii) A regulation which encourages change of uses and may be applied in the local context (Mauritius).
- (iv) The basis from which general TOD principles may be translated from orientations through large scale plans to actions (zoning plans) at the level of local authorities in Mauritius town centres.

2.5.1 A conventional mixed-use strategy: mixed land use plan (the case of Lodi-California)

Lodi Historic background

Lodi city was founded in 1869 and was formerly known as the Town of Mokelumne. It was historically a farming community. The city developed along the Oakland-Sacramento Central Pacific Railroad originally with stores and a flour mill. Moreover, the railway lines anchored industrial and commercial uses along its track. The General plan remarks that “residential areas developed in piecemeal in the areas between the central industrial and commercial core and the outlying agricultural lands” (Lodi General Plan 2010)²³.

Lodi in this millennium

“Lodi today contains diverse land uses, quiet neighbourhoods, and reputable vineyards. Its land use pattern is also characterized by multiple commercial corridors; public uses, including parks, schools, hospitals, and places of worship; and established residential neighbourhoods with a diverse architectural palette, from historic to contemporary. With its compact form, vibrant historic downtown, and industrial employment base with emphasis on wine and food industries, Lodi has distinguished itself from other towns and cities in the San Joaquin Valley” (Lodi General Plan 2010:2-2).

Categorising three possibilities for mixed-uses in town centres, main streets and secondary centres

The Lodi general plan defined three categories of mixed-use as shown in figure 5. These are as follows:

²³ Lodi City General Plan (2010), Retrieved 10 May 2014
from http://www.lohi.gov/community_development/general_plan/reports.htm

Downtown Mixed use

Downtown (town centre) mixed-use is meant to accommodate a variety of commercial, office, public, and medium to high density residential uses on infill sites in the vicinity of the town centre. Retail uses or eating and drinking establishments are promoted at the ground level in these areas. This category aims to ‘maintain the mix, scale and character of the town centres while providing opportunities for redevelopment of vacant and underutilized sites. The maximum FAR earmarked for the town centre is 3.0 inclusive of residential/non-residential uses.

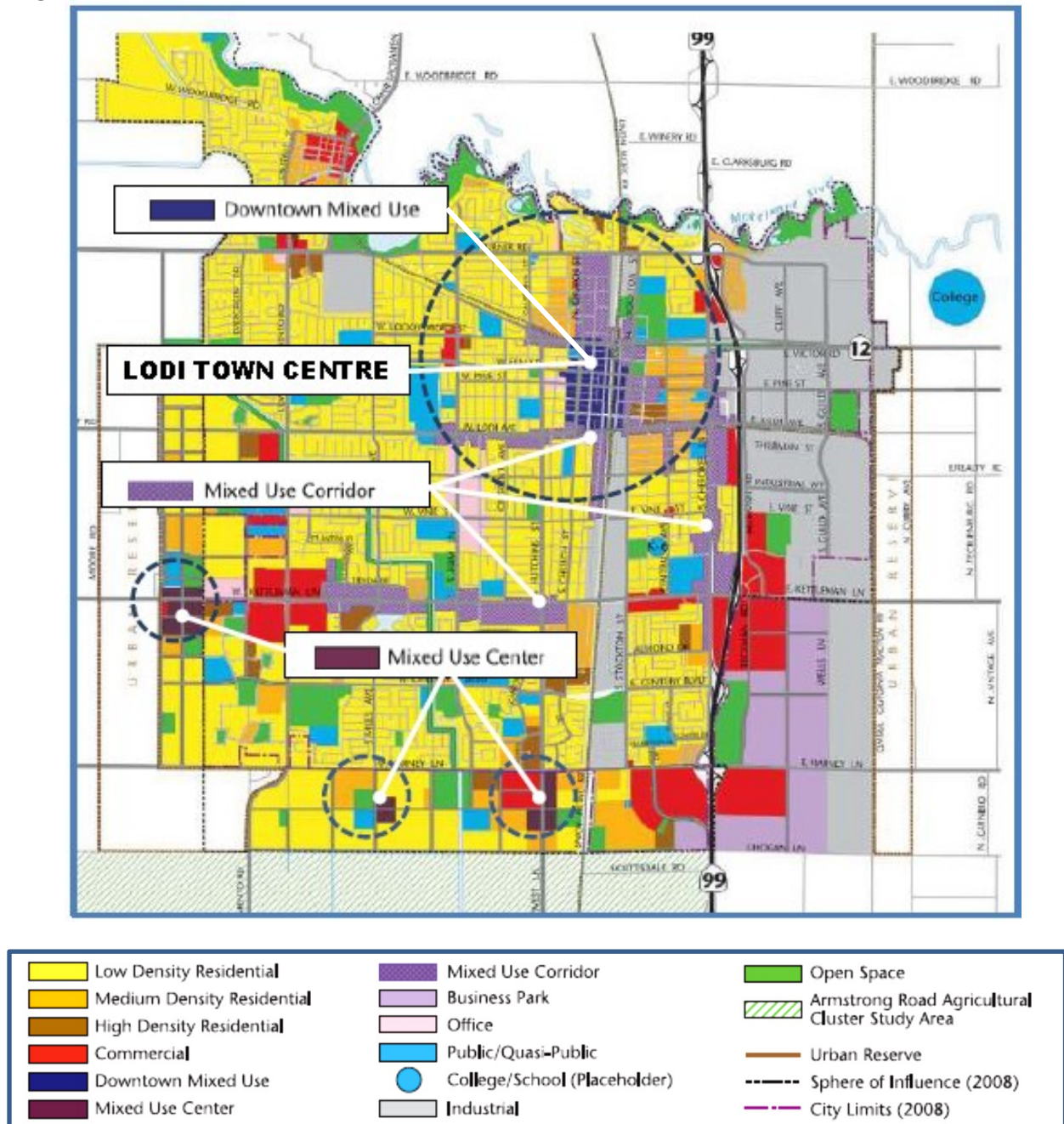
Mixed use corridor

The mixed-Use corridor classification provides a variety of office and general commercial uses, as well as low, medium, and high-density residential along the Lodi’s major corridors. This category allows for ‘more intensive development along these corridors to take advantage of vacant and underutilized sites and provides shopping and services to residents in highly accessible corridors.’ The maximum FAR allowed for the mixed-use corridor is 1.2.

Mixed use centre

The mixed-use centre identifies new growth areas in the General Plan. This category provides for a ‘variety of residential, office, neighbourhood-commercial, and public uses. A minimum of 10% of the building area in each mixed use centre shall comprise of non-residential uses. It is noted that the three mixed-use centres are found ‘near a park and school site, creating a true neighbourhood centre.’ The maximum FAR is 1.0 for the mixed-use centre and the building heights are restricted to a maximum of 40 feet.

Figure 5: Lodi City mixed-use classification



Source: Lodi (California) General Plan 2010 modified by researcher, May 2014

Residential uses: allowing for flexibility in housing types

Lodi's general plan classifies residential into three categories: low, medium and high density residential and are described as:

Low density residential

They are typical of old and new single-family detached homes at densities of 2 to 8 units per acre. Figure 5 indicates that most existing housing in Lodi falls under this category. The plan recognises that “the majority of new residential development will continue to be built within this density range” (Lodi General Plan: 2010:2-7).

Medium density residential

They are intended for residential units of 8 to 20 units per acre and include detached, single family attached and two or three-story multifamily units. The plan highlights that Medium-Density Residential is possible between single-family neighbourhoods and higher density housing in the Mixed-Use Centres and its spatial definition earmarks areas where ‘reinvestment of medium-density housing should be prioritized’.

High density residential

They comprise of 15 to 35 units per acre and geared towards affordable rental and ownership. It is observed from figure 5 that high density residences are located near parks, public facilities and mixed-use centres. The plan equally defines areas where re-investment in this category of housing is prioritized.

Industrial, Commercial and Office uses: applying floor area ratio (FAR)

Business park

Lodi's general plan caters for a business park which is expected to generate 'high employment yield per acre'. The Business park is found at the south eastern corner from the town centre and within an area of high commercial concentration. An open space area equally adjoins the Business Park where light industrial and production facilities would be encouraged. The FAR for the Business Park sites is specified as 1.0.

For these non-residential uses, the plan defines their spatial distribution (see figure 6) and denotes specific FAR. The FAR is meant to ensure 'compatibility with the predominating environment'.

Commercial

Commercial sites provide the development of retail uses, shopping centres and hotels with a FAR plot restriction of 0.6. They occur mostly eastwards and are found adjacent industrial activities and business parks (see figure 5)

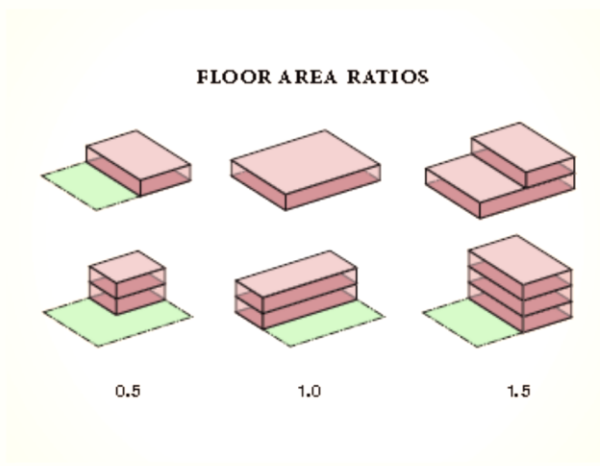
Office

Office development groups administrative, financial, business professional and medical facilities (includes a hospital) with a FAR site area not exceeding 0.6. They are mostly concentrated at the heart of Lodi city.

Figure 6: Definition of FAR concept

FLOOR AREA RATIO

FAR expresses the ratio of building square footage to land square footage. For example, a FAR of 2.0 means that for every square foot of land, a developer may build two square feet of building. However, this example does not necessitate a two-story building that covers the entire lot. This FAR illustration describes different ways that a building can be constructed while meeting the FAR requirement. Within each set of examples, the building square footages and FAR values are equal, but the building footprints and heights change. (Note that this illustration does not account for additional setback and lot coverage requirements, described in the Zoning Ordinance.)



Source: Lodi General Plan 2010



Industrial

The classification of industrial encompasses ‘heavy manufacturing, warehousing, general service, and storage and distribution activities.’ It can be observed that industrial uses are found south of the town centre and along the railway line and they are clustered eastwards of the ‘99 motorway’. The FAR is limited to 0.6 as in the case of commercial and office uses.

From an analytical point of view, Lodi has sprawled (see figure 5). The intent of the plan is to promote mixed-use in and around the three geographical locations: town centre, main street corridor and secondary centres. The plan recognizes that these above-mentioned areas have potentials for more intensive development and therefore use the term “mixed-use” as a land use classification. This eventually provides opportunities for redevelopment of sites with higher FAR and is a flexible regulatory approach and seeks to provide opportunities for developers to maximise potentiality of their sites. This plan equally shows that incentives have been provided to owners of residential plots/dwellings for increased housing density possibilities but not necessarily for conversion to other uses (apparently because of public opposition as low density residential predominates in Lodi- see figure 5). Moreover, by zoning specifically important areas for industrial activities and commercial uses, including business park, the Lodi plan ensures that mixed-use at a larger scale is conserved within the city’s jurisdiction. As such, this allows Lodi not to be deprived from important economic activities in the future horizon.

The idea of a zoning a mixed-use areas as the Lodi map may be used for Mauritius town centres as it may take advantage of the main street activities at the heart of the small town centres. Besides, the FAR is presently being considered by Mauritius’ planning authorities to be introduced in the planning mechanisms. However, it is recognised that prior to setting FAR, specific cadastre studies are required in relation to existing plot areas, acceptable height and setbacks – data which is presently missing for Mauritius town centres. The fact that town centres in Mauritius are relatively small in size, detailed land use survey for the town centres need to be carried out. This would provide a true picture of existing uses (their existing floor areas and

capacity of expansion); identify the needs of town centre users/developers/commercial operators and explore possibilities of increased density, intensity and diversity of uses. But, it would not be practical to reciprocate geographically the Lodi city mixed land use classification map with regard to residential densities (high, medium and low) because of the small-size of the Mauritian town centres, unavailability of vacant land for development thereto but also cultural limitations. Similarly, the Lodi plan lays emphasis on zoning particular industrial, commercial and office uses at a larger scale in support of its economic expansions and this aspect may be considered island wide in Mauritius. It would not be applicable specifically for town centres.

2.5.2 Design guidance: The case of Portland (Oregon)

Portland Oregon is reputed for the effectiveness of its transit oriented development (TOD) achievements and is in fact, one amongst the US states that foster the mixed-use principles. The Oregon Department of Transportation and the Oregon Department of Land Conservation and Development jointly developed the commercial and mixed-use development code Handbook (2002). The main interest for producing this guide is “after relocating in strip-malls, commercial development is now returning to America’s downtowns and main streets. These areas are experiencing renaissance as people seek more intimate and pedestrian-friendly shopping experiences” (Oregon Transportation and Growth Management²⁴ 2002: 1).

This handbook is a best practice guide which emphasizes on the following aspects: compact development, pedestrian access, safety and comfort, street connections, crime prevention and security, parking and efficient land use, creating and protecting public spaces and human scaled building design. Moreover these aspects are commonly cited in the literature as instrumental in

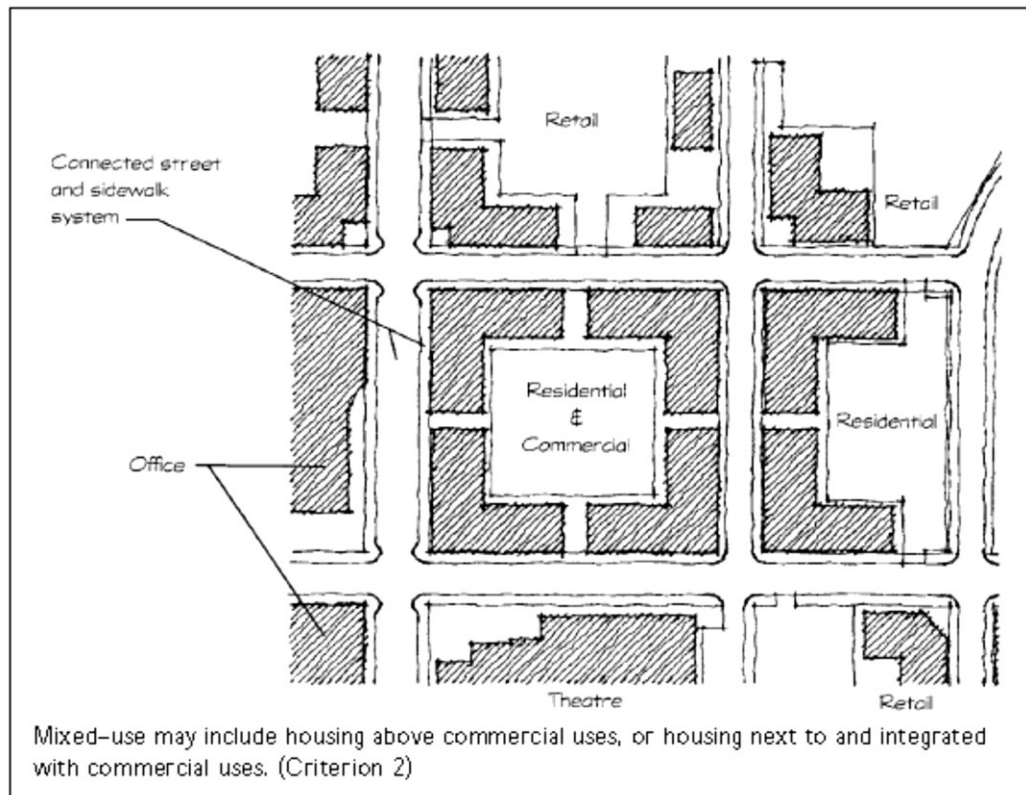
²⁴ “The Oregon Transportation and Growth Management (TGM) Program prepared this document with assistance from an advisory committee and a consultant. The committee was comprised of architects, developers, city planners, and staff from Oregon’s Department of Transportation (ODOT) and Department of Land Conservation and Development (DLCD)” (TGM 2002).

the successful implementation of mixed-use. The guide (Oregon Transportation and Growth Management 2002: 5) further spells out that its main objective for mixed-use is to “develop different types of compatible land uses close together in appropriate locations, to shorten trips and facilitate alternative modes of transportation, such as walking, bicycling and public transportation”. Moreover, the guide shares the vision that the mixed-use approach is ideal for downtowns, neighbourhood-oriented centres, transit nodes, main streets, and some community commercial centres. In this connection, the handbook provides recommendations for updating local zoning regulations.

The Design criteria points out two requirements for satisfying the mixed-use conditions. The first one is that land uses should either be mixed on-site or mixed in combination with adjacent uses (existing or planned). Secondly, “the combining of land uses should promote easy access among stores and services by pedestrians” (Oregon Transportation and Growth Management 2002: 61). In more explicit terms, Portland Oregon’s mixed-use guidance avers that the following principles need to be complied with:

- “A. The proposal is a “mixed-use” development or contributes to a mixed-use district. For the purposes of this ordinance, “mixed-use” means a combination of residential and commercial/industrial/civic uses, arranged vertically (in multiple stories of buildings) or horizontally (adjacent to one another); or
 - B. The proposal is designed in such a way that it is well integrated with adjacent land uses. “Integrated” means that uses are within a comfortable walking distance (0.20 km) and are connected to each other with direct, convenient and attractive sidewalks and/or pathways; or
 - C. The existing and planned land uses on, or in the vicinity of, the site make it impracticable to meet Guideline A or B; or
 - D. The proposal contains an equally good or superior way to achieve the above criterion”
- (Oregon Transportation and Growth Management 2002: 55)

Figure 7: Mixed-use design guidance



Source: TGM (2002: 55)

Besides promoting mixed-use design awareness to practitioners (planners, architects, urban designers) and developers, the above design guidance is a planning mechanism which expands possibilities of creating pedestrian centred projects. In the present case, the 'guidance' targets the re-emergence of the shop house concept (houses over shops) besides meeting the above-mentioned principles. Under some circumstances, such 'design guidance' may be made a mandatory development tool through planning statutes and subsequently result in achieving greater mixed-use. Figure 7 shows a (simple) context where, through the design guidance, an area with existing dispersed uses (office, theatre, retail) may be revived with infilling different uses (residential cum commercial in this case) and interconnecting sidewalks.

Design guidance is being used in Mauritius since a decade ago by permit authorities to assess planning applications and by architects/promoters in designing their projects. In this case,

training and design awareness on mixed-use theory and practice amongst planning technicians and professionals (architects, planners) in Mauritius would be required. It is generally agreed that interpretation and application of guidelines devised on best practices abroad may not be necessarily applicable to the Mauritian context. Therefore, understanding the local situation and its related complexities will primarily serve to come up with a relevant and responsive design guidance aimed to promote mixed-use in Mauritius town centres.

2.5.3 Flexibility in change of use: the UK ‘Use classes order’

According to Hirt (2012: 378) “ England is the country showing how Europeans don’t zone”. In this respect, we consider one statutory planning mechanism of the UK, ‘the Use Classes Order 1987’ (amended in 2005). The Use classes order has legal impetus and guarantees change of building uses without having to apply for planning permission. Hirt (2012: 378) makes the point that the general rule is “that switching a building’s use to one within the same class does not require permission”. The Use classes order is divided into 4 classes namely Class A (shop and services), Class B (business and industrial), Class C (residential) and class D (social).

Table 5: The UK ‘Use Classes Order’ (1987) as amended in 2005²⁵

| Classes | Use/Description of development | Permitted Change |
|---|--|---|
| A1: Shops | Post office, travel and ticket agencies, sandwich bars, hairdressers, undertakers, travel and ticket agencies, post offices, dry cleaners, internet cafés, sandwich bars Sale, display or service to visiting members of the public | A1 at ground floor with up to two flats over A2 (deposit taker only) Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m Class C3 |
| A2: Financial and Professional Services | Banks, building societies, estate and employment agencies, professional services, betting offices where the services are provided principally to visiting members of the public | A1 if a window display at ground level A2 at ground floor with up to two flats over Flexible A1, A2, A3 or B1 up to a |

²⁵ Retrieved 19 June 2014 from http://publications.arup.com/publications/u/use_classes_order.aspx

| | | |
|--------------------------------------|---|--|
| | | limit of 150 sq. m Class C3 |
| A3: Restaurants and Cafes | Use for the sale of food and drink for consumption on the premises. Restaurants, snack bars, cafes | A1, A2 or A3 Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m |
| A4: Drinking Establishments | Use as a public house, wine-bar or other drinking establishment | A1, A2 or A3 Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m |
| A5: Hot food Takeaways | Use for the sale of hot food for consumption off the premises | A1, A2 or A3 Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m (see note 3) |
| B1: Business | (a) As an office other than a use within Class A2 | B8 up to a limit of 500 sq. m C3 D1 (state funded school or registered nursery only) Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m |
| | (b) Research and Development | B8 up to a limit of 500 sq. m Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m |
| | (c) Industrial Process suitable to be carried out in a residential area | B8 up to a limit of 500 sq. m Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m |
| B2: General Industry | General Industry | B1 B8 up to a limit of 500 sq. m |
| B8: Storage or Distribution | Wholesale warehouse, distribution centres, repositories | B1 up to a limit of 500 sq. m |
| C1: Hotels | Hotels, boarding and guest houses | D1 (state funded school or registered nursery only) |
| C2: Residential Institutions | Use for the provision of residential accommodation and care to people in need of care | D1 (state funded school or registered nursery only) |
| C2A: Secure Residential Institutions | Use for the provision of secure residential accommodation, including use as a prison, young offenders institution, detention centre, secure training centre, custody centre, short-term holding centre, secure hospital, secure local authority accommodation or use as military barracks | D1 (state funded school or registered nursery only) |
| C3: Dwelling Houses | (a) a single person or by people to be regarded as forming a single household | C4 |
| | (b) not more than six residents living together as a single household where care is provided for residents | C4 |
| | (c) not more than six residents living together as a single household where no care is provided to residents (other than a use within Class C4) | C4 |

| | | |
|---|---|---|
| C4: Houses in Multiple Occupation (HMO) | Small shared houses occupied by between three and six unrelated individuals, as their only or main residence, who share basic amenities such as a kitchen or bathroom | C3 |
| D1: Non-Residential Institutions | Clinics, health centres, crèches, day nursery's, education, museums, public halls, libraries, art galleries, public halls, law courts, places of worship | State funded schools permitted to revert to previous permitted use Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m |
| D2: Assembly and Leisure | Cinemas, music and concert halls. Dance and sports halls, swimming baths, skating rinks, gymnasias. Other indoor and outdoor sports and leisure uses, bingo halls | D1 (state funded school or registered nursery only) Flexible A1, A2, A3 or B1 up to a limit of 150 sq. m) |
| Sui Generis: A use for which no class is specified in the Use Classes Order | Theatres, night clubs, hostels, shops selling and/or displaying motor vehicles, retail warehouse clubs, launderettes, taxi or vehicle hire businesses, amusement centres, petrol filling stations, waste incinerators | No permitted change |
| | Casino | D2 |

Source: Arup²⁶ (March 2014) adapted by researcher, June 2014

The functions and intent of the Use classes order

In general terms, the Use classes order is expected to “respond to market signals” and was subsequently amended in 2005. Its main objective is to make the shopping centres (town centres) including other areas more attractive. Service uses (Class A1), including cafés and restaurants were introduced within shopping (premises) areas to promote their vitality (ODPM 2005: 5). Moreover, it is perceived that:

“Use classes will enable local planning authorities to secure a satisfactory balance in an area between the numbers of restaurants/cafés, pubs/bars, and takeaways/fast food premises. This will help to ensure that one use does not predominate to the detriment of local amenity or the vitality of the area” (ODPM 2005: 5).

Likewise, the Use classes order draws a line between public and private. The former type of uses (A2) is allowed to be located within the A1 uses. As regards other business uses (B), restrictions apply. They are either allowed with a limited floor space or not permitted in town centres (see table 5). It is interesting to note from a report by the UK Department for Communities and Local

²⁶ Retrieved 19 June 2014 from http://publications.arup.com/publications/u/use_classes_order.aspx

Government (DCLG), that in 2011, “the shortage of housing guided the UK Government into allowing larger flexibility for converting businesses (B1 and redundant built up commercial areas) to housing (Class C3)” (DCLG 2011: 10)²⁷. By permitting such change of uses, the report envisions that “removing the burden and costs associated with such applications and establishing the principle that change of use between these classes is permitted should encourage developers to bring forward more proposals for housing”. In fact, what guided the decision of the UK Government in this example of allowing shifting uses was that “between 1998 and 2005 the average vacancy rate in the commercial sector in England was between 7 per cent and 9 per cent while the equivalent figure for the housing sector was around 3 per cent; one of the lowest in the Europeans Union” (DCLG 2011: 8). In addition, an empirical study by UK local authorities revealed that many towns “have plots where there are office blocks or business parks lying empty, and becoming dilapidated, while not enough homes are being built to meet demand” (DCLG 2011: 8). It is understood that in case this change of use allows housing to re-establish itself within old businesses or disused shopping premises, there may be renewed interest for commercial uses to come back. Moreover, we note from table 5, the Use classes order authorises single-use family dwellings (C3) to be converted into multi-family houses (C4). However, the Use classes order is not applicable for new constructions²⁸.

The Use classes order: pre-consultation process and mixed-use

It is important to highlight that prior to the change of uses is adopted by the UK parliament; there is a wide consultation process with stakeholders (citizens, community groups, developers, land lords, local authorities and other private and public bodies). The latter are encouraged to submit their appraisals and grievances, and this guides decision-makers to take appropriate steps. It is equally common practice that, the team responsible to coordinate the pre-consultation process

²⁷ Retrieved 19 June 2014 from

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8491/1883189.pdf

²⁸ Permissions related to new construction need formal approval of UK local planning authorities. The latter use their discretionary powers with respect to their local plans, policies, regional and state policy documents (Hirt 2012: 379).

“works to help landlords recognise the opportunity for better use of their properties” (DCLG 2011: 11). The UK planning legislation equally allows the possibility to re-consider the change of uses within a certain time period (e.g. 3 years). This may enable to gauge the impacts of the permitted uses and take actions accordingly. As such, the UK Government highlights that Local Authorities are entrusted to play a prominent role in using the use classes order “to relax planning rules” and “bring back productive use of areas and buildings” (DCLG 2011: 2).

The UK government cites the example where the allowed “change of use from A1 (shops) and A2 (financial and professional services) to mixed use of A1 or A2 plus a single flat respectively” was a successful incentive for property owners and seemingly brought a boom in the market (DCLG 2011: 11). The Use classes order is therefore, a regulatory tool that has a relative impact on the real estate market (supply/demand phenomena). Moreover, the ability to switch uses allows flexibility to potential proponents and streamlines the planning process (bureaucracy). In this way, the Use classes order aims to enforce policy decisions for promoting and/or demoting the ‘classes’ of uses. Government has also the ability for check and balances given that the Use classes order may be reviewed after a certain period of time. Indeed, we remark that the Use classes order has some similarity in the synergy of uses we investigated in section 2.2.1. However, it is most probable that all local authorities in UK may not experience similar problematic pertaining to diversity of uses.

The application of principles of the Use classes order needs case-to-case investigation prior to envisaging its adoption in the context of Mauritius town centres. Change of use, from shops to small office spaces may be applicable to Mauritius town centres and especially where a deficit of the latter uses is felt. But again, this would require detailed study on the feasibility of allowing flexibility in change of uses and residents/economic operator’s acceptance. As such, the pre-consultation process associated with the use classes order may be used as a model which takes on board different stakeholders (plot owners, estate agencies and town centre visitors/users) so as to improve the viability and vitality of town centres.

2.5.4 TOD as a mixed-use leitmotiv: the case of Montréal's Plan métropolitain d'aménagement et de développement (PMAD)

As pointed out in section 2.4, TOD is gaining popularity as a sustainable strategy which favours compact development, increased density and mixed-use with strong focus on both public transport and active transportation. In this context, we take as example one planning mechanism, the Montréal's Plan métropolitain d'aménagement et de développement, with one of its broad orientations, the TOD concept. Although metropolitan Montréal is bigger and more populated than Mauritius' urban area, this Plan is of relevance to our study owing to the fact that the Outline planning schemes of the town councils in Mauritius mentions that the TOD principle should direct future development in the town centres.

In 2011, the Communauté métropolitaine de Montréal adopted the Plan métropolitain d'aménagement et de développement²⁹ with the foremost objective of ensuring “Competitiveness and attractiveness of the *Grand Montreal* in the perspective of sustainable development” (translated from Communauté métropolitaine de Montréal 2012: 22). In this context, the Plan (2012: 8) provides 3 main orientations to attain this objective: urban planning and sustainability; transport and mobility; protection and promotion of the environment. Moreover, the Plan is geared towards the fulfilment of 6 sustainable principles as outlined in table 6.

²⁹ The PMAD is the planning mechanism formulating the overall development strategy for territory of the CMM, which comprises of 5 administrative territories, 14 MRC (Municipalités Régionales de Comtés) and 82 municipalities. The PMAD was approved by the Government of Quebec (in March 2012) and legally binds the MRC and municipalities to review their local plans Schéma d'aménagement (SAD) and plan d'urbanisme (PU) in line with provisions of the PMAD.

Table 6: The six principles of the Plan métropolitain d'aménagement et de développement to achieve sustainable urban planning

| <i>The six Principles</i> | <i>Sustainable development model</i> |
|--------------------------------|---|
| Density | Higher density responding to needs of the population |
| Localising urban development | In renovated buildings or in new constructions consolidating the urban fabric |
| Mixed-use | Diversity and integration of urban functions |
| Transport | Concentration of activities through land use planning with focus on motorised/non-motorised transport |
| Public and private open spaces | Laying emphasis on conviviality and in shopping areas with leisure activities in public areas (parks) |
| Planning process | Strategic planning with coordination between multidisciplinary stakeholders |

Source: Communauté métropolitaine de Montréal (2012: 3) adapted by researcher May 2014

These six principles are achievable through the TOD approach which is formally promoted in the Plan métropolitain d'aménagement et de développement³⁰.

The need to translate the orientations of the Plan métropolitain d'aménagement et de développement into other plans with respect to TOD

The Plan indicates 155 transport stations (bus, rail and metro) as potential TOD areas and defines specific densities that each of these should have. These densities vary from 150 to 60 dwellings/ha for towns/municipalities served by metro stations, 110 to 40 dwellings/ha for

³⁰« Le TOD est un développement immobilier de moyenne à haute densité structuré autour d'une station de transport en commun à haute capacité, comme une gare de train, une station de métro, une station de SLR ou un arrêt de bus (axes de rabattement ou service rapide par bus [SRB]). Situé à distance de marche d'un point d'accès important du réseau de transport collectif, le TOD offre des opportunités de logement, d'emploi et de commerce et n'exclut pas l'automobile. » (PMAD 2012: 80).

suburban/rural areas served by transit («train de banlieue») and 80 to 30 dwellings/ha for localities serviced by buses (Communauté métropolitaine de Montréal 2012: 86).

Following the adoption of the Plan métropolitain d'aménagement et de développement by the government in early 2012, a conformity exercise needs to be followed by another planning mechanism – the Schéma d'aménagement et de développement - to earmark those stations for accommodating TODs. The responsibility here devolves on the municipalités régionales de comté who translate the main orientations of the Plan métropolitain d'aménagement et de développement by determining the land uses under its administrative jurisdiction. Finally, it is the prerogative of the municipalities to review their development (zoning) plans (within a lapse of 2 years) in accordance with the objectives of the Schéma d'aménagement et de développement in order to implement TOD projects. The municipalities have other planning tools at their disposal: the Plan particulier d'urbanisme, a plan carried out by the municipality which engages itself in various interventions and the Plan d'aménagement d'ensemble, a plan showing development proposals to be carried out on a specific plot by the owner/developer.

The CMM's commitment to TOD

The Plan métropolitain d'aménagement et de développement through its first orientation (urban planning and sustainability) spells out one primary objective to attain through TOD:

« orienter au moins 40% des nouveaux ménages (2011-2013) dans les quartiers de type TOD localisés aux points d'accès du réseau de transport en commun métropolitain structurant, le point d'accès étant généralement défini comme une station ou un arrêt » (Communauté métropolitaine de Montréal 2012: 80).

The Communauté métropolitaine de Montréal has showed its commitment to make TOD happen by introducing an “incentive programme” for the relevant stakeholders intending to realise TOD projects in seven pre-determined TOD areas³¹.

³¹ The TOD areas (aires TOD) are representative of a buffer of 1 Kilometre (km) from the public transport stations (metro, rail and bus terminus).

Meeting the objectives of the Plan métropolitain d'aménagement et de développement through TOD

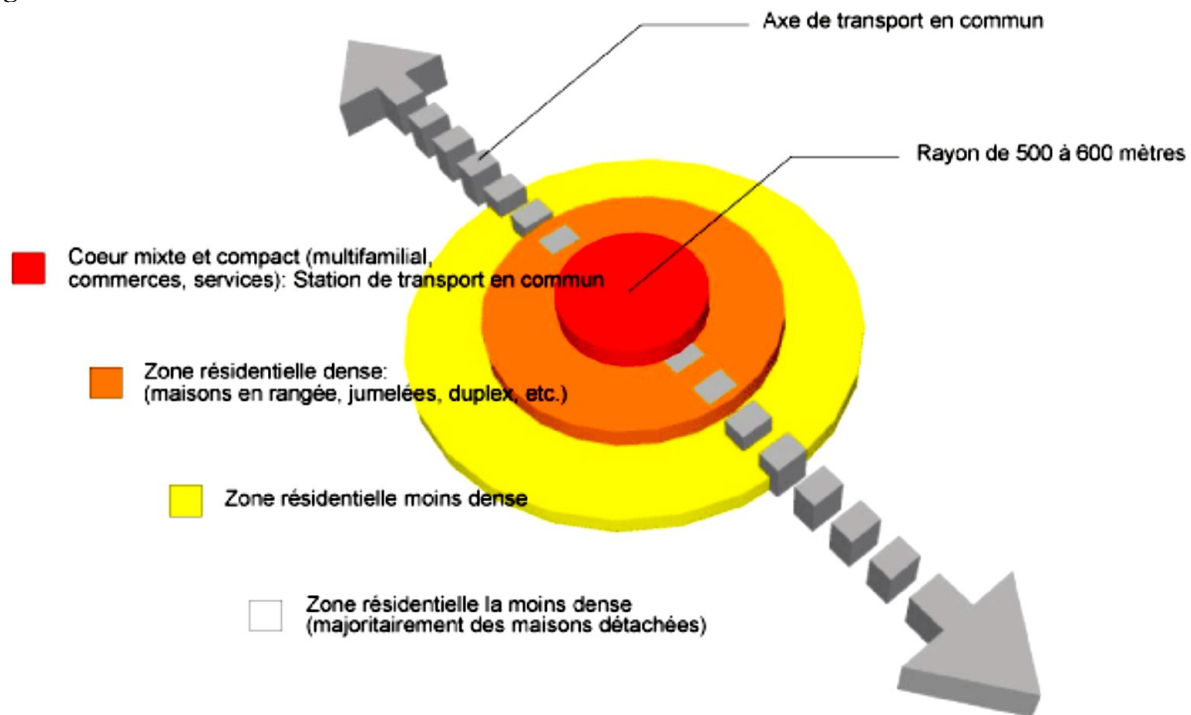
To ensure better understanding of the TOD principle including its implementation through the other planning mechanisms and to provide useful information to investors, the Communauté métropolitaine de Montréal came up with a guide referred to as “*Un guide pour les aires TOD*”³². The guide (AECOM 2011: 12) highlights the importance of active transport (non-motorised) with an emphasis on pedestrianizing commercial/residential areas and other places where public transport stations occurs. The guide further states that TOD is guided by three key elements:

- (i) A public transport station (e.g. bus, metro, train)
- (ii) Intensive development ranging from high to medium densities and
- (iii) Mixed-use

The three elements are represented through the following diagram:

³² For more information see: AECOM guide-
http://pmad.ca/fileadmin/user_upload/pmad2011/documentation/20111004_guideAiresTOD.pdf

Figure 8: TOD Radius and Densities



Source: URBATOD 2006³³

Principal Characteristics of TOD: hints to develop around transit stations

The AECOM guide identifies 5 physical characteristics of TOD which should normally be implemented through municipal planning mechanisms. These are:

- (i) Densities to sustain public transport
- (ii) Mixed-uses to sustain vitality of TOD areas
- (iii) Connectivity routes/patterns to promote active mode of transport (pedestrians, cyclists)
- (iv) Public spaces of high aesthetic quality with adequate security
- (v) Efficient and good quality (comfortable) public transport

(Translated by author)

³³ Retrieved 3 April 2014 from http://www.forumurba2015.com/4_urbatod/4.2_urbatod_2006/tod/Transit_Oriented_Development.pdf

Densities to sustain public transport

The AECOM guide proposes a relatively high density, especially for the areas within the immediate buffer radii of 500 metres from the transit stations (buses, metro, and train). In this case, the need for increased density relates to concentration of population, diversity of uses and affordable housing. Besides, this aims to favour “compact development”, encourage judicious utilization of plots and buildings and equally ensure development of under-utilized sites (translated from Aecom guide 2011: 13).

Mixed-uses to sustain viability and vitality of TOD areas

Figure 9 illustrates the application of density variables to generate ‘compact areas’ around the transit stations through increased building height. The focus is equally on mixed-uses to boost the whereabouts of the stations.

Figure 9: Compact areas and varying density in TOD areas to achieve mixed-use



Source: Aecom guide (2011)

The Aecom guide (2011: 20) envisions that the TOD areas would be transformed into « un quartier vivant, viable et équitable composé d'emplois, de résidences, de commerces, d'institutions et d'espaces publics ». To reach this goal the guidance proposes to:

« Assurer et intensifier une mixité des usages autour de la station et selon le type de milieu et le mode de transport en commun et adapter et opter pour une mixité des fonctions urbaines qui assure la vitalité commerciale et la viabilité du milieu de manière permanente : les usages à cibler devraient aussi bien être une clientèle de jour (bureaux et services) que celle du soir et des fins de semaines (résidentiel, services de proximité) » (Aecom 2011: 19)

In sum, the Plan métropolitain d'aménagement et de développement in its role as a planning mechanism (large scale plan) provides the legal basis for translating its broad orientation of the TOD principle into regional and local plans. As explained earlier, with the commitment of elected officials, professionals and other competent authorities, there has been a multi-stakeholder willingness and consultation to lay incentives programme in implementing TOD. Arguably, the TOD is still at the embryo stage and the debates are on-going for the feasibility of implementing 155 TOD in Montréal and the pilot projects are still being studied.

Finally, the Plan métropolitain d'aménagement et de développement refers to density in terms of dwellings per hectare although the Aecom guide points out the necessity of having a diversity of uses. This illustrates that a real mixed-use TOD is not an easily attainable goal. However, the Montréal's TOD is not planned in central areas even secondary; they are suburban. The challenge is different in Mauritius, where the implementation of the light rail transit (LRT) system would link the four town centres to the capital city. In that case, the idea which has been brought in planning schemes is to develop TOD in and around LRT stations located in these centres.

However, there has not yet been studies and research on the applicability of TOD in Mauritius. TOD, as we found out above, may help improving the viability and vitality of town and city centres provided that other conditions are provided. For example, there is probably a need to relax planning restrictions (setbacks, height, FAR etc.) to encourage redevelopment. The use of

public transport (reduction in auto-reliance) needs also to be publicised and encouraged. These two characteristics are presently lacking in Mauritius. TOD also thrives with investment on public spaces and quality of urban environment including adequate parking spaces and this requires massive investment. It is clear that transferring the North American TOD concept to Mauritius town centres remains a definite challenge and needs to be closely studied.

2.5.5 Conclusion: planning mechanisms and their applicability for mixed-use in Mauritius town centres

This section provides an insight of planning mechanisms which are being used as leverage to the mixed-use approach in North America and UK. At the outset, their city and town centres are larger by geographical scale, demography and importance of mixed-use projects than the local context. More explicitly, in US there are cases where traditional comprehensive plans (e.g. Lodi plan) have been revamped to intensify and conserve mixed-use (residential, commercial, offices, industrial). To consolidate the intentions of their large scale plan, other planning mechanisms have supplemented mixed-use policies. For instance, design guidance is a useful tool to stimulate and promote design awareness amongst professionals and developers. Likewise, ‘the Use Classes Order’ which emerged in UK as a statutory tool provides an appropriate consultation process with stakeholders. Such a tool may allow both flexibility in changing uses and regulate the diversity of uses. Additionally, we remark that the need to consolidate mixed-use in town centres, main streets and corridors has met public sector recognition and is vindicated in the various planning mechanisms (e.g. case of Montréal). But are these planning mechanisms applicable as a strategy to revive Mauritius town centres?

As highlighted in the introductory part of the thesis the problematic for Mauritius town centres are namely:-

- (i) Unresponsiveness of planning schemes to follow-up on the mixed-use approach,
- (ii) Decline of the town centres with respect to suburbanisation, periphery office projects and out-of town shopping malls and

(iii) Challenge facing small town centres to accommodate a Light Rail Transit system and TOD related projects

Aspects of the mixed-use approach that may be potentially “transferred” to the local context would include a conventional mixed-use strategy which encourages traditional town centres to strengthen their functional diversity. The demarcation of “downtown” and “corridor” mixed-use areas alike the Lodi’s plan is pertinent to the Mauritian context. By doing so, the focus shall be to redevelop vacant and underutilized sites/buildings in town centres with increased FAR provided retail, shopping and services are included in ground and lower floors and upper floors accommodate residential uses. It is understood that for Mauritius such measures will require both working out developer incentives and decisions to either consolidate and/or increase particular uses.

Additionally, the example of Portland’s mixed-use design guidance is entitled to play a valid contributory role in consolidating the mixed-use principle advocated in Mauritius’ planning schemes. The main advantage of using the design guidance is that it is a legally binding planning document which guides development control over the island. However, the interpretation of planning design guidance equally rests on subjectivity and would require training on mixed-use best practices both for Mauritius’ planning staff and professional architects (who normally drives through projects).

The Use classes order as a planning mechanism is not easily transferable to the local context the more so that it requires extensive stakeholder consultation and participation prior to its adoption. The main advantage of the Use classes order is that it reduces administrative red tape and ensures activities remain on-going within different spatial levels (building, street, blocks etc.). Nevertheless, it requires a shared political vision and needs constant re-adjustment. In terms of logistics, Mauritian town centres lack an updated cadastre which is important for such a mechanism like the Use classes order. A town centre cadastre will enable better understanding and monitoring of uses therein.

Besides, we observe that TOD is presently put forward in development plans. TOD may be perceived as a tool which aims to integrate transport and land use (urban form) and is invoked as one solution for achieving increased density. TOD ultimately seeks to enhance mixed-use. However, it should be highlighted that, in forums and conferences, the debate is on-going on the TOD movement, and also on the role played by municipalities in implementing TOD. In this context, the conditions for success of Transit (described in section 2.4) clearly demonstrate the complexity of achieving TOD. Hence, TOD could definitely not be transferable in bulk in the Mauritian context. The introduction of TOD to improve the viability and vitality of Mauritius town centres needs to be thoroughly investigated.

Further to our literature review, we shall establish our research objectives and describe our methodology in the next chapter.

Chapter 3: Empirical Research Objectives and Methodology

Our literature reviews enabled us to understand the interest of mixed-use in general together with its application in town centres and we explored conditions and means for its approach in North America and Europe. In chapter 2, we specifically attended to the three fields of our research interests which are namely: (i) to identify the components of mixed-use; (ii) to investigate the conditions for achieving mixed-use and (iii) to explore planning avenues through which mixed-use may be successful. As presented in the introduction of this thesis, Mauritius' town centres are declining. Therefore, some of the avenues put forward in North America and Europe may help strengthen and enhance their viability and vitality. However, mixed-use solutions may not be a response to Mauritius's problems nor adapted to its specific context. Therefore, we must first understand at which extent problems encountered in these centres are due to the lack of functional diversity.

In this chapter, we present the objectives and methodology of our empirical research on Mauritian town centres.

3.1 Objectives of the research on Mauritius town centres

In the literature review we observe that mixed-use is an ingredient of vitality which sustains viability of town centres. In this connection, it should be highlighted that the new version of Outline schemes³⁴ (2013) for the town centres in Mauritius has introduced the concept of TOD³⁵.

The specific research objectives of this thesis are therefore:

- (i) To understand the problems and issues affecting viability and vitality of Mauritius' town centres, as such and in the context of the main conurbation, with an emphasis on

³⁴ Outline Planning Schemes are the local plans in Mauritius and are more fully described in section 4.5.1

³⁵ The working definition of TOD for our thesis is provided in our literature review.

- mixed-use, in order to better appreciate the causes of their decline and the role of the lack of functional diversity in that respect.
- (ii) In the light of such diagnostic, to explore means of strengthening and enhancing the viability and vitality of town centres in Mauritius, in particular the urban planning strategies and mechanisms, including Transit oriented development (TOD) in the context of the forthcoming light rapid transit project.

3.2 General methodology

To be able to meet our specific objectives, we have selected town centres as case study areas. It is through these town centres that we have identified and analyzed the problems affecting the viability and vitality. Since the problem of decline affects the four town centres that is, Curepipe, Vacoas, Quatre Bornes and Rose-Hill rather than the capital, Port-Louis, we have chosen two of these, namely, Quatre Bornes and Rose-Hill. The reasons for choosing them are explained in the very next section (3.3).

To gather the appropriate information on the situation of these two centres and on the government's policies and projects regarding their future, we have analyzed planning documents such as the National development strategy (NDS) of Mauritius, the Outline planning schemes (OPSs) and reviewed the local press. However, since there is only little existing data on Mauritius town centres, we have largely relied on our personal research (documentary research, site visits, photographs and review of local press). We have also asked specific questions on the town centres strengths and weaknesses to Mauritian planning practitioners in the context of interviews described in the next paragraph.

To explore means to improve the viability and vitality of the town centres and test the relevance of the mixed-use concept and explore its application, we have developed an interview guideline addressed to Mauritian planning practitioners. We also carried out ground investigations in the case study areas to understand better the (town centres) mixed-use challenges and opportunities.

Finally, our literature review on typologies of mixed-use, on approaches for achieving mixed-use and on planning mechanisms to set and enhance mixed-use (see chapter 2) in combination with our empirical research work has provided the backbone for exploring strategies aiming to revitalize town centres.

Our research tools are more fully described in section 3.4

3.3 The selection of case study areas

The scope of the thesis did not allow us to focus our attention on the four town centres of Mauritius; we have limited our research to two towns, in order to allow a good understanding of the local urban context. As pointed out earlier, these two towns are Quatre Bornes and Rose-Hill. There are three reasons justifying this selection:

- 1) The foremost reason is that the proposed alignment of the LRT will pass along the main street and therefore on the most important stretches of town centres of Quatre Bornes and Rose-Hill (see map 6). This provides a good opportunity to study the potentiality of integrating the new mode of public transport with the land use plan of the core area of the town centres.
- 2) The viability of both these selected towns is considered threatened with the coming up of the new development, Ebene Cyber city, located midway between the two town centres and dedicated to office parks and commercial activities (see map 1). Ebene Cyber city emerged a decade ago as part of government's decentralisation policy to solve the problem of traffic congestion the conurbation was experiencing. The authorities concerned felt on the one hand that the volume of traffic moving to and from Port-Louis, the capital city (which is also the harbour) was outstripping the road capacity. On the other hand, the concentration of activities in the capital city was considered to be too excessively important.

- 3) Quatre Bornes and Rose-Hill are more populated and have a more urban character than the other two town centres, Curepipe and Vacoas, which have a rural setting. As such, they would facilitate relevant comparative analysis with foreign (external) case studies and literature. Subsequently, the urban periphery of both Quatre Bornes and Rose-Hill has interestingly experienced a number of new high rise (apartments) developments along the motorway and it is anticipated that the competition from new out-of-town shopping centres developed at motorway interchanges are undermining the latter's viability and vitality.

3.4 Tools for data collection


As pointed out in our general methodology, the following complementary tools were used to understand Mauritius' urban context and identify the problems and issues faced by the town centres:


- Documentary research on planning documents and review of the local press;
- Personal observations, investigations, analysis and site visits;
- Interviews with planning practitioners.


Table 7: Specific research objectives and tools

| Specific research objectives | Research tools | | |
|--|----------------|---|---|
| | A | B | C |
| 1. Understand evolution of problems and issues of town centres | | | |
| 2. Explore means of strengthening and enhancing those centres | | | |

Legend:

 A: Documentary research, Analysis of Planning Documents and Review of Local Press

 B: Personal observation, investigations, analysis & Site visits

 C: Questionnaire Interview

Source: researcher, July 2014

The 3 tools are described hereunder.

3.4.1 Documentary research and complementary information

The gist of the documentary information required on town centres in Mauritius is available through the medium of the Ministry of Housing and Lands, local authorities (municipal town councils) and the Town and Country Planning board. A brief on the role, institutional competencies and document obtained from them are described hereunder:

Ministry of Housing and Land for planning documentary research

The Government's of Mauritius town and country planning service devolves on the planning division of the Ministry of Housing and Lands. The planning division is amongst one of the technical arms of Ministry of Housing and Lands and comprises of planners, technicians and draughtsman. Ministry of Housing and Lands is primarily responsible for the preparation and approval of three-tier plans of the country which are the National development strategy plans (NDS), local development plans also referred to as Outline planning schemes (OPS) and Planning policy guidance (PPG). The Ministry has also amidst its functions to advise the government on strategic development projects. The Ministry's staffs were very collaborative and helpful during the period of our study and all necessary documents were put at our disposal for consultation. These documents enabled us to describe the urban context in Mauritius (see next Chapter).

The Town and country planning board for input on new Outline planning scheme (version 2013-2014 and horizon 2020)

The Town and country planning board was established under the town and country planning Act 1954 has two important roles. Firstly, they are the empowered by the law for the procedural aspects of approval and adoption of the local plans. Secondly, the Board has been determining appeal cases emanating from aggrieved parties at the level of local authorities until late last year

(2013)³⁶. It needs to be pointed out that, the new version of *Outline planning schemes* for the five municipal town councils were on deposit (public consultation) during the period of our visit (December 2013 to March 2014) and are nearing final approval. As such, the officers of Town and country planning board were the important sources who furnished additional input on the future orientation and vision for the town centres, but also on the appeal cases in the town centres.

The Municipal town councils for input on the prevailing situation in town centres

As we highlighted earlier, the four town centres in Mauritius are under the administrative jurisdiction of Municipal town councils (municipalities). In this context, we tried to establish contact primarily with the planners of our case study areas. Unfortunately, due to their tight schedule and lack of human resources in town councils, only one respondent was available for sharing his experience on town centres. However, this limitation will be taken up by our personal observation and in depth analysis of the town centres.

Statistical data

Official (recent) statistics from Statistics Mauritius, a public body, have been used in the context of our analysis wherever deemed necessary. Most of these statistics (e.g. demography, number of vehicles etc.) are available on the website of Statistics Mauritius. We equally established formal contact with officers of Statistics Mauritius and received both advice and information via electronic mail from statisticians.

³⁶ The role of the Town and country planning board for determination of planning appeals has been transferred to the Environment and Land Use Planning and Appeal Tribunal as from end 2013.

The essence on the historical background of the conurbation and town centres: National library of Mauritius and Municipal libraries

The fact that there are no literatures on the urban conurbation (of Mauritius) rendered some complexity in our research. To overcome this difficulty, we consulted documents on the history of Mauritius and City of Port-Louis. These documents were available at the National library of Mauritius and information which seemed pertinent to our research topic was extracted. Similarly, the municipal libraries of the town councils enabled us to retrieve particular issues dealing with the two town centres.

Review of the local press

The local press provided vital information on town centres: actors, projects and the Light rail transit system (LRT). The web sites³⁷ of the local press and their archives were regularly consulted since we embarked on our study thesis (Autumn 2013). Although the Mauritian government announced its commitment to the LRT and its definite route (alignment and stations) to link the four town centres and the capital city, it needs to be mentioned that all official information on the LRT is being kept confidential for the time being. Since government's planners were bound by the government's officers Secrecy Act not to reveal the project's details and the LRT alignment, it is through the local press in Mauritius that we retrieved the map (Map 6) showing the probable LRT route and information on progresses made in respect of the (LRT) project. The local press interviews with the representative of town centre retailers, and articles on the town centres projects including inherent problems of the town centres, are examples of some other important contributory source of information the Mauritius newspapers provided for our research.

³⁷ Website of local press in Mauritius, see <http://www.onlinenewspapers.com/mauritiu.htm>

3.4.2 Site visit and observations

Our empirical research consisted of our personal experience, observations, and field work in Mauritius. The fieldwork was carried out from the end of November 2013 to mid-March 2014, and enabled us in better understanding the urban conurbation of Mauritius and impact of policies and interventions thereat. Moreover, we were able to examine more closely the urban form and activities of our case study areas. Furthermore, to broaden our study on the mixed-use theme and consolidate our apprehension of the local context we used two data collection principles:

- (i) Enquiry and meeting with planners and technicians at Ministry of Housing and Lands, Town and country planning board, municipalities and University of Mauritius' lecturers (Faculty of engineering, Department of civil engineering, planning courses) to trace the evolution of the town centres and have a broader professional feedback in relation to the prevailing situation in the towns.
- (ii) Site visits at different times of the day and week to have a clearer picture of the town centres: interests and attraction for visitors; pedestrian, public transport, parking and traffic issues; road hierarchy status and functions; etc. In this regard, photographs of the town centres were taken wherever deemed appropriate to support our explanations in next chapters. Our site visits also took us to the town's periphery, the conurbation and out-of-town shopping centres. We consider that these trips were beneficial to our study, as it enabled us to have a clearer picture of the prevailing situation in town centres and their periphery etc. In this way, we were able to sort out the town centres strengths and weaknesses (see section 5.6).

Our site visits also enabled us to have few 'talks' without being too inquisitive and witness the 'socialization' aspect in the town centres. Last but not least, our walks in the town centres gave us an insight of the problems and difficulties faced by users of the town centres: pedestrians,

motorists, public transport users and residents. Strolling along the retail areas of the town centres made us discover the apprehension of shopkeepers.

3.4.3 Interview with planners

The literature is undeniably of immense support to reciprocate success stories about the role of planning mechanisms in improving the viability and vitality of town centres and the contribution mixed-use could have. Our literature review provided us the general approaches, models, principles and tools etc. to discuss and analyse the mixed-use concept and its implications in town centres. However, the urban context in Mauritius represents other challenges, all of which may be not discernible by us within the limited period of our research. In that context, it seemed necessary to interview people involved in the design and administration of planning mechanisms in Mauritius to get a good picture of the local situation, and also to understand possible improvements and their feasibility thereof.

Objectives of the interviews

Our interviews in Mauritius are exploratory, especially as it is the first time since mixed-use was introduced in the national planning mechanism (NDS 2004) that there is thinking on its application. With these interviews we wanted:

1. To deepen our understanding on the town centres, and of the problems and issues facing these such as transport, parking, investment etc.
2. To obtain both factual and perceptual information on town centre users/visitors and their motives for using and visiting the town centres.
3. To better understand the evolution of mixed-use in the town centres, to identify opportunities and challenges in achieving it, and to explore planning practitioner's interest in introducing mixed-use through transit Oriented Development (TOD) in Mauritius town centres.

The respondents

Our interviews targeted planning practitioners for the underlying reasons.

- (i) Planners are experts of the urban areas and their professional knowledge and experience allows us to collect additional information within lesser time as well as to better understand existing and potential planning mechanisms involved in the planning and management of town centres.
- (ii) Furthermore, the government announced in September 2013 its commitment to introduce the LRT system in the country (serving urban areas) and excitingly the task of shaping the future of town centres will devolve on planners. In this context, TOD has recently been introduced in the planning schemes of town centres, and planners would ultimately have to shoulder the responsibility for making TOD happen. Moreover, the fact that planners participate in meetings with other stakeholders having key sector interests in transport, land use and the real estate market may contribute to enrich our research.

The area of experience of the interviewees emanates from the following planning fields: development control and local authorities, planning appeals and policy making. The main responsibilities shouldered by the respondents are described hereunder.

- Development control, (both ministry and local authority) dealing primarily with assessment of planning applications from developers and tendering advice accordingly.
- Planning appeals, processing of appeals lodged by either developers or objectors who are aggrieved by planning decisions (approval or refusal) of local authorities.

- Policy making, updating the planning schemes and development plans of the Planning department of the Ministry of Housing and Lands and implementation of government decision with respect to town planning matters.

Procedural aspects for the interview guidelines

As per requirements of the CPER (Comité plurifacultaire d'éthique de la recherche) of the University of Montréal, prospective respondents were first contacted through electronic mail on the conduct of the research in Mauritius in mid-November 2013. An insight of our research thesis was forwarded to them and their approval was sought for an interview. Subsequently, after their favourable reply, a consent form was handed to all the interviewees at least three weeks before the scheduled interview. The interview guide (see Annex) we prepared in this context was equally submitted to all those who responded affirmatively for the interview. The guide was handed over to the interviewees at least one week prior to the scheduled interview.

The interview guide took a qualitative form in order to grasp both factual and perceptual information from professional planners. The intent of adopting the qualitative technique was also to furnish and nourish the research and provide the opportunity to respondents to explain their present and future planning concerns. The interviews were semi-structured and lapsed 45 to 75 minutes. Initially, we targeted 15 interviewees³⁸, but 11 respondents gave their consent and were available for the interview. Some interviews had to be re-scheduled on at least three occasions because of force majeure (cyclone and torrential rain) during the months of January and February 2014. To respect confidentiality, respondents are referred as R1, R2... to R11 in our discussions and analysis. A template of the interview guide and respondents' consent forms are enclosed in the annexes.

³⁸ No exclusion was applied for our interviews, the total number of planners (Ministry of Housing and Lands and the Local Authorities (two case study areas)) was estimated as fifteen (15).

3.5 Ethical considerations for the research

As explained earlier, we followed the procedures established by the CPER of the University of Montréal and applied for the ethics certificate in October 2013. On meeting the relevant conditions of the CPER, permission was obtained through the grant of the ethics certificate in November 2013. This allowed us to proceed with the interview questionnaire we have devised in this conjunction. Our research does not contain any risks; however, care was taken not to pressurize respondents in participating in the research. Besides, during our meetings and interview attention was paid so as not to influence the answers by any means. We facilitated the interview by using the latest plans of the town centres and this avoided confusion in the answers related to the way planners were describing the spatial configuration of the town centres.

PART 2: Study context in Mauritius, case study areas and mixed-use analysis

4. THE STUDY CONTEXT: Mauritius' urban evolution and planning mechanisms

In this chapter, we present the evolution of the urban context in Mauritius. We then depict the town centres through three different geographical scales (urban corridor, town centre periphery and town centre itself). We also discuss on how public sector actions and interventions have shaped and are transforming the town centres. In this regard, we shall equally consider the planning mechanisms that regulates and controls development over the island in order to situate their relative importance towards the mixed-use approach.

4.1 The Historical Dominance of the Capital City (Port-Louis)

Port-Louis (see figure 11) is situated in the North West of Mauritius and has historically dominated and continues to have the principal economic importance over all the other four towns in terms of shopping hierarchy and job concentration in Mauritius. This dominance is explained with the concentration of government offices, manufacturing industries, specialised retail shops and location of the only harbour of the island. It needs to be mentioned that the French rulers were the first developers of Port-Louis in 1735.

“In 1789, Port Louis had commercial links not only with all the great ports of France, but also with Denmark, the Netherlands, and North America. It even had occasional contact with China and the Philippines” (Toussaint 1973: 45).

Port-Louis (and Mauritius) was captured by the English in 1810 and became a prosperous thriving seaport in the middle 1850s. P. Halbwachs observes that the closing of the Suez Canal in 1956 gave Port Louis “added impetus (...) and true recognition of the city’s importance was given by Queen Elizabeth II, a distinction earned by very few other cities in the tropics” (1973: 145)³⁹.

³⁹ Halbwachs in Toussaint (1973:145), book cover courtesy.

Additionally, the development of Port Louis may be attributed to the Asian influx around the 1830s which brought Indian traders (mainly of Muslims faith) and Chinese in Port Louis. Port-Louis still remains a cosmopolitan town with its ‘China town’, ‘Jummah mosque’ and Churches.

Figure 10: View of Port Louis Harbour from Signal Mountain in 1890-1920

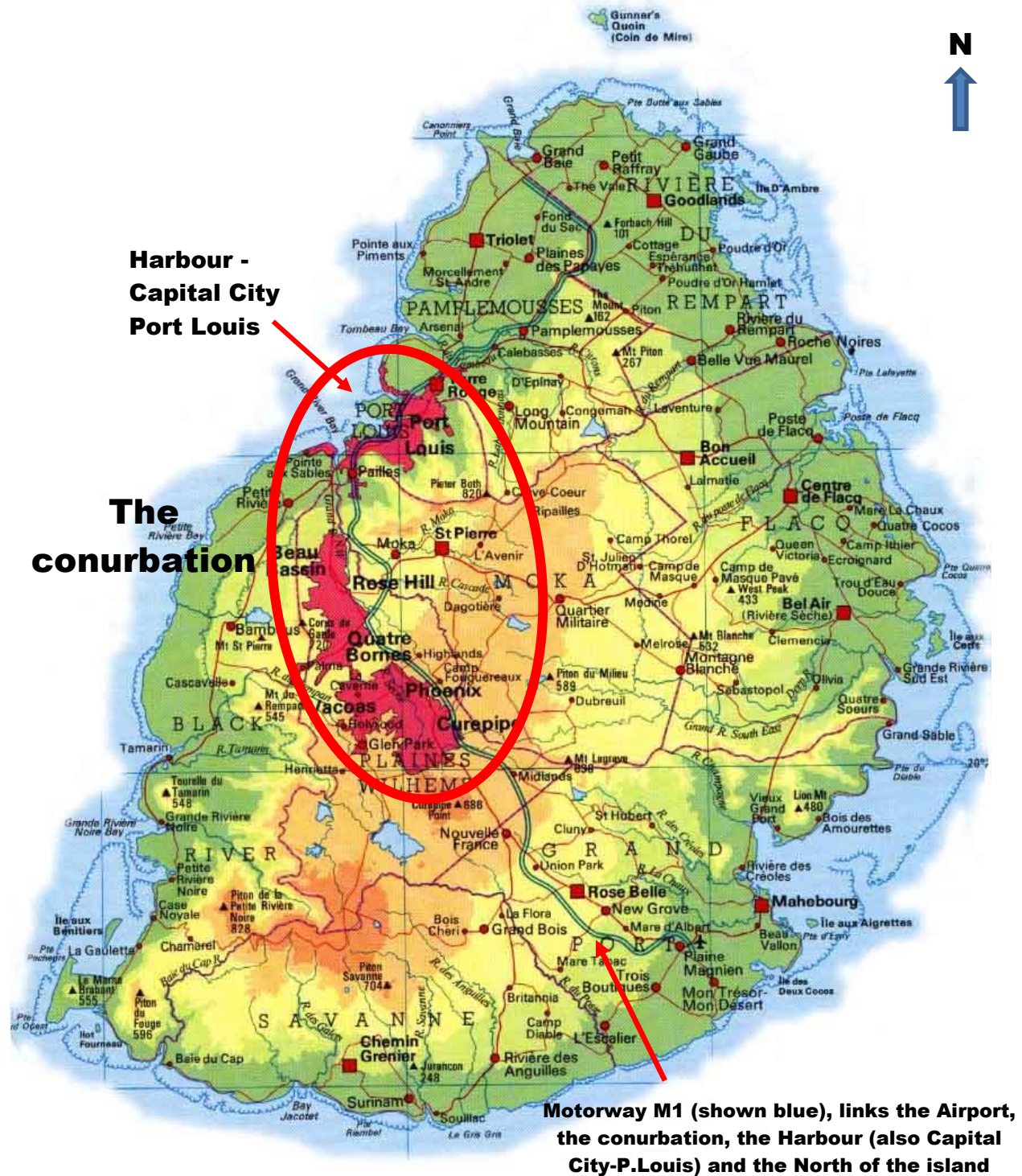


Source: National Archives UK⁴⁰ (2013)

These traders erected shop-houses within the core area of the city (very few are visible today). The shop-houses have in most cases been converted to shops with mezzanine floors. The latter are now generally used as stores for goods, merchandise etc. The owners-residents of these shop owners favoured the periphery of the Capital city as their place of residence. Subsequently, this caused numerous residential parcelling to emerge in the outskirts of Port-Louis.

⁴⁰ Port Louis (Mauritius), « à vol d'Oiseau », retrieved 04 April 2014 from <https://www.flickr.com/photos/nationalarchives/8517394815/in/set-72157632888290224>

Figure 11: Mauritius Island and the Conurbation



Source: maurinet.com modified by researcher, March 2014

4.2 The Emergence of the Conurbation⁴¹

The 4 town centres of Mauritius marked B, C, D and E on map 1 are found in the Plaine Wilhems district. The conurbation spreads 23 kilometres north to south. Plaine Wilhems district arose as a rival to Port Louis because of the migration of the citizens of the latter in the late 1800s and early 1900s. The reason explaining the exodus of the city dwellers was due to the cholera epidemic in 1866-1868 followed by the malaria epidemic in the early 1900s. Three of the town centres were granted status as towns in 1889 – namely Rose-Hill, Quatre Bornes and Curepipe. Vacoas was proclaimed town in 1895 (Toussaint 1973: 106).

“However, none of the urban areas had any commercial or industrial activity. Port Louis remained the business centre, and everyday ‘emigrants’ of Plaines Wilhems travelled to town by train. The other point is the curious way in which the population settled in these townships: Curepipe was settled mainly by the colonists of French origin, and Rose-Hill became the upper classes of the coloured population” Toussaint (1973: 107).

Records at the National Archives of Mauritius, point that in the mid-1950s problems of sanitation, housing and traffic became alarmingly important.

“Government tried to solve them by calling in a town planner from abroad, Professor Thornton-White, who had played an active part in modernizing Cape Town. Thornton White went back to first principles. He showed that the general layout of the *Capital city*, which had hardly been changed since the eighteenth century, was no longer suited to modern needs, and ought to be completely revised. Port Louis was built on what Thornton-White called the ‘the Asian formula’, by which he meant a system of small plots of different shapes and sizes, covered with mean little buildings. Should the *Capital city* continue in this way, or should it adopt the method used in the most advanced countries? This was the plan of erecting large buildings specially adapted for the needs of commerce and industry, with residential areas kept separate, and the whole plan strictly controlled. He drew his master-plan on the second assumption” (A. Toussaint 1973: 119)

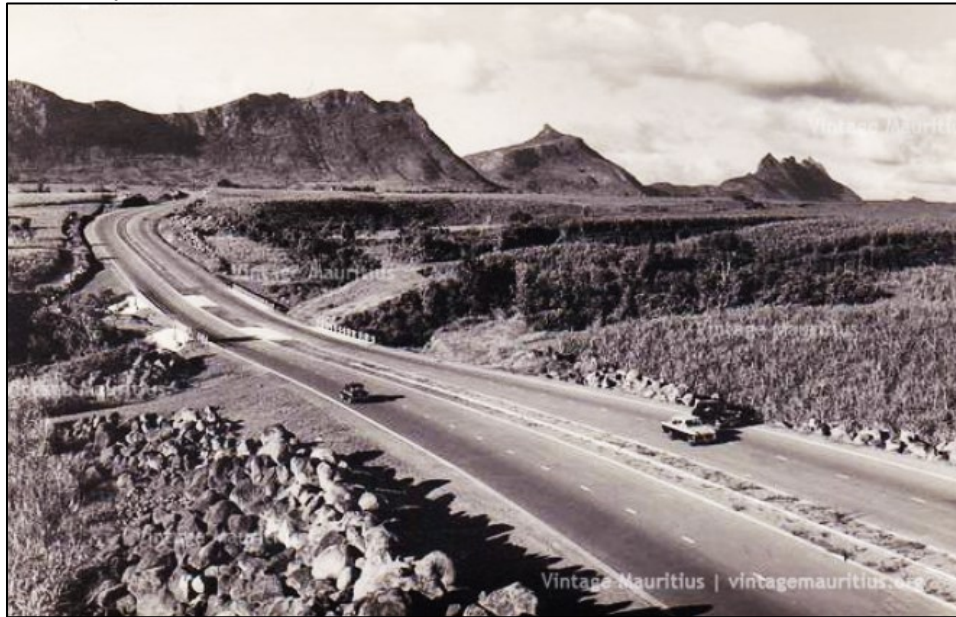
⁴¹ The term ‘conurbation’ applies to “urban settlements that have grown together to form a large built-up cluster of urban sprawl, a network of merged urban communities possibly dominating a region that has arisen due to population growth and spatial expansion. The origin of the word is attributed is associated with the work of Scottish biologist/sociologist/urban planning pioneer Patrick Geddes” (Caves 2005: 97).

The above master-plan put forward by Thornton-White in 1953 was not retained neither his proposal to build houses in height for coping with the over crowdedness of the city population. However, Thornton-White's observation on inadequate road infrastructure and limited road capacity linking Port-Louis and the Plaine Wilhems district met government's⁴² approval for construction of a two-lane motorway. The construction of this motorway (named 'M1') started in 1960s and (M1) was fully operational in the early 1970s.

The motorway shown (thick line blue) on figure 11 and map 1 was determinant in development of the town centres. This provided easier accessibility for business trips to and from the capital city. One peculiar aspect of the motorway was its connectivity to the main streets of the town centres through roundabouts. Indeed, motorway M1 facilitated mobility between the harbour (Port Louis) and the centre of the island. It also relieved main arteries and public roads linking the towns and played a major role in fluidity of traffic at that time. M1 provided an alternative route which bypassed all the town centres and in this way **the conurbation** emerged on western side of the motorway (see figure 11).

⁴² Government relates to the Central Government of Mauritius.

Figure 12: Motorway M1 in the 1960s - 1970s



Source: Vintage Mauritius⁴³, 1960s

Since Mauritius gained independence in 1968, Governments willingness to diversify from an agricultural mono-economy based on sugarcane and tea cultivation to industrial (textile) industries became apparent. The democratisation of the land ownership was the key policy and the coming of the M1 motorway encouraged private investors to set up industrial estates either close to motorway interchanges or in the periphery of Port-Louis. Later, Sugar Estates who owned large plots came up with parcelling of the land for residential purposes along the alignment of the motorway and main roads. This contributed in expansion of the towns and the change of the extended family structure to a nuclear one. The central location of the towns at the heart of island, the temperate climate, availability of services and facilities, were determinant in attracting residents. Besides, land parcelling by Sugar Estates in the Planning Wilhems district encouraged a significant number of residents from rural areas to flock to the towns of: Rose-Hill, Quatre Bornes and Vacoas (marked B, C and D respectively on map 1) and their periphery.

⁴³ Retrieved 04 April 2014 from <http://vintagemauritius.org/category/motorway/>

According to the Halcrow Group Ltd⁴⁴ (NDS 2003: 42), the conurbation may be considered a “linear city” in the planning jargon and has the following advantage:

“corridor or ‘linear band’ development over more dispersed forms of growth is the potential for more efficient public transport operation, where higher intensity activities are located along the system's central spine and lower intensity activities served by feeder operations on the fringe. Linear band should not be confused with ribbon development. Whereas ribbon development is typically one property either side of a road, the linear band can be as wide as possible to maintain high levels of accessibility to the public transport spine”.

The demand for adequate and proper public transport has met some public outcry during past years in the conurbation. Besides, most buses travelling to and from the capital city are already overcrowded when reaching the conurbation. Moreover, linear development along a highway puts into question social acceptability and environmental sustainability in terms of compactness, efficiency, and noise/air pollution.

4.3 The Conurbation Today

The conurbation includes today the island's capital city Port Louis, and the four Municipal Town Councils Areas, namely Curepipe, Vacoas/Phoenix⁴⁵, Quatre Bornes and Beau Bassin/Rose-Hill⁴⁶ (see map 1). However, Port-Louis is still the favoured location of high rise office blocks, including retail and light industrial parks. This ‘compels’ the major share of the Mauritian labour force from all parts of the country to travel daily to the capital city. The travelling time between Points E and A (see map 1), which was 45 minutes in the early 1990s, now consumes nearly 120 minutes (in public transport-buses) during the morning peak hours (7.00 a.m. to 9.30 a.m.). This

⁴⁴ Halcrow Group Limited (HGL) was the consultant appointed by the Government to prepare the National Development Strategy (NDS 2003) of Mauritius. HGL also prepared the planning schemes (OPSs) for rural schemes (2005) and were equally awarded the contract in 2012 for preparation of the urban OPSs.

⁴⁵ Vacoas is the town centre and Phoenix is the secondary town centre

⁴⁶ Rose-Hill is the town centre and Beau Bassin is the secondary town centre

is to say that the traffic congestion has exacerbated in the urban corridor⁴⁷. However, the traffic congestion encountered in the urban corridor (A to E) is a blessing for promoters to lure potential residents for electing domicile in the periphery of the Capital city. Hence, the principal satisfaction of the latter lies in escaping the daily traffic jam. In this way, emerged a number of residential housing estates (some of which are gated) at the southern periphery of Port Louis.

The total population in the conurbation represents 42.5% of the inhabitants of the island. According to Statistics Mauritius, household size has decreased from 4.4 persons in 1990 to around 3.43 persons in 2011. In 2000, 54% of the work places were located in the conurbation, of which a half or 120,000 jobs were found in Port Louis.

The *total population* in the conurbation is represented in the following table:

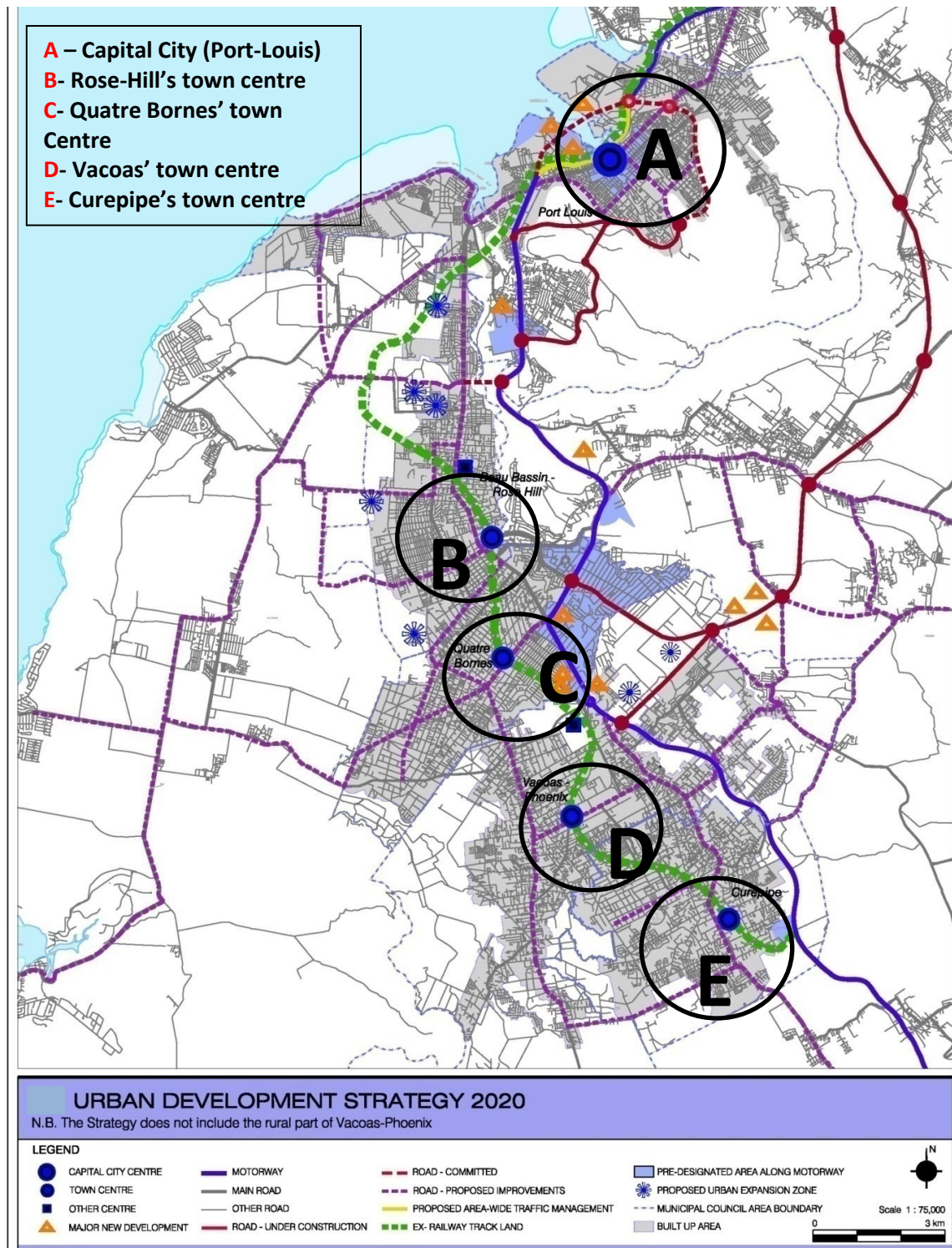
Table 8: Population Distribution in Mauritius' Conurbation

| Municipal Town Council Area/Year | 1990 | 2000 | 2011 | %of 2011 (Conurbation) |
|-------------------------------------|---------------|----------------|---------------|---------------------------|
| Port Louis | 147,766 | 154,341 | 147,270 | 30 |
| Beau Bassin-Rose Hill | 91,941 | 102,052 | 98,355 | 20 |
| Quatre Bornes | 69,505 | 75,402 | 73,950 | 15 |
| Vacoas-Phoenix | 88,730 | 98,636 | 103,019 | 21 |
| Curepipe | 72,497 | 78,355 | 76,304 | 16 |
| Total Conurbation | 470,439 | 508,766 | 498,868 | 42.46 |
| Rural | 544,400 | 633,723 | 676,170 | 57.54 |
| Island of Mauritius | 1,014,839 | 1,142,489 | 1,175,038 | 100 |

Source: Statistics Mauritius (SM, 2011)

⁴⁷ Urban corridor is the motorway (M1) which links the four town centres of the island and the Capital city, P-Louis

Map 1: The Urban Context in Mauritius (4 town centres and capital city)



Source: Outline Planning Schemes 2014 modified by researcher, May 2014

4.4 The town centres and their periphery

Before concentrating our attention on the two town centres selected for the empirical study, it is useful to present a general picture of the urban corridor of the conurbation. As pointed out earlier, the urban areas comprises of the following towns: Curepipe, Vacoas-Phoenix, Quatre Bornes, Beau Bassin-Rose-Hill. Each of these towns has their main town centres as more fully shown on map 1 and we take as case study areas, the town centres of Quatre Bornes and Rose-Hill for reasons already spelt out in Chapter 3. It is to be noted that some towns have equally secondary centres under their administrative jurisdiction. This is the case of the towns of Vacoas-Phoenix, Quatre Bones and Beau Bassin-Rose-Hill where Phoenix, Belle Rose and Beau Bassin are respectively their secondary centres.

The actual state of these urban areas and the viability and vitality of their town centres can best be described by a spatial analysis at three scales. These scales are illustrated on map 1 and are namely the:

- (1) The urban corridor (conurbation) – *marked A to E (The green dotted line is the ex-railway track)*
- (2) The periphery of the town centres – *shown by a circle is only representational*
- (3) The town centres - *marked by blue circle is only indicative*

It needs to be pointed out that planning research on the urban corridor, periphery of town centres and also town centres of Mauritius has neither been the subject of any investigation nor of any research in Mauritius. Therefore, we shall explain the essentials of the situation and direct our research based on personal experience, observations and researches carried out at the National Archives including Town Councils public library and also our questionnaire interview.

4.4.1 The town centres

Alike the linearity of the conurbation, the four town centres have developed along both sides of the main streets and along the alignment of the old railway tracks. It is to be noted that at

intersections of two old railway lines and intersections of main roads, the town centres are more compact but the only case is that of Rose-Hill (which is described later). By virtue of their linear pattern, the four town centres provide a range of public services and shopping facilities to its residents, the inhabitants of the periphery and the local neighbourhood. In this way, they play an important role in the social environment and an economic role for both the Municipality and retail market. Each of the town centres is found in a distinct municipal town council area and is administered by a municipal town council. However, there are common attributes in the four town centres of Mauritius. Firstly, they are located in one district of the island, that is, Plaine Wilhems (Mauritius is divided into nine districts). Secondly, the bus terminus (stations) and market are located at their heart. Thirdly, there is a predominance of retail (shopping) activities comprising of garments and fancy goods shops along both sides of the main streets. These retail activities did not develop according to any specific plan until the coming into effect of the first planning schemes (OPSs) in the mid 1980s.

There are very few residential uses in the four town centres and the majority of them are single-family homes. A number of other reasons may explain the lack of housing in the town centres and/or absence of interests in settling therein. The most obvious ones are noise pollution arising from the market, bus station, and commercial activities including through traffic. However, planning mechanisms before the 1990s favoured only commercial and retail activities in the town centres and this has undoubtedly dispelled residential activities to other areas. Besides, the cost of land in town centres is relatively high compared with the other neighbouring areas. It was equally perceived by the population that basic goods and services are more expensive in the town centres and therefore a shared cultural belief has been established that living in the town centres is meant only for high income earning groups and this is still perpetuated. Moreover, payment of municipal taxes was undoubtedly another deterrent for electing domicile in the town centres.

A key attraction of all the town centres was the existence of Cinema halls. But except the town centre of Curepipe, all of the cinemas were closed in the late 1980s and early 1990s. In two cases, the Cinema buildings in town centres have been converted (recently) into supermarkets, confirming that the main land uses in the town centre continue to be retailing activities. There are

equally two circumstances where the Cinemas were converted into Casino's and Discotheques. However, the closure of the latter is constantly claimed by inhabitants mainly because of religious beliefs against gambling and selling of liquor (places of worships and schools occur nearby) but also noise pollution.

Each town centre has its own market, banks, post office etc., and its own bus routes to serve the local neighbourhood and the other parts of the island (including Port-Louis). This concurs with Merlin and Choay (2010: 146) that « le centre urbain doit être à même de remplir son rôle de « moteur » de la périphérie proche (banlieues et plus lointaines, zones d'influence). Il doit être à la fois très bien desservi en transports internes et en relations externes avec les espaces voisins ». Indeed, the provision of public facilities and services may be perceived as a positive factor in the role played by the town centres.

4.4.2 The growth of the periphery

As regards the periphery, development took a more scattered form with proliferation of small concentrations of residential uses only but with more important individual parcels (areas). Such developments occur on both sides of the M1 motorway and primarily where roundabouts and motorway interchanges were built.

The periphery of the town centres has undergone radical changes during the past three decades. These are the case of Rose-Hill, Quatre Bornes followed by Vacoas. The outskirts of these town centres have transformed primarily due to the Government's policy which in turn was guided with a major concern: the urgency of solving the traffic congestion experienced at peak hours along the motorway (the urban corridor). As such, the changes in the periphery of the town centres may have resulted from the construction of new road infrastructure and planning policies to rezone a green wedge along the motorway including allowance for increased building height therein.

In 2010 the Central Government of Mauritius came forward with a road decongestion programme to cope with the challenging issue traffic congestion poses to the conurbation. This programme enabled the construction of additional road infrastructure amongst which are a number of by-passes for motorists to escape the town centres and addition of a third lane (to the Motorway). The purposes of these were to improve the road capacity for vehicles travelling to and from Port Louis and the conurbation. These road schemes (or programme) have in fact encouraged the periphery of town centres to grow. Indeed, the Government's decision in 2009 to rezone a green wedge along the fringe of town centres and planning policy adopted in 2007 for increased development height along the motorway has opened the floodgates for a number of high rise residential apartments to spread as mushrooms thereat. In all cases, residents of these apartments rely extensively on the motorcar and are therefore adding up to increase the traffic volume in the conurbation.

Besides residential apartments along the urban corridor, a concrete example of the growth of the periphery is the case of Ebene development in the conurbation. 'Ebene' took birth from the willingness to decentralise the Capital city in the early millennium because of the traffic congestion problem. In fact, the Mauritian Government was eager to look for accessible locations and move in the first instance institutional buildings thereto. A site was identified midway in the conurbation and a deal was struck by the Government and private Sugar Estates (owner of the land) with respect to Government's acquiring the plot for relieving Port Louis from development pressure and alleviating the traffic jam issue.

In this way, 'Ebene' spreading over an area of 68.8 ha was developed under the management of Business Parks of Mauritius Limited¹ (BPML) to accommodate buildings of height not exceeding G+3 Floors with a landmark building of 12 stories (72 metre tall) called the Cyber Tower One (see figure 13). Ebene was hereafter named Ebene cyber city, and is geared towards

provision of mainly office spaces⁴⁸ (1st phase). This blue glass and grey stone tower was awarded the “Intelligent building of the year” by the Intelligent Community Forum (ICF), USA in 2005.

Figure 13: Ebene Tower ‘1’ (Cyber city)



Source: BPML 2014

However, due to development pressure by plot owners/promoters of the Ebene morcellement, the height restriction has been waived and Ebene has since then experienced a number of other tall structures⁴⁹. In this respect, Ebene Cyber city has driven office activities from the town centres. The second phase of developing the Cyber city was concerned with residential plots and this encouraged an important number of professionals living in the whereabouts of the town centres

⁴⁸ “The Business Parks of Mauritius Ltd (BPML) is a Government owned company, set up in 2001 for the development and management of Business Parks in Mauritius. It has established itself as a reliable and indispensable partner for providing service land and office premises for ICT related activities. The Ebene Cyber City developed by BPML remains choicest location for ICT/BPO activities in Mauritius” (BPML, 2014).

⁴⁹ Tall structures are defined in the planning mechanisms of Mauritius as buildings exceeding a height of Ground +3 floors (G+3)

to move thereto. Ebene is also closer to the capital city than the other four town centres and once the residential plots were put on sale, the affluence was great amongst buyers. However, it is observed that a large number of plots are still vacant (although all were sold). Subsequently, a hypermarket and shopping mall was developed in this cyber city aimed to serve the needs of the working labour force, visitors and new residents. Lastly, services such as banks and post office have equally been established in Ebene. Hence, Ebene curbed the need and importance of town centres (in the eyes of its visitors) and seemingly has had a negative impact on the viability and vitality of the town centres.

4.4.3 Modes of Transport and their impact

Historic Contribution of Railways and Bus Stations in developing town centres

History reveals that the town centres in Mauritius developed due to the rail stations (started operation in 1864) which ceased to operate after a century, in 1964. The maximum length of the Mauritian railway network was 250 km. The railways contributed, to a great extent, to the socio-economic development of the island from the late 19th century to the middle 20th century. Secondary lines were crucial in boosting development in some of the rural villages, where plantations of tobacco, sugar cane, and aloes were the main economic activities; as such, the railway provided an opportunity of commercial exchange for the rural areas. Goods and crops, mainly sugar cane, were carried with efficacy and in increasing quantity. From 1880 to 1910, approximately 100,000 tons of sugar cane was carried by trains. This changed with the introduction of lorries in 1920. The train also contributed in the education of children from rural areas of the island as most schools were found in the towns (Jessop 1964: 4-28; Toussaint 1973: 95).

As mentioned above, the spread of diseases in the capital city in the early 1900s compelled the inhabitants of Port Louis to settle in the whereabouts of railway stations of most town centres. It

appears that an important number of these ‘new’ residents were shop owners and traders. Hence, they brought about further investment and consolidated these areas by setting up their businesses and constructing their dwellings. Consequently, land speculation in the vicinity of the newly formed commercial cum residential areas encouraged the creation of morcellements by sugar estates. In this way, the upper and middle classes of the island purchased a plot of land in these locations. The introduction of the motorcar in Mauritius in 1903 and the subsequent replacement of animal-drawn carts prompted the introduction of a bus service from Port-Louis to Curepipe (marked A to E on map 1) on 3 October 1927 (Toussaint 1973: 118). The bus played a major part in shaping the conurbation. Railway stations which were ‘crown lands’ were then replaced after 1964 by bus stations in all the town centres. The growth in population and their demands further influenced the construction of the market place (selling of vegetables, fruits, meat and fish) close to these bus stations. Presently, all the bus stations are located at the heart of the town centres. The former complemented in the development of commercial activities in the town centres. Subsequently, the main road arteries were transformed into a ribbon pattern of commercial land uses.

Impact of road traffic

Traffic congestion is persistent in all town centres. One explanation might be the annual vehicular growth rate (new vehicles) Mauritius has witnessed over the past years. Cars are undeniably the main contributors for alarming the traffic congestion problem. According to figures available from Statistics Mauritius (2014), we can deduce that the number of cars have increased by more than 100% over the last decade (see table 9). Subsequently, Mauritius has registered an annual growth rate of approximately 8% (past two years). Comparatively to motorcars, the only mode of public transport (buses) has not registered significant increase over the previous 10 years. The bus fleet in Mauritius is both privately and publicly owned and managed. In the first quarter of 2014, Government acquired an important number of new buses, to renovate its bus fleet and in response to possible mechanical defects with respect to a fatal accident involving 10 casualties (a year ago).

Table 9: Vehicles Registered in Mauritius (2003-2014 March)

Vehicles Registered 2003 - 2014

| Type of vehicle | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 (March) |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Car | 68,524 | 77,342 | 84,818 | 91,911 | 99,770 | 109,507 | 117,890 | 127,363 | 136,226 | 147,733 | 160,701 | 163,826 |
| Dual purpose vehicle | 39,383 | 40,667 | 42,026 | 43,221 | 44,635 | 46,021 | 47,146 | 48,271 | 49,132 | 50,116 | 49,730 | 49,629 |
| Double cab pickup ¹ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,155 | 1,410 |
| Heavy motor car | 958 | 1,020 | 1,045 | 1,118 | 1,223 | 1,290 | 1,275 | 1,249 | 1,230 | 1,244 | 1,250 | 1,259 |
| Motor cycle | 26,744 | 28,646 | 30,927 | 33,936 | 36,969 | 40,804 | 44,222 | 48,655 | 53,409 | 59,637 | 65,827 | 67,574 |
| Auto cycle | 98,858 | 100,854 | 102,503 | 104,238 | 105,637 | 107,184 | 108,713 | 110,674 | 112,296 | 113,871 | 114,958 | 115,218 |
| Lorry and truck | 11,501 | 11,774 | 12,047 | 12,272 | 12,536 | 12,726 | 12,950 | 13,186 | 13,539 | 13,902 | 14,061 | 14,098 |
| Van | 22,496 | 23,326 | 23,989 | 24,522 | 24,934 | 25,334 | 25,622 | 25,914 | 26,090 | 26,293 | 26,624 | 26,636 |
| Bus | 2,460 | 2,457 | 2,560 | 2,612 | 2,753 | 2,762 | 2,803 | 2,845 | 2,912 | 2,957 | 2,963 | 2,974 |
| Tractor and dumper | 2,877 | 2,935 | 2,982 | 3,001 | 3,025 | 3,045 | 3,102 | 3,119 | 3,173 | 3,202 | 3,226 | 3,233 |
| Prime mover | 389 | 388 | 412 | 436 | 452 | 505 | 558 | 596 | 650 | 689 | 715 | 714 |
| Trailer | 1,772 | 1,771 | 1,765 | 1,756 | 1,795 | 1,809 | 1,823 | 1,821 | 1,834 | 1,845 | 1,846 | 1,842 |
| Road roller | 100 | 99 | 96 | 96 | 96 | 96 | 97 | 98 | 99 | 101 | 102 | 103 |
| Other | 329 | 326 | 326 | 321 | 320 | 323 | 319 | 324 | 329 | 336 | 337 | 335 |
| TOTAL | 276,371 | 291,605 | 305,496 | 319,440 | 334,145 | 351,406 | 366,520 | 384,115 | 400,919 | 421,926 | 443,495 | 448,851 |
| Annual % increase | - | 5.5 | 4.8 | 4.6 | 4.6 | 5.2 | 4.3 | 4.8 | 4.4 | 5.2 | 5.1 | 1.2 |

¹ New category of vehicle defined in Road Traffic Act as amended by Act No. 27 of 2012. Prior to the amendment, double cab pickup was included in 'Dual purpose vehicle'

Source: Statistics Mauritius (March) 2014

4.4.4 Government interventions with respect to the transport sector and congestion

The Government appointed consultants the past two decades for advice on the traffic congestion problem in the urban corridor. A series of reports have been produced and a number of proposals have been made to alleviate the traffic problems. The main solutions proposed were (INTSS Report, 2001):

- (i) Decentralisation of the city centre
- (ii) Widening of the existing motorway (M1) in the two directions
- (iii) Implementation of a bus lane and upgrading of buses
- (iv) Introduction of park and ride facilities in Port Louis
- (v) Introduction of an alternative mode of public transport (to buses)

Government interventions as at to-date were in respect to proposals (i), (ii) and (iv) above. In the same wave, it is important to note that the INTSS report (2001: 4) considers:

“The major impact of economic growth on the transport sector, however, has been the growing ability to afford private transport (cars, dual-purpose vehicles and motorcycles), and hence the growth of road traffic and the declining use of public transport”

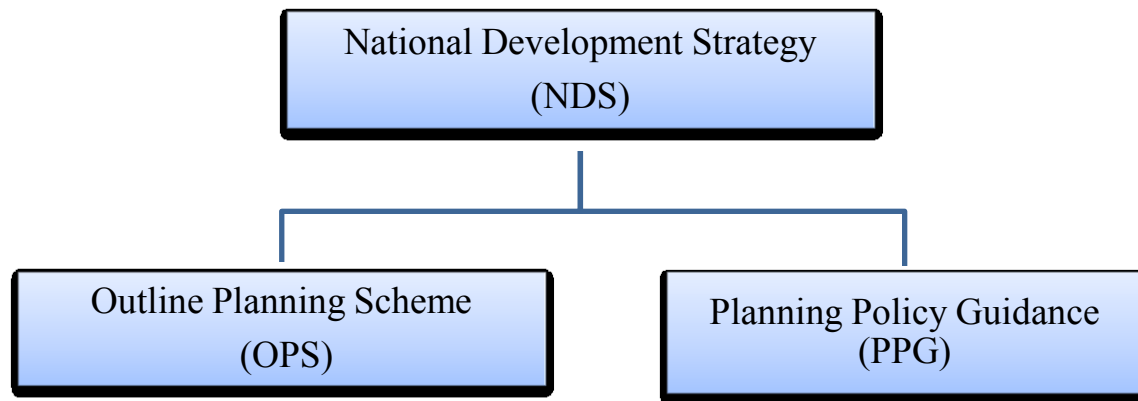
In addition, Government has also showed commitment in 2013 for implementing an alternative mode of public transport. This project hereafter named the Light Rail Transit (LRT) system will be examined in the coming chapters.

4.5 Planning mechanisms in Mauritius

We shall now introduce the planning mechanism (in general terms) in Mauritius, and have a brief look at their purpose and functions. Thereafter, we shall look at the consideration they attach to mixed-use. The planning system in Mauritius is highly hierarchical. At the top of the hierarchy amongst the planning mechanisms is the National Development Strategy (NDS). This plan is prepared by the Ministry responsible for the subject of Housing and Lands. It sets the general national policies (e.g. on housing, transport, education, water, health etc.). The NDS provides guiding principles for the preparation of Outline Planning Schemes (OPSs) for the urban and rural areas and is in fact the “*plans d'urbanisme*”. The OPSs provides local policies for development control and preservation of land uses (e.g. agricultural, forestry) amongst others. The Planning Policy Guidance (PPG) complements the policies of the OPS, lays further emphasis for development control and address design issues (e.g. height of buildings, plot coverage, setbacks, parking requirements etc.) for different uses (residential, commercial, industrial, hotels etc.). These three planning mechanisms are described in the next sections. It is to be noted that the areas under the administrative jurisdiction of all district and town councils are declared as planning areas through proclamation in the Government Gazettes and are therefore legally recognised⁵⁰. The hierarchy of the planning mechanisms is represented in figure 14.

⁵⁰All the planning documents (NDS, OPSs and PPGs) are approved under Planning Acts and are legally binding

Figure 14: Hierarchy of Planning Mechanisms for urban areas in Mauritius



Source: researcher, July 2014

It is to be noted that the Planning legislation (Town and Country Planning Act 1954 and Planning and Development Act 2004) sets the plan making procedures and provide their legal impetus. Moreover, the building legislations (Building Act 1919) regulate construction of buildings and empower local authorities with development control functions.

4.5.1 An Overview of the Planning Instruments

As observed in figure 14, land use planning and development in the urban areas of Mauritius is concerned with the two plans, the NDS, OPS and a development tool, the PPG. We shall therefore have an overview of the NDS, OPSs and PPGs.

The National Planning Instrument in Mauritius: The National Development Strategy (NDS)

The National Development Strategy (NDS) was approved by Government in March 2003 and adopted in June 2005. The NDS comprises a range of policies for nationally significant developments and provides guidance for developing residential, tourism, a range of employment

uses and major transport and infrastructure proposals. The NDS also provides guidance on where land should be protected or where caution should be exercised when determining if strategic development should go ahead. It covers the development period up to year 2020.

The Outline Planning Schemes (OPSs) and its functions

The three functions of OPSs as outlined in these planning documents (OPS 2013: 1) are:-

- To assist planning officers and decision-makers at both Government and Local Authority levels in ensuring proposals for development at the local or site specific context are in compliance with the policies and proposals derived at the national level;
- To provide guidance to scheme promoters, developers and individuals on the planning policies and proposals that they will need to take into account when submitting a permit application; and
- To provide the spatial development framework within which the projects and programmes of other Government Ministries and agencies having an interest in the development of land can be coordinated and implemented.

The 1954 Town and Country Planning Act (as subsequently amended) is the legal framework making provision for approved Outline Planning Schemes to be the main reference for determining permit applications. The provisions of an approved Outline Planning Scheme have therefore to be the key elements when considering appeals against permit refusals.

The Planning Policy Guidance (PPG)

The PPG is a complementary planning instrument, having the status of National Planning Policy and as such, is a material consideration in assessing permit applications. It is issued to Local Authorities (District and Municipal Councils) by the Minister of Housing under section 13 of the Planning and Development Act 2004. It should be understood that the granting of a Building and

Land Use Permit by a permit authority does not override obligations under any other legislation relating to the development proposal of a site.

In the event of any conflict between policies or regulations contained in a PPG and OPSs respectively, the former takes precedence. If there are any discrepancies or omissions between the maps and the text of the policies and proposals in the OPS, then the provisions of the policies and proposals will prevail. The PPGs, which date back to a decade ago, are presently under review by the Ministry of Housing and Lands. PPGs as stated earlier, cover design guidance on residential, commercial, industrial, tall buildings, bad neighbour activities (e.g. poultry, cattle rearing, and noxious industries), new developments, etc.

The OPSs and PPGs are the only development control tools used in the local context and the reference material to allow/refuse development by permit authorities. We shall next consider the definition provided for the town centres in the new version of OPSs (2013 – horizon 2020) and what is proposed therein with respect to mixed-use for the town centres.

4.5.2 Administrative definition of the town centre

In the new version (2013) of OPSs, a town centre is defined into two parts, a Commercial Core and an Edge of Core, each with its own set of policies and regulations. An extract of the definition of the town centre in OPSs:

“The town centre comprises two defined zones: the commercial core zone and the edge of core or outer zone which are identified on town centre’s inset plans.

Commercial Core or Core Zone

The commercial core zone corresponds with previously defined zones variously referred to as commercial cores or central business districts. The zone comprises predominantly commercial uses at ground and podium level as well as a range of secondary uses. Commercial includes retail, offices, leisure and entertainment. Secondary uses include residential, institutional, community, social and transport facilities.

Edge of Core or Outer Zone

The edge of core zone includes areas and sites lying adjacent to the commercial core where (within a reasonable walking distance of 400m) some form of land use change is occurring or is expected.

Development changes may occur as a result of trends determined by market forces, a major development proposal, tall building or urban regeneration project, or Government interventions such as new development policies aimed at securing public realm, traffic management or community facility improvements.

The edge of core zone will typically include:-

Sites where the predominant land use (normally residential) is changing to commercial. If current trends continue the zone will become predominantly commercial in the foreseeable future. Land uses normally associated with a town centre, serving a catchment that extends beyond the town centre and which normally require good access by a variety of modes, such as town halls and other public administration offices, street markets, traffic centres and main taxi stand.

Areas in decline which need revitalisation or renewal and which can be redeveloped to enhance the centre's image and identity by rounding off or filling in vacant or derelict sites, or offering opportunities for new mixed use, mixed density developments including well-designed tall buildings."

(Source: OPS 2013: 83)

The town centre is also spatially interpreted in an inset plan (see maps 3 and 5). The OPSs further states that a town centre should include entertainment uses, social facilities as well as residential accommodation so that it remains vibrant at night time and at weekends as well as during the day. In the glossary of terms section of the PPG, the town centre is defined as "the heart of urban communities providing clusters of commercial activity in a mixed-use setting, located on key public transportation routes. The town centre comprises the commercial core and the edge of core as identified in Outline Planning Schemes" (PPG 8, 2013: 14).

4.5.3 Implementation of Outline Planning Schemes

Town Councils are the agencies responsible for implementation of the OPS in the conurbation (urban areas) through the development control provisions of the Town and Country Planning Act

1954, the relevant parts of the Planning and Department Act 2004 and the Local Government Act 2011. Other Ministries, including those with responsibility for Finance and Economic Development, Agro-industry and Food Security, Environment and Sustainable Development, Public Infrastructure, Energy and Public Utilities, Local Government and Outer Islands, Arts and Culture, as well as Housing and Lands, will also be involved in the implementation of the OPSs as per their competencies under relevant acts. The OPSs of the Plaines Wilhems District are presently under public deposit and will be adopted by early 2015. As clarified earlier, all the plans have legal impetus.

4.5.4 Mixed-use in the National Development Strategy (NDS) and Outline Planning Scheme (OPS)

Mixed-use was used for the first time in 2004 in the national planning framework (National Development Strategy: NDS) of Mauritius as a policy for the urban renaissance of the town centres. The main reason justifying this policy was that since 1996 the trend of out-of-town shopping centres the country's conurbation was witnessing can lead to “town centre decay and loss of investment” (NDS 2004: 49). The NDS further remarked that the release of green field sites to accommodate big retail outlets with important parking areas would not act as a benefactor for the LRT system. The LRT was still at the stage of feasibility studies at that time. It was considered by transport authorities as a solution to solve the chronic traffic congestion encountered within motorways at peak hours.

The last decade has not seen any significant change in the urban form of the town centres with respect to the mixed-use policy advocated in the NDS. In lieu, as we saw in section 4.4.2, Ebene development of an area of 68ha emerged in the conurbation as part of Government's policy to decentralise the capital city (Port Louis) - guilty for the cause of the traffic jam according to transport authorities. Besides, out-of-town shopping centre (hypermarkets) and high rise developments along motorway M1 at the periphery of Quatre Bornes' town centre emerged.

Similarly, the coming into operation of the hypermarkets in the late 1900s has encouraged a number of gated communities and residential parcelling for residential projects. As regards, the urban OPSs (pre-2013) they did not contain any mixed-use policies for the plausible reason that since coming into force of the NDS in 2003, the former's revision was overdue. However, the new version of the OPSs (2013 – horizon 2020) points out under the relevant policy that for the town centres⁵¹:

“Applications for a mix of uses including shops, offices, entertainment and leisure, as well as residential, should be promoted in the commercial core zone of the Quatre Bornes’ (or Rose-Hill) town centre as defined on the Development Management Map. Priority should be afforded to mixed use developments that incorporate proposals for improvements to the public realm, public transport, parking provision and management, facilities for pedestrians, cyclists and the disabled, and affordable housing” (OPS Quatre Bornes 2013: 81)

From our site reconnaissance we deduce that the lines drawn to indicate the core zones of the town centres are based on the actual urban character⁵² and the outer zone is the perceived change of use⁵³ (by consultants validated by local planners). As such, a close examination of these zones shows that they are spatially constrained and are built up areas with no possibilities of infill development (this will be discussed in Chapter 5). In conclusion, the NDS has not been effective in attracting mixed-uses in the town centres and they were too focussed on the LRT project (which has not materialised) and the urban OPSs (pre-2013) were silent on the mixed-use approach in town centres. In contrast, the urban corridor and periphery of towns have known considerable physical changes and in this way have attracted a number of residential and commercial uses. In this context, our next chapter will consider the urban form and activities in the two case study areas.

⁵¹ This policy is identical for the four town centres, that is, our two case study areas (Quatre Bornes and Rose-Hill) and the other town centres (Curepipe and Vacoas).

⁵² Comprises of predominantly commercial uses at ground floor with retailing and offices including services such as banks, bus station, municipal building.

⁵³ “Where there are signs that predominantly residential land uses are changing into commercial uses”.

5 THE SELECTED CASE STUDIES: Quatre Bornes and Rose-Hill

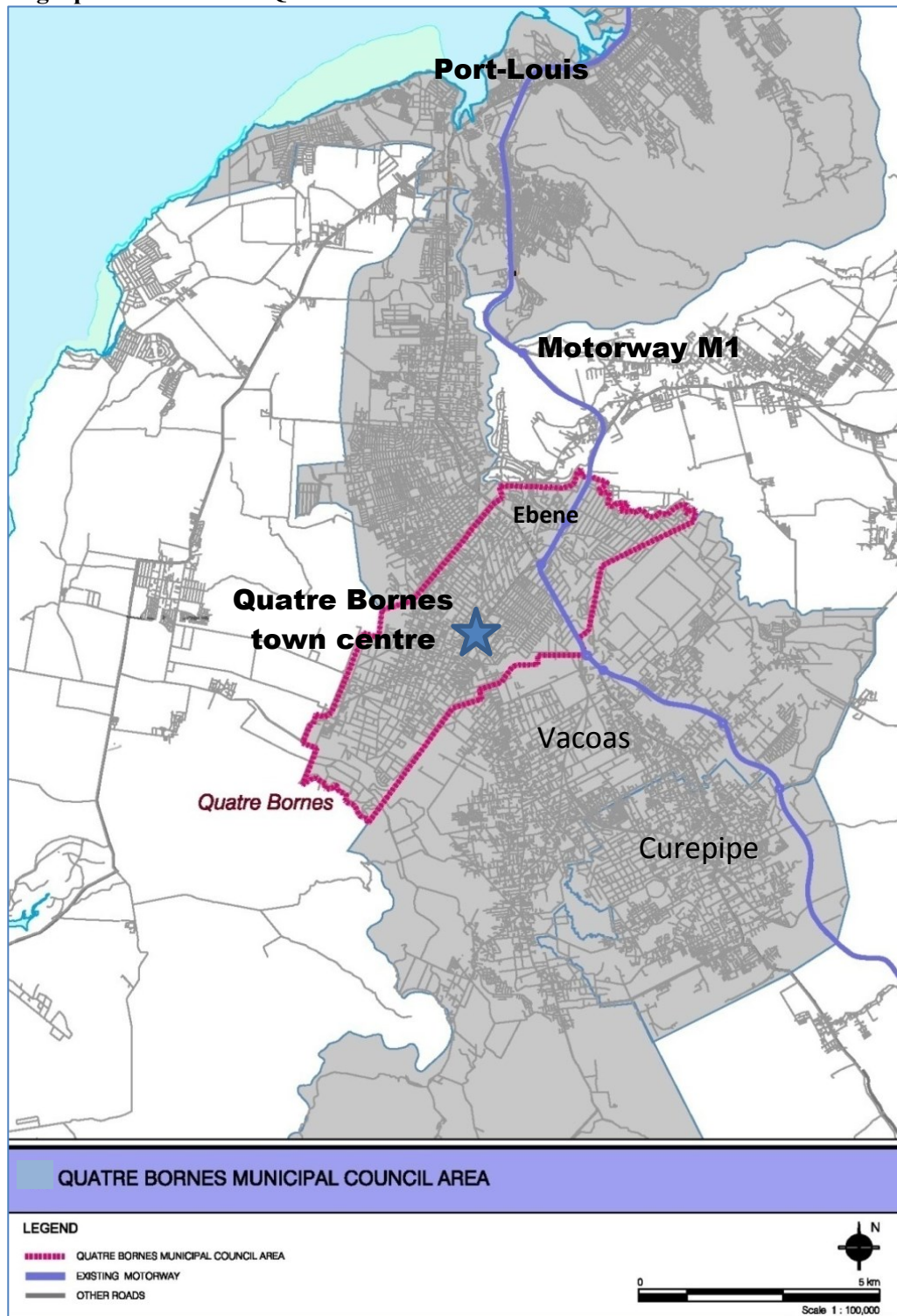
As we outlined in our research methodology (section 3.3), our choice of Quatre Bornes and Rose-Hill as case study areas was motivated by the fact that the other two towns have a rather rural setting and would not provide enough grounds for mixed-use analysis and investigations. Besides, as we found out in Chapter 4, the viability and vitality of Quatre Bornes and Rose-Hill is more under threat in relation to their close geographical proximity with Port Louis, which dominates the conurbation in terms of shopping and employment. Additionally, new developments in the periphery constituting of residential apartments and shopping malls are growing at the towns' periphery. In this Chapter, we investigate the evolution of the two case study areas in order to identify causes of their decline including their relative strengths and weaknesses. Thereafter, we investigate the state of mixed-use in both town centres.

5.1 Case Study Area 1: Quatre Bornes

5.1.1 Urban form and activities

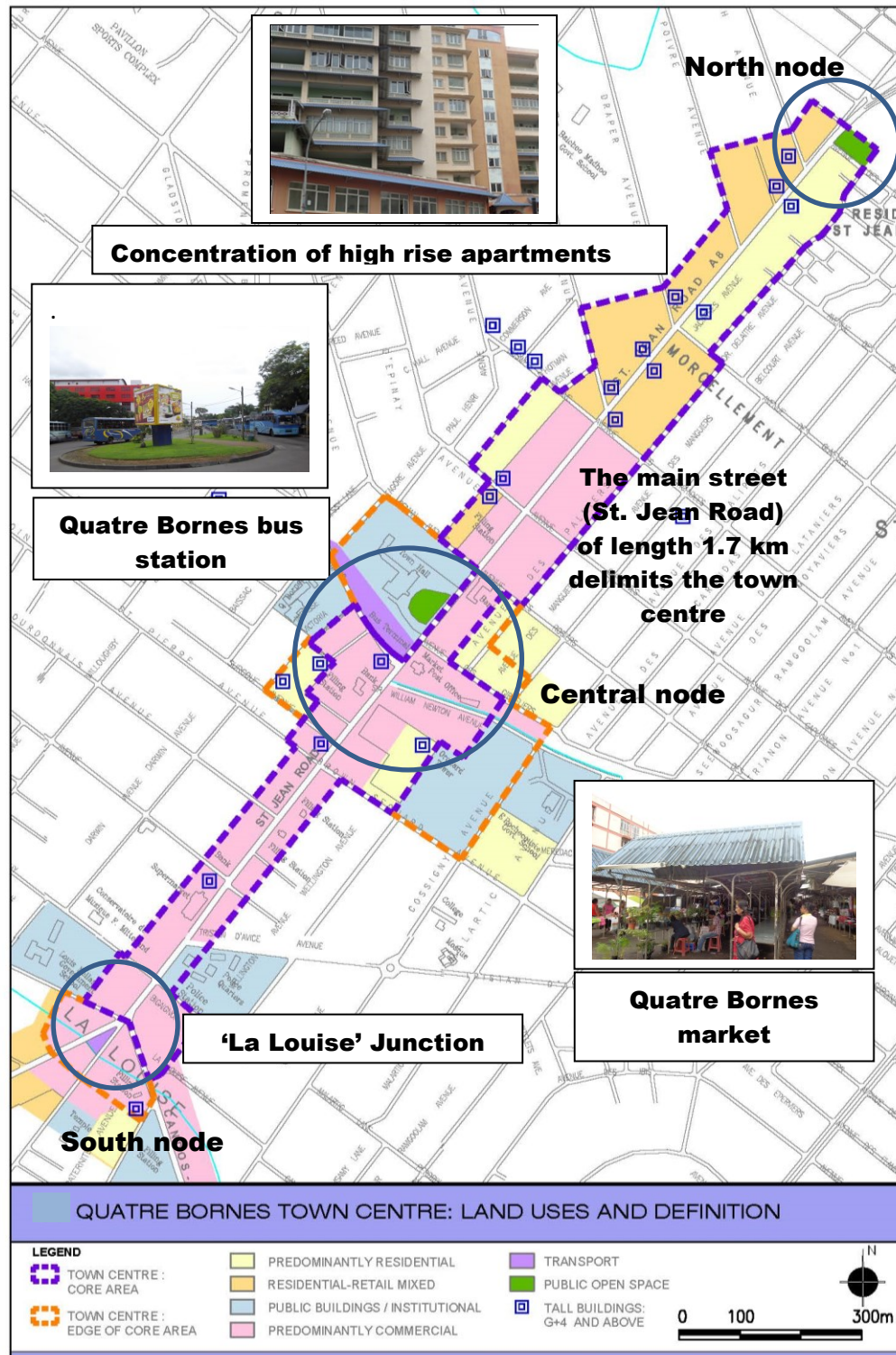
Quatre Bornes is also known as 'La Ville des Fleurs' and, due to its favourable climate and strategic location at the heart of the conurbation, has proved for the past years an attractive residential location, including several residential land parcels (e.g. Sodnac, St. Jean, Ebene). There are major tracts of land in the north eastern and south western edges of the built-up areas that are still under agricultural use. To help in describing its urban form and activities, the town centre has been spatially broken into three nodes - a central node, a south node (La Louise historic town centre) and a north node (town centre entrance from the motorway). These three nodes are illustrated on Map 3 and will be presented in the next pages.

Map 2: Geographical location of Quatre Bornes town centre



Source: OPS 2013 modified by researcher, March 2014

Map 3: The three nodes of Quatre Bornes town centre



Source: OPS Quatre Bornes 2013 modified by researcher, March 2014

The Central Node: Key land uses

Located at the heart of the municipal town council area, Quatre Bornes town centre comprises the main commercial street of St. Jean Rd extending from the South of the M1 motorway to the 5 leg junction at La Louise (see map 3). The key attraction of the town centre remains the market and bus station.

Figure 15: Quatre Bornes market, one of the main destinations in the town centre



Source: researcher, January 2014

The market and bus terminus are separated by the St. Jean Rd. As often published in the local press, motorists usually voice out that the pedestrian crossing between the bus station and market represents a hotspot for accidents and one of the main reasons for exacerbating traffic congestion in the town centre. Pedestrians on their part, view it as an important link facilitating their to and fro movement. The Quatre Bornes municipality has on a number of occasions announced the relocation of the market but until this point in time there have been no communication on this issue. Although the market is operational daily, twice per week market fairs are held within same premises. In the Mauritian jargon, market fairs days are ideal for shopping because a variety of

goods at cheap prices are available on these days. The goods range from clothing, handicrafts, fresh fish, typical local food delicatessens and cakes amongst others. Market fairs are equally amongst the rare activities attracting tourists in Quatre Bornes.

Figure 16: St. Jean Road, separating Quatre Bornes market and the bus station



Source: researcher, January 2014

The South node: La Louise historic junction

As pointed out by Manuel Castells (1987: 183), « le centre des villes européennes était à la fois un espace géographique et un lieu où s'exerçaient un certain nombre de fonctions vitales pour la cohésion de la cité ». La Louise historic junction which, was developed by the French and British Empire has inherited this character.

La Louise is found at the extreme south west end of Quatre Bornes' town centre and is considered as the historic area (OPS 2013: 37). The five 5 leg junction at La Louise (see map 3) provides connectivity to the west, south and east part of the island. The presence of a long standing taxi stand provides accessibility (in absence of buses) to the remote residential areas of

Quatre Bornes Municipal Town council. There is a general feeling that the presence of Candos national hospital approx. 400 metres south of la Louise has contributed in maintaining it as a centre of activity. The OPS (2013) also gave the status of secondary centre to La Louise (the primary centre is Quatre Bornes' town centre) in respect to the number of retail activities found along the Candos-Vacoas Road (from la Louise) up to the Victoria (Candos) national hospital.

Figure 17: Taxi stand and retail development at la Louise



Source: researcher, January 2014

Figure 18: The 5 leg junction at la Louise connects Quatre Bornes to the different parts of the island.



Source: researcher, January 2014

The north node: the town centre's entrance

The north node which was predominantly residential in character (g+1 floor) has undergone some transformation in recent years. It is now common to observe a number of high rise buildings with the ground floor devoted to eating places (restaurants, snacks, fast food) and upper floors principally retaining residential usage.

Figure 19: Residential apartment block in the north node (town centre's entrance from Motorway M1)



Source: researcher, January 2014

Commercial development and other amenities

As the traditional commercial centre, Quatre Bornes' town centre contains a range of shops (garment and fancy goods), supermarkets, the market, the traffic centre, administrative buildings (the town council), public facilities (library) and services (post office, banks etc.). However, it

should be recognised that the mixture of amenities existing in the town centre is horizontally dispersed. In most cases, the buildings have not known any upgrading programme by the owners and a few are noticeably in a state of disrepair. They consist generally of ground and mezzanine floors (used principally for display and sale of goods and merchandise), and a first floor used for storage purposes. In a number of cases, the shops have shut down and the ground floors have been rehabilitated and leased by owners as food eating places (restaurants and fast foods).

Figure 20: The most common trade activities in Quatre Bornes' town centre (restaurant, garment and fancy goods shops)



Source: researcher, January 2014

5.2 Case Study Area 2: Rose-Hill

5.2.1 Urban form and activities

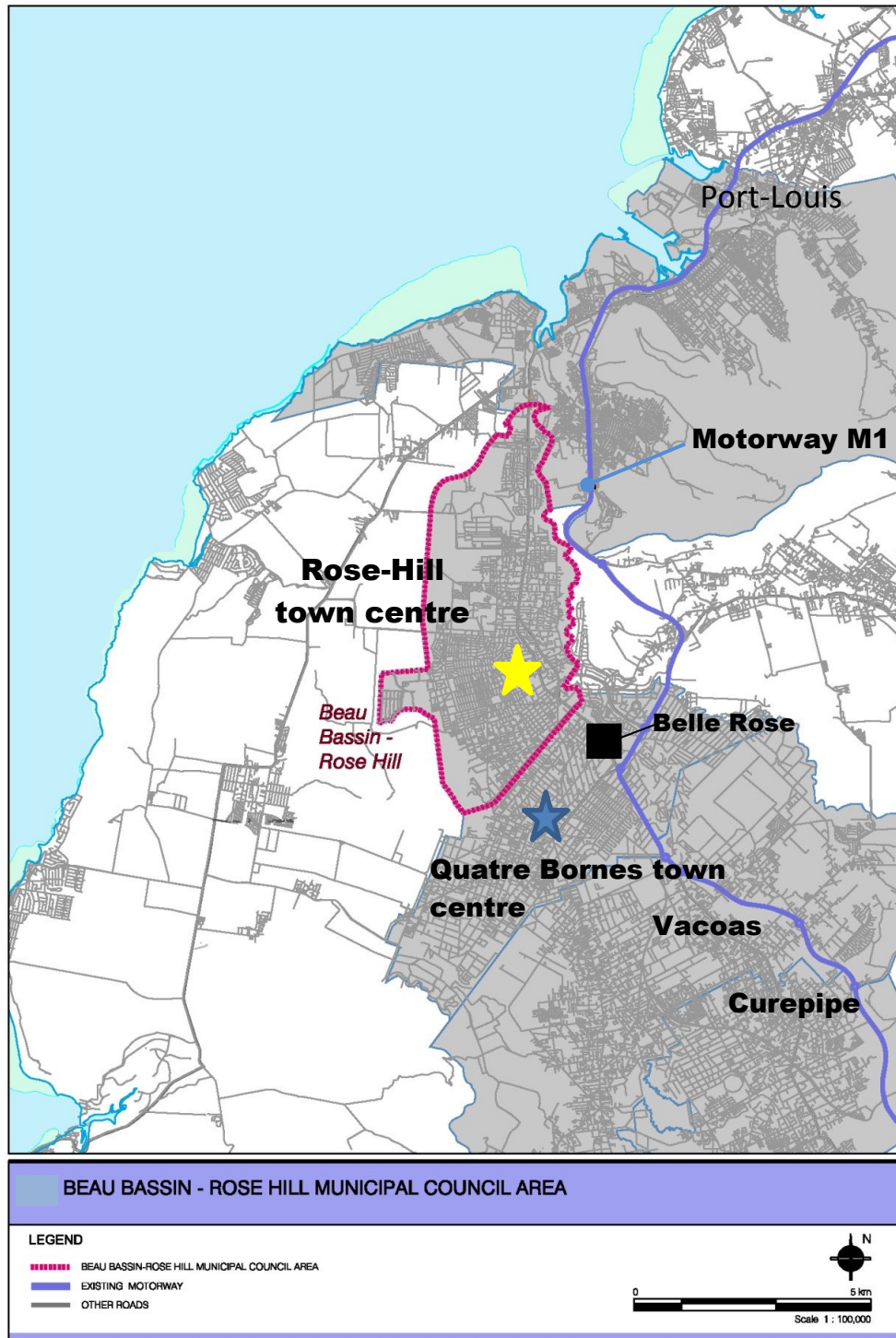
In Rose-Hill municipal council area there are major tracts of land in the west that are still under agricultural use. However, within the built-up areas, urban development is denser and few major sites remain to be developed. The street pattern in Rose-Hill shows considerable variations. Some areas have rectilinear streets, whereas elsewhere the layout is erratic. A particular feature is the alignment of the former railway which in fact runs the length of the municipal council area and was at one time the principal means of transport to Port Louis for sugar, goods and people. Accordingly, the former railway station building at Rose-Hill is the first ‘eye-catching’ sight for visitors entering the town centre (from the south and east). The railway station building has been preserved and maintained (see figure 21). Subsequently, despite the closure of the railway its alignment is still evident (see map 5).

Figure 21: Rose-Hill post office (former railway station) located at the centre of the town



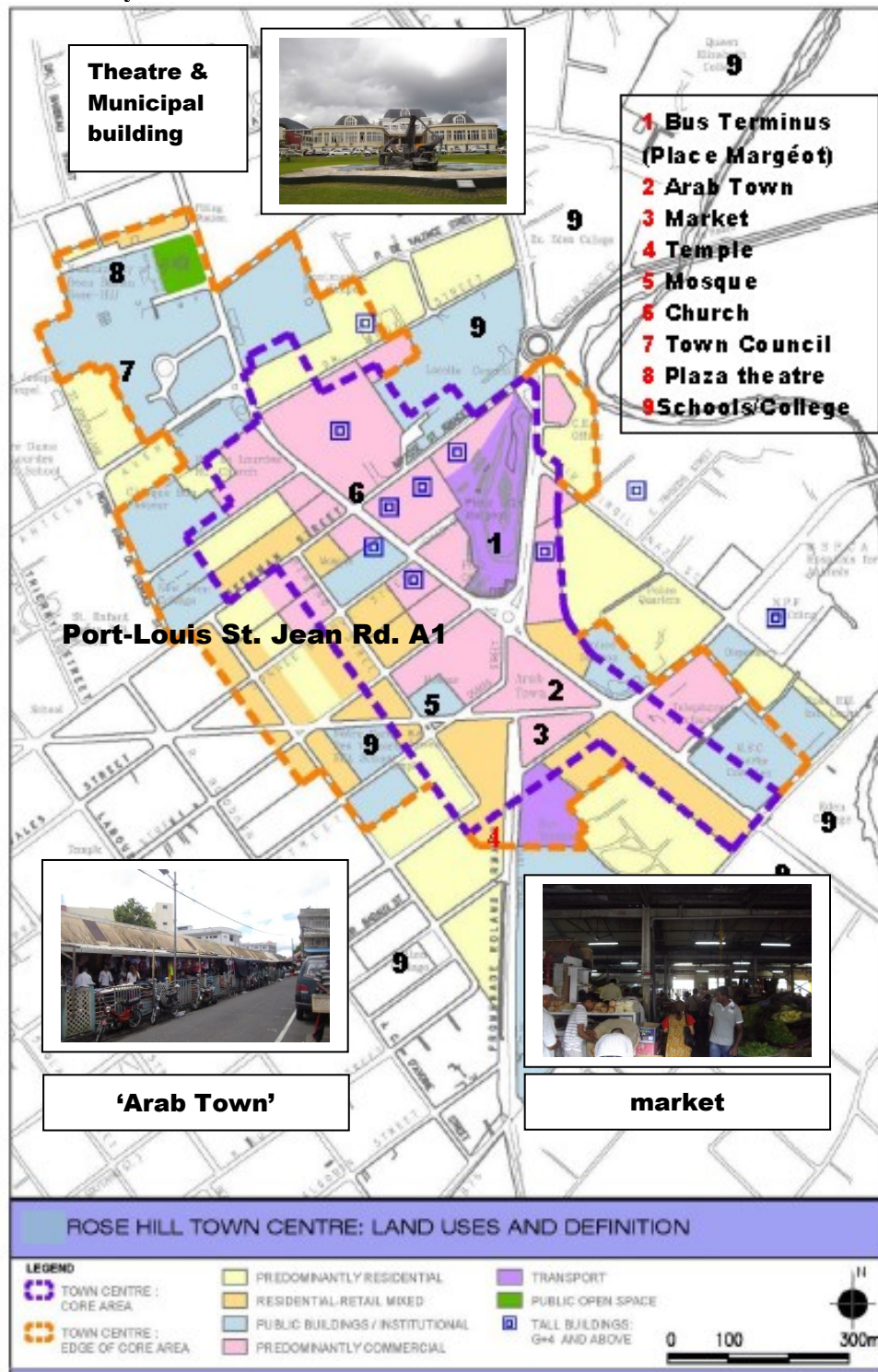
Source: researcher, February 2014

Map 4: Geographical location of Rose-Hill's town centre



Source: OPS BB Rose-Hill 2013 modified by researcher, March 2014

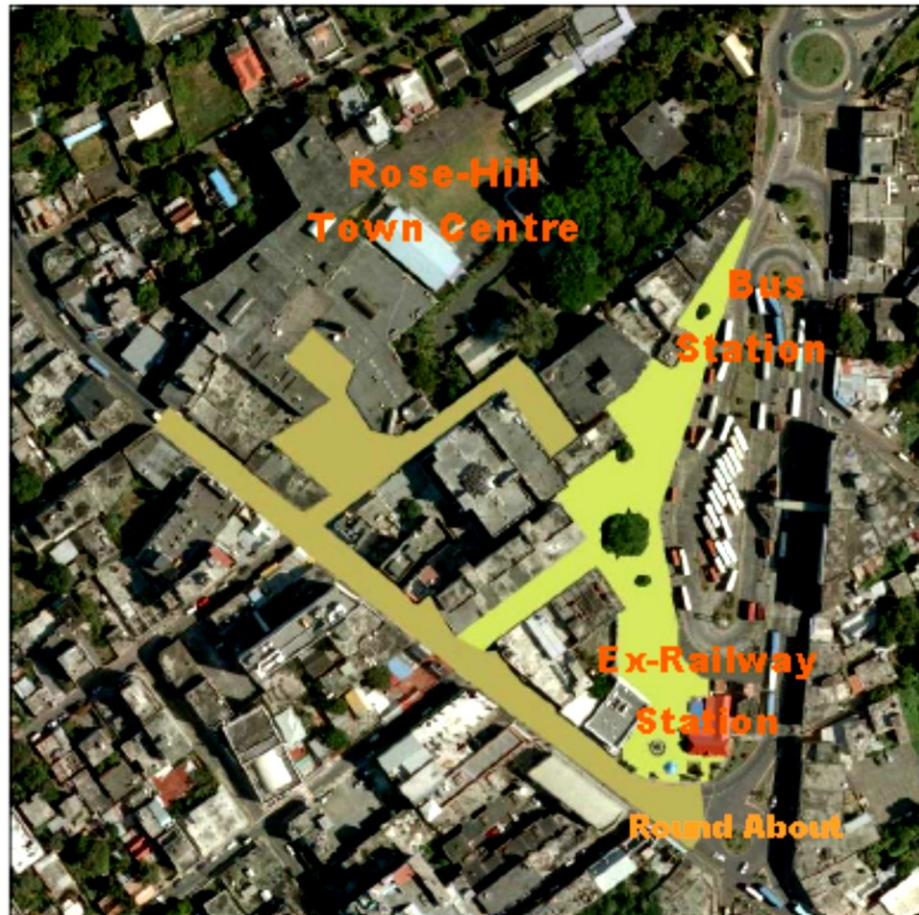
Map 5: Location of key uses in Rose Hill town centre



Source: Rose-Hill OPS 2013 modified by researcher, March 2014

Rose-Hill is the only town in Mauritius having an English appellation. Rose-Hill was the junction between two ex-railway lines (Northern and Midland lines). The town centre developed in and around that junction which was “a bustling station” according to historians (Toussaint 1973: 107). The town is eccentrically located at the south-east corner of the Municipal town council area (see map 4). Unlike Quatre Bornes which has followed a ‘main street’ development, activities in Rose-Hill have expanded across the “V” junction (see figures 22 and 23). This created a more compact town centre. The round-about at the centre of the junction is a major infrastructure as it also allows motorists to connect to the eastern, southern and northern parts of the island including the conurbation.

Figure 22: The ‘V’ shaped junction – representative of Rose-Hill traditional town centre



Source: Rose-Hill OPS 2013 modified by researcher, March 2013

The activities carried along the town centres main streets and the Rose-Hill core area is predominantly commercial in nature with a few restaurants. The majority of the buildings are low level: Ground + 1 to Ground + 3 floors (see figure 23). A few institutional buildings, comprising of Police Station, Dispensary, Intermediate court and Government offices, are located at the south edge of Rose-Hill's town centre (near the market-see map 5). An important number of educational institutions, namely private and public secondary schools, are equally found within walking distance of the town centre (see also map 5). The main areas of interest and activities are described hereunder.

Figure 23: The roundabout at the heart of Rose-Hill's town centre. The old standing buildings are predominantly commercial in use with building heights ranging from G+1 to G+3



Source: researcher, February 2014

A thriving market, a fair area and an “Arab town”

The Rose-Hill market is the most important one of the whole island after Port Louis central market. It is very popular with regards to its 287 market stalls and the rich variety of vegetables in addition to fish, chicken, pork available all year round. The market was constructed in 1930 and re-constructed in 1954 following its partial destruction by cyclonic gusts. Its location adjacent to the shopping areas and close proximity with the traffic centre keeps it busy throughout the day. Recently, the ‘talk of the town’ was the proposed construction of a new market, but its location has still not been determined. In view of public budgetary constraints there has been no further development on this issue.

Figure 24: The popular Rose-Hill market



Source: researcher, February 2014

In addition to a market place, Rose-Hill's town centre houses an 'Arab town'. The Arab town was constructed in 1985 and « *s'apparente au souk des villes islamiques autant par sa*

morphologie que par son contenu culturel » (Municipality Beau-Bassin Rose-Hill, 2014)⁵⁴. The Arab town in spatial terms is a block and consists of a diverse range of (approximately 54) small shops of ground floor level. The merchandise found varies from retailing, fancy goods, fast foods, garments, bread, cakes, etc. The corrugated iron sheets' roofs, which are orange in colour, remind of the traditional building materials used for residential construction in Mauritius. Inhabitants of Rose-Hill and other parts of the Island consider “Arab Town” an important lieu for their monthly shopping mainly because the products sold within these rows of CIS structures (figure 25) are cheaper compared to that sold in town centres. The plot of land where stands “Arab town” belongs jointly to the state and municipal council and the tenants are lessees.

Figure 25: The Arab town with the corrugated iron sheets' roofs



Source: researcher, February 2014

⁵⁴ Retrieved 04 April 2014 from http://bbrh.org/index.php?option=com_content&view=article&id=125:-sp-777450699&catid=38&Itemid=155

Rose-Hill town centre has one more attraction of which other towns may be envious of, it is a handicrafts corner (Patten fair) housed in a concrete building with a veranda of *creole* architecture, that is, comprising of a pitched roof and built with wood and CIS. The building (figure 26) is found adjacent the market and is undeniably a key tourist destination.

Figure 26: The ‘Patten fair’ accommodating handicraft activities



Source: researcher, February 2014

The bus station and parking areas at the heart of the town centre

As mentioned earlier, a common feature for the town centres in Mauritius is the bus station. Rose-Hill bus station (figure 27-left), also named “Place Margeot”, plays an important part in the economic life of the town. Moreover, its proximity to the market, Arab town and shopping centres equally facilitates the daily mobility of daily shoppers. The presence of a paid parking zone (figure 27-right), although limited in extent is located adjacent the bus station and creates additional visiting facilities.

Figure 27: The bus station and parking spaces is in proximity with both the market and ‘Arab’ town



Source: researcher, February 2014

The northern end of the town: a rich cultural heritage

The northern part of the town centre comprises an area with buildings of major cultural significance, that is, the town hall, the Rose-Hill theatre also called ‘Plaza’ (figure 28), and the Notre Dame de Lourdes church (figure 29). During weekend evenings and public holidays, the yard fronting the town hall and the theatre is crowded with families and children (Municipality Beau-Bassin Rose-Hill, 2014⁵⁵).

⁵⁵ Retrieved 08 June 2014 from <http://bbrh.org/>

Figure 28: The Rose-Hill theatre also called Plaza found at the north edge of the town centre



Source: researcher, February 2014

The Rose-Hill theatre (Plaza) came into operation in the year 1933. It was rented in the past to host a number of ceremonies (weddings, conferences etc.) and political meetings. This landmark building was an important source of revenue to the Municipality. It was closed for the past years due to its deteriorated state and the collapse of old building materials. Government announced it's commitment for the theatre's repair in last year's budget (2013). The Municipality has attributed a few months ago consultancy services contract to an architect firm for renovation of the Plaza. The Rose-Hill municipality has high hopes that the Plaza will bring back cultural activities to the benefit of town centre's residents and the population at large.

Figure 29: Notre Dame de Lourdes Church in north end of Rose-Hill's town centre



Source: researcher, February 2014

The Notre Dame de Lourdes church was built more than a century ago. The building attracts a large number of devotees in surrounding areas but also tourist visitors. Its close location to the town council building and the emblematic plaza gives a high cultural identity for both the town centre and the inhabitants of Rose-Hill – the majority of whom are of Christian faith. According to the Rose-Hill planning scheme (Rose-Hill OPS 2013: 56), this Church (including the Plaza) should be listed as buildings of national heritage significance or areas of historic value.

The town centre reflecting the Mauritian multi-plural and multi-cultural society

A peculiar facet is the existence of three places of worship (see map 5 and figure 30) for the diverse religious groups in the town centre. The different religious groups congregate to those places for prayers at different times and days of the week and this reflects the cosmopolitan image gained by the country. In addition, the town centre experiences multiple festivals and celebration throughout the whole year. For instance, in January the Tamil celebrate “Pongal”; in April, Christians celebrate “Easter”; in July, Muslims celebrate “Eid/Ramadan”. For this reason, there is a saying that ‘Rose-Hill’s town centre is always colourful throughout the year’ – decorated with flowers, banners, posters, flags, etc.

Figure 30: Places of worship in Rose-Hill’s town centre (Temple at Gladstone Street (left) & Mosque (right) at Dumas Street, Rose-Hill



Source: researcher, February 2014

5.3 Diversity of Uses, Land Property and Investment in Quatre Bornes and Rose-Hill

Diversity of uses

Both town centres have long inherited shopping usages and therefore the predominant use is commercial activity (see land use maps 3 & 5). Private, public services and institutions (markets, banks, municipality offices, post offices, schools and colleges) is another major use in Quatre

Bornes and Rose-Hill. As we described earlier, Quatre Bornes shows some signs of changing usage with:

- (i) partial conversion of few residential dwellings into office spaces and the conversion of shops into fast foods and restaurants along the main street (R1, R3, R8, R11)⁵⁶; and
- (ii) high class residential apartments in its northern extremity (north node –see map 3).

It is to be noted that in rare exceptions, the ground floor (only) of these residential apartments accommodates commercial activities such as garment and computer/electronic shops. According to our respondents, a dearth of entertainment and leisure activities is greatly felt in Quatre Bornes and Rose-Hill (R2, R6, R7, R10, R11). It is equally noticeable that the public realm and open spaces including the bus stations of the town centres has not been subject of any renovation or uplifting for the past two decades (or more).

Land property

In addition to diversity of uses, it is equally important to understand the land ownership and tenure in the town centres. Besides, the literature considers mixed-use as a market driven approach by developers and investors (Grant and Perrott 2010: 178; Rowley 2006: 90; Coupland 1997: 4), and land property as an obstacle to mixed-use (ULI 2003: 26; Grant 2002: 73). Our respondents revealed that the State (government) and municipalities own lands in the town centres (R1, R4, R10, R11). These plots of land are mainly the bus stations, municipal yards, taxi stands, ex-railway tracks, banks, post office, theatre, administrative buildings and markets. Government came up with a policy to safeguard ex- railway tracks from construction of hard structures since railways ceased to operate in 1964. Part of the railway track in Quatre Bornes' town centre has been tarred to widen existing roads and the railway track has been developed as a jogging track (R11).

⁵⁶ R1, R2.....R11 are the questionnaire respondents are described in section 3.4.3

According to planners (R2, R4, R8, R11), there is a higher percentage of freehold land (privately owned property) in Quatre Bornes' town centre than in Rose-Hill. However, Rose-Hill's town centre does consist of leasehold land (Government and Municipal council owned), but these plots are scattered in the town centre. In the case of leasehold land, the tenant pays a yearly rent to the Ministry of Housing and Lands or Municipal Council. The term of the leases is generally 99 years and the sum to be paid by the lessee is determined by the Valuation office of the Ministry of Finance (Mauritius) based on the 'highest and best use' of the site and/or building. Normally, residential lessees pay less important sums than commercial lessees. However, respondents confirmed that there are no residential leases in the two town centres. Tenancy (another form of renting private properties/buildings) is equally very common in all the town centres of Mauritius and is attributed to the private land and building owners. The title deeds of private plot owners do not include any set of planning guidelines as per se (R2, R5, R11). But, any development on the plot has to conform to the planning scheme (OPS) of the relevant town councils and related planning policy guidelines (PPGs). In the rare case of shopping malls and building arcades, a syndic is set up which regulates the day to day running of the business premises (R3, R11).

In light of the above, we can infer that:

- (i) the few state-owned lands have been developed for public infrastructure and public services only and does not contribute much in diversifying town centre activities.
- (ii) private properties in Rose-Hill's and Quatre Bornes' town centres are limited in terms of diversity with only commercial uses and services.
- (iii) most town centres' plots are privately owned with no visible signs or owner interests in changing tenancy (uses).

Investment

There are presently no incentives for retailers/promoters intending to improve their shop fronts or diversify their business activities (R3, R6, R8, R9, R10). During the period of our visit there was an outcry amongst shop keepers on the rise of trade fees by the Municipalities. It was understood from the local press that they are rallying together to appeal to the court against the sharp increase in rates for paying their trade licences. The following statement made by the president of « Front Commun des commerçants⁵⁷ » in the local press testifies their stand:

« Les commerçants paient chaque année leurs patentes aux municipalités pour opérer selon les dispositions légales. En payant la patente, nous avons signé un contrat avec les municipalités en espérant que ces collectivités respectent leurs engagements afin d'empêcher les marchands ambulants opérer devant leurs commerces. En laissant perdurer une telle situation, nous considérons qu'il y a une rupture de contrat » (Le Matinal newspaper⁵⁸, November 2013)

Street hawkers have the advantage of mobility and may establish themselves close to the market, bus stations and buildings which house public services. They squat places where pedestrian concentration is the highest in town centres and this includes veranda of commercial buildings. This causes pedestrian spill on public roads, and also affect pedestrian circulation. Street hawkers do not pay any fees for their trade and there is evident tolerance⁵⁹ (on humanitarian grounds) at times by authorities concerned. Government is looking forward to regularise their situation by moving them to a specific location in the towns.

Planners who by virtue of their duties tender free advice to prospective developers do not feel that the private sector is interested in investing in the town centres (R2, R6, R7). Interviewee R8 believes the private sector is developing office spaces close to motorway junctions. Some respondents remarked that out-of-town shopping centres where land value is lower than town

⁵⁷ The « Front commun des commerçants » groups 4000 retailers (shopkeepers) operating throughout the island.

⁵⁸ Retrieved 15 June 2014 from <http://www.orange.mu/kinews/dossiers/societe/352869/municipalites-menace-des-commerçants-de-ne-pas-payer-la-patente.html>

⁵⁹ Some people earn their living on this type of trade.

centres are preferred locations for businesses (R3, R7, R9). A few interviewees added that there are no new investors in the towns (R7, R11). In rare cases, some land owners are redeveloping their buildings/sites to attract new tenants.

No public and private partnership projects have been implemented in the town centres (R5, R7, R11). Interviewees (R5, R7) explained some weaknesses in coordinating projects in the absence of dedicated project management teams and cited the case of widening a busy road (Tulipes avenue in Quatre Bornes). Respondents R5 and R7 added that “the project failed to materialise as a joint Government- private developers financed infrastructure, and finally, the Government had to disburse all funds.” One planner, pointed out that there was a project in pipeline for Rose-Hill market but the project is static (R11).

An important number of the respondents consider that land ownership including land assembly and dispute amongst heirs have curbed development in the town centres. According to R2 and R11 given that town centre plots are small in size, promoters find land assembly a complex issue. This view is not shared by interviewee R7 who believes that “promoters and land owners are waiting for the right time”. Another planner (R5) asserted that “developers are interested but demand is minor”. According to this respondent, solving traffic jam shall give a boost to the development market.

In sum, our empirical research points towards an absence of incentives to meet developer interests but also shows that there no public sector financing to improve town centre attractiveness. On the other hand, the fragmented land ownerships and small plots in town centres do not allow projects of important investments in contrast to out-of-centre big boxes (shopping malls). Where re-construction of buildings is effected in town centres, it does not increase the diversity of uses as it is meant only for refurbishments by owners and aim towards increased rental fee.

5.4 Accessibility, Mobility and Parking in Quatre Bornes and Rose-Hill

Problems of accessibility and mobility

Both town centres are accessible by buses and private car. However, there is often public outcry from public transport users that frequency of buses is not satisfactory (at peak hours). Similarly, common complaints are heard from the media that availability of parking spaces is insufficient for town centre's visitors. Traffic congestion is the most visible scene at peak times of the day, due in part to drivers circling the town centre to find on-street parking. Some planners (R7, R9, R10) mentioned that shoppers compare out-of-town v/s town centre and prefer to visit malls at the outskirts of the town centres because of availability of a sea of parking areas.

As regards sidewalks, our site visits in the town centres revealed that pedestrian walkways are in poor condition (bad state, narrow width and unlevelled) along important stretches of the town centres' streets. Pedestrians are at risk when crossing at road junctions, where there are no traffic lights, and drivers seldom give priority to former. The quality of pedestrian ways does not provide the incentive to walk and causes undue difficulty to the aged and people with disabilities (R3, R9). For two-wheeler's, dedicated tracks are inexistent in Mauritius and finding one's way on the bicycle through the town centres' main street poses a degree of hazard for cyclists mainly at busy road junctions and intersections. The driver mentality for giving preference to cyclists and pedestrians is not visible in most cases. It is important to point out that the statistics we consulted (see section 4.4.3) indicates that the motorcar has more than doubled during the past decade over the island.

Traffic schemes are enforced by the transport authorities in terms of traffic regulatory signs (R11). These regulatory signs restrict the flow of traffic through "one-way" movement and prohibit parking along principal streets of the town centres. A joint traffic committee comprising of representatives of key transport stakeholders has been set up at town councils to enforce 'small' traffic measures (R9). Ministry planners averred that government came up with a road

decongestion programme⁶⁰ in year 2009. Under this programme, two road bypasses have been constructed for diverting traffic passing through the town centres of Rose-Hill and Quatre Bornes. Nevertheless, some planners were categorical: no traffic schemes have been applied in the town centres to reduce traffic congestion (R1, R5, R7, R11). Others believed that the disjointed policies amongst the key transport stakeholders add up to worsen the traffic problems and that mixed-use should be favoured in the town centres to encourage different modes of transport such as walking and cycling (R2, R5, R7).

Public Transport

There is shared feeling among passengers that quality and frequency of buses are gloomy (R3, R7, R11). An important number of planners rate the public transport within and serving the two town centres as poor and inefficient (R2, R5, R9, R10). They outlined the following to substantiate their words: absence of intra-urban shuttles; buses travelling towards the capital city are overloaded at peak hours; the bus timing at bus stations is unknown to users; lack of comfort in buses and rain water seeping from bus roofs are common experience in lives of passengers and there is a lack of maintenance of buses. Some interviewees asserted that absence of bus lane⁶¹ and appropriate bus lay-by's in town centres cause additional traffic problems (R1, R5, R11). According to them, there has been no great improvement in public transport although cost of bus tickets is constantly on the rise. However, two planners residing in the vicinity of Rose-Hill mentioned that one private bus company has upgraded its fleet with air-conditioned, low floor buses and is equipped with free internet facilities (tickets are above the normal rate for these buses). These bus routes allow buses to run to and from an out-of-town shopping mall.

⁶⁰ The road decongestion programme was set up in 2009 by the Government of Mauritius in 2009 as a plan to tackle the country's traffic problems with the public private partnership (PPP) model being used for this capital intensive project. It is still unclear whether these roads will be tolled.

⁶¹ Bus lanes are restricted and dedicated for buses only. Such lanes are meant to facilitate movement of buses in traffic congestion situation and promote public transport.

Parking

Parking is considered chaotic in the urban areas of the island and a critical issue for our two case study areas (but also all town centres). For example, at peak times of the day, drivers circling the town centre to find on-street parking is a common scene. A few paid parking areas exist in the town centres, but these are reserved by retailers and private office staff (mainly banks and professional services). Respondents (R2, R4, R7) referred to old version of planning schemes (in the 1980s) which did not impose parking requirements for customers and delivery vehicles in town centres. The reason for waiving parking in town centres was that they are served by public transport (buses) and would be serviced by an alternative mode of transport, the LRT⁶² (R4, R5, R8). As such, permit authorities were lenient as regards parking requirements in the town centres (R11). From the point of view of developers, we may invoke that most non-residential plots in the town centres are small in size and too high in value to accommodate the motorcar. On their part, owners of vacant plots (probably speculating meanwhile) along the main street of Quatre Bornes have seized the opportunity for car parking rentals.

5.5 Competition from ‘Out-of-town’ developments

Commercial development

Town centres of Rose-Hill and Quatre Bornes are adjacent to one another; therefore the out-of-town shopping complexes with important floor plate areas and large parking spaces attract a major share of the formers visitors. These shopping complexes are located at motorcar interchanges and/or roundabouts, thus providing easy connectivity to car borne customers of the conurbation. Another advantage of these “out-of-town” big boxes is the extensive food court areas they provide together with play activities for children. The out-of-town centres are equally

⁶² The alternative mode of public transport was announced at least 16 years ago. Last year, 2013 there was Government commitment to proceed with introduction of an LRT in the conurbation.

of interest to the younger age groups of Mauritius with diverse entertainment activities organised during weekends and school vacations. The deficit of attractive public realm, lack of green spaces, and entertainment in the town centres further promotes the image of out-of-town centres. Three of these shopping centres (Shoprite, Jumbo and Bagatelle) found in proximity of Quatre Bornes and Rose-Hill are year in and year out renovating their exterior appearances. This contributes in making them much more visually appealing than the old commercial building facades of the town centres.

Figure 31: Shoprite hypermarket located at motorway interchange (near Quatre Bornes) provide an important (free) parking area for customers



Source: researcher, February 2014

Residential development

A green wedge separating the northern part of Quatre Bornes town centre and motorway M1 has given way to the construction of high rise apartments which is targeting professionals⁶³ (see figure 32). The ‘craze’ for residential apartments (equidistant) from Quatre Bornes and Rose-Hill town centres may be explained due to the proximity of these projects with the M1 motorway and

⁶³ They need to be reserved by the payment of at least 40% of the total cost.

the ‘St-Jean’⁶⁴ round-about. As we saw in section 4.4.2, the development of employment generating activities and residential parcels at Ebene Cyber city has driven some offices and neighbouring residents from the town centres thereto.

Figure 32: High rise apartments along the motorway on previous green wedge areas



Source: researcher, February 2014

Mixed-use development

The dearth of vacant sites in the town centres and probably the high cost of land caused developers to invest along another busy road (Port-Louis - St. Jean Rd., A1). As such, Belle Rose emerged to the status of a secondary town in-between Quatre Bornes and Rose-Hill town centre (see map 4). Today Belle Rose is a main street commercial centre comprising of specialised services along a length of 1.35 km and a uniform depth of 30 metres (0.03km) on both sides of the main road (A1). The remaining area is under residential vocation with high class villas and single family housing. The range of activities proposed in Belle Rose are a supermarket with 220 underground parking, high quality home decoration, retail and electronic shops, a medical laboratory and clinic amongst others (see figure 33).

⁶⁴ Saint (St.) Jean is a Church found at the junction of the main street leading to Quatre Bornes town centre and the motorway. The main street has thereafter been named St. Jean road and the roundabout put up at the junction of the two roads is also called ‘St. Jean’.

Figure 33: Specialist services in Belle Rose (Medical laboratory and home decoration)



Source: researcher, February 2014

5.6 Quatre Bornes and Rose-Hill : Common Strengths and Weaknesses

Location of town centres along the main streets is advantageous to retailers such that free publicity is possible to catch the attention of passers-by (both vehicular and on-foot). This opportunity does not appear to have been seized by shop owners as the majority of buildings appear in a state of neglect. Why? We note from a recent interview realised by a local newspaper with the President of « l'Association des Commerçants de Beau Bassin-Rose-Hill » that the economic situation for small shop owners is alarming. The latter mentions that « la situation de plusieurs commerces va se dégrader car les autorités feraient preuve de laxisme à venir de l'avant avec des solutions pour redynamiser le secteur commercial⁶⁵ » (Le Défi newspaper, 17 May 2014).

⁶⁵ Retrieved 24 May 2014 from <http://www.defimedia.info/defi-plus/dp-interview/item/52836-prakash-permala-president-de-l-association-des-commerçants-de-beau-bassin-rose-hill-la-fermeture-de-plusieurs-commerces-est-inevitable.html>

Moreover, it is noted from maps 3 and 5 that the core areas (shown dotted blue) are limited on both sides of the main street and comprises of existing commercial areas. These zones have been subject of only minor expansion in the new OPSs (2013). Additionally, the edge of core areas (dotted line orange) shown on the maps is merely the market, the municipal council and institutional buildings (public offices) in the case of Quatre Bornes. The concentration of namely (public) services as predominant uses restricts more diversity in the town centre.

In the case of Rose-Hill, schools, colleges and also public (institutional) buildings provide important services but consume major extent of land in the town centre. They are at the edge of the town centre's core area, hence restricting increased diversity of uses. The ex-railway station adjacent the town centre represents a building of historic legacy but also a development constraint⁶⁶. In the same wave, the location of the bus station at the heart of the two town centres may have two-sided implications. The first one being that its close location to the market, retail areas and public services facilitates multiple trips for transport users and contributes in generating life and activity in Quatre Bornes' and Rose-Hill's town centres. Secondly, viewed from the perspective of land value – the bus station has been constructed with a large tarmac area and used for parking of buses day long - it is freezing development on plots of land having high market potential. Subsequently, there has been a Government policy to safeguard the ex-railway tracks and former station grounds; this has enabled to conserve land for future uses (e.g. introduction of the LRT). However, the ex-railway land has constrained development of the town centres as these lands have remained unexploited for more than the past four decades. Besides, they caused a rupture in the urban form of the town centres. Additionally, municipality yards and buildings occupy important areas and are insignificant in the viability and vitality of the town centres.

⁶⁶ Once historic buildings are proclaimed in Mauritius (which is also the case in international practice) then any project surrounding the historic sites need to satisfy additional criteria and usually development restrictions. In the case of Rose-Hill, the historic railway station constrains densification and limits highest and best use of a plot in the heart of the town centre.

With respect to their physical structure, the commercial buildings are one storeyed (ground with first floor) in the town centres with possibilities of densification with vertical construction although this will depend on the structural suitability of the buildings. In both Quatre Bornes and Rose-Hill town centres one can say that building control through the Planning Policy Guidance have dual effects. On one hand, they protect amenities of the area and natural environment by avoiding densification. On the other hand, they limit on-site developments such as higher FAR⁶⁷, plot coverage, on-site parking requirements and observance of side setbacks from neighbouring plots. At the rear of the commercial buildings (the case of Quatre Bornes) stand rows of high class residential villas with evident public opposition hence preventing further intensification of uses.

Are there public objections in connection with scale and bulk of development? Interviewees declared that there are very few objections by residents in both town centres with regard to the few development projects (apartments) and no appeal are registered in Rose-Hill (R9, R11). Planners clarified that these rare objections (case of Quatre Bornes) is related to high rise apartments and the protection (overlooking, over shadowing, natural ventilation and lighting *etc.*) of the amenity of residential areas (R6, R10). Figure 34 illustrates a case where a residential apartment (7 levels) has emerged within residential areas (2 levels) in Quatre Bornes town centre. Planners are convinced that owing to the compatibility of land uses (residential), objections will relate only with respect to building height. Also, it is commonly perceived amongst planning practitioners that in the absence of valid objections and on account of development pressure for residential apartments in Quatre Bornes (to a less extent Rose-Hill) construction permits are generally issued. They remarked that a good relationship between developers and town centre residents is essential for high rise projects to materialise (R5, R7, R11). In the case of Rose-Hill, it appears that the lack of vacant sites and increasing value of land has made inhabitants more tolerant towards increased density and the municipality is applying less rigid construction regulations. We have observed some new buildings exceeding the average

⁶⁷FAR stands for Floor Area Ratio and is defined in section 2.5.2 (case of Lodi City).

height in their surroundings and others covering almost the whole plot areas with less than required statutory front and side setbacks from plot boundaries. Two situations are illustrated in figure 35.

Figure 34: Tall building apartment within residential areas in Quatre Bornes



Source: researcher, January 2014

Figure 35: Increased building heights in Rose-Hill



Source: researcher, February 2014

The competing out-of-centre shopping malls and periphery residential developments including gated communities also explain why the town centres are not thriving. As we highlighted earlier, the out-of-town and secondary shopping centres which provide easy motorway connectivity albeit free car parking facilities are undoubtedly putting into peril the two town centres' traditional commercial dynamism. In addition to the inability of the town centres to compete with the capital city, Port-Louis in terms of shopping hierarchy and job opportunities, the emergence of Ebene cyber city in the conurbation has attracted a number of office premises from the formers. Ebene is further capitalizing on creating higher density office parks and targets to create a live-work environment (R3,R7, R8).

Further to our study of Mauritius' urban context and after considering the main features of Quatre Bornes' and Rose-Hill's town centres, we shall now emphasize on the mixed-use situation thereat.

5.7 Mixed-use in Quatre Bornes and Rose-Hill town centres



The north node of Quatre Bornes, town centre (at its extremity and close to the motorway) is experiencing a change in its built form from low scale residential to high-rise apartments. The south node at la Louise is further stretching the town centre southwards towards the national hospital with retail activities. The proliferation of small restaurants and fast foods along the main street (e.g. Quatre Bornes) in buildings previously occupied by retailing activities (fancy goods, clothing etc.) and closure of cinema halls (in both Quatre Bornes and Rose-Hill) is contributing to change the traditional shopping activities and social life in Quatre Bornes town centre. Both town centres are getting completely devoid of residential uses and are dormant towns as from 17.00 hours⁶⁸.

Only the market, the bus terminus and few retailing activities are supporting the survival of the two town centres. The lack of green spaces, public realm together with poorly designed commercial building facades does not contribute in making a buoyant urban atmosphere.

Table 10 illustrates provides a broad picture of the mixed-use situation in the two town centres.

⁶⁸ In this regard, it is common to find in the local press news relating to crime (thefts, gang fighting) and prostitution in Rose-Hill.

Table 10: Diversity of uses in Quatre Bornes and Rose-Hill town centres

| Particular usage (town centres) ⁶⁹ : | Decline (loss) in activities/uses as compared to: |
|---|---|
| Residential uses → | Periphery of town centres in residential apartments: residential morcellements in rural areas; urban sprawling of Capital city and Vacoas town centre |
| Office premises → | Ebene Cybercity; Port Louis city centre; Periphery of towns |
| Commercial → | Out-of-town shopping malls and secondary centres |
| Entertainment (opportunities) → | <p>Out-of-town shopping malls; private clubs (mostly outside Town centres)</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Photographs illustrating events organised at Bagatelle Mall of Mauritius, Source: mall of Mauritius photo gallery (2013-2014)⁷⁰</p> |

Source: researcher, June 2014

Planners were interviewed to understand the reasons for lack of interest by proprietors in either developing the old buildings in the case study areas or extending floor areas to other uses/activities. Answers from our respondents combine weaknesses of the town centres and forces of the periphery. Some interviewees hold the idea that town centres are under concurrence from the out-of-town shopping malls which are more appealing and cater for a range of shops and hypermarkets (R3, R5, R7, R8, R11). Moreover, public transport and public spaces

⁶⁹ Town centres refer specifically to Quatre Bornes and Rose-Hill

⁷⁰ Retrieved 03 June 2014 from <http://mallofmauritius.com/galleries.htm>

altogether do not attract visitors and as a vicious circle discourage developers in investing in the town centres (R4, R6, R10).

Planners' related circumstances where gambling activities and discotheques were not accepted in town centres by the local community (R4, R10, R11). They added that this is generally the case when places of worship (temple, mosque, church) are found in the proximity of the above-mentioned places of entertainment. On basis of their planning experience, a significant number of interviewees pointed out that industrial activities and development requiring traffic intensive loading and unloading would be classified as non conforming uses for the town centres.

However, in the view of all the planners mixed-use does not pose any risks. Some of them outlined the need to have uses which are acceptable and commonly espoused by the majority of town centre inhabitants, workers and visitors (R2, R5, R7, R11). Other respondents mentioned about necessity of a live, work, play environment and stressed that leisure activities needs to be improved in the town centres (R4, R7, R10). A few planners find that in cases where different uses are proposed (e.g. offices, shops and apartments), this may give rise to conflicts amongst different users (e.g. on access, parking, open spaces *etc.*). According to them, the private and public area needs to be sorted out at the outset of the mixed-use project (R1, R9, R3).

5.8 Conclusion

Our analysis point a decline of the town centres if appropriate and adequate measures are not taken in the near future with regard to the lack of diversity of uses (see table 10). Will the coming into effect of the forthcoming LRT project to service the conurbation reverse the trend? If yes, how can we seize the opportunity through planning mechanisms? What planning principles should be adopted with regards to the above spatial analysis in conjunction with the dominance of the capital city, urban sprawl, out-of town shopping centres, traffic congestion and

rising dependence of the motorcar? In light of the above, the Mauritian urban context brings into light the following hypothetical assumptions and/or a combination of them:

- (i) Lack of proprietors' interest towards mixed-use or uncoordinated land use and transport policies on the future of town centres has increased auto reliance and exacerbated traffic congestion.
- (ii) Competition from other out-of-towns (and secondary centres) are impacting upon the health of the town centres by attracting the latter's residents and visitors with more appealing urban design environments and parking spaces.
- (iii) Social acceptability is low with respect to the diversity of uses (e.g, guest houses, gaming houses, discotheques) and increased density (high rise apartments). This can be explained through the fear of facing strong public opposition on account of the multi-cultural facet of the country. Hence, a traditionalist perspective of segregating uses is persisting in the town centres.

In summary, the two town centres have not experienced any major transformation in their urban form during the past two decades and for sure they are not in 'good health'. Signs of their decline are amongst others, absence of any interventions to the public realm including bad state of street furniture (pedestrian pavements, pedestrian priority signs etc.); lack of incentives and interest on part of retail owners to improve the building façade; poor quality of the market place, etc.

Besides the physical aspects, there's also some relative reticence on part of planners in allowing mixed-use in the town centres. This may be explained by the fact that there is sheer resistance from inhabitants of the town centres and vicinity areas that certain uses should not be introduced in the town centres. Cultural and religious beliefs including the 'Not in my backyard' phenomenon explain further this situation. Additionally, the 'traditionalist' perspective of viewing mixed-use as a source of public/private conflict by decision makers (elected councillors and other politicians) including planners may be hindering increased diversity of uses in the town centres.

In the concourse of the problems and issues facing the town centres we described earlier, our literature review revealed a number of strategies (practical and theoretical) that lay the necessary conditions to achieve mixed-use but also instigate its implementation through planning mechanisms. The ultimate goal pursued in these circumstances was to shower both viability and vitality in the town centres. Fortunately, as mentioned previously, the end of last year (2013) saw the Government's of Mauritius commitment on the LRT project (linking the conurbation) to materialise by floating an international tender. The main reasoning behind this long-awaited step viewed from the professionals of the Mauritian transport sector, is that traffic jam has now exacerbated.

As regards land use and our field of town planning, the planning schemes for the five urban areas of Mauritian island have been recently reviewed (last year) and provide additional mixed-use policies focusing on the alignment of the forthcoming LRT. The main challenge lying ahead is therefore to make decision makers aware of the opportunity the LRT creates for improving the health of our town centres through the "mixed-use" approach. In the absence of concrete studies in the latter case, political commitment will not be easy to gain and there is the fear the plans will continue to gather dust on the shelves. Our analysis in chapter 4 and 5 point towards the future horizon on what aspects from the mixed-use literature may be transferred to the Mauritian context for the viability and vitality of the town centres?

PART 3: Mixed-use aspects applicable in Mauritius and General Conclusion

6 Mixed-use approach in Quatre Bornes and Rose-Hill Town centres

In our exploratory research and literature review, the mixed-use principle in mainly western contexts is embraced as a major remedy to blossom and flourish both life and activity in town centres. The two previous sections were instrumental in understanding the evolution of Quatre Bornes and Rose-Hill town centres and their present issues and problems. Our analysis equally pointed out the relative strengths and weaknesses of the town centres and we found that they are lacking in diversity of uses compared to competing out-of-town developments. In this regard (last part of Chapter 5), we identified situations which may be hindering the viability and vitality of the two town centres. It should equally borne in mind that the do-nothing situation and unresponsiveness/lack of policies including the latter's implementation may result in the decay of Quatre Bornes and Rose-Hill town centres.

Our aim in this Chapter is therefore to consider a holistic approach to transfer the mixed-use approach in attempting to redress the health of the town centres. The justification for such a need is more pressing in the perspective of the coming LRT project. To this effect, we shall validate the mixed-use challenges and opportunities of the town centres in first instance to be able to express proposals for future mixed-use improvements. In the last part of this Chapter, we envisage to promote mixed-use through two strategies: 'Enhance mixed-use conditions' and 'Set ground for mixed-use. We also provide a few recommendations addressed to decision makers in the local context to make mixed-use happen and explore new avenues for public participation in the mixed-use approach prior to our general conclusion.

6.1 The challenges awaiting mixed-use in town centres

This section builds upon our analysis of the strengths and weaknesses as outlined in the previous chapter and seeks to elaborate the future challenges of improving mixed-use in the two town centres. In this regard, we also consider the main attributes of mixed-use as seen in our literature survey and which emerged from the previous two Chapters. These are namely, the planning

mechanisms (NDS, OPS), increased density, traffic congestion and parking, and attracting visitors. Our questionnaire interview will also be used in this initiative.

Challenge through planning mechanisms

In the prospect of most planners, the proposals for urban renaissance of the town centres mean that the latter should encompass a range of institutional, commercial, business, employment and shopping activities with less reliance on motorcar. Some respondents also viewed that the town centre should be transformed into a live, work, play environment integrated with a good public transport system (R6, R8, R11). Planners equally referenced the vision outlined in the new version of Planning Schemes. An extract of the vision for town centres (identical for all 4 town centres) in the latest town council planning schemes is reproduced hereunder:

“Revitalize the traditional town centres to make them more attractive as hubs of community, social and cultural activity where people can walk safely whilst shopping and enjoying a variety of leisure opportunities and local amenities. In these locations complementary uses such as apartments and town houses, public open space and town parks should be introduced to sustain growth and help support the viability of an upgraded public transport system” (OPS Quatre Bornes, 2013: 11).

It can be commented from the above vision statement that the coming into effect of the LRT project (referred to as ‘upgraded public transport system’ in the above OPS quote) is considered determinant in “revitalizing” the town centres. As pointed out previously, the LRT if introduced in Mauritius may prove a boon for our case study areas provided the TOD approach is judiciously planned and integrated to rekindle and attract both life and activity in Quatre Bornes and Rose-Hill town centre.

It is a fact that the new policy decision in the OPSs (2013) conforms to the theme of our thesis for the application of “mixed-use”. But, bearing in mind that although mixed-use was introduced as a key policy in Mauritius’ National plan (NDS 2003), one can have some reserves about the efficacy of the policy and/or rather its implementation since it has failed to materialise since the

past decade. The OPS policy can in fact be seen as an objective to achieve mixed-use. Hence, the first challenge is concerned with translating mixed-use policies in the planning mechanisms into enforceable strategies and actions.

Challenge to achieve increased density in town centres

Our literature review (section 2.3.3) shows that ‘density’ is one of the main conditions for achieving mixed-use and we found some examples of increased building height in both Quatre Bornes and Rose-Hill town centres. According to our interviewees, the challenge in both town centres remains on achieving higher density (R5,R7, R11). Nevertheless, in the absence of relevant data on Mauritius town centres it would be difficult to comment whether the density in both town centres is acceptable or insufficient.

However, the fact that both town centres are already built up with predominantly low floors (up to G+4) do allow only few possibilities for increased density without demolitions. Most of these buildings have common walls which hinder demolition (see figure 36). Indeed, in the opinion of most planners this poses an engineering complexity wherever demolition/re-construction is felt and/or required. Also, it is common practice in Mauritius that construction on plot boundaries (without observance of side setbacks) requires the contiguous owners consent. The problem arises when a change of ownership occurs and the new owners refrain from giving their consent for extensions and/or additions on/to common and party walls (R3, R11). Besides, tenants who may be willing for refurbishments may face similar complications. Hence this encumbers increased density.

Figure 36: Building with common walls and no side setbacks (right-Quatre Bornes town centre, left-Rose-Hill town centre)



Source: researcher, January and February 2014

Secondly, without the agreement of the various land owners it is impossible to realise major revitalisation projects in the town centres (R11). However, the case of Lodi City and Portland (section 2.5.1 and 2.5.2) shows avenues of increased FAR and shop houses as examples of possible incentives towards increased density. In other instances, compulsory acquisition by government may be the last resort (because it is a complex issue) to come up with major town centre public-private projects.

A third factor restraining increased density is the presence of buildings of national heritage interests (mostly in Rose-Hill town centre). An example is the post office building in the heart of Rose-Hill (see section 5.2.1) which is a listed historic monument. Hence, it is undoubtedly limiting development within an important town centre area⁷¹ (R3). But, it is also representative of the historic image of the town centre (R7). In this regard, government and municipalities may explore avenues for rehabilitating such historic areas to realise quality and attractive urban environments. Otherwise, permit authorities may consider allowing higher density in case of development pressure on the proviso that developers improve the public realm in and around such places.

⁷¹ New constructions within areas listed as national monuments require specific clearances from the National Heritage Trust Fund and the Ministry of Arts and Culture (Mauritius).

Fourthly, as we found out in the literature (section 2.2.2 and 2.3.5) developers' motives and interests are the main drivers of the development market. Likewise, our analysis in Chapter 4 and 5 revealed that the town's peripheries are attracting new investments (residential, office, shopping). Besides, on few occasions high rise apartments have been erected at the entrance of the town centres but they are found close to motorway junctions. This explains that the demand for construction in these areas is more dominant and profitable to developers. Moreover, in the absence of vacant sites in the town centres, it is not an easy task to gain developers interests for rebuilding. In this case, the need to come up with proper investigated incentives (e.g. increased building height, FAR, reduce parking requirements) may prove worthy for redevelopment of old sites in town centres.

Finally, the fact that important town centre areas are occupied by municipal yards and offices constrains the potentiality of achieving important developments. On one hand, an important area of municipal yards is used for lorry parking. On the other hand, the office buildings cater for single uses with relatively low floors (G+2 maximum). In this regard, respondents (R5, R7, R11) consider that there should be a change of mindset from decision-makers so as to relocate heavy vehicle parking elsewhere. Moreover, extensions and additions to the municipal buildings for other uses (commercial, small shops) may provide on one hand, additional revenue for the municipalities and on the other hand, cater for increased diversity in the town centres.

The traffic congestion and parking challenge

Why is there traffic congestion although it is diagnosed that the town centres are losing frequentation? In the absence of an origin and destination research survey, a most convincing answer to the above question is that the main streets of both town centres serve multiple road functions. Firstly, they act as connector roads for the motorway (M 1) traffic to the west coastal area of the island but also as distributor road for the local rural areas dispersed all round the town centres. Secondly, they are used as commercial roads for delivery of goods along a major stretch

of the town centres (see figure 37). These deliveries are carried out ‘on-street’, bearing in mind that shop fronts (rear or side areas) barely allow for adequate loading and unloading activities:

« Il est maintenant un acquis pour tous que les véhicules de livraison sont utiles à la dynamique économique des espaces urbains et qu’ils entrent directement en concurrence avec le flux des voitures particulières sur la voirie, subissant et entraînant une congestion croissante tant sur les lieux de livraison que sur les voies structurantes qui irriguent la ville » (Routhier 2013: 63)

Figure 37: On-street delivery in Quatre Bornes town centre



Source: researcher, January 2014

Additionally, streets accommodate on-street paid parking places and also allow buses to alight off and embark passengers. At peak hours, the fact that the motorway linking the main streets through roundabouts experience traffic jam has inevitable repercussion on the town centre’s traffic flow. Moreover, the road capacity is not capable of absorbing the growing dependency of the automobile, which is now heavily relied upon for the journey to work. Finally, the concentration of offices, industries and other job in the periphery of the Capital city, Ebene cyber

city and at motorway interchanges sees only through (passing) traffic in the town centres. One of the interviewees gave a broad reply to this question:

“Both Quatre Bornes and Rose-Hill have seen a number of tall buildings being erected close to motorway interchanges. With Ebene cyber city in their proximity, out-of-town shopping centres and high rise buildings at the towns’ skirts, quality of life is deteriorating in both town centres with congestion throughout the whole day. The road capacity has been reduced. Space taken by parking is too important in the absence of any mass transport. This may be attributed to disjointed land use and transport policies especially as regards the use of the private car” (R5).

In conclusion, the challenge lies ahead in having a combined vision of relevant authorities (transport and land use planning) in an attempt to relieve Quatre Bornes and Rose-Hill town centres from the traffic congestion problems. The collected information shows the need for traffic management and car parking as important components of the mixed-use principle. Once more, there are high hopes in Mauritius on the LRT to solve or reduce the traffic congestion problem in the conurbation and town centres. The fact that investors are prioritising the other geographical sectors proves that a market exists for diverse uses (residential, office, commercial, entertainment) which the town centre is failing to capitalize upon.

Challenge to attract town centre visitors

Planners were queried on whether planning mechanisms and/or town policies intended to attract particular class of visitors in the town centre. They confirmed that the main users /visitors of/to the town centres are the residents/workers of the town and neighbourhood. According to R5, R9 and R11 there is a shared cultural belief amongst town residents and town councillors that services such as banks, government offices, municipal building and post office etc. should be located in the town centres and this explains the principal motives for their visits. Moreover, planners who reside in proximity of the town centres conveyed that the residents look only for basic commodities in the town centre and therefore do not spend much in comparison to regularly filling their shopping trolley at out-of-town supermarkets (R3, R7, R9). According to respondents R4 and R11, the town council employees in Quatre Bornes and Rose-Hill represent

the major share of the "shopping" clientèle. In the case of Rose-Hill, planners remarked that students' population is high in weekdays and the latter who are mostly in the age groups of 12 years to 18 years look only for affordable school materials, pastries, fast foods, fancy goods etc. in the town centre (R5, R7, R11).

However, it was agreed amongst practitioners that the planning mechanisms are not geared towards attracting any particular class/es of visitor/s in the town centres. In the opinion of most interviewees, out-of-town shopping is more interesting for visitors because of adequate parking facilities, high quality architecture and ease of commuting through motorways. Nevertheless, according to them, if retailers want to compete with out-of-town outlets, then one option is to attract lower income and middle income groups living in the town centres vicinity and periphery (R1, R5, R9). Indeed, this is a current situation in declining town centres of other parts of the world.

Meanwhile, both Quatre Bornes and Rose-Hill town centre have seen the emergence of some apartment blocks (with underground and ground level parking). These are likely to be responding to demand from people working in the new business hubs located at Ebene, periphery of the capital city and periphery of the town centres. Although the apartments may be perceived as a positive factor to boost dynamism of the town centres, the residents of these apartments rarely visit the town centres because of close proximity of (less than 5 minutes drive to) the out-of-town centres, lack of security in evening hours and absence of leisure activities (R2, R3,R7). The most common visitors in Quatre Bornes and Rose-Hill comprises of town centre residents and those of neighbouring areas. They usually frequent the town centres for the services such as banks, pharmacy and the market (R1, R5, R11). Other less important town centre users are the municipal council officers, civil servants and private office employees. Their motives are namely for shopping and eating (R4, R10). On some rare occasions, tourists visit the market on fair days (R7, R11). In this case, attracting the residents/inhabitants of the town and neighbourhood visitors remains both a challenge and an objective for the successful implementation of mixed-

use and vice-versa. Without these visitors, it would be utopian to attain viability and vitality of the town centres.

6.2 The opportunities for functional diversity in the town centres

In the previous section, we pointed out what we considered to be the main challenges in achieving mixed-use for our two case study areas. These challenges are representative also of the barriers and constraints to make mixed-use happen. Are there any opportunities to be seized? Our research study is amenable to the following findings.

Demolition and re-construction in the town centres

As mentioned in chapter 5 and section 6.1, it is observed that the new construction projects are rare in both town centres and were mostly in relation to a few residential apartments situated close to motorway exits. Vacant sites are not visible in the two town centres and the buildings along the main streets are in most cases getting older and suffering from neglect. Moreover, the majority of plots are small in size and does not allow extensions to existing buildings and additions of extra floors (R2, R4, R7, R11). Hence, these buildings are no longer profitable to the plot owners. The actual state of businesses in the town centres is also faced with the spiral of economic crisis added to intensive retail competition.

In view of the above, through our ground investigations we came across a rare case where a town centre private owner is engaging in a real estate project. Figure 38 illustrates a notification plate for an application in Quatre Bornes town centre with respect to the construction of a commercial-residential building of G+15 floors (includes basement parking).

Figure 38: Application for apartment project along Main Street



Source: researcher, February 2014

It is noted that this plate was affixed on 17 May 2013, and at time of our visit in mid-February 2014 it was still standing there. As per the planning/building legislations, development (construction) permits is issued by the municipality within 10 working days and in case of amendments within one month (max. 3 months) the permit ought to have been issued. Was this mere speculation? It is not clear how many floors will be devoted for commercial activities if this project materialises. But in actual practice (Mauritius) only ground floors of residential apartments occupy commercial activities. We equally note that the project comprises of 3 levels basement parking. Hence, this project which is a few metres from the Quatre Bornes bus station is increasing dependency of the private car. As regards underground (basement) parking, respondent R5 considers that the presence of basaltic rocks in the Plaines Wilhems district (found in the central plateau of Mauritius), presents building foundation (soil) hazards. However, such projects aiming towards re-building represents opportunities to increase the number of residents in the town centres. But the potentiality to introduce diversity of uses needs to be better

exploited, for example, varied tenancy (diversity of uses) add to create more viability and vitality (see section 2.3.2 and 2.3.4).

Maximising use of State-owned lands in town centres

As indicated in Chapter 5, both the Municipalities and Government own lands in the town centres. The focal points, which are the bus terminus, markets, and taxi stands, are all government properties. For Halcrow Group Ltd, the consultant who was entrusted to prepare the new Planning schemes (2013), land found in the heart of the town centres are “too valuable to be used for bus parking” (Rose-Hill OPS 2013: 85). Such areas also create a rupture in the urban form of the town centres, present a monotonous iron and wheel (buses) scene and contribute in the heat island effect.

In the same wave, large tract of land found along main streets are used as: service roads to access taxi stands and parking; roundabouts and unnecessarily large road junctions (see figure 39 and 40) are occupying a consequential amount of land. Besides being wasted for unfruitful uses, from an environmental point of view these bituminous road surfaces prevent percolation of water and are main sources of flooding problems. Similarly, uncontrolled parking (wherever width of road allows) is visually obtrusive, cause pedestrian difficulties and puts at stake cyclist’s safety.

Both town centres being deficient in terms of public open spaces and green areas, is there a possibility of exploring more appropriate use of the state lands? Figures 39 and 40 speaks themselves and call for coming forward with innovative urban designs in an attempt to improve the quality of life of town dwellers and visitors. These spaces adjoin the bus stations of Rose-Hill and Quatre Bornes respectively and to transform them into an attractive urban space represent an interesting and exciting challenge.

Figure 39: Large tarred junction in Rose-Hill town centre



Source: researcher, February 2014

Figure 40: Taxi stand located in heart of Quatre Bornes town centre



Source: researcher, February 2014

Prospect for LRT

As we mentioned earlier, an LRT project is programmed to serve the conurbation in Mauritius. It is to be noted that the Government of Mauritius and Singapore Corporation Enterprise (SCE) signed an agreement for the provision of consultancy services for the Mauritius Light Rail Transit System (MLRT) project last September (2013). According to the website⁷² of the Ministry responsible for this project:

“The total cost of the present consultancy services for the MLRT project is Rs 180 million (*approx. \$ 6,428,571*), over a timeframe of 11 months. The outcomes of SCE will then determine the construction costs of the LRT. According to previous reports, the MLRT would cover a distance of some 28km, and would stop at different stations scattered along the alignment. Access to stations will be by an integrated system of comfortable and reliable feeder buses. But all these issues, including the type of carriages needed and other specifications, will be finalised through different options assessed by SCE.” (Ministry of Public Infrastructure (Mauritius), 2013)

The introduction of the LRT between Curepipe and Port Louis (see map 6) aims to alleviate traffic congestion problems and provide an efficient and quality public transport system. Subsequently, the Public Private Partnership (PPP) scheme has been chosen and the Mauritian Government has already knocked at the door of the World Bank for the project’s financial aspects.

The LRT is expected to serve the town centres core areas. As pointed out earlier, mixed-use policies have been outlined in the planning schemes (OPSS) as the key planning principle which may give impetus to the town centres through the LRT project. However, one year since the enforcement of the new schemes and announcement of the alternative mode of public transport there are still no visible changes in the urban morphology of the town centres. We further observe from map 6 that the LRT will most probably pass through long stretches of the main streets of both of our case study areas (town centres of Quatre Bornes and Rose-Hill). For sure,

⁷² Retrieved 03 June 2014 from <http://www.gov.mu/English/News/Pages/Mauritius-Light-Rail-Transit-System-Works-to-Start-by-October-2014.aspx>

the introduction of the LRT is expected to transform the core area of town centres and urges for integrating the new mode of public transport in the land use plans. This is precisely where the opportunity lies as regards promoting mixed-use in the town centres and the TOD approach.

Meanwhile, the local press provide an insight of the present status of the project as follows:

« Avec les études de géotechniques la MLTA⁷³ est en présence de l'alignement préliminaire dressé avec la collaboration des Singapouriens. Les six consortiums impliqués dans ce projet sont en présence de ces données. Ces six firmes auront un délai pour évaluer le projet et ensuite de le discuter. Les firmes ont jusqu'au 9 mai pour soumettre leurs propositions. La Mauritius Land Transport Authority (MLTA) va faire une évaluation des propositions et entamera des négociations avec les trois meilleures soumissionnaires. D'ici le 31 octobre 2014, le contrat doit être signé. Ces six firmes sont deux compagnies indiennes, deux chinoises, une française et une anglaise. Celle qui décrochera le contrat devra apporter le design, le financement, l'opération et la maintenance du métro léger⁷⁴ » (Le Matinal newspaper, 31 mars 2014).

The majority of planners consider that the LRT will play a positive role in accessing town centres. Others highlighted the issue that “the LRT should not be constrained in its operational hours (peak times only) and should not to be an alternative mode of transport to working class citizens only” (R1, R4). Likewise, in the view of respondents, very strong incentives are required for leaving cars and Government need to come up with some package (measures) to diminish auto-reliance (R2, R7). Moreover, some interviewees added that LRT will connect only town centres, not neighbourhoods. Hence, according to them, bus routes need to be revamped and integrated in an overall transit plan (R3, R5, R9, R11). This brings into light that there are other innumerable potentials associated with the TOD approach that may be part and parcel of the LRT project. Moreover, the identified weaknesses of the town centres and challenges in section 6.1 relating to amongst others the need for town centres increased diversity of uses, out-of-town competitions, appealing urban design environments, traffic and parking management, attract

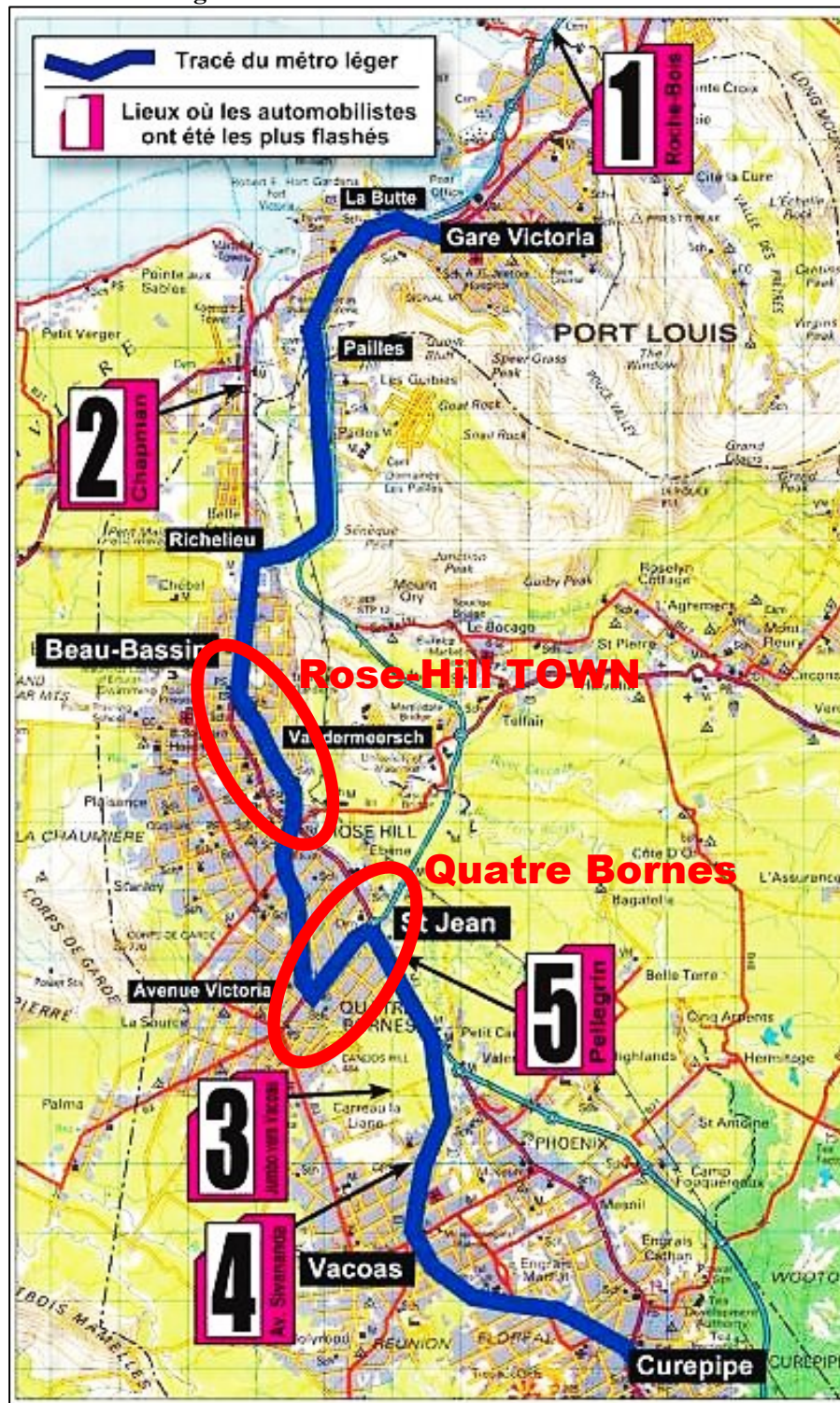
⁷³ The Mauritius Land Transport Authority (MTLA) has been set up under an act of parliament in February 2011. MLTA has absorbed other road authorities and is responsible for the LRT project.

⁷⁴ Retrieved 04 April 2014 from <http://lematinal.com/news/local/3865-metro-leger-les-acquisitions-des-terrains-en-cours.html>

users can be best reached by successful implementation of the TOD approach. As we investigated in section 2.5.4, TOD presents various opportunities such as achieving higher density, consolidating urban fabric, promoting mixed-use, making convivial places and focussing on public transport. The town centres will undeniably need to capitalise on these positives attributes of TOD that the LRT unveils.

Nevertheless, the foremost guiding principle with TOD concerns increased density in and around the transport stations (see figure 8). Besides, we opine that TOD in the town centres is an opportunity that can live up to the challenges facing traffic, urban design and density issues. With the TOD approach, it is generally expected that both public and private sector collaborate in rehabilitation and re-building projects to attract a major share of the LRT station users. In this regard, municipalities have equally an important role to play in introducing a bundle of incentives for improving the quality of lives of residents, visitors but also health of the town centres.

Map 6: The probable LRT alignment in the Conurbation



Source: "Le Mauricien" newspaper 28 July 2013 modified by researcher, June 2014

6.3 Transferring mixed-use principle to Mauritius town centres

The above-mentioned challenges and opportunities, including our empirical research in the two previous sections provide the material to explore transfer of the mixed-use principle in Quatre Bornes and Rose-Hill town centres. These are considered from an angle to improve the viability and vitality of the town centres in the background of the LRT project in Mauritius. The proposed mixed-use approach is as follows:-

- (i) Understand the local context,
- (ii) Learn from other country experiences,
- (iii) Revisit the local plans: allow for a synergy of uses,
- (iv) Encourage active transportation in Quatre Bornes and Rose-Hill
- (v) Improve the public realm,
- (vi) Handle traffic flow and parking, and
- (vii) Plan and manage TOD

Understand the local context

The first step to be taken in endeavouring mixed-use improvements is to have in depth studies on the evolution and existing state of the town centres. The need for closely examining the local context is to better identify the opportunities and constraints of each town centre. Awareness of the local context will ensure that right and necessary decisions are taken and there is better chance to achieve mixed-use.

The national plan (NDS) and regional plans (OPS) of Mauritius provide mixed-use policies but as we discussed earlier, these planning mechanisms did not bring positive changes in the town centres urban form and activities. This is precisely where thorough understanding of the local urban context and deeper investigations on strengths and weaknesses of each of the town centres can provide the basis for their viability and vitality.

In the perspective of the LRT and TOD, the need is also felt to understand the social acceptability of the local context with regards to mixed-use and increased density. Moreover, other researches are required specifically in respect of town centres: demography and population migration, affordable housing, closure of businesses, public transport users, parking requirements etc. Such data would be pertinent in evaluating the town centres weaknesses and take corrective measures in pursuit of improving mixed-use.

Learn from other countries experiences

It can be deduced from the literature that towns and cities are transforming their transport stations and public transportation corridors with high density, increased intensity and diversity of uses albeit targeting to achieve mixed-use. In North America, integration of transport and land use plans is experiencing major revisions but with a common goal: **improving quality of life**. For example, the PMAD vision 2031 of the Communauté Métropolitaine de Montréal equally joins on this front and advocates:

« Le PMAD s’inscrit dans un courant de planification qui vise à mettre en place les conditions qui favorisent la croissance de notre économie et garantissent la qualité de vie de vie de notre population en relevant les trois défis (aménagement, transport et environnement » (PMAD 2012: 46)

Moreover, the Executive Director of UN Habitat conveys the following urban planning directives for City leaders of developing countries:

“Tapping the opportunity presented by urbanization to advance sustainable human development is one of the defining challenges facing many of the countries in which UN-Habitat works. Unfortunately, many developing countries lack strategies for urban planning and design. Urban planning, where it happens, tends to be inadequate for addressing the many challenges which are endemic to rapid expansion. Evidence of this includes ineffective and unsustainable urban policies, excessive zoning and inadequate enforcement, developments far from the city core, poor connectivity resulting from insufficient allocation of land to streets and transportation systems, and the lack of appropriate urban design that allows for optimum density. The result of inefficient or

non-existent planning limits economic potential and impinges on the health, opportunities, and well-being of city residents” (Dr. Joan Clos, 2013: ii)⁷⁵.

In light of the above, we can say that the LRT project envisaged by the government of Mauritius and linking the town centres to and from the capital city presents itself as an unequivocal opportunity to seize for inter-alia: - the viability and vitality of the town centres, economic prosperity⁷⁶ of the country at large and betterment of the quality of lives of citizens.

On a more general aspect, the literature review in Chapter 2, includes ten principles for successful development around transit (Dunphy et al. 2004) and clues to help town centres compete with retail malls (Gibbs 1992), both of which, may be put into practice in Mauritius. However, the Mauritian central and local governments have not paid attention to the environmental impacts of traffic jam and the constrained town centre core areas (see chapters 4 and 5). In this respect, construction of alternative roads to by-pass the town centres, and lack of incentives for increased diversity of uses in town centres account for an unsustainable vision. Besides, the example of social diversity (Talen 2008: 35) we investigated in our literature review, point towards the need for a close understanding of the local needs, wants and demands to innovate and promote urban design in an attempt to create prosperous mixed-use environments. It is therefore recognized that presently, the vision of municipalities in Mauritius is cumbersome for town centres. Shaping the vision means:

“imagining a development future that recognises both the community’s potential and the economic, political, and environmental constraints. Thus, the organisation leading the visioning effort should understand the community’s strengths and limitations. It should foster a vision that challenges, but does not exceed, the community’s capabilities, and should ensure that the implementation schedule is realistic” (Dunphy et al. 2004: 171).

⁷⁵ Retrieved 03 June 2014 from <https://www.citiesalliance.org/sites/citiesalliance.org/files/Urban-Planning-City-Leaders.pdf>

⁷⁶ The benefits engendered from the LRT will also reduce time wasted in congestion, lessen import of petroleum and reduce carbon footprint (atmospheric pollution).

Hence, it is high time that municipal councils take into account the identified problems and issues (though not exhaustive presented in Chapter 5), but also address the challenges and makes best use of the opportunities (outlined respectively in previous sections) so that a vision for town centres viability and vitality is shaped. Shaping the vision with materials we investigated is a matter of extreme urgency and is the right time to do so, given that town centres would accommodate the LRT.

Revisit the local plans: allow for a synergy of uses

Some of the planners we interviewed confided that, zoning has prohibited (in old versions of planning schemes) mixed-use in Mauritius' town centres. They explained that previously core areas of town centres were referred to as CBD (Central Business Districts), and only commercial activities were allowed thereto (R1, R5, R7, R11). These respondents affirmed that “ownership including resistance to development by second and third row residents (reference made to Main Street of Quatre Bornes town centre) prevented expansion of a mix of activities”. Do mixed-use measures and strategies exist for town centres? Yes, in the new version of planning schemes (2013) replied the majority of interviewees, but it is limited to general policies and no concrete measures and/or strategy towards its enforcement have been devised. In addition, respondents R5, R8 and R10 asserted that planning legislation is silent on mixed-use and there are no other mechanisms as incentives to encourage uses to co-exist. Moreover, the 11 respondents confirmed that there is no government strategy to develop housing, expand offices and encourage leisure activities in town centres.

The application of the synergy of uses (investigated in section 2.2.1) may be explored in the local context. Indeed, the Urban Land Institute's (US) theorem of three types of synergies (direct and indirect support, and place making) and their framework of uses (see table 1) is not applicable to Mauritius but show the way of integrating different uses in a systematic manner through their degree of support to each other. For instance, a combination of offices and retailing has a high degree of support which has remained unexplored in our case study areas. Moreover, the

potentiality of developing tourist-related activities have remain unexploited in both town centres e.g. market fair guided visits in Quatre Bornes and Rose-Hill town centres, cultural heritage tours in Rose-Hill. Likewise, both town centres are not distant from pristine western coastal areas of the island and planning schemes have not succeeded in attracting more tourist visitors or business tourists. It is understood that prior to developing such avenues (example: attracting tourism in the town centres), the central and local governments need to elaborate strategies towards uplifting the public areas, historic sites and buildings (including markets).

Although the planning schemes do not restrict premises of public institutions for other uses (e.g. shopping, residential), a common attitude has been instilled in the local context for providing single uses within public buildings. The latter occupy important portions of land with office uses and are not maximising potentiality of the sites and contributing towards promoting mixed-use. In this connection, our literature review considered two mixed-use typologies developed by Rowley (1996) and Hoppenbrouwer and Louw (2005) on basis of Jane Jacobs' pre-conditions to generate 'exuberant diversity'. These typologies as we explained in chapter 2, tend to create diverse situations where mixed-use can be achieved, namely within different settings and location (the main streets, individual buildings, street blocks, the town centre). The typologies also showed that successful mixed-use is dependent on interplay of a number of variables: grain, density, permeability⁷⁷.

It is therefore viewed that Mauritius' local plans can create more mixed-use by translating the synergy of uses (after investigations in the local context) into a planning strategy and/or a regulation. Moreover, the case of Lodi city is a conventional example where by classifying mixed-use along main streets and transport corridors have provided opportunities for redevelopment of vacant and underutilized sites.

⁷⁷ Grain, density and permeability are defined in section 2.3.3

Encourage active transportation in Quatre Bornes and Rose-Hill

Pedestrians

Except the two weekly markets fair days in Quatre Bornes and Rose-Hill and the school population and employees at peak hours (exclude weekends), visitors are not attracted to the town centres. Pedestrians are confronted with motorized traffic conflict at road junctions where traffic lights do not exist (R5, R9,R11). Moreover, we witnessed that motorists do not give priority to people on foot. Additionally, sidewalks are: not comfortable because they are narrow; in bad state along some road stretches (mostly intersections) probably because they haven't been able to resist traffic weight and volume; encroached upon by vehicles parked in building frontages of commercial areas (see figure 41); not safe and secure all day long (crime, thefts). With respect to health issues, we should not forget the rising number of cardiovascular and diabetes problems in Mauritius and their interconnectivity with lack of physical activity as claimed by several reports⁷⁸.

Cyclists

Cycling, island wide in Mauritius were up to the early 1980s both a hobby and the only means of transport for the breadwinner's of the family daily and monthly trip to groceries and retail shops. Obviously, changing lifestyles and behaviours of Mauritians have equally cause net reduction in the need for pedalling. There are today no dedicated bicycles tracks in Mauritius town centres. Moreover, no space is available for people to leave/park their cycles. However, increased volume of traffic in town centres clearly makes cyclists vulnerable as they run the risk of entering into collision with motorized traffic.

⁷⁸ Retrieved 11 June 2014 from http://www.commonwealthhealth.org/africa/mauritius/non_communicable_diseases_in_mauritius/

Figure 41: Vehicles parked on sidewalks in Quatre Bornes town centre



Source: researcher, February 2014

Gibbs (1992) science of “Urbandizing” points out that without comfortable, appealing and fluid pedestrian circulation, mixed-use is difficult to attain (see section 2.3.4). The intent should therefore be to encourage people walking and passing through the commercial areas. The actual state of the sidewalks and lack of safe pedestrian ways calls for urgent remedial attention on part of relevant authorities. In this respect, with the support and participation of retail owner’s, retailers association and the municipalities, shop fronts should be re-designed. Likewise, transport authorities should seize the opportunity to introduce cycle tracks or other means of securing cyclists in the town centres. In the same reasoning, the possibility of converting some streets (or part thereof) to pedestrian ways with appropriate tree planting in the vicinity of the bus stations and market would create a pleasant atmosphere and bring much street life in the town centres. The possibility of translating these recommendations into planning mechanisms, as did Portland Oregon (see section 2.5.2) needs to be investigated. Such an initiative will provide directives to local authorities, transport authorities, developers, planners and architects and other relevant actors.

Improve the public realm

The absence of green open areas and a dedicated public realm in both town centres is vivid. Respondents weight this as a detrimental factor which is drawing away town centre users and visitors (R2, R7, R9, R11) and apparently discouraging owners to renovate their buildings (façade etc.). The lack of public open spaces in town centres, compared to the more generous public open spaces of out-of-town locations including the aesthetically pleasant atmosphere therein (e.g water jets) further explains the loss of town centre users and visitors. In this respect, Bohl, in his compendium of Planning and Design ideas town centres, points out:

“Nothing is more powerful for a town centre than a strong centre of gravity, a focal point that provides a gathering place for people and an identity for the project. The centre of gravity may be the main street itself, but more often it is an urban park, a plaza, an outdoor dining area, a fountain, a transit station, a clock tower, or some other place to which people are naturally drawn. A centre of gravity helps visitors remain oriented to the larger setting, provides dramatic views of the town centre, and offers an outdoor setting for mingling, lounging, and conversing” (2002: 279)

Our empirical study showed that a number of state lands are strategically located at the heart of town centres and are used as parking spaces (for taxis and buses). The planning schemes further remarks that “the town centre is lacking in open space and has no central public open space within which to meet and relax” (OPS Quatre Bornes 2013: 83).

Population concentration is most important in town centres at the markets and bus stations. Incidentally, these are from where the shopping areas emerged and the latter places constitute main town centres attractions. Indeed, the creation of a central space in the town centres would be a symbolic initiative and a criterion advocated in the broad literature exemplified by Bohl’s above words to create a focal point (gathering space) in town centres. Furthermore, creating such a place by public bodies will be inherent in incentivising mixed-use through private sector development in and around such spots.

Handle traffic flow and parking

To ensure optimism in creating mixed-use environments, it is of essence that traffic and parking issues be managed and controlled as revealed by our literature survey (section 2.3.4). Our fieldwork conveys that cars have seldom as destination the town centre. Their route is mostly oriented towards out-of-town centres and the capital city. Subsequently, discussions with planners revealed there is an instilled belief among motorists that the private car allows them to save time spent in traffic as compared to public transport. In fact, buses should observe a certain speeding limit on motorways (80 Km/h), whereas cars may speed up to 120 km/h. Moreover, buses have to stop frequently to pick up and descend passengers. In the absence of a dedicated bus way in the conurbation, it is difficult to convince private car users in the neighbourhood of town centres to step down for public transport (R3, R5, R9). As pointed out by interviewees, traffic problems have far reaching implications on the quality of lives of residents by reducing time spent with family members and for leisure activities (R5, R9). We equally provided examples in previous sections where delivery vehicles and private cars park on roadways and walkways respectively.

Nevertheless, our literature review shows that the necessity of having adequate parking is crucial to maintain dynamism of town centres (sections 2.3.4 and 2.4). Insufficient parking spaces and high parking fees for private parking areas are driving visitors to out-of-town shopping (R5, R8). On the other hand, off-street parking fronting the commercial areas is not an appropriate scene to revive town centres. Moreover, with the forthcoming LRT project, and the OPSs objective to make the town centres a transit place, requires that parking be adequate and convenient, controlled and managed (see section 2.4).

A number of possibilities exists for managing parking, use of joint delivery bays among shop owners, constructions of multi-storey car parks and imposing traffic regulations are amongst a few. However, most of these need an urban design and sensitive approach. Other possibilities and sustainable practices in the perspective of improving mixed-use would be to encourage shared parking among different town centre uses (e.g. retail and services), improve quality and

frequency of intra-urban public transport and reduce off street/on street parking in town centres streets to make active transportation a pleasurable experience. At the time of writing the thesis we came across the information⁷⁹ that Government has decided to construct a parking area for 200 cars at the rear of the Quatre Bornes market. It may create additional environmental and congestion problems in Quatre Bornes town centre, as we highlighted earlier, but on the other hand it may help to enlighten life and activity in the town centre with possibly an increase in car dependency. Moreover, integrating this parking area and its connectivity (focus on active transport) to the new LRT station and existing bus station may encourage people to pass along the main shopping corridors and hopefully improve economic activities in Quatre Bornes. In addition, the parking area provides the possibility of air rights (droits aériens) for construction of for instance residential and commercial buildings.

In this conjunction, it is of utmost importance that planning mechanisms integrate transport and land use planning policies. Coming up with transport projects (road projects and parking etc.) in a piecemeal and uncoordinated manner will continue to make land use plans unresponsive to development trends, as is presently the case. Transport and town centre parking devolve on different authorities in Mauritius and the need of having a shared vision amongst planning and transport professionals including decision-makers seems pertinent in the present situation and in limelight of the LRT.

Plan and Manage TOD to achieve mixed-use

Translating the broad orientations in relation to TOD, to regional plans (SAD), and then to Local plans (PU) poses a definite challenge for its implementation (see section 2.5.4). Montréal stakeholders are sitting around the same table in this perspective.

⁷⁹Retrieved 18 June 2014 from <http://www.lemauricien.com/article/motion-censure-envisagee-nous-n-avons-aucune-crainte-ont-declare-bachoo-et-deerpalsing>

The new version of Outline Planning schemes (2013) for the town centres in Mauritius lays emphasis on TOD (Transit Oriented Development) built around future transit stations (committed government of Mauritius project). We were therefore interested to have planners' point of view. The latter will be beyond no doubt on the forefront of TOD related-projects. Moreover, their intermingling role between planning mechanisms and professional liaison with transport authorities is foreseen for the future of town centres.

The majority of planners we interviewed stated that TOD is an interesting concept; especially that it is geared towards achieving sustainable development. R5, R7 and R8 consider the prospects of regenerating and revitalizing town centres require that a dedicated multi-disciplinary team (planners, engineers and architects from public and private spheres) is set up to negotiate and drive through the project. However, a few respondents (R1, R8, R10) were sceptical of introducing TOD in the local context, namely because of inadequate implementation of planning strategies and shortage of human resources. Some of them pointed out that "TOD is only in policy form in the planning schemes" and that "local investors and promoters are inexperienced with TOD projects" (R2, R10).

The TOD proposed in Mauritius has not been subject of any investigation and seems to have taken professionals aback. The planning schemes point out that bus stations are preferred locations to accommodate TOD with mixed-use projects namely retail, offices, leisure, apartments and parking (OPS Quatre Bornes 2013: 63). Our literature review calls for a gradual increase of TOD areas with time. Eventually, TOD is concerned with much larger scale oriented approach, where density (FAR), public sector incentives through planning mechanisms, and quality public spaces are main attributes of mixed-use. The common answers received with respect to mixed-use improvements were to: "develop LRT stations (nodes) by making it vibrant with shelters for passengers, lockers and local/regional stations; regenerate the area around the proposed station; develop stations with mixed-uses include restaurants and leisure activities" (R2, R5, R7). Some respondents replied that "a revitalisation policy by municipal councils may promote mixed-uses and compete with out-of-town shopping malls/centres. We equally need to

discourage car access, on-street parking and encourage pedestrian pathways” (R3, R9). A few interviewees equally viewed that entertainment uses such as cinemas should be brought back as leisure activities in town centres (R1, R8, R10).

Planners were also convinced that LRT stations will be located in the heart of town centres and relayed their answers as such “set up a special delivery vehicle⁸⁰ (SPV) comprising of major land owners to implement an action plan” focussing on mixed-use in and around the stations (R5, R7, R9). According to them, this SPV will be empowered for land readjustment (acquisition, valuation, etc.) and will follow up development applications. Finally, there was a general suggestion amongst respondents that a fast track committee should be set up by public bodies to treat applications differently (that is more speedily).

6.4 Exploring ways and means to improve the viability and vitality of town centres

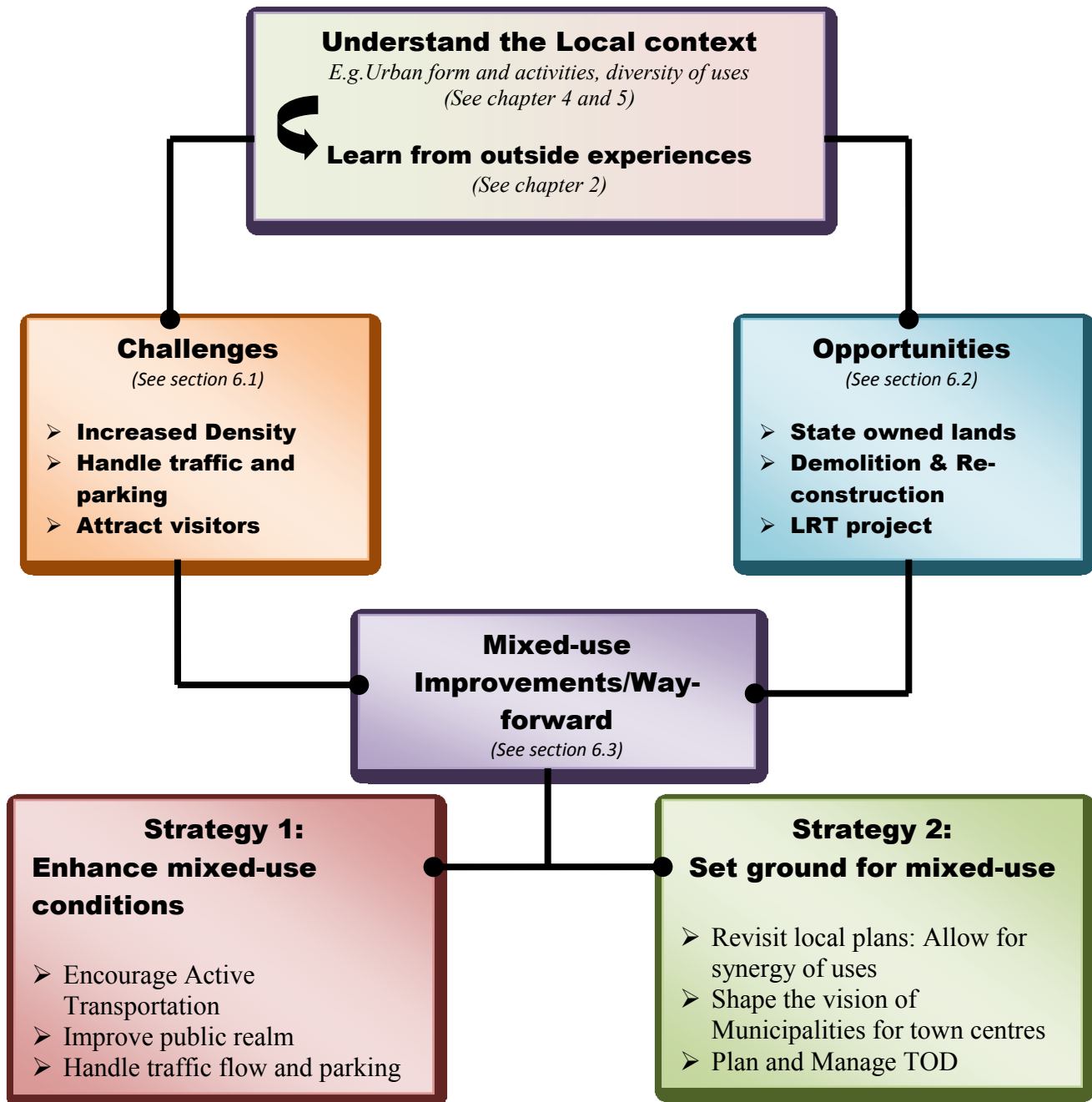
In the previous three sections we attempted to sort out the main challenges for the viability and vitality of the town centres together with the opportunities of achieving mixed-use. From the outcome of these sections, our literature review and empirical research we elaborate the following strategy to improve mixed-use in the town centres. In the course of our research and analysis we realised that for mixed-use to have a positive impact and hence to achieve viability and vitality of the town centres in our case study areas, it would be preferable to have two ‘strategies’ as shown in figure 42. These two avenues: **‘Enhance mixed-use conditions’** and **‘Set ground for mixed-use’** emerged from considering the challenges awaiting the town centres and opportunities to achieve mixed-use.

⁸⁰ “A special purpose vehicle (SPV) is a project management team (entity) comprising our public officers, professionals (e.g. architects, planners) representing interests of developers, representatives of the local community, established with special powers (e.g. for land acquisition, undertake road infrastructure etc.). They are set up to drive through specific projects and are dismantled once project is completed. SPV are usually established in UK and India for tax planning issues “(respondents R5, R7, R9).

Our reasoning is that besides zoning barriers and red tapes as obstacles, far too often criticisms are heard that planning mechanisms are unresponsive to attend to the “exuberance” of our towns through mixed-use. It is no secret that to get plans both adopted and implemented is a time consuming procedure and a political dilemma. Alternatively, our two mixed-use strategies are independent upon each other and actions may be initiated simultaneously (see figure 42).

6.4.1 Exploring two mixed-use strategies for the viability and vitality of Quatre Bornes and Rose-Hill town centres

Figure 42: Schematic representation of analysis/discussions in case study areas and strategies to improve mixed-use in town centres.



Source: researcher, July 2014

Strategy 1: A positivist view

The first strategy calls for short term action for town centres and seeks to enhance mixed-use through three conditions which we view in the local context (Quatre Bornes and Rose-Hill town centres) as:

- (i) Encourage and promote active transportation,
- (ii) Improve and create a public realm, and
- (iii) Handle traffic flow and parking.

These three conditions are not difficult to achieve and are inter-related. For instance, by positioning a parking area at a spot, say 'A', and adopting a traffic scheme in relation to movement of vehicles in each of the two town centres, we can create a street scene which encourages pedestrian circulation along the commercial areas. Hence, by reducing traffic, it would be much easier to come up with security of cyclists in the town centres. Subsequently, converting taxi-stands located at the heart of town centres into a piazza with benches, play space for toddlers (e.g. people like to stop and watch them) and appropriate trees will make visitors spend much more time in town centres and create a strong centre of gravity (also referred to as place-making). Undoubtedly, these indirect incentives will lead to consolidation/expansion of business activities and their sustained survival, creation of jobs and attract/retain visitors.

Strategy 2: Great expectations from a planning perspective

Our second strategy as outlined, in figure 42 is three-tier based and calls for:

- (i) Revisiting local plans by allowing for a synergy of uses,
- (ii) Shaping the vision of municipalities for town centres and
- (iii) Planning and managing TOD by a dedicated team

Strategy 2 aims firstly to reinforce mixed-use by working out a synergy of uses framework (e.g. of the Urban Land Institute's we investigated in chapter 2). To prove effective, this synergy of

uses needs to be recognised as a statute by revisiting local plans. Furthermore, for the “urban renaissance of town centres” (terms used in the National Development Strategy 2004 and Outline Planning Schemes 2013 in Mauritius) the vision (2013-2020) of the municipalities has to be re-looked into. For instance, by allowing conversion of agricultural land for gated residential projects and out-of-town malls at motorway interchanges, the vision of the municipalities is a far cry from the aspired and desired town centres renaissance. However, the LRT project and its TOD component present the opportunity of achieving renewed interests in the town centres. The broad aims of the TOD should endeavour increased density, mixed-use and quality urban spaces as we pointed out earlier. For this reason, the need for having a team of experts and comprising of relevant stakeholders who understand the local context is of utmost importance.

6.4.2 Recommendations for decision-makers in the local context

➤ *Encourage and Promote town centres as an unequivocal place of transit*

The bus stations at the heart of the town centres should be developed as iconic places for public transport ridership. In addition to improving the quality and frequency of buses, the taxi services must be professionalized. Similarly, park and ride and bus priority measures should be introduced. Better use of and control of the state-owned lands is also a necessity to realise this recommendation. The richness of cultural aspects of the town centres should be enhanced and strengthened with urban design awareness.

➤ *Capacity building in municipalities and ministries (central government) in connection with land use planning and transport*

Besides the required coordination of land use plans and transport (traffic) projects in the town centres, the forthcoming LRT project and TOD calls for reinforcing the professional capabilities to handle manage and champion relevant projects. There is a need to establish permanent training programme with foreign countries to ensure best practices are applied wherever feasible (applicable) in the local context.

➤ *Ensure safety and security of town centres users*

One of the most prominent ways of ensuring frequentation of the town centres is to remove the fears residents and visitors have to walk and stroll at all times (day and night). Tightening security (public order) and safety aspects for different age groups, the elderly and persons with disability will promote the image of town centres and improve commuting.

➤ *Develop and maintain a town centre database*

The availability of information on the use of buildings and properties (private and public), number of residents and occupancy/tenancy, etc. will play an important part in maintaining both a balance of uses and ensuring their relevant synergy. Such data may also serve in comparative analysis and prospect the future horizon in terms of sustainability and prosperity of town centres.

➤ *Consolidate a political willingness for mixed-use in the town centres*

The town centres should be prioritized locations for increased density, intensity and diversity of uses with the goal of improving quality of lives of town centre residents, attracting visitors and conserving existing uses. In this conjunction, interventions should be realised in collaboration with different actors to make the town centres both a mixed-use ‘experience’ and a ‘destination’. Regulations, plans and incentives should endeavour to:

- (i) Develop leisure and entertainment activities,
- (ii) Make provision for affordable housing,
- (iii) Consolidate and expand commercial activities,
- (iv) Introduce and promote business hotels and tourism related attractions, and
- (v) Find a sustainable solution for street hawkers and prevent their confrontation with town centre business operators.

6.4.3 New scope for public participation in mixed-use?

The literature reckons that community participation is essential for the success of mixed-use projects. Public hearings and consultations remain the traditional process where residents may

voice out in a formal manner their grievances with respect to development projects. However, if more concrete participatory approach (targeting stakeholders), since the project's inception stage is explored, it may determine the feasibility and acceptability of the mixed-use interventions and also encourage its implementation in the foreseeable future. In this context, we provide two avenues.

(a) Your town centre: an innovation challenge

This programme “*Your town centre: an innovation challenge*” has recently been launched (May 2014) by the Government of Scotland and is addressed particularly to those (citizens, groups, organisations) who are looking at Scotland's town centres in a way that may open “new opportunities to help the centre prosper”⁸¹. Such a programme recognises that the public sector and private enterprises initiatives may be inadequate in achieving the viability and vitality of the town centres. The first page of the “innovation challenge” booklet asks the following three questions:

1. Have you ever had an idea for your town centre that could help open up opportunities?
2. Or would you and your group just like a push in the right direction?
3. Have you a desire to bring new life to places and spaces that you love?

The way forward for those interested in the above programme is to talk their ideas in the first instance with the programme organisers, attend training workshops and make ideas happen.

(b) Charettes' and co-design strategies

Another process now increasingly relied upon in North America is the use of “Charettes”, “(...) a workshop held over several days in which interested parties work with designers to come up with design concepts for development” (Grant 2006: XXIV). It is perceived in the North American context that stakeholders (principally developers and local authorities) are using

⁸¹Retrieved 07 June 2014 from <http://www.ads.org.uk/urbanism/news/your-town-centre-an-innovative-challenge-booklet>

‘Charettes’ to engage community participation and input as from the project conception’s stage. This “allows the community to help shape and buy into a vision for a particular site and development” (Schwanke et al. 2003:155). In the same way, co-design is a participatory approach regrouping users and designers who work together in the design development process. In co-design, the user is given “the position of expert of his/her experience”, and plays a large role in knowledge development, idea generation and concept development on the other hand, the designer acts as facilitator to guide the former in transforming their creative imaginations (Sanders and Stappers 2008:12).

6.5 Conclusion

As we stated earlier, the do-nothing option and unresponsive planning policies are certainly not alternatives to bring dynamism in the town centres but are also weakening the attractiveness of the town centres in the eyes of inhabitants, visitors and developers. Our understanding of the local urban context and the common strengths and weaknesses of the town centres (chapters 4 and 5) enabled us to identify the main challenges and opportunities for the viability and vitality of the town centres (sections 6.1 and 6.2 respectively). Using these challenges and opportunities we traced a way for improving mixed-use through two proposed strategies: ‘enhance mixed-use conditions’ and ‘set the ground for mixed-use’. These two strategies provide the scope for further interventions and calls for actions by private and public sector stakeholders in an attempt to make the town centres viable and vital.

Finally, the ultimate mixed-use opportunity remains the LRT and the TOD approach as experienced in international planning practice. The LRT project is called upon to bring both investment and interests in the town centres and may further publicise and promote our two above-mentioned short- and long-term strategies.

GENERAL CONCLUSION

In pursuance of the general objective of our research, through the literature review we identified different avenues (conditions, measures etc.) that may be initiated in the first instance to improve the viability and vitality of town centres through mixed-use. Our insight of the historical evolution of mixed-use in Chapter 1 saw Governments (North America and Europe) consolidating their policies in that respect. The promotion of the mixed-use movement by international organisations like the World Bank, UN Habitat and Healthy cities provide an impetus to the subject of our study. Moreover, as we witnessed in Chapter 2, the contribution of authors cannot be under-estimated as all their criticisms and appraisal is yielding interesting debates and contributing towards fine tuning the mixed-use approach. Indeed, we found out that the mixed-use as an ingredient for improving health of town and city centres through different planning mechanisms and strategies is rising in prominence. To enable further progress with our research and fulfill our general objective, in Chapter 3 we defined our specific research objectives and research methodology and identify/describe our research tools.

Hence, in Chapter 4, our study of the urban context in Mauritius pointed towards Government interventions in the conurbation which in some way or the other have encouraged investment and growth in other parts of the country but has had an impact on the health of the town centres. We found out that the actions taken by the transport authorities were meant to solve the traffic congestion problem encountered in the conurbation. It was also to facilitate the implementation of business activities – decisions altogether guided by the World Bank, International Monetary Fund (IMF), African Development Bank and other international organisations at a time when financial crisis in the world was at its peak in the early 1980s. Construction of roads infrastructure has led to the country's progress, but has also encouraged the parcelling of considerable agricultural lands in town centre peripheries. By doing so, town centres loss residential, commercial and office uses. Additionally, the lack of both public and private investment in the town centres did not help to improve the quality of the urban environment and life was considerably neglected. Through our empirical research in Chapter 5, we had a gist of

the main problems and issues facing our two selected case study areas. Our interviews with Mauritius planning practitioner aided us in this endeavour. The collected information nourished our findings and brought new reflections. The identified problems and issues with respect to the loss of diversity in Rose-Hill and Quatre Bornes town centres, enabled us in addressing related mixed-use opportunities, challenges and improvements in Chapter 6.

Limitations of the research

As regards to the implementation of mixed-use, Schwanke et al. (2003:151) remarks that although new types of (mixed-use) zoning came into effect, the approval process by licensing (permit delivery) authorities is “fraught with uncertainty and is often very time consuming, resulting thus in higher risks and costs (for the developer)”. In the same wave, according to the UN Habitat (2013: 28) recent publication on ‘Urban Planning for City Leaders’, removing zoning barriers to mixing compatible uses could produce wide- ranging social, economic and infrastructure benefits but remains a key challenge. Indeed, it is understood that one of the most prominent way for the public sector’s intervention is through planning mechanisms and for this reason we contended to expand our research on mixed-use conditions, strategies and measures.

The absence of data with respect to the town centres and specifically with regards to: the number of residents; number of jobs; economic operators (retailers) and the places they commute, hampers in some way our analysis on ‘mixed-use’ in the Mauritian context. Such data if available would have enabled us to sort precisely the contribution of the town centres in the socio-economic development of the country and enable better comparative analysis of their evolution. We have equally not been able to interview town councillors, political leaders and other town centre stakeholders on their vision for the town centres. We could have brought the issue of the forthcoming LRT and hear their reaction in this context. However, we don’t have confirmation on the locations of the LRT stations yet and the final alignment of the LRT line serving/linking the town centres and the conurbation remains a mystery. Such information would have contributed in our analysis and discussions. We tried to remedy this lack of information by

keeping track through the local press on interviews of shopkeepers, political leaders, and public institutions – all showing concern for town centres.

Although our study is prospective based, it may be premature to weigh the true merits of the LRT project on the town centres. This limitation can prove beneficial for studies in areas of transport-land use in Mauritius. Moreover, the planning mechanisms in Mauritius (planning schemes) only made an allusion to the TOD principle without any mention of: feasibility studies for its implementation, land space availability and the integration of different modes of transport – all of which are essential criterion in making the TOD project happen. Besides, our academic experience through the studio intervention on the “Train de l’Est” in Montréal, further adduce that in the absence of properly planned and coordinated mechanisms grouping all the relevant stakeholders to oversee the project from its inception stage, it may be difficult to achieve a successful TOD (Ramsahye et al. 2013)⁸². The above limitation leads us to the final words of our thesis.

Final Words

Our study shows that town centres in Mauritius are in decline due to numerous issues and problems. To ensure their viability and vitality, it is of paramount importance that town centres attract residents/workers/visitors at all times, which in fact mixed-use addresses to a great extent. In this regard, a myriad of planning mechanisms, tools and measures aim to bring back life and activities in the town centres. The reflection has already started through our research and the planning system in Mauritius is at an important crossroad with the LRT project. To conclude, the saying “As you sow so shall you reap” leads us to say that future of our town centres also depends on how effectively and efficiently measures are taken to make them more liveable and enjoyable!

⁸² Retrieved 14 July 2014 from <http://urbanisme.umontreal.ca/fileadmin/URB/R%C3%A9alisations-%C3%A9tudiantes/Expo-des-finissants/EFFA-2013/Region/AtelierGPU-1R.pdf>

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ANNEXES

INTERVIEW GUIDE/QUESTIONNAIRE

| |
|-----------------------|
| Respondent Code:..... |
| Place:..... |
| Date:..... |
| Time:..... |

Title of thesis: " Mixed-use as an ingredient for viability and vitality of town centres: paving the way for its implementation through planning mechanisms in Mauritius".

Case study: Town centres of Quatre Bornes and Rose-Hill

Questions

A. Definition of Town centre and its spatial significance

1. How would you define a Town centre?
2. How would you delimit the Town centre spatially and define it in terms of use, density and height of buildings?

Note: Plans showing the town councils will be available during the interview

B. Town centre users/visitors demand

1. According to you, who goes to the town centre, who works/resides in the town centre? What can be their needs/demand to visit the town centre? Are there any planning presumptions in favour of attracting particular class/es of visitor/s in the town centres?

C. Transport, mobility, accessibility and parking

1. What are the planning principles observed when assessing development applications with respect to transport, mobility, accessibility and parking in town centres?
2. Are there any traffic schemes applied in the town centre to reduce traffic congestion?
3. (a) How do you evaluate public transport within and serving the town centre?
(b) What has been done to improve the efficiency of public transport (buses) in the town centre?
4. Do you believe accessibility to town centres will change as a result of the implementation of the Light Rail Transit System? e.g. lesser parking space and/or focus on the motorcar.

D. Land property and tenure

1. Are there state lands in town centres? What are their uses?
2. What is the tenure in town centres (freehold, leasehold)?
3. Are you aware whether the title deeds of plots in town centres include set/lists of planning related guidelines?

E. Investment in Town centres

1. Are there any form of incentives for retailers/promoters intending to improve for instance shop fronts, diversifying activities?
2. Do you think the private sector is interested in developing town centres?
3. Are you aware of any public/private project which has been implemented or in the

pipeline for the town centre?

F. Definition of Mixed-use and it's evolution in Town centres

1. How would you define the mixed-use concept in urban planning?
2. What is the actual state of mixed-use in town centres? Are there signs of mixed-uses? Can you mention some examples in the two town centres (and the conurbation)?
3. How is the urban form (architecture, building height, diversity of uses, density) evolving in town centres with respect to mixed-use?
4. Are there any particular architecture/building form you find suitable and/or you favour for the town centre?

G. Vision of Municipal councils for town centres, policies and strategies towards Mixed-use

1. What is the vision of the Municipal councils for the town centres?
2. Are there measures at the level of the Municipal councils to attract:
(i) residents, (ii) shopkeepers and (iii) other economic actors?
In the affirmative for question 2 above, have these policies and incentives been successful?
3. Are there on the other hand policies which are prohibiting the expansion of mixed-use in town centres? or policies which is in favour of segregation of activities?
4. What is the lesson learnt from the pilot project initiative of 24/7 in town centres? Would you pursue this concept in the long term? (*question for discussion only*)
5. Do we have Mixed-use (Density) policy measures and strategies at the level of the Municipal councils for town centres?
6. If yes, are there policies and incentives for mixed- use (increased density) in:
(i) Planning Legislation (Acts) and Regulations
(ii) Planning Documents
(iii) Other means of mechanisms for uses to co-exist e.g. financial incentives/taxation strategies.
7. Are there strategies by Government and promoters in town centres for
(i) Housing in general?
(ii) Creating and/or expanding offices spaces?
(iii) Encouraging leisure and entertainment activities?

H. Barriers and Constraints for Mixed-use

1. What can be/are the reasons for lack of interest in developing and/or redevelopment of old and/or vacant sites in town centres?
2. Are you aware whether there are objections for mixed-uses at the Municipal councils/within town centres?

3. Are there appeal cases for similar mixed-uses at the level of the Town and Country Planning Board (TCPB)? *Question applicable to planners at the TCPB and Municipal Councils*
4. What are nonconforming uses in town centres according to planning tools and/or your professional experience?
5. Do you perceive any risks associated with mixed-use?

I. Mixed-use opportunities in town centres

1. The new version of Outline Planning Schemes (on public deposit) for the own centres lays emphasis on TOD (Transit Oriented Development) built around future transit stations (committed Govt. Project) in town centres. What do you think of the TOD concept/project? Is this having any influence on the town centre development (number of permit application received, sale of land etc. in town centres)?
 2. Is the new version of OPSs encouraging a mixture of uses in town centres? If yes, to what extent?
 3. How do you envisage the development of the forthcoming LRT stations?
 4. Are you in favour of the mixed-use concept for the LRT stations?
If yes, what should be done according to you (your professional experience) to encourage and implement mixed-use in the town centre?
-

END of Interview Guide

INFORMATION SHEET AND CONSENT FORM

Title of Research Project: « Mixed-use as an ingredient for viability and vitality of town centres: paving the way for its implementation through planning mechanisms in Mauritius »

Student Researcher: Nitin Chiranjeev RAMSAHYE, Student, *maitrise en Urbanisme, Institut d'urbanisme, Faculté de l'aménagement*, University of Montréal.

Director of Research. : Marie LESSARD, Professor, *Institut d'urbanisme, Faculté de l'aménagement*, University of Montréal

A) INFORMATION TO PARTICIPANTS

1. Purpose of the Research

This intent of this study is foremost to grasp the understanding of planning professionals on “Mixed-uses” in view of defining the concept. In the second instance it shall focus on the implementation of the Mixed-use concept through planning mechanisms in Mauritius.

2. Participation in this Research

Participation in this research takes the form of answering a questionnaire interview of approximately 45 minutes (max) with the student researcher at a time and place convenient to you. The interview is related to planning in town centres in Mauritius and the “Mixed-use” concept. An interview guide has been prepared by the researcher and shall be handed over to you one week prior to the scheduled interview. The interview will not be registered.

3. Confidentiality

All the information shared during this interview will remain strictly confidential. A code will be attributed to each participant and only the student researcher will have access to the list of codes and names. The interview notes and information shared will be kept in a locked office and closed key cabinet (in Mauritius during period 26 November 2013 to 11 March 2014 and at the University of Montréal as from 12 March 2014). Your name will not appear in any reports or publications associated with this research project. All the information obtained will be stored for a period of seven (7) years after which they will be destroyed. Only non-personal information will be kept beyond that period on account of further research purposes.

4. Benefits and risks

Your participation in this research project shall contribute to the professional development of your colleague/the student researcher and would consolidate at broadening further planning theory and practice in Mauritius. There is no risk associated for the respondent/participant in this research project except the time required for the interview.

5. Voluntary participation and withdrawal from the research project

Your participation is entirely voluntary. You may feel free to withdraw your participation as an interviewee at all times with a simple verbal note and without prejudice. Such a decision will not influence the nature of your relationship with the student researcher. In case you decide to withdraw yourself, please inform the student researcher and/or call the latter on the phone number written below. All information obtained from you will be destroyed at that time.

6. Compensation

No financial compensation will be paid as regard to this research project.

7. Dissemination of Results

This research forms part of a project thesis (*mémoire*) and upon its approval by members of the jury of the University of Montreal (next year), will be made accessible on-line on the website of the University faculty and library (<https://papyrus.bib.umontreal.ca>).

Please write your email address in case you are interested that the conclusions with respect to the research are forwarded to you. Your E-mail address: _____

B) CONSENT

I hereby declare having taken note of the above information and obtained answers with regard to my participation in this project and have equally understood the aim, nature, benefits and risks associated with this research. After reflection within a reasonable time lapse, I agree to freely participate in this research. I am aware that I can withdraw myself at all times without prejudice, with a simple verbal note and without having to justify in anyway my decision.

Signature : _____ Date : _____

First

Name : _____ Name : _____

I hereby declare having explained the object, nature, including advantages and risks of this study and having answered to the best of my knowledge to the questions asked by the participant.

Signature of Researcher

(or his representative) : _____ Date : _____

First

Nom : _____ Ramsahye Name : _____ Nitin Chiranjeev

If you have any questions about this research or wish to withdraw yourself from this project, you may wish to communicate with (Ramsahye Nitin, Student Researcher). Any complaint with regard to your participation in this research can be addressed to the Ombudsman of the University of Montréal.

A copy of this information sheet and consent form should be signed and remitted to the participant. "For any information on ethical issues with respect to your participation in this research project, you may wish to contact the Coordinator, *Comité plurifacultaire d'éthique* de la recherche (CPER).

FORMULAIRE DE CONSENTEMENT

Titre de la recherche: « Mixed-use as an ingredient for viability and vitality of town centres: paving the way for its implementation through planning mechanisms in Mauritius »

Chercheur : Nitin Chiranjeev RAMSAHYE, étudiant à la maîtrise en Urbanisme, Institut d'urbanisme, Faculté de l'aménagement, Université de Montréal.

Directeur de recherche : Marie LESSARD, professeure titulaire, Institut d'urbanisme, Faculté de l'aménagement, Université de Montréal

A) RENSEIGNEMENTS AUX PARTICIPANTS

1. Objectifs de la recherche

Ce projet vise à étudier l'interprétation des professionnels de l'urbanisme sur la mixité des usages afin de pouvoir mieux définir le concept et élaborer sa mise en œuvre dans les outils d'urbanisme de l'île Maurice.

2. Participation à la recherche

La participation à cette recherche consiste à répondre à des questions lors d'une entrevue individuelle de 45 minutes (max.) avec le chercheur à un moment et dans un lieu que vous choisirez. Cette entrevue portera sur l'urbanisme dans les centres-villes mauriciens et la mixité des usages (Mixed-use). Un guide d'entrevue (« Interview guide») a été préparé par le chercheur et vous sera remis au moins une semaine avant la date prévue selon votre disponibilité pour l'entrevue. L'entrevue ne sera pas enregistrée.

3. Confidentialité

Les renseignements que vous nous donnerez demeureront confidentiels. Chaque participant à la recherche se verra attribuer un numéro et seul le chercheur principal aura la liste des participants et des numéros qui leur auront été attribués. De plus, les renseignements seront conservés dans un classeur sous clé situé dans un bureau fermé (à l'île Maurice entre le 26 Novembre et le 11 Mars 2014 et à l'Université de Montréal, Canada à partir du 12 Mars 2014) tandis que les analyses seront conservées sur l'ordinateur personnel du chercheur principal qui est protégé par un mot de passe et une signature digitale. Aucune information permettant de vous identifier d'une façon ou d'une autre ne sera publiée. Ces renseignements personnels seront détruits 7 ans après la fin du projet. Seules les données ne permettant pas de vous identifier seront conservées après cette date, le temps nécessaire à leur utilisation.

4. Avantages et inconvénients

En participant à cette recherche, vous pourrez participer à la formation professionnelle du chercheur et contribuer aux connaissances empiriques sur le contexte de la mixité dans les centres-villes mauriciens. Il n'y a aucun risque ou inconvénient associé à ce projet de recherche à l'exception du temps consacré à l'entrevue.

5. Droit de retrait

Votre participation est entièrement volontaire. Vous êtes libre de vous retirer en tout temps sur simple avis verbal, sans préjudice et sans devoir justifier votre décision. Si vous décidez de vous retirer de la

recherche, vous pouvez communiquer avec le chercheur, au numéro de téléphone indiqué ci-dessous. Les renseignements qui auront été recueillis au moment de votre retrait seront alors détruits.

6. Compensation

Les participants ne recevront aucune compensation financière pour leur participation à la recherche.

7. Diffusion des résultats

Cette recherche fera l'objet d'un rapport de projet de recherche (mémoire) et suite à l'approbation des membres du jury de l'Université de Montréal au cours de l'année prochaine, le mémoire sera accessible en ligne sur le site de l'Université (<https://papyrus.bib.umontreal.ca>).

Préciser votre adresse courriel ici, si vous êtes intéressé à ce que les conclusions en lien avec la recherche vous soient transmises. Votre adresse courriel: _____

B) CONSENTEMENT

Je déclare avoir pris connaissance des informations ci-dessus, avoir obtenu les réponses à mes questions sur ma participation à la recherche et comprendre le but, la nature, les avantages, les risques et les inconvénients de cette recherche.

Après réflexion et un délai raisonnable, je consens librement à prendre part à cette recherche. Je sais que je peux me retirer en tout temps sans aucun préjudice, sur simple avis verbal et sans devoir justifier ma décision.

Signature : _____ Date : _____

Nom : _____ Prénom : _____

Je déclare avoir expliqué le but, la nature, les avantages, les risques et les inconvénients de l'étude et avoir répondu au meilleur de ma connaissance aux questions posées.

Signature du chercheur

(ou de son représentant) : _____ Date : _____

Nom : Ramsahye Prénom : Nitin Chiranjeev

Pour toute question relative à la recherche ou pour vous retirer du projet, vous pouvez communiquer avec (Ramsahye Nitin, étudiant).

Toute plainte relative à votre participation à cette recherche peut être adressée à l'ombudsman de l'Université de Montréal.

Un exemplaire du formulaire d'information et de consentement signé doit être remis au participant

« Pour toute information d'ordre éthique concernant les conditions dans lesquelles se déroule votre participation à ce projet, vous pouvez contacter le coordonnateur Comité plurifacultaire d'éthique de la recherche (CPER).

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