



# GEORGE TOWN WORLD HERITAGE SITE

Population and Land Use Census  
2009–2019

## A CITY IN TRANSITION

**thinkCITY**

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*Roofscape of shophouses around Lebuhr Kimberley*



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# KEY HIGHLIGHTS

- The George Town World Heritage Site is a city in transition. Its **land use and socio-economic make-up changed significantly** between 2009 and 2019 due to a combination of local investments, policy interventions and broader industry shifts.
- The site's heritage and cultural characteristics underpinned a process of urban revitalisation. A decade after UNESCO heritage listing there were **more businesses, more tourists and a larger day-time population**.
- However, the **loss of residents and reliance on tourism** have created **new vulnerabilities exacerbated by the COVID-19 pandemic** and associated mobility restrictions.

- To “**build back better**” efforts are needed to
  - **Diversify the economy**
  - **Invest in public cultural assets**
  - **Improve comfort and liveability**
  - **Repopulate the site**

## Economic changes between 2009 and 2019

There has been a **shift from long-standing economic activities** such as finance and banking, transport and household **services towards hospitality and tourism** due to **both push and pull factors** including price hikes in rental and properties, disruptive technology, new transport hubs and more.

### No. Businesses

**2% ↑**

+53  
Increased from 3,204 to 3,257

### Workforce Size

**18% ↑**

+3,841  
Increased from 21,139 to 24,980

**1** ▾

Hotels

**190% ↑**

+116  
Predominately smaller guesthouses and boutique hotels

Hotel Rooms

**148% ↑**

+3,325

**2** ▾

Restaurants, Bars

**74% ↑**

+230

**3** ▾

Arts, Culture, Craft Establishments

**97% ↑**

+55  
With many oriented around entertainment and amusement

**4** ▾

Finance, Legal and Banking Firms

**12% ↓**

-35

**5** ▾

Transport, Import / Export, Logistics Firms

**25% ↓**

-38

**6** ▾

Household Goods and Services Outlets

**35% ↓**

-23

**7** ▾

Market and Street Vendors

**48% ↓**

-413

# KEY HIGHLIGHTS

## Demographic changes between 2009 and 2019

- There has been a significant decline in the residential population due to **fewer young families**. The main types of household are now **retired elderly, lone-person households and group of workers**.
- The decline in residential population is also reflected in a **decrease of households speaking Hokkien, Cantonese and Teochew dialects**.
- There remains a **stark contrast between the day- and night-time population**.

**1** ▾  
**Households**  
**27% ↓**  
-681  
**Residents**  
**32% ↓**  
-3,220  
Decreased from 10,159 to 6,939

**2** ▾  
**Main Household Typology**  
Retired elderly, lone-person households, group of workers

**3** ▾  
**Children 15 Years Old and Under**  
**62% ↓**  
-797

**4** ▾  
**Female Residents**  
Slightly declined from 45% to 42%

**5** ▾  
**Students Attending College**  
**154% ↑**  
+4,283

**6** ▾  
**Day- vs Night-time Population**  
In 2009 **2.4** times  
In 2019 **2.5** times  
Day-time and night-time population increased from **38,315** and **16,106** in 2009 to **46,960** and **18,612** respectively in 2019.





*An aerial view of the George Town World Heritage Site (Courtesy of Penang Global Tourism, PGT)*



# EXECUTIVE SUMMARY

The George Town World Heritage Site (GTWHS), a living historic city, has undergone significant change since its inscription by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2008. This includes public and private investment in conservation, rehabilitation of key public amenities and year-round celebratory events. Prior to the COVID-19 pandemic, many streets were crowded with visitors from near and far, queuing to pose for pictures in front of mural art or lining up for hawker food. However, during 2020 / 2021 these same streets became periodically deserted as movement restrictions crippled the tourism sector. The fortunes of local businesses were further impacted by the fact that for the past decade the decline in the residential population has accelerated. Some former residents have been drawn to new suburban public housing estates, while others have been forced to relocate due to old age, change in building ownership or rent increases.

These shifts are evident to anyone familiar with George Town. They have seen it go through a cycle of decline and hollowing out in the 1990s, only to be revitalised and rehabilitated in the 2010s, with a notable increase in day- and night-time activity. In 2020, a second, pandemic-triggered hollowing out is underway. The magnitude and impact of these changes and their underlying causes are described in this report. A summary of key indicators and their changes over the past decade is shown in Table A followed by a discussion of the key findings.

In 2009, the team pioneered the methodology for a population and land use census of the GTWHS, which was repeated in 2013 and 2019. This rich and comprehensive database which captured 6,173 entities in 5,403 buildings in 2019 has now been analysed. It can help diagnose underlying issues affecting the site's Outstanding Universal Values (OUVs) as recognised by UNESCO's GTWHS inscription. More importantly, these findings can pinpoint necessary policy and regulatory adjustments that can be incorporated into the site's Special Area Plan.

This data is supported by two supplementary surveys: one in 2019 on the value of the cultural economy, sponsored by the Getty Conservation Institute, and another in 2020 on the impact of COVID-19 on business sentiment. Combined they illustrate a city transitioning in response to a complex array of influences and socio-economic trends.



**Table A**  
Summary of significant changes in population and land use in 2009, 2013 and 2019

Population and land use				Change			% Change
	2009	2013	2019	2009 – 2013	2013 – 2019	2009 – 2019	2009 – 2019
<b>Economic Activity</b>							
<b>Businesses (including Hotels)</b>	3,204	3,218	3,257	14	39	53	2%
<b>New Businesses</b>	1,227	1,211	1,223	- 16	12	-4	-0.3%
<b>Workforce Size</b>	21,139	22,044	24,980	905	2,936	3,841	18%
<b>Hotels and Tourist Accommodation</b>	61	97	177	36	80	116	190%
<b>Hotel Rooms</b>	2,246	2,924	5,571	678	2,647	3,325	148%
<b>Restaurants and Bars</b>	309	355	539	46	184	230	74%
<b>Arts, Culture and Craft Establishments</b>	57	87	112	30	25	55	97%
<b>Market and Street Vendors</b>	854	764	441	-90	-323	-413	-48%
<b>Demography</b>							
<b>Households</b>	2,533	2,302	1,852	-231	-450	-681	-27%
<b>Residents</b>	10,159	9,425	6,939	-734	-2,486	-3,220	-32%
<b>Female Residents (%)</b>	45%	42%	42%	-3%	0%	-3%	-7%
<b>Resident College Students</b>	378	323	181	-55	-142	-197	-52%
<b>Students Attending College</b>	2,790	2,944	7,073	154	4,129	4,283	154%
<b>Children 15 Years Old and Under</b>	1,284	974	487	-310	-487	-797	-62%
<b>Residents 16 - 59 Years Old</b>	7,252	6,959	5,269	-293	-1,690	-1,983	-27%
<b>Residents 60 Years Old and Above</b>	1,623	1,492	1,183	-131	-309	-440	-27%
<b>Associations</b>							
<b>Clan, Non-government, Religious or Political Organisations</b>	200	216	178	16	-38	-22	-11%
<b>Vacancies</b>							
<b>Vacancies</b>	1,300	1,516	1,345	216	-171	45	4%
<b>Vacancy of Total Floorspace (%)</b>	17.3%	21.7%	19.5%	4.4%	-2.2%	2.2%	2.2%

Note: Includes "Unable to Survey" data

## ECONOMIC RESTRUCTURING

Between 2009 and 2019 there was a shift away from long-standing economic activities in the GTWHS such as finance and banking, transport and household services, towards hospitality and tourism. These shifts are due to both push and pull factors. Push factors include change of property ownership, increase in property prices and rental rates and an increase in the number of tourists. Examples of pull factors are prominent in the financial services and transport / logistics industries. For financial services, a shift towards online banking and the increased outsourcing and digitalisation of services has led to banks requiring a smaller physical footprint in the Central Business District. In the transport and logistics industries, new port and logistics hubs on the mainland mean George Town no longer provides locational advantages for such firms. These trends accelerated between 2013 and 2019. Notable changes from 2009 to 2019 are:

- An increase in the number of hotels by 190% (+116) especially smaller guesthouses and boutique hotels, and an increase in the number of hotel rooms by 148% (+3,325);
- An increase in the number of restaurants and bars by 74% (+230);
- An increase in the number of arts, culture and craft establishments by 97% (+55), with many oriented around entertainment and amusement; and,
- A decrease in the number of street and market vendors by almost half (-48%, -413).

While businesses' length of operations in their current premises is more than 20 years on average, this figure has declined as older businesses have either closed or relocated, being replaced by new establishments. In 2019, 55% of businesses were less than 10 years old. Although the total number of businesses increased, the vacancy rate as a percentage of available floorspace hovered between 17% and 22% from 2009 to 2019. In comparison, the vacancy rate in Penang state in 2009 and 2019 was 22.3% and 17.8% respectively for private offices and 29.8% and 26.3% for shopping complexes.<sup>1,2</sup>

## DEMOGRAPHIC CHANGES

Of concern for a living heritage site is the significant decline in the residential population – from 10,159 in 2009 to 6,939 in 2019 – with the majority of losses occurring since 2013. The decline is predominantly attributed to fewer young families, which is reflected in a drop in enrolments at local primary schools and the recent announcement that one of the city's iconic secondary schools, Convent Light Street, will be converted into a private international school.



<sup>1</sup> National Property Information Centre (NAPIC) (2009). Property Market Reports 2009. Kuala Lumpur: Valuation and Property Services Department.

<sup>2</sup> National Property Information Centre (NAPIC) (2019). Property Market Reports 2019. Kuala Lumpur: Valuation and Property Services Department.



The main household typologies today are retired elderly, lone-person households and groups of workers employed in the expanded hospitality sector. Trends of note since 2009 include:

- A 27% decline in the number of households (-681);
- A reduction in the percentage of resident females from 45% to 42%;
- A 62% decline in the number of children aged 15 years and under (-797); and,
- An increase in the proportion of elderly, lone-person and group of worker households.

Related to the loss of residents is a reduction in the number and proportion of households speaking Hokkien, Cantonese and Teochew dialects, with Bahasa Malaysia, English and Mandarin languages becoming increasingly dominant.

It is of note that while the residential population has gone down, the actual number of people in the GTWHS both during the day and at night had increased. Accounting for visitors, residents, workers and students there were an estimated 46,960 people in the heritage site during peak periods of the day, and 18,612 at night in 2019, up from 38,315 and 16,106 respectively in 2009. The change is a consequence of more business activity, tourists and students. While this can be seen as positive, there is still a stark contrast between day and night, with the day-time population now 2.5 times that of the night-time population, up from 2.4 in 2009.

## STATE OF CONSERVATION

Since George Town was listed by UNESCO as a World Heritage Site there has been significant investment by government, the private sector, associations and local institutions into preserving the city's physical heritage and cultural assets. Endeavours have been made to not only "restore" buildings, but greatly enhance the quality of conservation techniques used. The initial George Town Grants Programme established by Think City catalysed additional investments in the preservation of built assets. This was supplemented by the regulatory stipulations contained in the site's Special Area Plan and the educational, capacity building and monitoring efforts of George Town World Heritage Incorporated (GTWHI). Between 2013 and 2019 alone, it is estimated that 1,953 buildings (or more than a third of total stock) have been restored or conserved. There have also been notable government-led conservation initiatives to restore public buildings including Fort Cornwallis, the Town and City Halls, the State Museum, the State Assembly Hall, GTWHI's office and Syed Alatas Mansion. The public realm has also been upgraded following best practice conservation principles, with investments in the Fountain Garden, Armenian Park, Prangin Canal and the Esplanade Seawall / Promenade.



## IMPACTS OF COVID-19

The impact of COVID-19 on the GTWHS has been significant and severe. International and interstate mobility restrictions saw the temporary shutdown of the tourism industry. At times, parts of the GTWHS were deserted. The impact on businesses was compounded by the loss of residents and decline in businesses supplying household goods and services that might otherwise have attracted Penangites into the area. The intermittent relaxing of interstate travel restrictions have led to occasional boosts through domestic tourism, but continued uncertainty means business confidence remains low. A COVID-19 related survey in August 2020 by Think City found that 92% of businesses suffered a decrease in sales with 64% forced to close temporarily. Almost a quarter (23%) of businesses were uncertain if they would still be open at the end of 2021, and a further 4% said that it was unlikely.

## DRIVERS OF CHANGE

It is abundantly evident that the GTWHS has undergone marked change in the last decade. The drivers of these shifts are multiple and involve both pull and push factors. For example, some residents have been forced to relocate as rows of shophouses change ownership and use, while others chose to leave as new state-sponsored and private housing outside the heritage site became available, providing young families with higher quality amenities and tenancy security. A similar situation applies to businesses. Some businesses have been forced to relocate, while others face external disruptions that are universal to their industry. Banks and some retailers have been impacted by e-commerce and digitalisation while others have been impacted by new shopping malls opening. We also see the impact of policy on changes to the GTWHS. For example, new hotels have predominantly appeared in accordance with the Special Area Plan's location guidelines and is evidence that policy refinements can be influential.

## BUILDING BACK BETTER

The data highlighted in this study demonstrate that many of the changes over the last decade in the GTWHS are positive. There are more people patronising the site, especially during the day. There are more jobs, though mostly low- and semi-skilled, and the economic value of Penang's cultural heritage has been greatly enhanced. However, while factors that threatened the physical heritage prior to the UNESCO listing have been largely overcome, new vulnerabilities have emerged.

The impact of COVID-19 has highlighted that the site is heavily reliant on tourism, both domestic and international. This vulnerability needs to be addressed in revisions to the Special Area Plan and other



policy interventions. An example of this need is that the loss of residents and the general increased importance of ‘localism’ has also meant that many businesses did not have an immediate resident catchment to sustain them during the current pandemic. At various times in 2020 and 2021, many businesses have been forced to close. It is therefore important that the heritage site build back better with a focus on a more diverse and resilient set of business activities and innovative ways to attract back not only visitors, but new residents and the people of Penang.



Culture and heritage will obviously be at the forefront of the recovery effort for the GTWHS, but activities other than tourism should be encouraged – ones that can leverage the city’s unique attributes without detracting from them. Possible examples are creative industries, technology start-ups, business service companies and educational institutions. On the residential front, existing housing options must be preserved and widened. In parallel, efforts should be made to creatively carve out spaces with the right amenity and price for new residents. The GTWHS is ideally suited to become a ‘15-minute city’ with jobs, amenities, education facilities and housing within close proximity. Expanding the geographic extent of the heritage site resonates with the notion of a more self-contained city centre. The return of tourism will be a major driver of economic recovery. While the initial wave of tourists will come from Kuala Lumpur and Singapore, it is anticipated that future visitors will be looking to stay longer and immerse themselves in cultural experiences. There should be a focus on providing engaging and educational exhibits in museums, galleries and other venues that are regularly updated and refreshed – an emphasis on ‘quality’ rather than on ‘quantity’.

A collaborative effort is required. While government institutions can set the policy framework, civil society, cultural associations and businesses have a significant influence on the site’s tangible and intangible heritage – as either the owners of tangible assets and / or the embodiment of the intangible OUVs. The learnings and opportunities presented in 2020 / 2021 should be addressed and decision makers asked to identify land use activities that are less susceptible to shocks, more attuned to the needs of both Penangites and visitors, and provide higher and more lasting returns on George Town’s heritage and cultural values. These policy interventions should align with efforts to adapt to climate change, with a particular emphasis on cooling through greening and flood mitigation, to not only ensure that the site is habitable, but so that the site’s tangible and intangible cultural assets and values endure.



# 1.0 INTRODUCTION



In July 2008 a 2.6 km<sup>2</sup> area on the cape of George Town in Penang together with the Melaka city centre was inscribed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a World Heritage Site (Figure 1). They were listed as “remarkable examples” of historic colonial towns at the confluence of east and west trading routes. Recognition of the townships’ Outstanding Universal Values (OUVs)<sup>3</sup> led to enhanced local regulatory protections and the establishment of new institutions. Recognising the importance of a comprehensive baseline database of the heritage site in Penang, Think City, George Town World Heritage Incorporated (GTWHI) and the Department of Town and Country Planning (now PLANMalaysia), partnered in 2009 together with Australian-based consultancy Geografia Pty Ltd to undertake a population and land use census of the entire heritage site. The study was repeated in 2013 and 2019. The data are supported by a supplementary survey in 2019 on the value of the cultural economy sponsored by the Getty Conservation Institute and another by Think City on the impact of COVID-19 on business sentiment in 2020. This report serves as a documentation of the findings from an analysis of this rich database and the implications for the George Town World Heritage Site (GTWHS) moving forward.



*The Leong San Tong Khoo Kongsi is a grand clan temple famous for its exquisite and highly ornamental architecture (Source: Keir Gravid)*

The fortune of having a Penang government and civil society that recognise the value of heritage led to the initial push for George Town to be listed, and then subsequently for investments in public institutions and assets to preserve and celebrate the site’s OUVs. The local business community has also taken a lead, investing soon after UNESCO listing in the restoration of buildings and new businesses. Institutions such as Think City have sought to catalyse rejuvenation through a grants programme, and more recently together with Chief Minister Incorporated have invested in the conservation of important sites such as Fort Cornwallis and Syed Alatas Mansion. GTWHI have worked extensively since 2009 to educate, celebrate and monitor the site’s cultural significance, overseeing numerous programmes to conserve both tangible and intangible assets. The City Council of Penang Island continues to invest in public amenities and enforce heritage guidelines in accordance with the policy framework set in place by PLANMalaysia’s Special Area Plan. The community and associations give life to the site and embody its ‘spirit of place’.

The collective endeavours of those mentioned above (and others) have led to the transformation of the GTWHS and the continued protection of its built form and other elements of cultural significance. However, a complex interplay of factors has made the site economically, socially and environmentally vulnerable to external shocks. An overreliance on tourism combined with mobility restrictions associated with the COVID-19 pandemic have severely impacted businesses as international arrivals ground to zero, cruises were halted and at times interstate travel prohibited. This was compounded by a loss of residents due to a combination of increasing property prices and rents, changes of ownership and the attraction of newly-built government housing outside the GTWHS. The site is also at risk of climate change impacts including heat extremes and flooding due to storm events.

The report highlights these vulnerabilities and other ways the GTWHS is undergoing a transition. The intention is to improve the resiliency of the city by pinpointing areas of possible intervention.

<sup>3</sup> The George Town and Melaka have fulfilled three criteria of Outstanding Universal Value (OUVs) such as Criterion (ii) on exceptional examples of multi-cultural trading town, Criterion (iii) on living testimony of multi-cultural heritage and traditions, and Criterion (iv) on mixture of influences which created unique architecture, culture and townscape (George Town World Heritage Site Special Area Plan, 2016).





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*The Cheong Fatt Tze Mansion (also known as the Blue Mansion) is well known for its indigo facade (Courtesy of PGT)*





**Figure 1**  
The George Town World Heritage Site Study Area

# 2.0

## METHODOLOGY

- 2.1 Data Collection Overview
- 2.2 Land Use Census and Survey Attribute System (LUCSA)
- 2.3 Geocoding and Floorspace Calculation
- 2.4 Data Accuracy and Validation
- 2.5 Unable to Survey and Data Limitations
- 2.6 Analysis
- 2.7 Business Pulse Survey





## 2.1 DATA COLLECTION OVERVIEW

The population and land use censuses were conducted in 2009, 2013 and 2019 using a standardised data collection methodology. This comprised a detailed survey of each premise in the GTWHS to capture data on land use, demography and economic activity. Additional tailored questions were provided for the following major land use categories: businesses, hotels, residences, associations, educational institutions and government agencies. For example, the number of employees and operating hours were captured for businesses, the number of rooms for hotels, the number of students for educational institutions and the household type for residences. Vacancies were also recorded. Survey data were geocoded to buildings and then analysed. A separate survey of the street stalls and market vendors was also undertaken. The censuses were carried out by trained enumerators (Figure 2) with quality control maintained through close monitoring and input from supervisors.



**Figure 2**  
Intensive training for enumerators



## 2.2 LAND USE CENSUS AND SURVEY ATTRIBUTE SYSTEM (LUCSA)

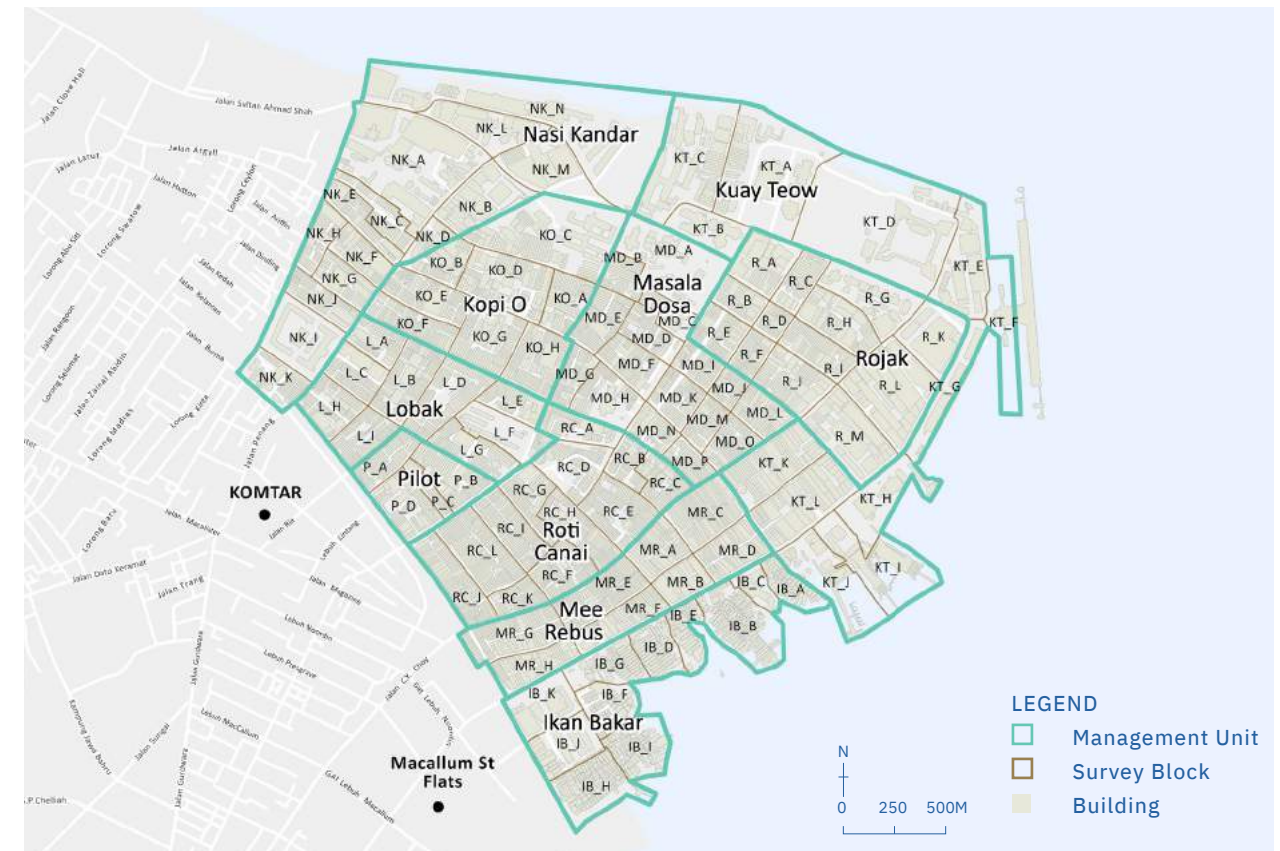
The classification of land use activity was based on a Land Use Census and Survey Attribute System (LUCSA) that has been customised and periodically refined. Each major land use type (Table 1) was categorised against a LUCSA super-class and then further divided into LUCSA sub-classes (see Appendix Table A1).

**Table 1**  
Type of land use documented in LUCSA

Land Use Type	Description
<b>Business</b>	Any entity where there is the exchange of goods or services.
<b>Residence</b>	A place in which people sleep on a regular basis.
<b>Hotel and Tourist Accommodation</b>	Short term rented or serviced rooms.
<b>Government Department and / or Services</b>	Organisation running local, state or federal government programmes or services.
<b>Education</b>	A building or institution in which students are taught.
<b>Associations (Clan, Non-Government, Religious or Political Organisation)</b>	Community groups, action councils, political parties, churches, mosques, temples, clan and cultural associations, sports groups and not-for-profit organisations.
<b>Vacant Land or Building</b>	Land, building or floor that is unoccupied for longer than the last 2-4 weeks.

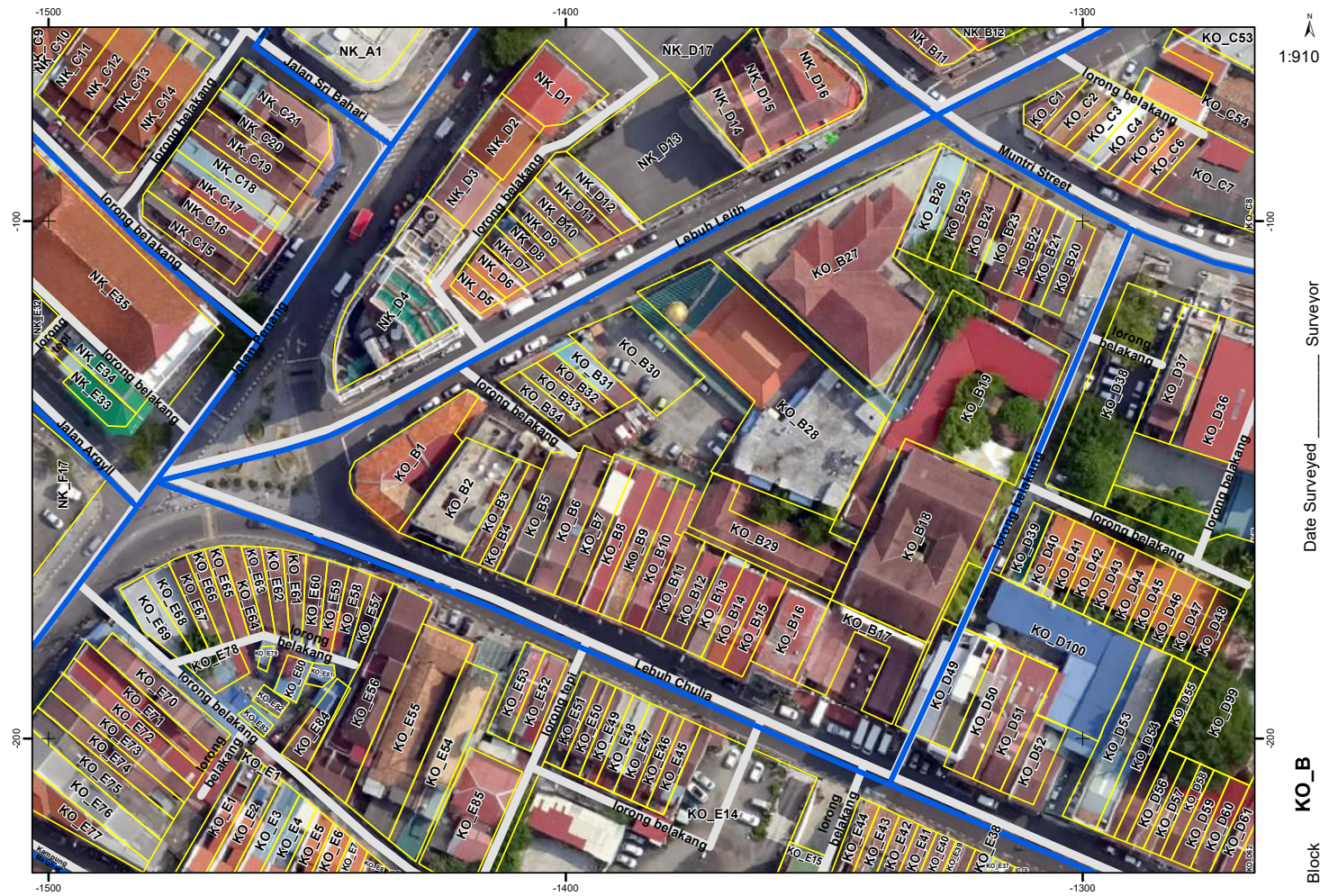
## 2.3 GEOCODING AND FLOORSPACE CALCULATION

To guide the collection of data, the GTWHS was divided into Management Units and Survey Blocks, which were assigned to enumerators (Figure 3). Maps based on satellite imagery overlaid with building footprints were produced for each block. Each building was assigned a unique ID which was used to geocode each entity surveyed (Figure 4). It was possible for a building to accommodate multiple entities (Figure 5), while entities could occupy multiple floors of a building, and on occasion multiple buildings. To overcome this the ID of all buildings occupied by an entity was recorded, with spatial analysis conducted based on the location of the prime or main building. Floorspace estimates were based on a combination of the percentage of a building an entity occupied, and the results of interviews and visual assessments.



**Figure 3**  
George Town Population and Land Use Census 2019 – Management Units and Survey Blocks





**Figure 4**  
Example of a Survey Block with unique building IDs

1:910  
N  
Surveyor  
Date Surveyed  
Block  
KO\_B



**Figure 5**  
An example of six different entities recorded on the different floors of a building and its annexe



## 2.4 DATA ACCURACY AND VALIDATION

Once the main survey was completed, the accuracy of the data was validated before cleaning across all three censuses. This involved an independent team reviewing a sample of surveys and a select set of questions. For the 2019 census, a random sample of 240 responses were verified for accuracy through follow-up surveys. The level of accuracy is outlined in Table 2, where generally, the accuracy of non-numerical data is higher. Similar levels of accuracy were recorded in 2013 and 2009.

**Table 2**  
Accuracy survey results

Information	Description	Accuracy
<b>Address</b>	Street name	85%
	Number of floors	85%
<b>Business</b>	Business name	90%
	LUCSA code	94%
	Tenancy type	95%
	Number of employees	88%
	Number of migrant workers	86%
<b>Residence</b>	Number of residents	89%
	Household type	94%
	Household ethnicity	88%
	Number of residents with a job	93%
	Number of children 15 years old and under	85%

In addition to the accuracy survey, the data were cleaned and validated by a technical team who also cross-checked for inconsistencies, buildings with missing information and double entries. On occasion, additional data were sought on the ground.

## 2.5 UNABLE TO SURVEY AND DATA LIMITATIONS

At times, enumerators were not able to survey some entities. In these instances, basic data – e.g. land use type (LUCSA code), building ID and floorspace estimates were captured. Overall the level of co-operation was high. In 2019, only 441 (or 6.2%) of 7,151 entities could not be surveyed. The majority were residences (306) and businesses (102) (Table 3). The main reason entities could not be surveyed was that no one was home despite repeated attempts (256). Other reasons cited were the business was closed despite repeated attempts (86) and tenants were uncooperative (75).

**Table 3**  
Number of entities that could not be surveyed

Land Use	Number
Residence	306
Business	102
Clan, Not-for-Profit, NGO or Political Organisation	4
Government	2
Hotel and Tourist Accommodation	2
Education	1
Unknown	24
<b>Total</b>	<b>441</b>

The limitation of having incomplete or unsurveyed entities was overcome by creating synthetic data for selected attributes of an entity, mainly the number of residents and number of workers. For example, household size was estimated based on real data by assigning the average number of residents from sampled houses of different types and assigning that value to the missing residences. Likewise, missing employee data were assigned based on estimates from similar types of businesses by LUCSA code.

The classification of some LUCSA codes and their interpretation may vary in some cases between the census years. While detailed descriptions were provided to enumerators by the project director and surveyor coordinator (who were the same people for all three censuses), there was still the possibility of a business being assigned a different LUCSA sub-class in each survey. However, the likelihood of misinterpretation and misassignment was low in the LUCSA super-class where most of the analysis is reported.

Another limitation is that the 2009 census used lot boundaries rather than building footprints to geocode data. For the 2013 and 2019 surveys, the unique IDs were also different. To overcome this a method of spatial analysis based on activity density was applied to compare changes between time points.

## 2.6 ANALYSIS

The data collected in 2009, 2013 and 2019 were analysed using a combination of tables, graphs and maps. As the data is complex and it is difficult to visualise data with multiple entities in a single floor or building, a kernel density methodology was applied. The data points from 2009, 2013 and 2019 were extracted and compared using the Geographical Information System (GIS) kernel density tool in ESRI's ArcGIS Pro 2.6. The tool calculates the magnitude of entity type, employees or residents per unit area (in hectares) and the density of features in a neighbourhood. The output maps for each of the three census years were then placed side by side for comparison.

## 2.7 BUSINESS PULSE SURVEY

Think City conducted a pulse survey<sup>4</sup> of businesses in George Town, Kuala Lumpur and Johor Bahru in August 2020. The purpose was to obtain insights into market conditions and business sentiment and to understand how businesses in downtown areas of Malaysian cities had been performing amidst the COVID-19 pandemic. The survey data were collected through an intercept survey, where five to six enumerators in each city were tasked to ask respondents 13 questions relating to past and expected future business performance, the impact of COVID-19, improvements to their business, sentiment on development projects, what they saw as top priorities for improvements and their business demographics. Respondents were approached during standard business operating hours and only business owners and managers were interviewed. To ensure businesses were fairly and accurately represented in the survey data, respondents were distributed across numerous zones. The distribution of respondents for each zone was based on the distribution of business entities according to Think City's most recent baseline studies.



# 3.0 POPULATION AND LAND USE CHANGE (2009-2019)

- 3.1 Key Findings Overview
- 3.2 Economic Restructuring
- 3.3 Economic Activity Spatial Patterns
- 3.4 Demographic Shifts
- 3.5 Day-time and Night-time Population
- 3.6 Vacancies



### 3.1 KEY FINDINGS OVERVIEW

In the decade following World Heritage listing by UNESCO, the GTWHS changed significantly. There was economic restructuring with an increase in economic activity driven by new hospitality and tourism ventures while other businesses closed or relocated outside the GTWHS. This was accompanied by a decline in the residential population. As shown in Table 4, from 2009 to 2019 the number of businesses increased by 53 (from 3,204 to 3,257 or a 1.7% increase).

The number of households declined by 681 (from 2,533 to 1,852 or a 26.9% drop) over this period. The number of government agencies in the GTWHS has increased since 2009. Educational institutes increased slightly while the number of clan, not-for-profit, religious or political organisations has fluctuated. The vacancy rate remained stable although it was more fragmented spatially in 2019, i.e. rather than whole buildings being vacant there was more vacant floorspace within buildings. Details of the extent, nature and implications of these changes are provided in the following sections.

**Table 4**  
Summary of main land use in 2009, 2013 and 2019 and periodical change (5 years and 10 years)

Land Use	2009		2013		2019		Change					
							2009 – 2013		2013 – 2019		2009 – 2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Total	No.	% Total	No.	% Total
Business (excluding hotels)	3,143	43.1%	3,121	42.6%	3,080	45.9%	-22	-0.7%	-41	-1.3%	-63	-2.0%
Hotel and Tourist Accommodation	61	0.8%	97	1.3%	177	2.6%	36	59.0%	80	82.5%	116	190.2%
<b>Subtotal businesses</b>	<b>3,204</b>	<b>43.9%</b>	<b>3,218</b>	<b>44.0%</b>	<b>3,257</b>	<b>48.5%</b>	<b>14</b>	<b>0.4%</b>	<b>39</b>	<b>1.2%</b>	<b>53</b>	<b>1.7%</b>
Residence	2,533	34.7%	2,302	31.4%	1,852	27.6%	-231	-9.1%	-450	-19.5%	-681	-26.9%
Clan / Association	200	2.7%	216	3.0%	178	2.7%	16	8.0%	-38	-17.6%	-22	-11.0%
Government	36	0.5%	43	0.6%	56	0.8%	7	19.4%	13	30.2%	20	55.6%
Education	19	0.3%	26	0.4%	25	0.4%	7	36.8%	-1	-3.8%	6	31.6%
Vacant	1,300	17.8%	1,516	20.7%	1,345	20.0%	216	16.6%	-171	-11.3%	45	3.5%
<b>Total</b>	<b>7,292</b>	<b>100.0%</b>	<b>7,321</b>	<b>100.0%</b>	<b>6,713</b>	<b>100.0%</b>	<b>29</b>	<b>0.4%</b>	<b>-608</b>	<b>-8.3%</b>	<b>-579</b>	<b>-7.9%</b>

Note: Includes "Unable to Survey" data





*Day-time businesses (pre-pandemic) along Lebuhr Armenian (Courtesy of Keir Gravil)*



## 3.2 ECONOMIC RESTRUCTURING

The nuances of economic restructuring that has occurred in the GTWHS manifest in the mix of entities, opening hours, floorspace occupied by different types of businesses, changes in jobs and shifts in employment type. Understanding how these trends are interrelated and the role of localised influences versus broader societal and global trends is an important consideration in the design of future interventions and policy frameworks.

### 3.2.1 INDUSTRY MIX

The shifts in industry activity are detailed in Table 5 and Figure 6. Of note is that in 2009 and 2013 the top industries by number of outlets were *Fashion, Clothing and Textiles*, followed by *Restaurants / Bars* and *Finance, Legal and Banking*. However, by 2019, tourism and food related industries were more prominent. The number of restaurants and bars increased from 309 to 539 outlets between 2009 and 2019 (+230). Together with the increase in *Food Produce and Beverage (Production and / or Sale)* (166 to 283), *Art, Culture and Craft* (57 to 112) and *Hotel and Tourist Accommodation* (56 to 175) it is evident that in the decade after the UNESCO listing, the GTWHS economy became less reliant on household and business services and by 2019 was heavily skewed towards hospitality and tourism.

Interestingly, while there are likely push factors, such as crowding out or rent hikes that account for the decline in some business types, shifts are also the result of pull factors. The decline in *Finance, Legal and Banking* institutions (-35) is likely the result of technology changes including online banking and e-commerce and the fact that many no longer need prime customer-focused locations in downtown George Town. The decline in *TV, Electronics and Computer* outlets (-52) may also be due to the changing nature of the sector, including the enhanced prominence (and size) of these activities in shopping malls and the accessibility of online retailers. The same pull factors likely apply to *Household Goods and Services* (-23) and *Office Supplies Stationery, Photo, Books and Printing* (-24), though the declining residential population may also be a factor. *Fashion, Clothing and Textile* outlets (-28) decreased slightly possibly due to the general disruption of this industry by online competitors.

In terms of push factors, rental prices and new regulations likely account for the declines in *Transport, Import / Export and Logistics* (-38), *Industry Supplies and Services* (-36) and *Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail* (-28). The large spaces that many of these activities require may no longer make financial sense in the heritage area, and the locational advantages such as access to port facilities and / or a local population catchment have been diminished. There are also conflicts with other land uses (e.g. lorry loading and unloading) and competition for parking spaces. Some activities such as motorcycle repairs without proper waste disposal have also been discouraged.

### 3.2.2 DAY- AND NIGHT-TIME ACTIVITY

The significant increase in hospitality and tourism related activities is reflected in changes to the number of businesses (including market and street vendors) open at night (see Appendix Table A2), up from 911 (22.8% of total businesses – excluding “Unable to Survey”) in 2009 to 1,077 (28.0% of total businesses – excluding “Unable to Survey”) in 2019. The majority of the net increase (+170) can be attributed to new restaurants and bars. There were notable declines in the number of *Fashion, Clothing and Textiles* (-47) and *TV, Electronics and Computer* (-26) outlets open at night, and there was actually a decline in the number of businesses open during the day. However, there is still a stark difference between day and night, with the day-time population now 2.5 times that of the night-time population, up from 2.4 times in 2009 (see section 3.4). Spatially, the southern sections of Jalan Penang around Chowrasta Market, Lebu Chulia, Little India and Lebu Pantai are the most economically dense (measured in terms of open businesses) during the day (Figure 7). Lebu Chulia, Little India and Jalan Penang are the busiest at night (Figure 8).

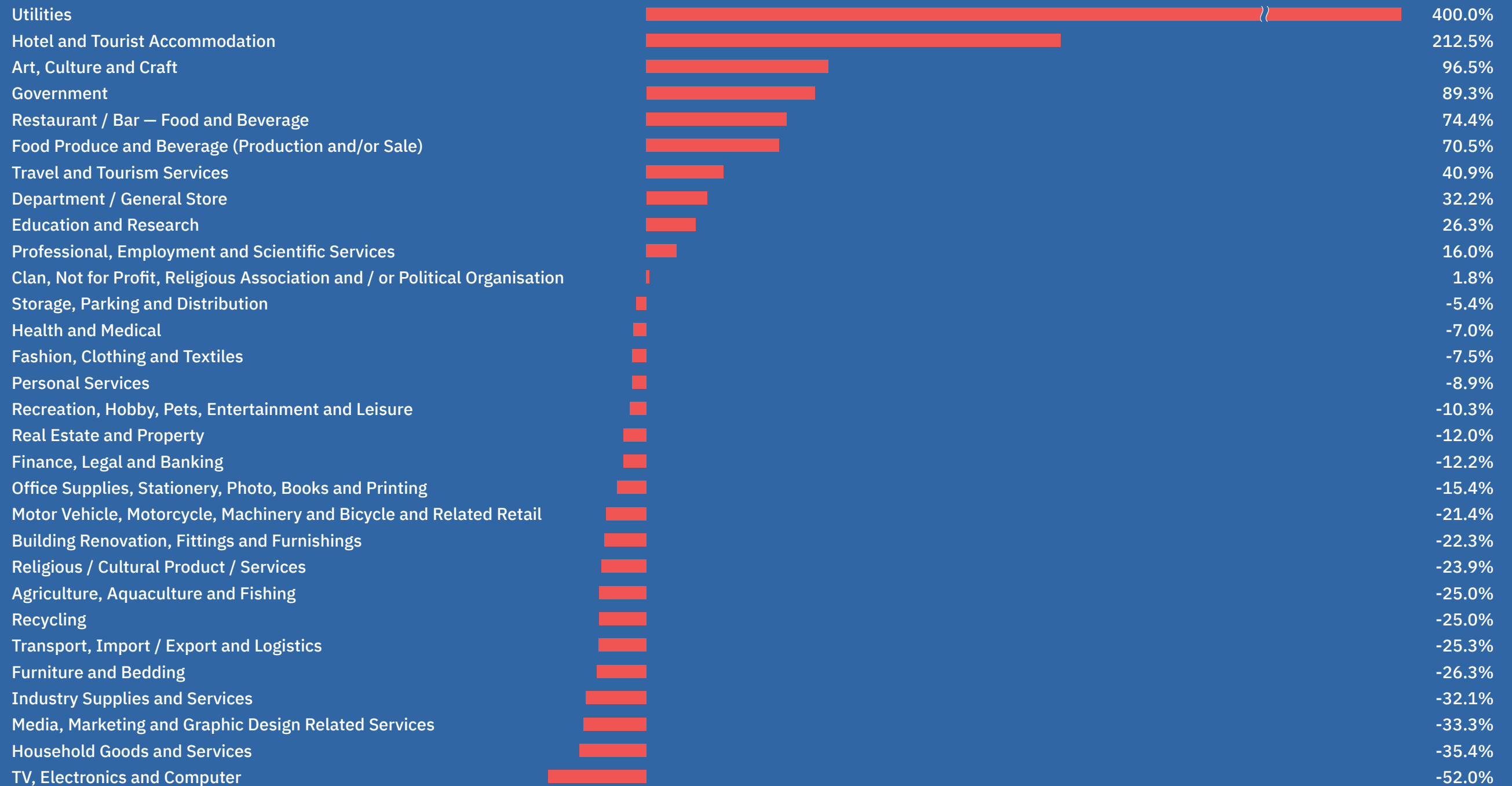


### 3.0 POPULATION AND LAND USE CHANGE (2009-2019)

**Table 5**  
Change in the number of establishments by industry (2009, 2013 & 2019)

No	Industry	Change														
		2009			2013			2019			2009–2013		2013–2019		2009–2019	
		Rank	No.	% Total	Rank	No.	% Total	Rank	No.	% Total	No.	% Change	No.	% Change	No.	% Change
1	Restaurant / Bar – Food and Beverage	2	309	9.7%	2	355	10.6%	1	539	15.8%	46	14.9%	184	51.8%	230	74.4%
2	Fashion, Clothing and Textiles	1	371	11.7%	1	390	11.6%	2	343	10.1%	19	5.1%	-47	-12.1%	-28	-7.5%
3	Food Produce and Beverage (Production and / or Sale)	5	166	5.2%	5	195	5.8%	3	283	8.3%	29	17.5%	88	45.1%	117	70.5%
4	Finance, Legal and Banking	3	286	9.0%	3	277	8.3%	4	251	7.4%	-9	-3.1%	-26	-9.4%	-35	-12.2%
5	Hotel and Tourist Accommodation	21	56	1.8%	14	93	2.8%	5	175	5.1%	37	66.1%	82	88.2%	119	212.5%
6	Clan, Not for Profit, Religious Association and / or Political Organisation	4	171	5.4%	4	199	5.9%	6	174	5.1%	28	16.4%	-25	-12.6%	3	1.8%
7	Storage, Parking and Distribution	6	166	5.2%	6	152	4.5%	7	157	4.6%	-14	-8.4%	5	3.3%	-9	-5.4%
8	Health and Medical	9	143	4.5%	10	130	3.9%	8	133	3.9%	-13	-9.1%	3	2.3%	-10	-7.0%
9	Office Supplies Stationery, Photo, Books and Printing	7	156	4.9%	8	138	4.1%	9	132	3.9%	-18	-11.5%	-6	-4.3%	-24	-15.4%
10	Department / General Store	15	87	2.7%	11	124	3.7%	10	115	3.4%	37	42.5%	-9	-7.3%	28	32.2%
11	Art, Culture and Craft	20	57	1.8%	16	87	2.6%	11	112	3.3%	30	52.6%	25	28.7%	55	96.5%
12	Transport, Import / Export and Logistics	8	150	4.7%	7	145	4.3%	12	112	3.3%	-5	-3.3%	-33	-22.8%	-38	-25.3%
13	Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	10	131	4.1%	9	131	3.9%	13	103	3.0%	0	0.0%	-28	-21.4%	-28	-21.4%
14	Building Renovation, Fittings and Furnishings	11	112	3.5%	13	99	3.0%	14	87	2.6%	-13	-11.6%	-12	-12.1%	-25	-22.3%
15	Industry Supplies and Services	12	112	3.5%	12	116	3.5%	15	76	2.2%	4	3.6%	-40	-34.5%	-36	-32.1%
16	Personal Services	16	79	2.5%	17	81	2.4%	16	72	2.1%	2	2.5%	-9	-11.1%	-7	-8.9%
17	Religious / Cultural Product / Services	14	92	2.9%	15	93	2.8%	17	70	2.1%	1	1.1%	-23	-24.7%	-22	-23.9%
18	Real Estate and Property	17	75	2.4%	20	63	1.9%	18	66	1.9%	-12	-16.0%	3	4.8%	-9	-12.0%
19	Travel and Tourism Services	22	44	1.4%	19	65	1.9%	19	62	1.8%	21	47.7%	-3	-4.6%	18	40.9%
20	Government	25	28	0.9%	23	45	1.3%	20	53	1.6%	17	60.7%	8	17.8%	25	89.3%
21	Recreation, Hobby, Pets, Entertainment and Leisure	19	58	1.8%	21	55	1.6%	21	52	1.5%	-3	-5.2%	-3	-5.5%	-6	-10.3%
22	TV, Electronics and Computer	13	100	3.2%	18	75	2.2%	22	48	1.4%	-25	-25.0%	-27	-36.0%	-52	-52.0%
23	Household Goods and Services	18	65	2.1%	22	47	1.4%	23	42	1.2%	-18	-27.7%	-5	-10.6%	-23	-35.4%
24	Professional, Employment and Scientific Services	27	25	0.8%	27	26	0.8%	24	29	0.9%	1	4.0%	3	11.5%	4	16.0%
25	Recycling	23	32	1.0%	25	28	0.8%	25	24	0.7%	-4	-12.5%	-4	-14.3%	-8	-25.0%
26	Education and Research	28	19	0.6%	29	24	0.7%	26	24	0.7%	5	26.3%	0	0.0%	5	26.3%
27	Agriculture, Aquaculture and Fishing	26	28	0.9%	26	27	0.8%	27	21	0.6%	-1	-3.6%	-6	-22.2%	-7	-25.0%
28	Media, Marketing and Graphic Design Related Services	24	30	0.9%	24	41	1.2%	28	20	0.6%	11	36.7%	-21	-51.2%	-10	-33.3%
29	Utilities	30	3	0.1%	30	22	0.7%	29	15	0.4%	19	633.3%	-7	-31.8%	12	400.0%
30	Furniture and Bedding	29	19	0.6%	28	26	0.8%	30	14	0.4%	7	36.8%	-12	-46.2%	-5	-26.3%
	<b>Total</b>		<b>3,170</b>	<b>100.0%</b>		<b>3,349</b>	<b>100.0%</b>		<b>3,404</b>	<b>100.0%</b>	<b>179</b>	<b>5.6%</b>	<b>55</b>	<b>1.6%</b>	<b>234</b>	<b>7.4%</b>

Note: Excludes "Unable to Survey", market and street vendor data



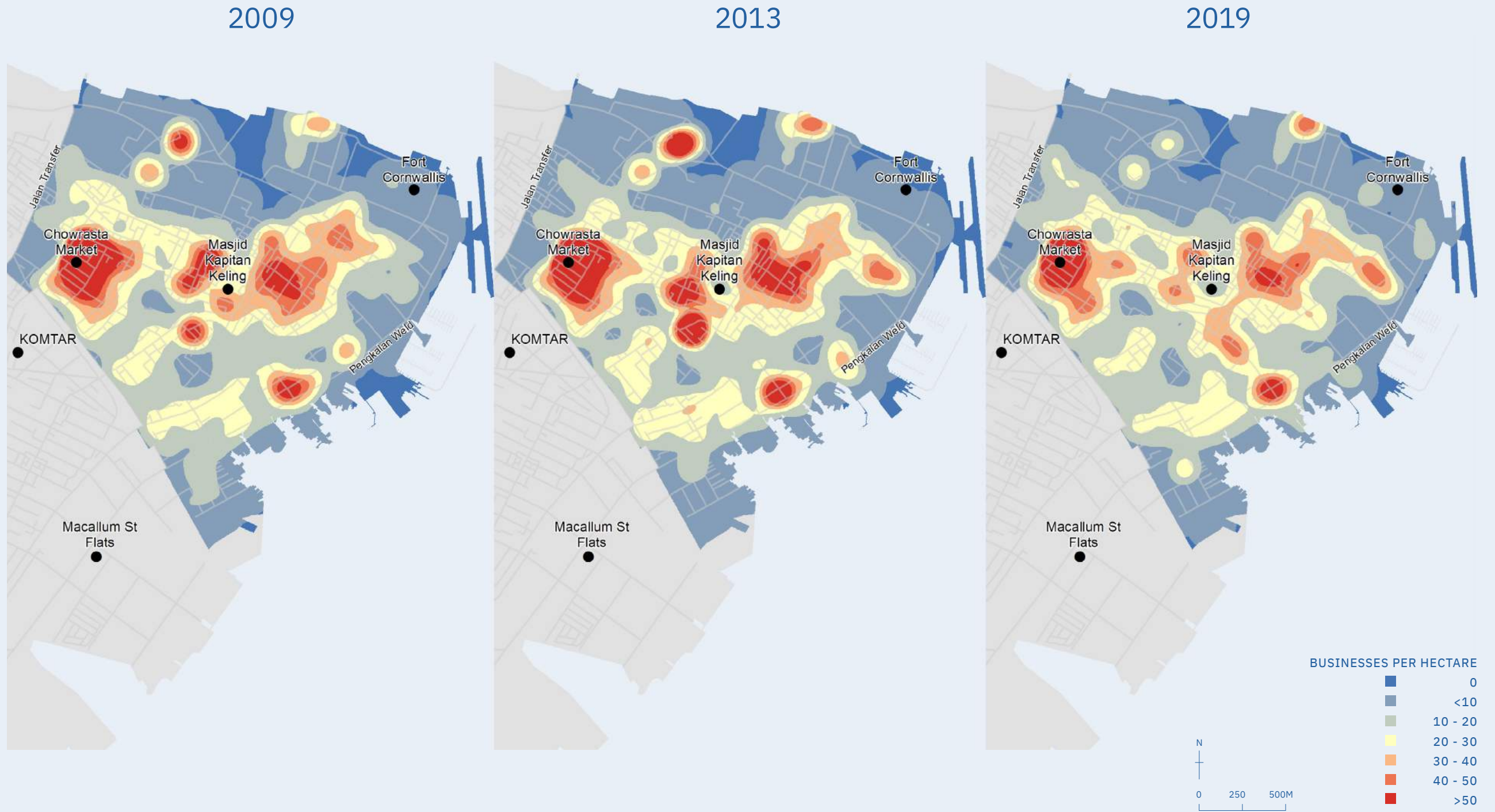
**Figure 6**  
Change in the percentage of total establishments by industry between 2009 and 2019





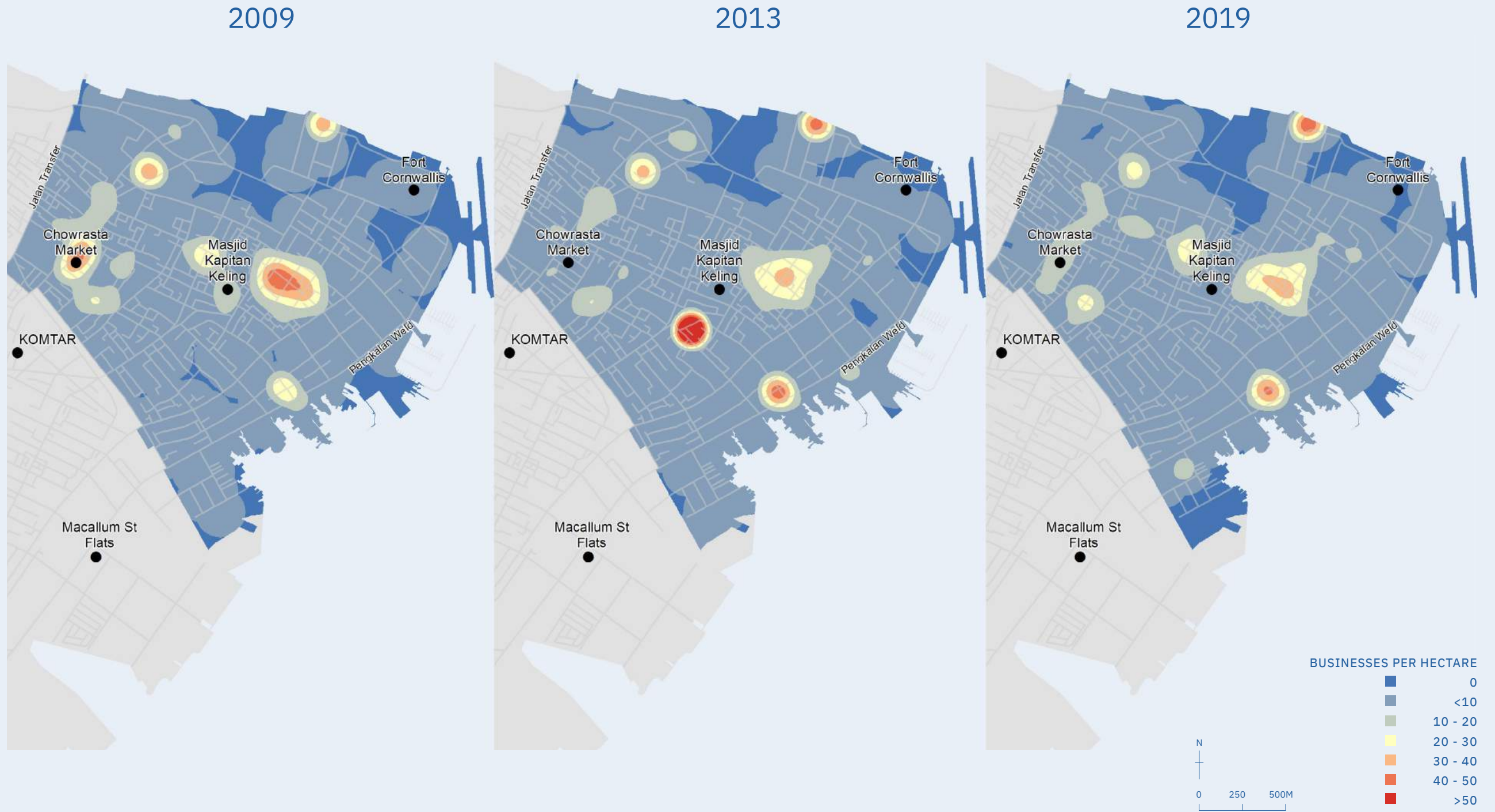
*Seven Terraces, a renowned boutique hotel established after UNESCO listing*





**Figure 7**  
Density of the day-time economy where businesses operate in the morning, midday, afternoon or evening (2009, 2013 & 2019)





**Figure 8**  
Density of the night-time economy where businesses operate at night, after midnight or 24 hours (2009, 2013 & 2019)

### 3.2.3 FLOORSPACE

The structural changes in economic activity outlined above are also observed in floorspace data. As illustrated in Figure 9 and Table A3 (see Appendix), *Hotel and Tourist Accommodation* has the largest footprint and now makes up 17.9% of total floorspace of all the major land use categories. In 2013, residential use was the largest at 17.0% down to 12.1% of available space in 2019, the equivalent of a 28.6% net decline. *Restaurants / Bars* were more prominent, doubling from 4.7% of total floorspace in 2013 to 8.6% in 2019. Of note is that *Education and Research* increased its footprint, largely due to the expansion of SEGi College in Jalan Green Hall. Other changes are reflective of the economic restructuring described earlier with notable declines in industrial and transport / logistics related activities.



*Restaurant, art and music venues along Lebuhraya Pantai established since UNESCO listing*

### 3.2.4 EMPLOYMENT

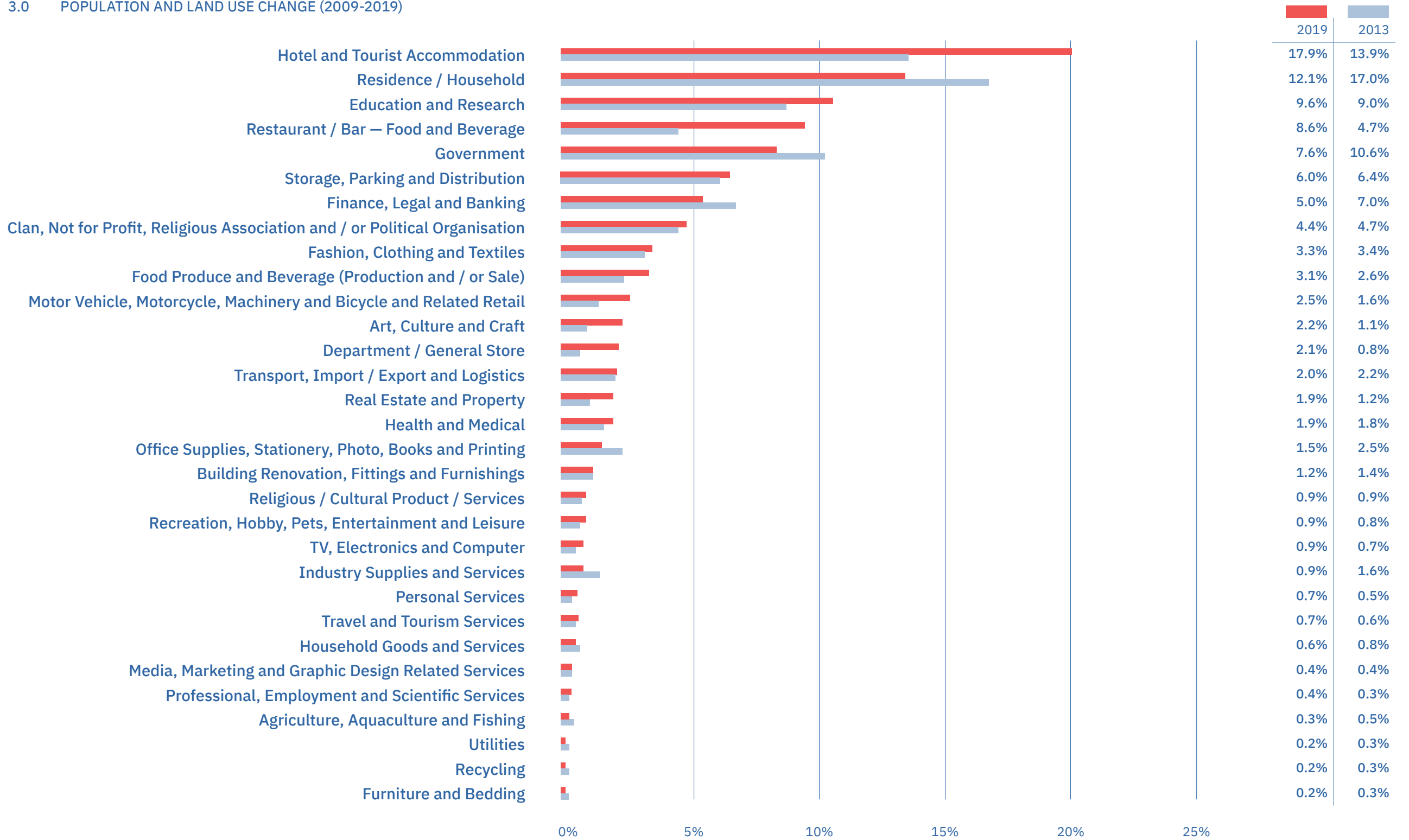
The employment data show similar, though slightly different patterns to establishment data, giving added nuance to the economic changes that have occurred in the GTWHS. Overall, the total number of jobs increased by 18.2% between 2009 and 2019 (from 21,139 to 24,980) (Table 6). The increases were primarily in the hospitality and tourism areas with a net increase of 1,366 new jobs in *Restaurants / Bars*, 999 additional jobs in the *Hotel and Tourist Accommodation* category and 499 in *Food Produce and Beverage*. The increase in government workers (+870) is also significant with several new agency offices established. Other notable increases are primarily office related – *Associations* (+406), *Education and Research* (+173), *Professionals* (+156) and *Finance, Legal and Banking* (+254). Notable declines were in *Fashion, Clothing and Textiles* (-269), *Building Renovation, Fittings and Furnishings* (-346) and *Motor Vehicle, Motorcycle, Retail and Repairs* (-94). In keeping with the decline in the number of vendors, those employed in markets and in street retailing declined from 1,601 to 933 (-41.7%) between 2009 and 2019.

The data reveal deeper structural shifts that are not just happening within sectors, but also changes in firm dynamics. Established firms and enterprises within the GTWHS have consolidated, while new businesses in the hospitality realm are smaller and more dispersed. *Fashion, Clothing and Textiles* for example had a reduction in the average number of employees per outlet (see Appendix Table A4), and notably fewer were open at night. Conversely, even though there has been a decline in the number of outlets, the average number of employees in *Professional, Scientific and Research, Finance, Legal and Banking* and other office related firms increased. For hotels and restaurants, the number of employees per establishment declined reflecting the increase in boutique and smaller enterprises.

An additional reflection of these industry and jobs shifts is the slight rise in the proportion of part-time / casual jobs (from 3.6% in 2009 to 4.6% in 2019) (Table 7) and increase in the proportion of female workers (from 40.2% in 2009 to 42.6% in 2019) (Table 8). While the survey is self reporting and subject to bias, it would seem that there is an increase in the number of professional workers mostly in the *Financial, Legal and Banking* sector. There also appears to be a shift from owners operating enterprises towards hiring staff to administer and manage business on their behalf. Between 2009 and 2019, the proportion of owners working in the premise declined from 17.4% to 15.3%, while the proportion of administration staff increased from 20.3% to 21.0% (Table 9). This is in line with other trends and a sign of new business dynamics where the owner is less likely to oversee day-to-day operations.



3.0 POPULATION AND LAND USE CHANGE (2009-2019)



**Figure 9**  
Percentage of occupied floorspace by industry in 2013 and 2019

### 3.0 POPULATION AND LAND USE CHANGE (2009-2019)

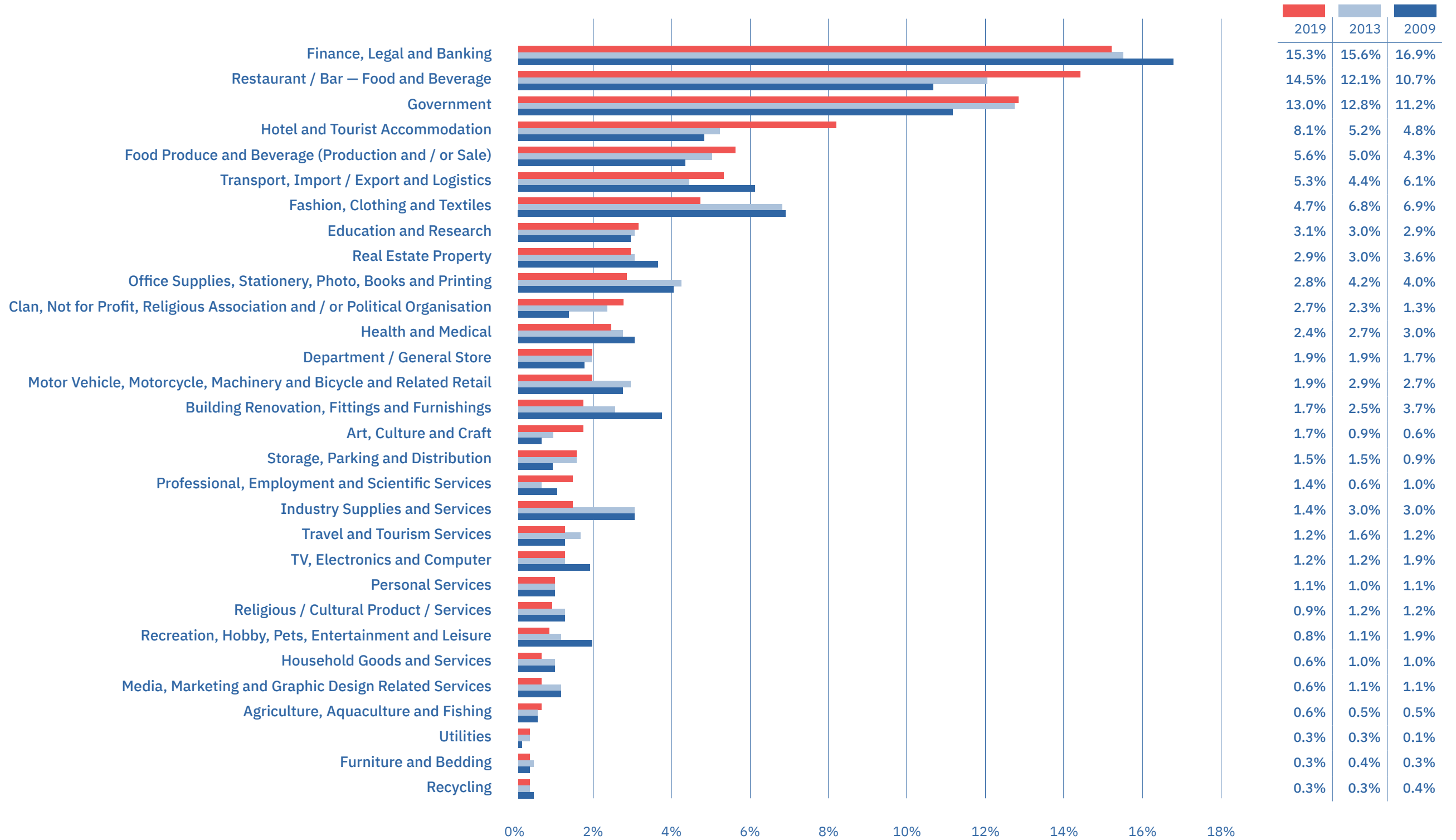
**Table 6**  
Change in employment by industry (2009, 2013 & 2019)

Industry	2009						2013						2019						Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019		2009–2013		2013–2019		2009–2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change	No.	% Change	No.	% Change	No.	% Change	No.	% Change	No.	% Change	No.	% Change
Finance, Legal and Banking	3,565	16.9%	3,430	15.6%	3,819	15.3%	-135	-3.8%	389	11.3%	254	7.1%	397	17.5%	969	36.4%	1,366	60.2%	462	19.5%	408	14.4%	870	36.8%
Restaurant / Bar – Food and Beverage	2,268	10.7%	2,665	12.1%	3,634	14.5%	397	17.5%	969	36.4%	1,366	60.2%	462	19.5%	408	14.4%	870	36.8%	140	13.8%	859	74.2%	999	98.2%
Government	2,365	11.2%	2,827	12.8%	3,235	13.0%	462	19.5%	408	14.4%	870	36.8%	140	13.8%	859	74.2%	999	98.2%	189	20.9%	310	28.4%	499	55.3%
Hotel and Tourist Accommodation	1,017	4.8%	1,157	5.2%	2,016	8.1%	189	20.9%	310	28.4%	499	55.3%	140	13.8%	859	74.2%	999	98.2%	1,296	6.1%	968	4.4%	1,333	5.3%
Food Produce and Beverage (Production and / or Sale)	903	4.3%	1,092	5.0%	1,402	5.6%	329	36.5%	389	43.2%	489	54.1%	903	100.0%	1,092	120.9%	1,402	155.3%	1,296	143.6%	968	107.2%	1,333	145.7%
Transport, Import / Export and Logistics	1,296	6.1%	968	4.4%	1,333	5.3%	-328	-25.3%	365	37.7%	37	2.9%	54	3.7%	-323	-21.4%	-269	-18.5%	1,452	6.9%	1,506	6.8%	1,183	4.7%
Fashion, Clothing and Textiles	1,452	6.9%	1,506	6.8%	1,183	4.7%	54	3.7%	-323	-21.4%	-269	-18.5%	48	7.9%	125	19.1%	173	28.6%	605	2.9%	653	3.0%	778	3.1%
Education and Research	605	2.9%	653	3.0%	778	3.1%	48	7.9%	125	19.1%	173	28.6%	-98	-13.0%	75	11.5%	-23	-3.1%	752	3.6%	654	3.0%	729	2.9%
Real Estate and Property	752	3.6%	654	3.0%	729	2.9%	-98	-13.0%	75	11.5%	-23	-3.1%	74	8.7%	-226	-24.5%	-152	-17.9%	849	4.0%	923	4.2%	697	2.8%
Office Supplies Stationery, Photo, Books and Printing	849	4.0%	923	4.2%	697	2.8%	74	8.7%	-226	-24.5%	-152	-17.9%	231	85.9%	175	35.0%	406	150.9%	269	1.3%	500	2.3%	675	2.7%
Clan, Not for Profit, Religious Association and / or Political Organisation	269	1.3%	500	2.3%	675	2.7%	231	85.9%	175	35.0%	406	150.9%	-36	-5.7%	3	0.5%	-33	-5.2%	637	3.0%	601	2.7%	604	2.4%
Health and Medical	637	3.0%	601	2.7%	604	2.4%	-36	-5.7%	3	0.5%	-33	-5.2%	57	15.7%	68	16.2%	125	34.5%	362	1.7%	419	1.9%	487	1.9%
Department / General Store	362	1.7%	419	1.9%	487	1.9%	57	15.7%	68	16.2%	125	34.5%	64	11.2%	-158	-25.0%	-94	-16.5%	569	2.7%	633	2.9%	475	1.9%
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	569	2.7%	633	2.9%	475	1.9%	64	11.2%	-158	-25.0%	-94	-16.5%	-215	-27.8%	-131	-23.5%	-346	-44.8%	772	3.7%	557	2.5%	426	1.7%
Building Renovation, Fittings and Furnishings	772	3.7%	557	2.5%	426	1.7%	-215	-27.8%	-131	-23.5%	-346	-44.8%	71	55.9%	225	113.6%	296	233.1%	127	0.6%	198	0.9%	423	1.7%
Art, Culture and Craft	127	0.6%	198	0.9%	423	1.7%	71	55.9%	225	113.6%	296	233.1%	137	68.5%	36	10.7%	173	86.5%	200	0.9%	337	1.5%	373	1.5%
Storage, Parking and Distribution	200	0.9%	337	1.5%	373	1.5%	137	68.5%	36	10.7%	173	86.5%	-63	-30.9%	219	155.3%	156	76.5%	204	1.0%	141	0.6%	360	1.4%
Professional, Employment and Scientific Services	204	1.0%	141	0.6%	360	1.4%	-63	-30.9%	219	155.3%	156	76.5%	13	2.0%	-294	-45.0%	-281	-43.9%	640	3.0%	653	3.0%	359	1.4%
Industry Supplies and Services	640	3.0%	653	3.0%	359	1.4%	13	2.0%	-294	-45.0%	-281	-43.9%	100	38.9%	-49	-13.7%	51	19.8%	257	1.2%	357	1.6%	308	1.2%
Travel and Tourism Services	257	1.2%	357	1.6%	308	1.2%	100	38.9%	-49	-13.7%	51	19.8%	-145	-36.0%	43	16.7%	-102	-25.3%	403	1.9%	258	1.2%	301	1.2%
TV, Electronics and Computer	403	1.9%	258	1.2%	301	1.2%	-145	-36.0%	43	16.7%	-102	-25.3%	-15	-6.5%	57	26.5%	42	18.3%	230	1.1%	215	1.0%	272	1.1%
Personal Services	230	1.1%	215	1.0%	272	1.1%	-15	-6.5%	57	26.5%	42	18.3%	4	1.6%	-38	-14.5%	-34	-13.2%	258	1.2%	262	1.2%	224	0.9%
Religious / Cultural Product / Services	258	1.2%	262	1.2%	224	0.9%	4	1.6%	-38	-14.5%	-34	-13.2%	-151	-37.8%	-48	-19.4%	-199	-49.9%	399	1.9%	248	1.1%	200	0.8%
Recreation, Hobby, Pets, Entertainment and Leisure	399	1.9%	248	1.1%	200	0.8%	-151	-37.8%	-48	-19.4%	-199	-49.9%	6	2.7%	-70	-30.8%	-64	-29.0%	221	1.0%	227	1.0%	157	0.6%
Household Goods and Services	221	1.0%	227	1.0%	157	0.6%	6	2.7%	-70	-30.8%	-64	-29.0%	10	4.5%	-80	-34.5%	-70	-31.5%	222	1.1%	232	1.1%	152	0.6%
Media, Marketing and Graphic Design Related Services	222	1.1%	232	1.1%	152	0.6%	10	4.5%	-80	-34.5%	-70	-31.5%	0	0.0%	41	37.3%	41	37.3%	110	0.5%	110	0.5%	151	0.6%
Agriculture, Aquaculture and Fishing	110	0.5%	110	0.5%	151	0.6%	0	0.0%	41	37.3%	41	37.3%	36	116.1%	11	16.4%	47	151.6%	31	0.1%	67	0.3%	78	0.3%
Utilities	31	0.1%	67	0.3%	78	0.3%	36	116.1%	11	16.4%	47	151.6%	5	6.8%	-13	-16.7%	-8	-11.0%	73	0.3%	78	0.4%	65	0.3%
Furniture and Bedding	73	0.3%	78	0.4%	65	0.3%	5	6.8%	-13	-16.7%	-8	-11.0%	-7	-8.4%	-12	-15.8%	-19	-22.9%	83	0.4%	76	0.3%	64	0.3%
Recycling	83	0.4%	76	0.3%	64	0.3%	-7	-8.4%	-12	-15.8%	-19	-22.9%	<b>905</b>	<b>4.3%</b>	<b>2,936</b>	<b>13.3%</b>	<b>3,841</b>	<b>18.2%</b>	<b>21,139</b>	<b>100.0%</b>	<b>22,044</b>	<b>100.0%</b>	<b>24,980</b>	<b>100.0%</b>

Note: Excludes "Unable to Survey", market and street vendor data



3.0 POPULATION AND LAND USE CHANGE (2009-2019)



**Figure 10**  
Percentage of employees by industry (2009, 2013 & 2019)





*Tailors working in the Fashion, Clothing and Textiles industry (Courtesy of PGT)*



**Table 7**  
Change in employment by type (2009, 2013 & 2019)

Type							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Full-time	20,385	96.4%	21,407	97.2%	23,831	95.4%	1,022	5.0%	2,424	11.3%	3,446	16.9%
Part-time	754	3.6%	620	2.8%	1,149	4.6%	-134	-17.8%	529	85.3%	395	52.4%
<b>Total</b>	<b>21,139</b>	<b>100.0%</b>	<b>22,027</b>	<b>100.0%</b>	<b>24,980</b>	<b>100.0%</b>	<b>888</b>	<b>4.2%</b>	<b>2,953</b>	<b>13.4%</b>	<b>3,841</b>	<b>18.2%</b>

Note: Excludes "Unable to Survey", market and street vendor data

**Table 8**  
Change in employment by gender (2009, 2013 & 2019)

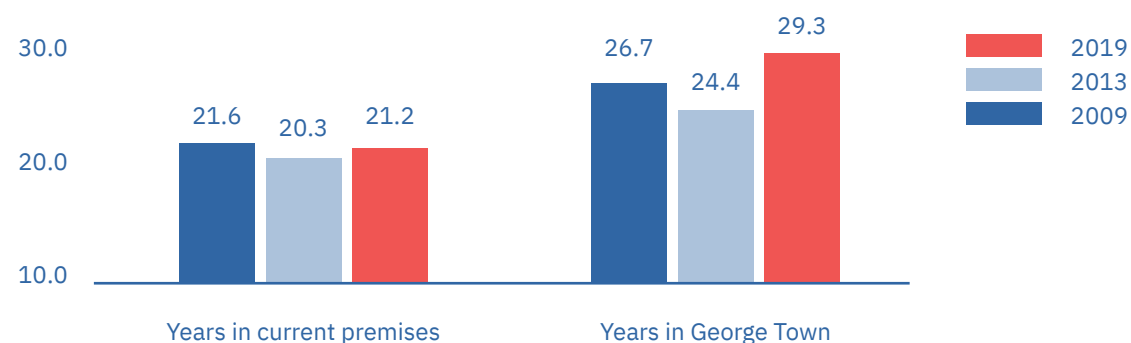
Gender							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Male		59.8%		59.5%		57.4%		-0.3%		-2.1%		-2.4%
Female		40.2%		40.5%		42.6%		0.3%		2.1%		2.4%

**Table 9**  
Change in employment by position (2009, 2013 & 2019)

Employment Position							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Owners / Managers (working in premises)	3,626	17.4%	3,745	17.4%	3,319	15.3%	119	3.3%	- 426	-11.4%	-307	-8.5%
Professionals / Experts (working as paid employees)	3,219	15.4%	3,116	14.5%	4,146	19.1%	-103	-3.2%	1,030	33.1%	927	28.8%
Administrative Staff	4,249	20.3%	4,332	20.1%	4,575	21.0%	83	2.0%	243	5.6%	326	7.7%
Technicians	406	1.9%	326	1.5%	594	2.7%	-80	-19.7%	268	82.2%	188	46.3%
General Workers / Labourers	9,388	44.9%	10,030	46.5%	9,102	41.9%	642	6.8%	-928	-9.3%	-286	-3.0%
<b>Total</b>	<b>20,888</b>	<b>100.0%</b>	<b>21,549</b>	<b>100.0%</b>	<b>21,736</b>	<b>100.0%</b>	<b>661</b>	<b>3.2%</b>	<b>187</b>	<b>0.9%</b>	<b>848</b>	<b>4.1%</b>

### 3.2.5 TENANCY TYPE AND LENGTH

The average tenancy length in the current premises slightly declined due to a combination of the number of new businesses and closures and / or relocation of older establishments. Of some interest is that the average tenancy length in George Town has actually increased from 26.7 years to 29.3 years, suggesting that new businesses in the GTWHS include relocations from other parts of the city, either recently or in the past (Figure 11).



**Figure 11**  
Average tenancy length (2009, 2013 & 2019)

When the tenancy data is further dissected we see that more than half of the businesses surveyed in 2019 (55%) were established in the last 10 years and mostly in food related industries, fashion and tourist accommodation (see Table 10, last row for the percentages), which fits with the central finding of this report i.e. that the economy transitioned towards hospitality and tourism after UNESCO World Heritage listing. Only 20 percent of businesses have been in operation for more than 30 years, suggesting vulnerabilities in terms of long term business sustainability.

**Table 10**  
Industry by business tenancy length in 2019

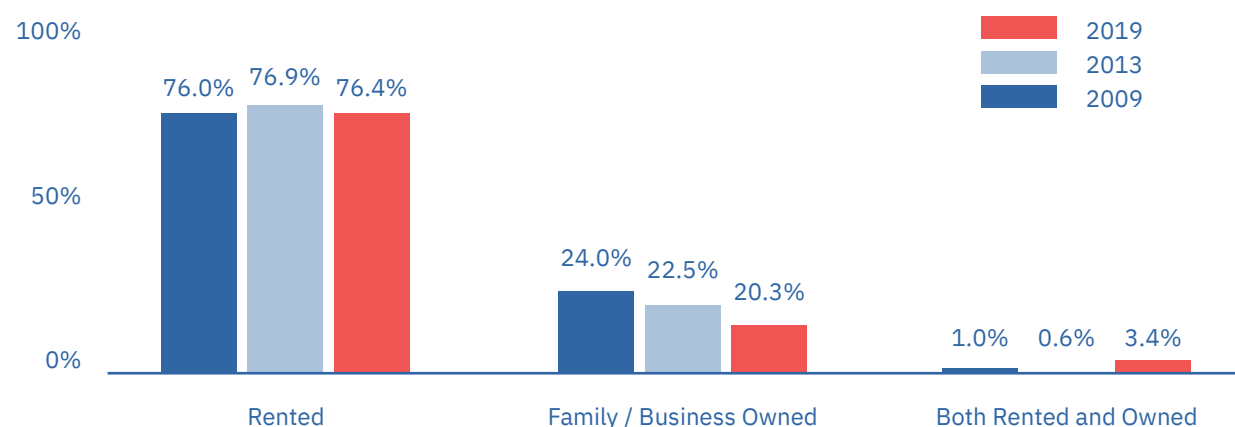
Industry / Tenancy length (years)	1 - 5	6 - 10	11 - 15	16 - 20	21 - 30	31 - 40	41 - 50	More than 50
Restaurant / Bar – Food and Beverage	358	126	52	60	42	38	16	54
Fashion, Clothing, and Textiles	108	75	28	38	30	22	26	35
Food Produce and Beverage (Production and / or Sale)	107	55	7	16	22	26	15	51
Hotel and Tourist Accommodation	95	44	5	4	1	2	3	5
Art, Culture and Craft	60	21	8	5	7	1	3	5
Finance, Legal and Banking	45	53	18	25	24	19	9	13
Department / General Store	35	19	9	5	8	8	9	12
Personal Services	31	18	8	2	1	2	0	4
Health and Medical	30	24	9	8	15	10	12	17
Storage, Parking and Distribution	30	24	5	11	3	5	4	7
Office Supplies Stationery, Photo, Books and Printing	29	15	8	18	15	7	9	13
Transport, Import / Export and Logistics	20	13	14	12	7	1	3	4
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	16	21	9	8	15	9	7	12
Recreation, Hobby, Pets, Entertainment and Leisure	15	8	5	8	4	4	3	0
Travel and Tourism Services	15	11	11	5	6	3	1	0
Real Estate and Property	10	6	4	3	8	7	1	8
Industry Supplies and Services	10	15	8	9	7	5	1	11
TV, Electronics and Computer	9	11	4	4	7	4	1	2
Religious / Cultural Product / Services	9	11	1	8	12	3	3	17
Media, Marketing and Graphic Design Related Services	9	3	1	0	2	0	0	0
Building Renovation, Fittings and Furnishings	9	11	7	13	16	5	6	13
Household Goods and Services	7	5	6	3	7	3	3	10
Professional, Employment and Scientific Services	6	8	3	3	0	1	1	1
Furniture and Bedding	5	3	0	1	0	2	0	3
Education	4	7	1	1	0	2	0	7
Utilities	3	2	0	2	1	1	0	0
Agriculture, Aquaculture and Fishing	2	1	0	6	3	3	2	3
Recycling	2	6	3	2	1	2	1	3
<b>Total</b>	<b>1,079</b>	<b>616</b>	<b>234</b>	<b>280</b>	<b>264</b>	<b>195</b>	<b>139</b>	<b>309</b>
<b>Percentage of total businesses</b>	<b>35%</b>	<b>20%</b>	<b>8%</b>	<b>9%</b>	<b>8%</b>	<b>6%</b>	<b>4%</b>	<b>10%</b>

Note: Includes street and market vendor data



### 3.2.5 TENANCY TYPE AND LENGTH (cont'd)

The proportion of businesses operating from rented premises has remained high but stable at around 76%, though there is a decline in businesses that fully own their premises, with an increase in those both renting and owning. This may be due to business expansion (e.g. owning one shophouse and deciding to rent an adjacent building).



**Figure 12**  
Type of business tenancy (2009, 2013 & 2019)

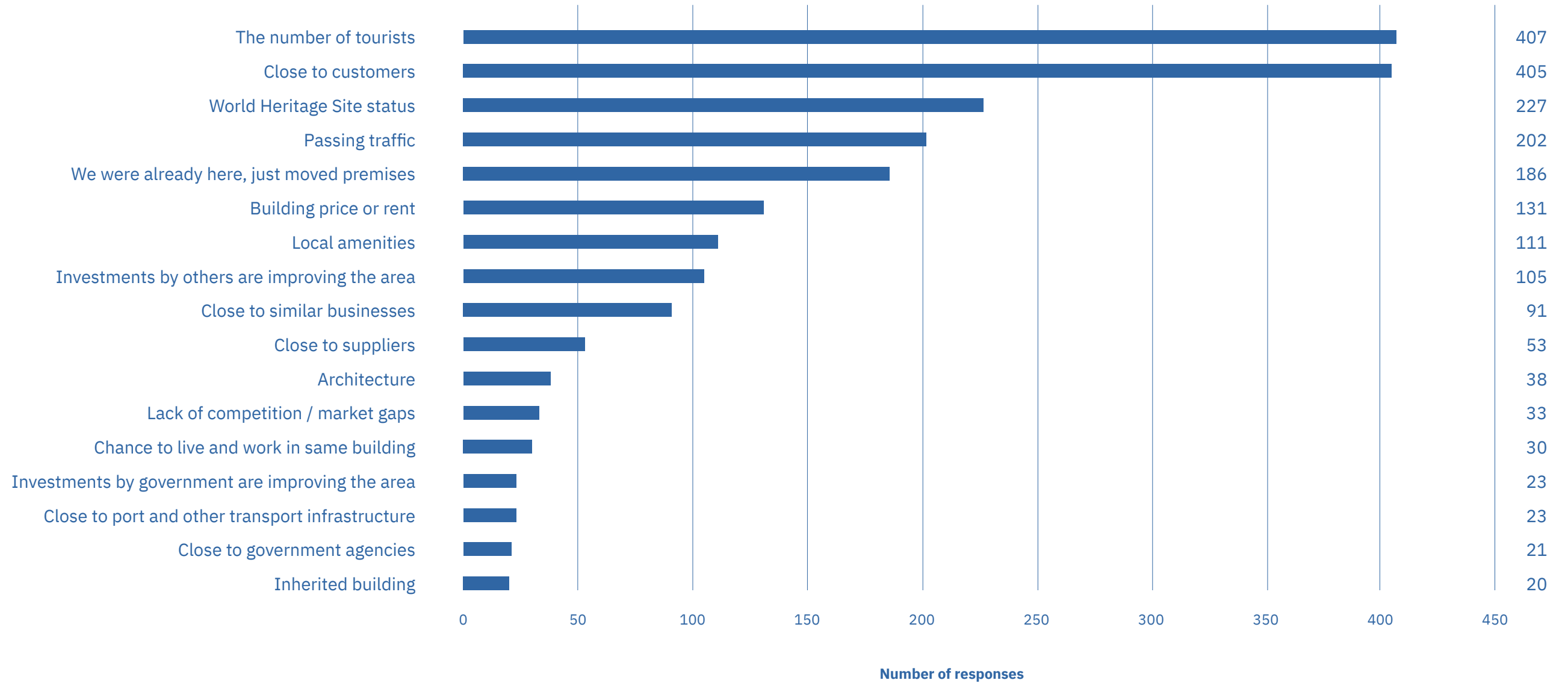
### 3.2.6 NEW BUSINESSES

As indicated earlier, there is a substantial number of new businesses and other ventures established in the GTWHS since 2009. The number of newly established businesses (defined as within the last 5 years of the survey date) was 1,227 in 2009, 1,211 in 2013 and 1,223 in 2019 (Table 11). This data suggests that the GTWHS’s business environment is dynamic with new firm start-ups. The 2019 data indicates that new businesses were motivated by an increase in the number of tourists, proximity to customers and the World Heritage status (Figure 13).

In terms of the location of new businesses, Jalan Penang and Little India have been popular over the years, with Lebu Armenian seeing more activity in recent years (Figure 14). These areas have high concentrations of restaurants, cafes and street vendors which tend to be the most common newly established enterprises.

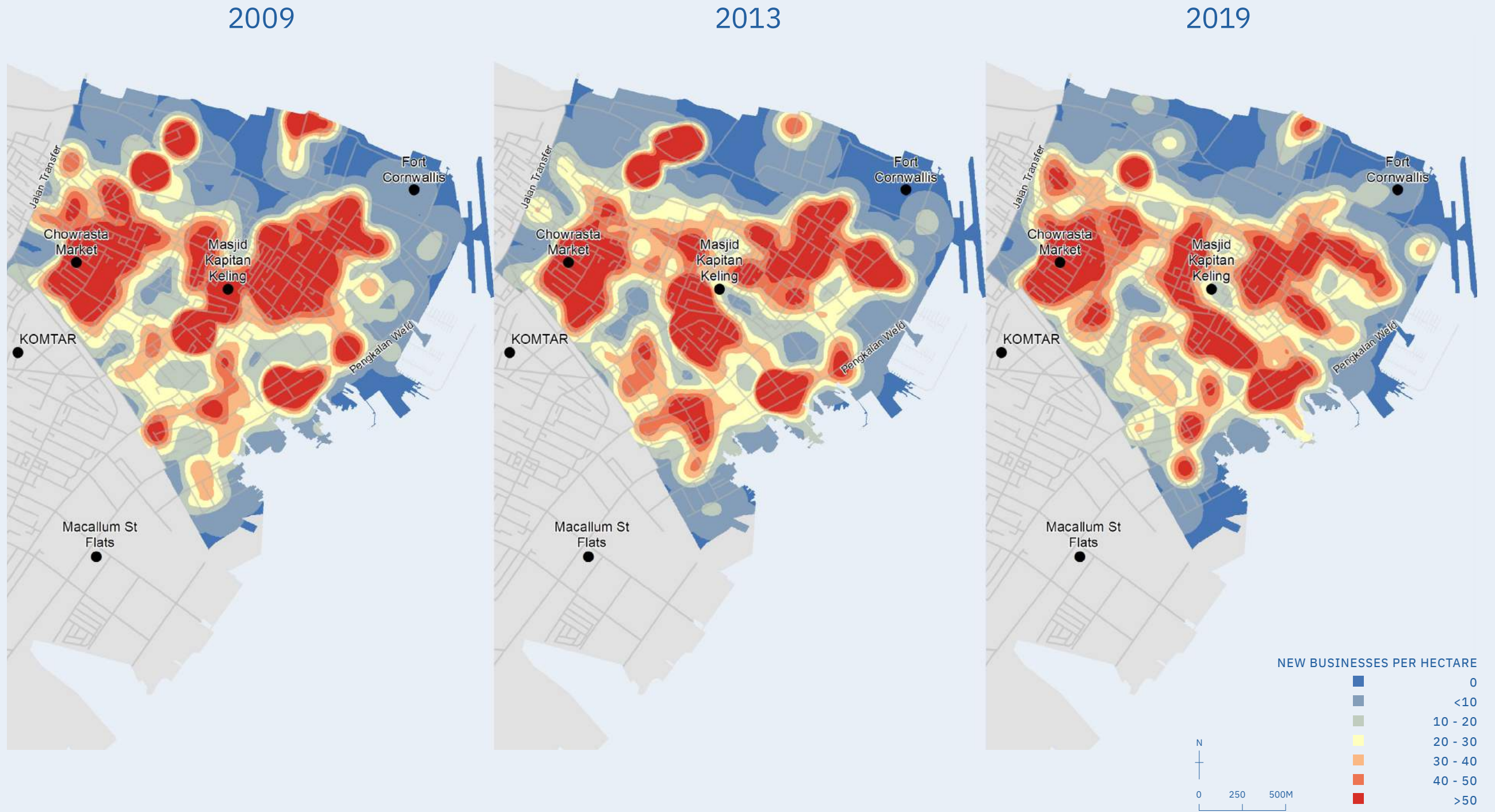
**Table 11**  
Change in the number of newly established businesses, hotels, market / street vendors and educational institutions (2009, 2013 & 2019)

	2009				2013				2019				Change					
	New	% Total new	Total establishment	% Total establishment	New	% Total new	Total establishment	% Total establishment	New	% Total new	Total establishment	% Total establishment	2009–2013		2013–2019		2009–2019	
													No.	% Change	No.	% Change	No.	% Change
Business (excluding hotels and vendors)	918	74.8%	2,042	45.0%	888	73.3%	2,222	40.0%	976	79.8%	2,971	32.9%	-30	-3.3%	88	9.9%	58	6.3%
Vendor	284	23.1%	854	33.3%	268	22.1%	764	35.1%	148	12.1%	441	33.6%	-16	-5.6%	-120	-44.8%	-136	-47.9%
Hotel	19	1.5%	61	31.1%	49	4.0%	97	50.5%	95	7.8%	175	54.3%	30	157.9%	46	93.9%	76	400.0%
Educational Institution	6	0.5%	19	31.6%	6	0.5%	24	25.0%	4	0.3%	24	16.7%	0	0.0%	-2	-33.3%	-2	-33.3%
<b>Total</b>	<b>1,227</b>	<b>100.0%</b>	<b>2,976</b>	<b>41.2%</b>	<b>1,211</b>	<b>100.0%</b>	<b>3,107</b>	<b>39.0%</b>	<b>1,223</b>	<b>100.0%</b>	<b>3,611</b>	<b>33.9%</b>	<b>-16</b>	<b>-1.3%</b>	<b>12</b>	<b>1.0%</b>	<b>-4</b>	<b>-0.3%</b>



**Figure 13**  
Reasons for establishing new businesses, hotels, vendors and educational institutions in the GTWHS (2019)



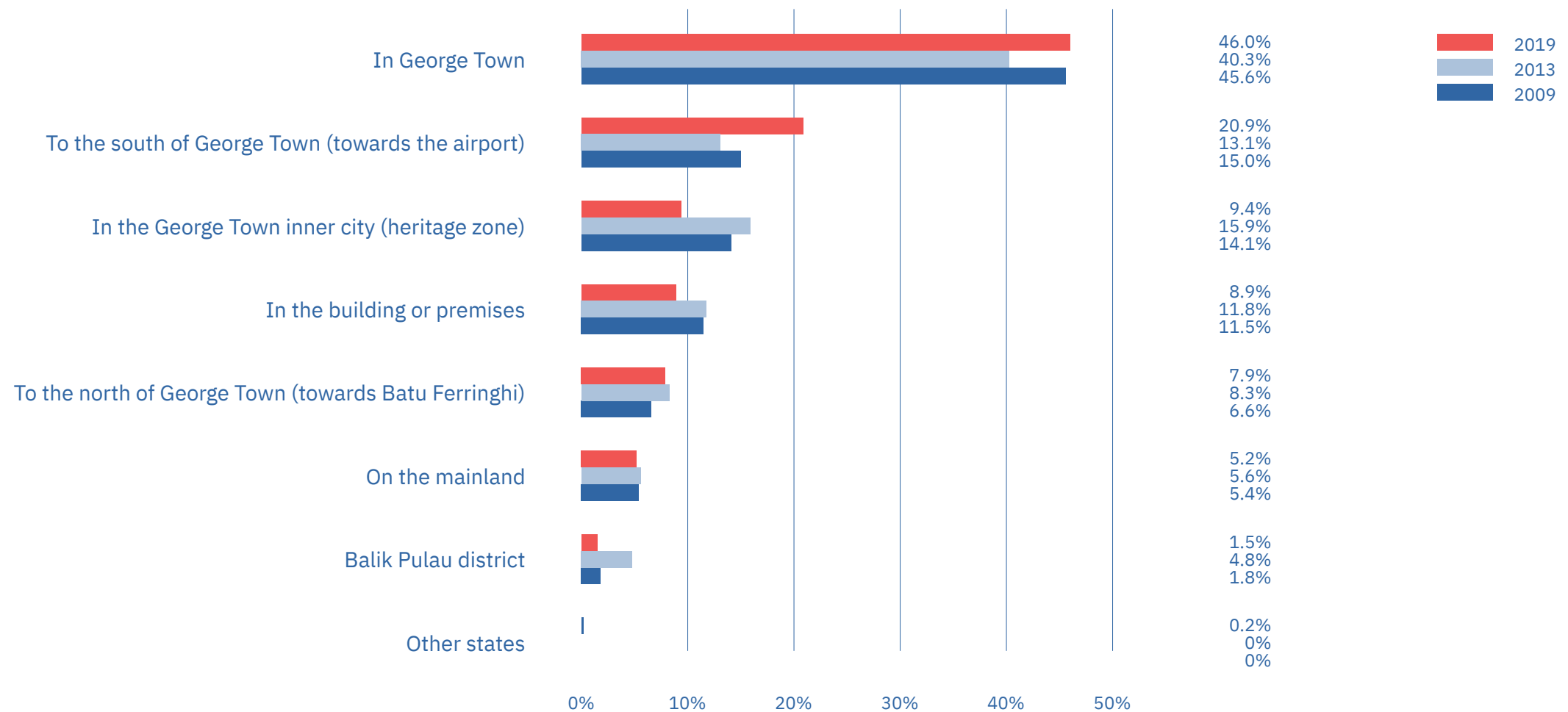


**Figure 14**  
Density of newly established businesses, hotels, vendors and educational institutions in the last 5 years (2009, 2013 & 2019)

### 3.2.7 PLACE OF RESIDENCE AND MODE OF TRANSPORT

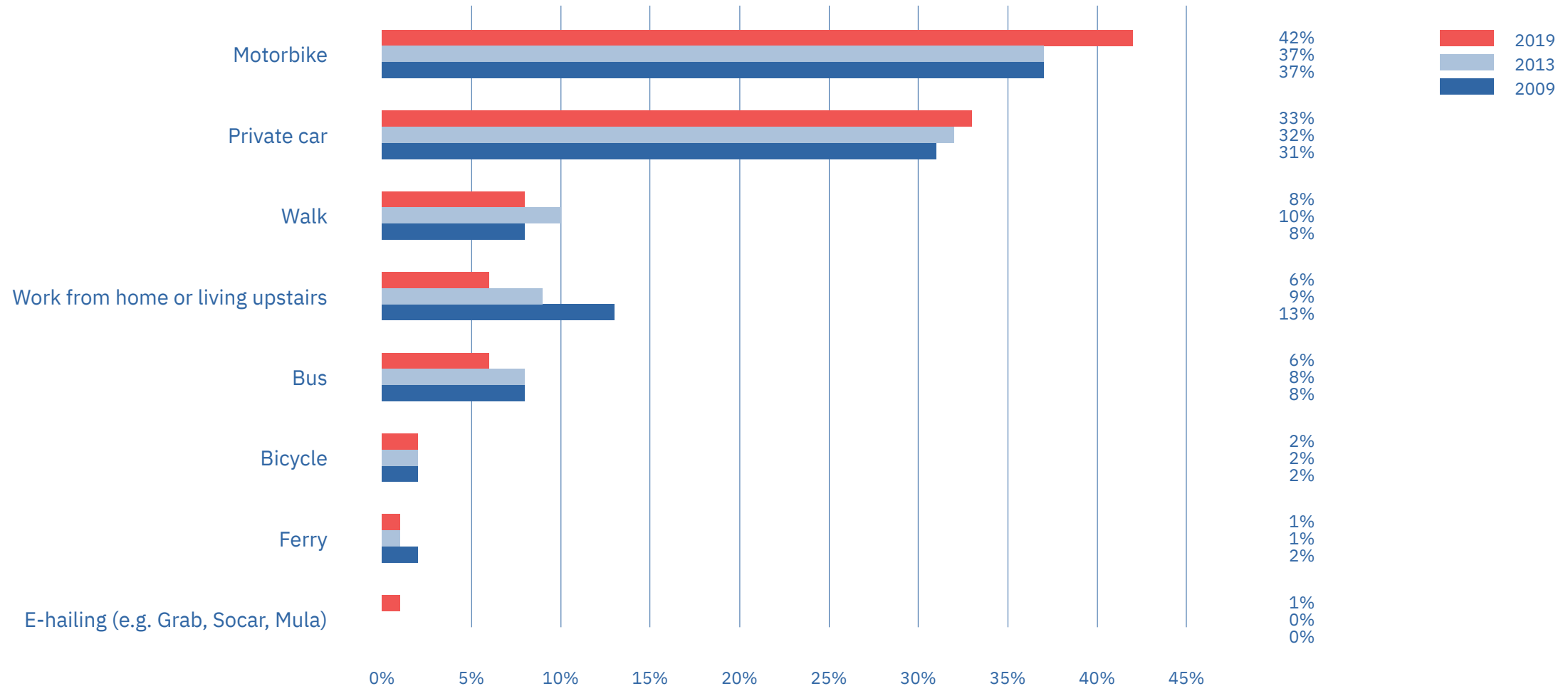
Economic changes in the GTWHS also had an impact on employees' place of residence. Rising rent and new business types, together with an increase in the proportion of lower paid administrative workers and general workers / labourers, have led to a decline in the number of workers living onsite (from 14.1% to 9.4%) as well as those who live and work in the same

premises. Nearly half of workers still live in greater George Town, but a larger proportion now tend to live further away to the south and west (see Appendix Figure A1), choosing to commute (Figure 15). The main mode of travel to work is motorbike and private car. The use of public transport and walking to work have decreased in recent years (Figure 16).



**Figure 15**  
Employee place of residence (2009, 2013 & 2019)

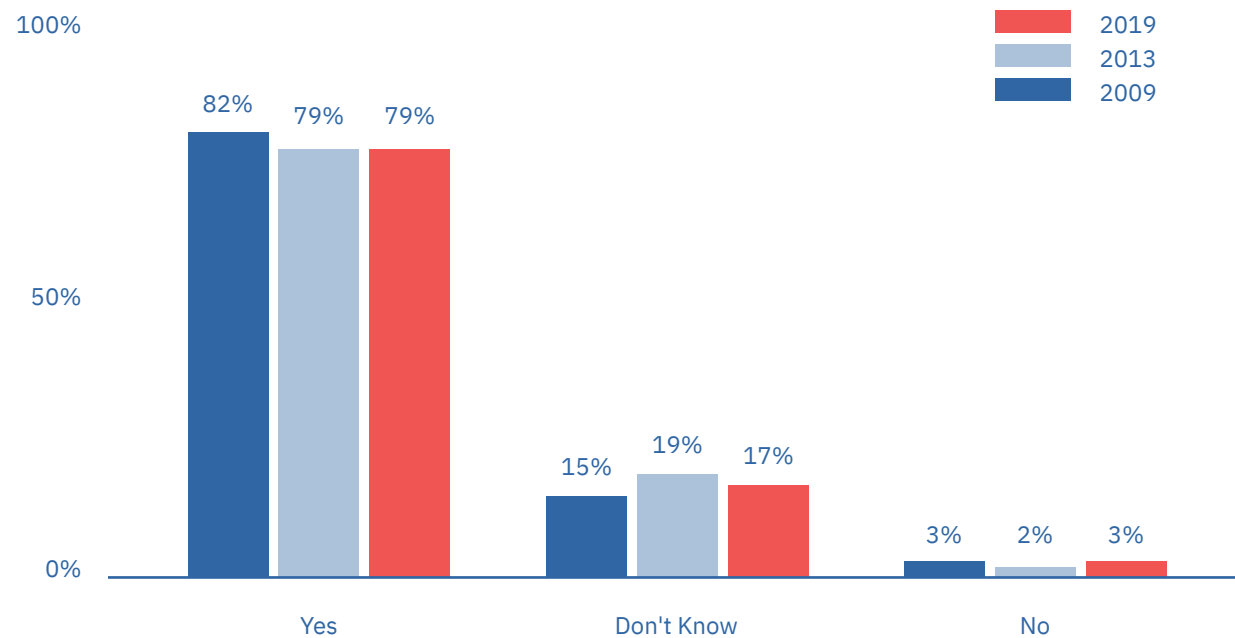




**Figure 16**  
Employee work commute mode (2009, 2013 & 2019)

### 3.2.8 BUSINESS CONFIDENCE, SUSTAINABILITY AND COVID-19

In the 2019 census, almost 80 percent of businesses expressed the desire to remain operating in the area for the next five years, a proportion that has been relatively consistent for all three GTWHS censuses. Approximately a fifth were uncertain about their intentions, and only about 3% had no intention to remain operating in the site (Figure 17).

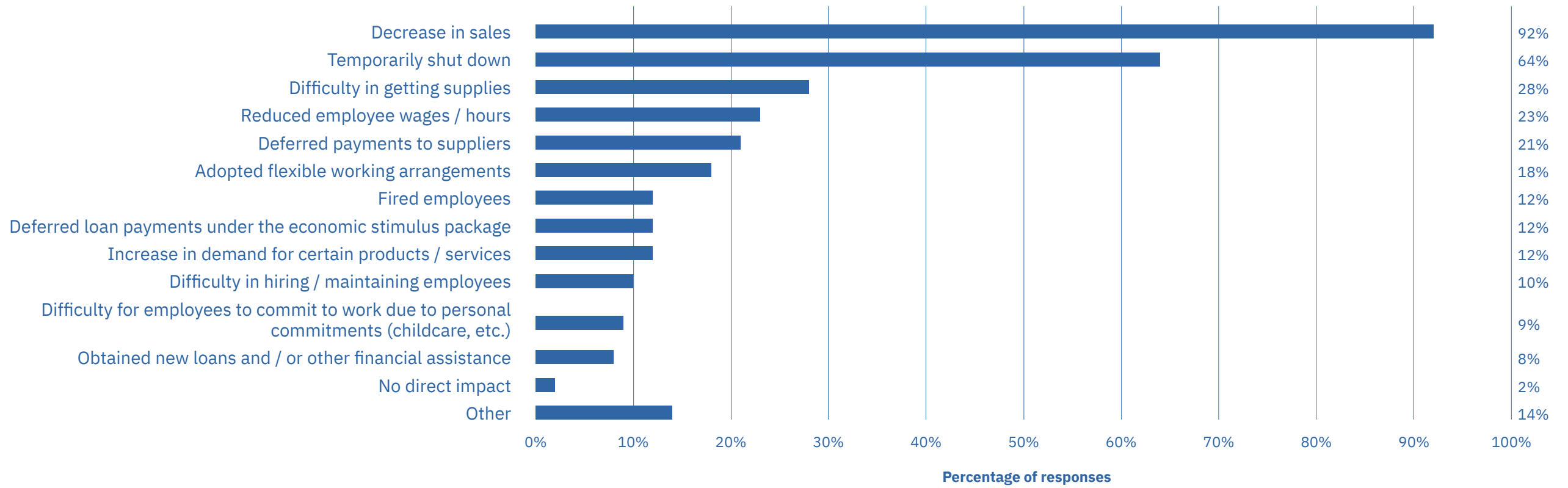


**Figure 17**  
Intention to continue operating in the area in the next 5 years (2009, 2013 & 2019)

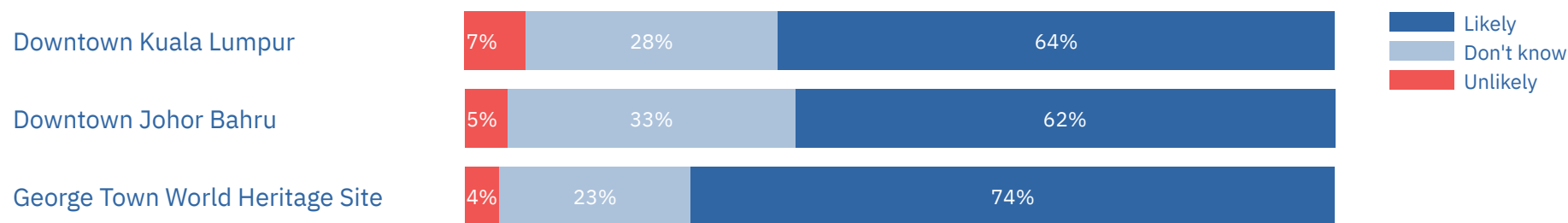
In August 2020, Think City conducted a Business Community Pulse Check Survey<sup>5</sup> in the heritage areas of George Town, Kuala Lumpur and Johor Bahru. The key finding was that confidence had dropped significantly due to the COVID-19 pandemic. Most of the businesses in George Town suffered a decrease in sales (92%) and had to temporarily shut down (64%). Other impacts were difficulty getting supplies (28%), a reduction in employee wages or hours (23%) and deferred payments (21%). Only two percent (2%) did not feel a direct impact (Figure 18). Forty one percent (41%) expected sales to decrease in the year ahead, with a similar number (42%) anticipating that profits would decline. Seventy four percent (74%) of businesses stated that they would likely be open at the end of 2021, while the remainder were unsure or thought it unlikely. Interestingly, this was the highest level of confidence between the three cities surveyed (see Figure 19). Respondents identified the following strategies to improve their business: increasing marketing or advertising (46%), planning for long-term survival (38%) and building or improving their online presence (37%) (Figure 20).

<sup>5</sup> Think City. (2020). *Business Community Pulse Check Report 2020*. [https://thinkcity.com.my/wp/wpcontent/uploads/2021/02/Think-City\\_Business-Community-Pulse-Check-Report-2020.pdf](https://thinkcity.com.my/wp/wpcontent/uploads/2021/02/Think-City_Business-Community-Pulse-Check-Report-2020.pdf)

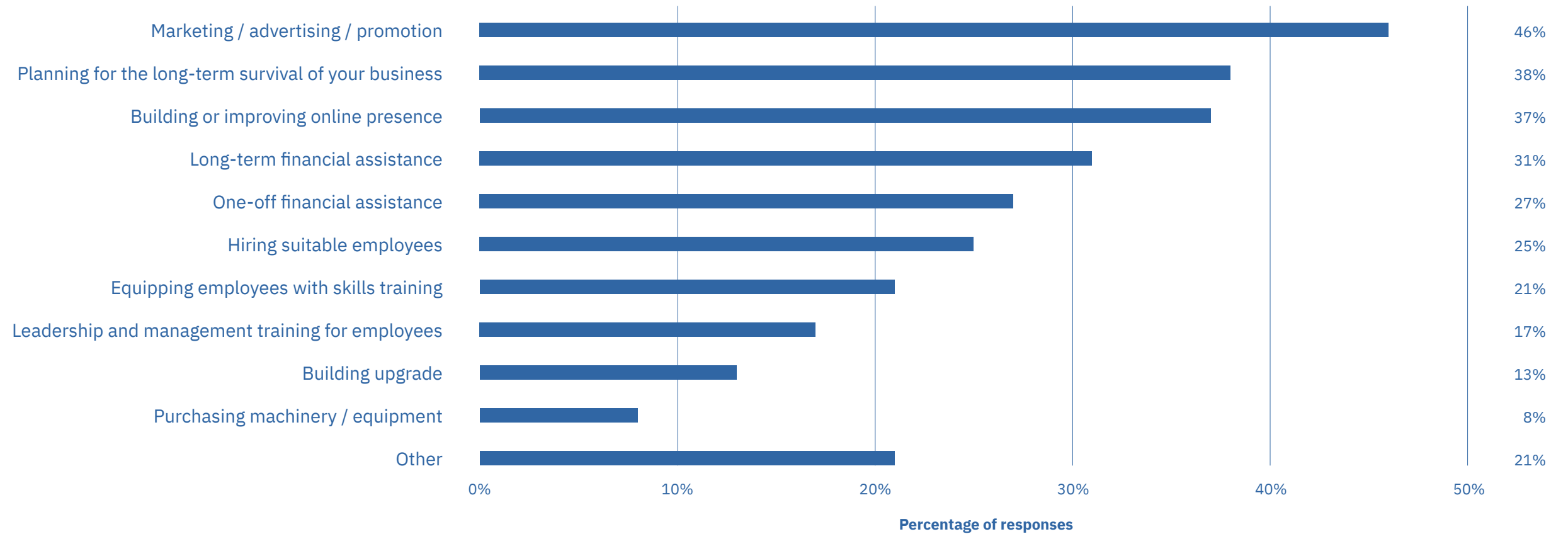




**Figure 18**  
Impact of COVID-19 on businesses in the GTWHS



**Figure 19**  
Likelihood of businesses remaining open at the end of 2021



Note: Percentages do not add up to 100%. Respondents could choose multiple responses.

**Figure 20**  
Strategies to improve business





Unique architecture of shophouses along Lebuh China attract visitors (Courtesy of PGT)



### 3.3 ECONOMIC ACTIVITY SPATIAL PATTERNS

Economic activity within the GTWHS is not evenly distributed, with a concentration of specific activities in certain areas. This is due to a combination of historical spatial patterns, regulations and the emergence of several new precincts associated with growth in the hospitality industry (Figure 21). The observable spatial patterns and change in distribution offer additional insights into how the GTWHS economic functions have changed.

This is best illustrated by the changes in job density (Figure 22). The traditional Central Business District (CBD) around Lebu Pantai and Little India remain prominent. The high-rise offices east of Upper Penang Road are a major employment generator, as are Police Headquarters off Jalan Penang. There were some notable increases in density along Pengkalan Weld, Jalan Green Hall and around Lebu Kimberley, Jalan Sungai Ujong and Jalan Kuala Kangsar.

One of the more marked trends in the GTWHS, and indeed a central theme of this report, is the significant growth of *Restaurants / Bars* (Figure 23). In 2009, many were concentrated around Jalan Penang, Lebu Chulia and Little India, with pockets of activity along Pengkalan Weld. By 2019, these activities were widespread with fewer areas of low density.

Hotels were historically concentrated around Lebu Chulia and Jalan Penang, but are now located throughout the heritage site. Many are now centred along or off Lebu Muntri / Lorong Stewart (Figure 24). The changing distribution in the density of hotel rooms is also telling. Larger hotels with more rooms are still concentrated around Jalan Penang and Lebu Farquhar, with new clusters emerging along the coastline on Pengkalan Weld. Boutique hotels with fewer rooms were also established along Lebu Muntri and Lebu Chulia (Figure 25).

*Fashion, Clothing and Textiles* outlets remain concentrated in Little India, Lebu Cintra and Lebu Campbell (Figure 26). The increase in *Art, Culture and Craft* establishments are concentrated in the Clan Jetties and parts of Jalan Masjid Kapitan Keling, with a growing cluster around Lebu Armenian (Figure 27). *Religious / Cultural Products* retailers and services have reduced around Chowrasta market and Jalan Kimberley, with clusters remaining in Little India and around the Goddess of Mercy Temple in Jalan Masjid Kapitan Keling (Figure 28).

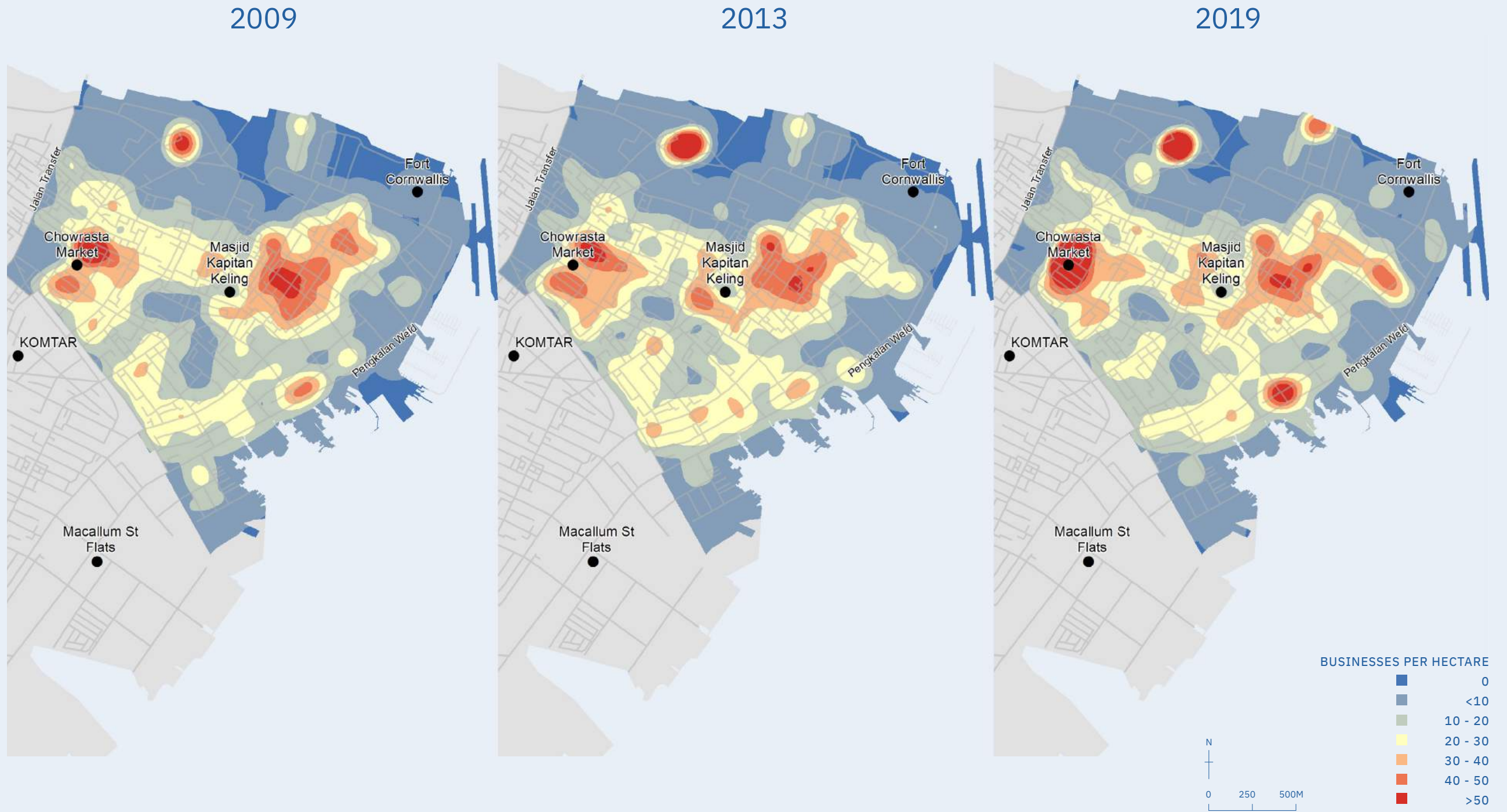
*Finance, Legal and Banking* service providers continue to operate in the traditional CBD along Lebu Pantai, Lebu Bishop, Lebu King and Lebu Union. There is a presence of these activities in the MWE Plaza high-rise as well as other firms associated with the law courts located around Jalan Green Hall (Figure 29). *Transport, Import / Export and Logistics* providers declined between 2013 and 2019 most notably along Lebu Pantai and Pengkalan Weld which were traditionally associated with waterfront trading (Figure 30).





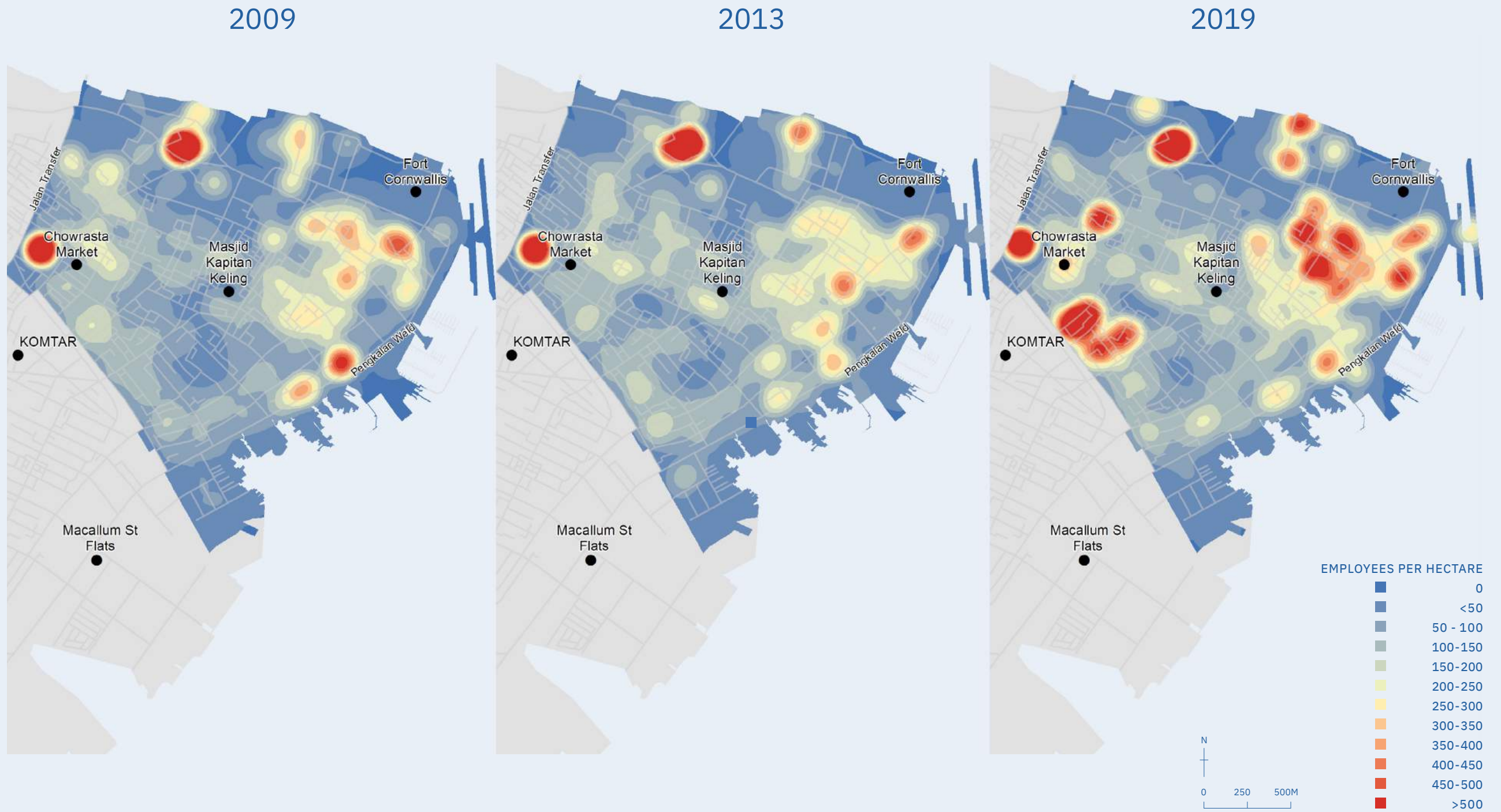
Economic activities in Little India (Courtesy of PGT)





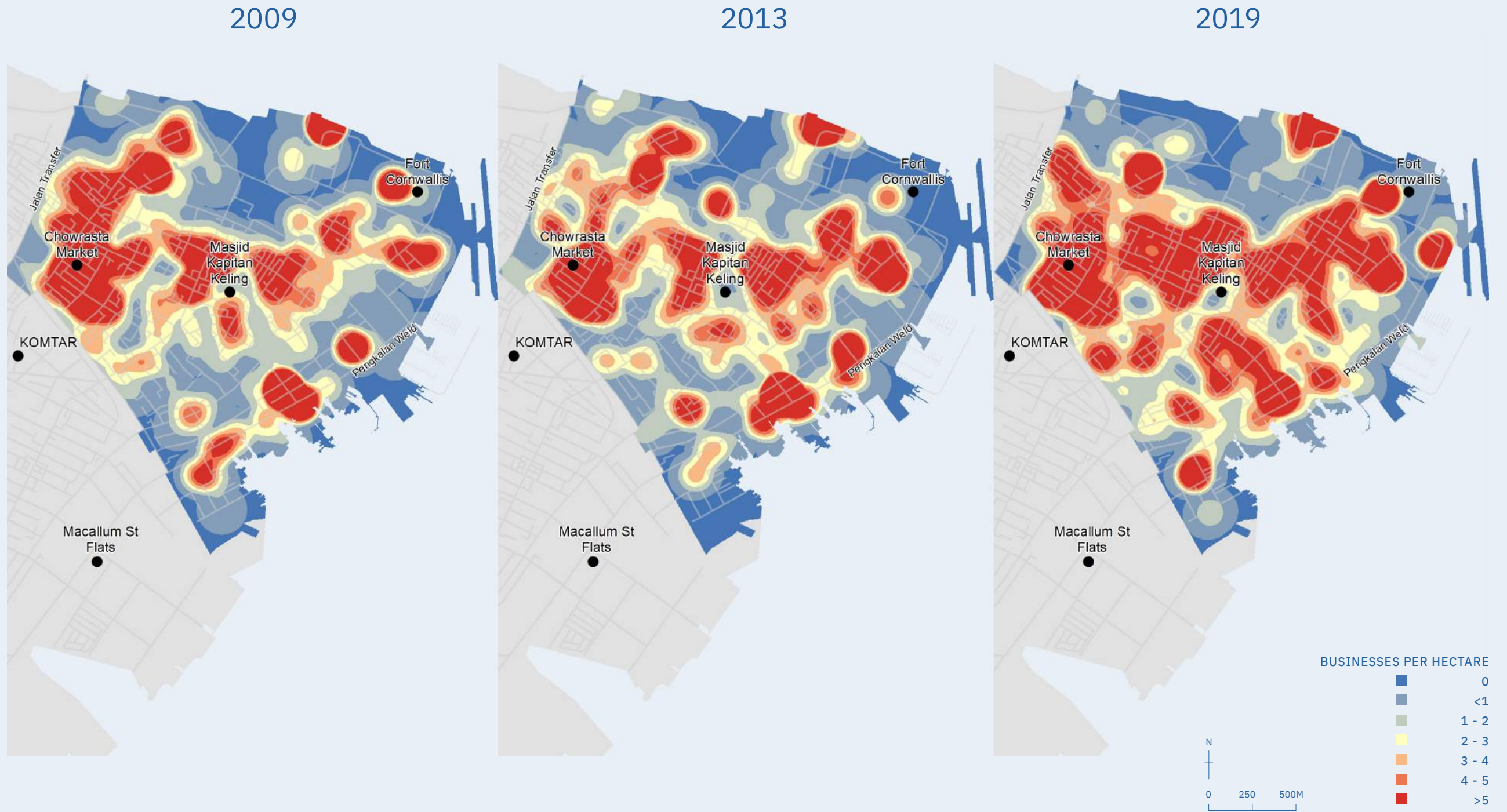
**Figure 21**  
Density of business entities from all sectors excluding street vendors (2009, 2013 & 2019)





**Figure 22**  
Density of employees from all sectors excluding street vendors (2009, 2013 & 2019)





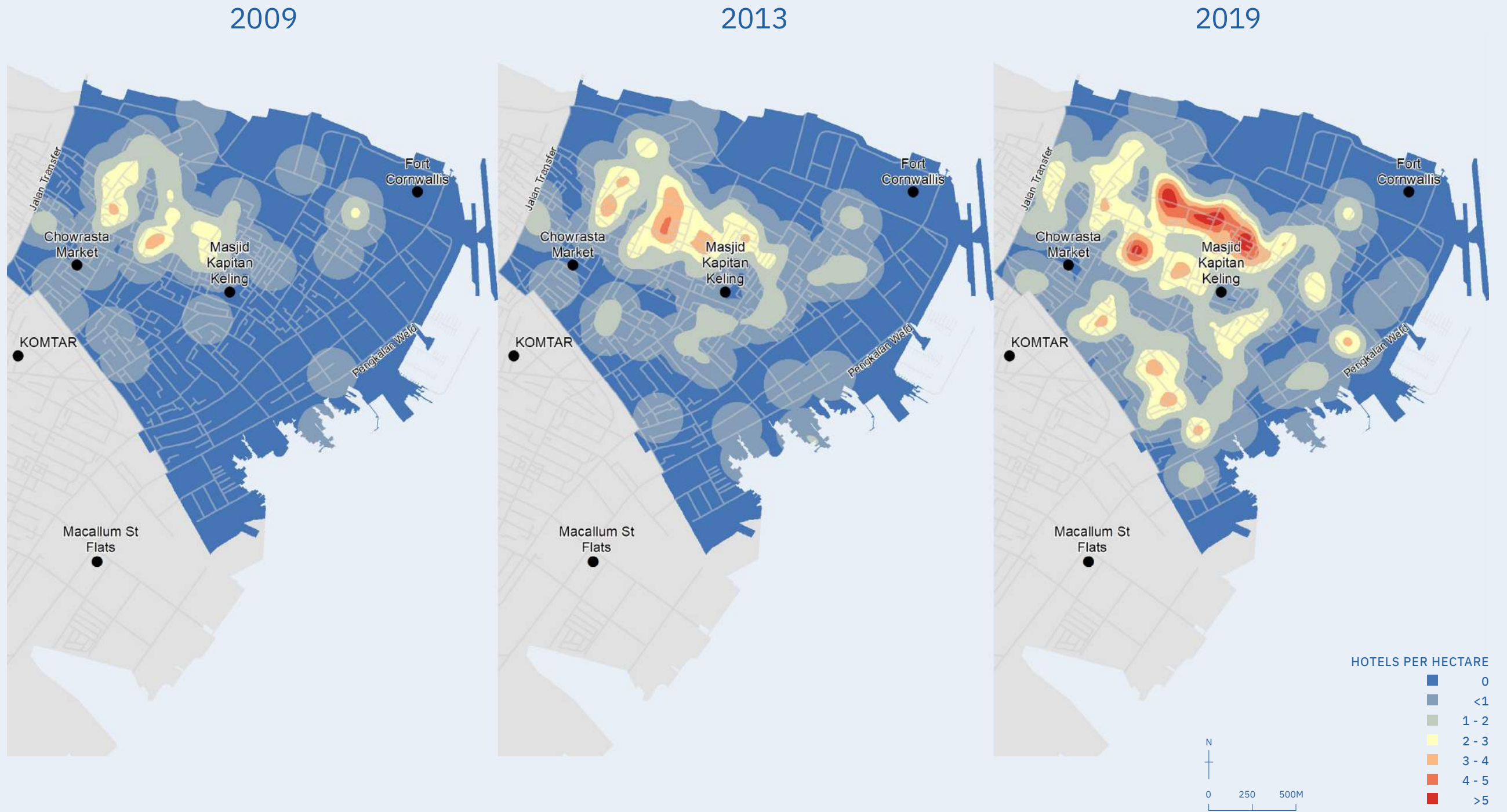
**Figure 23**  
Density of restaurants / bars – food and beverage (2009, 2013 & 2019)





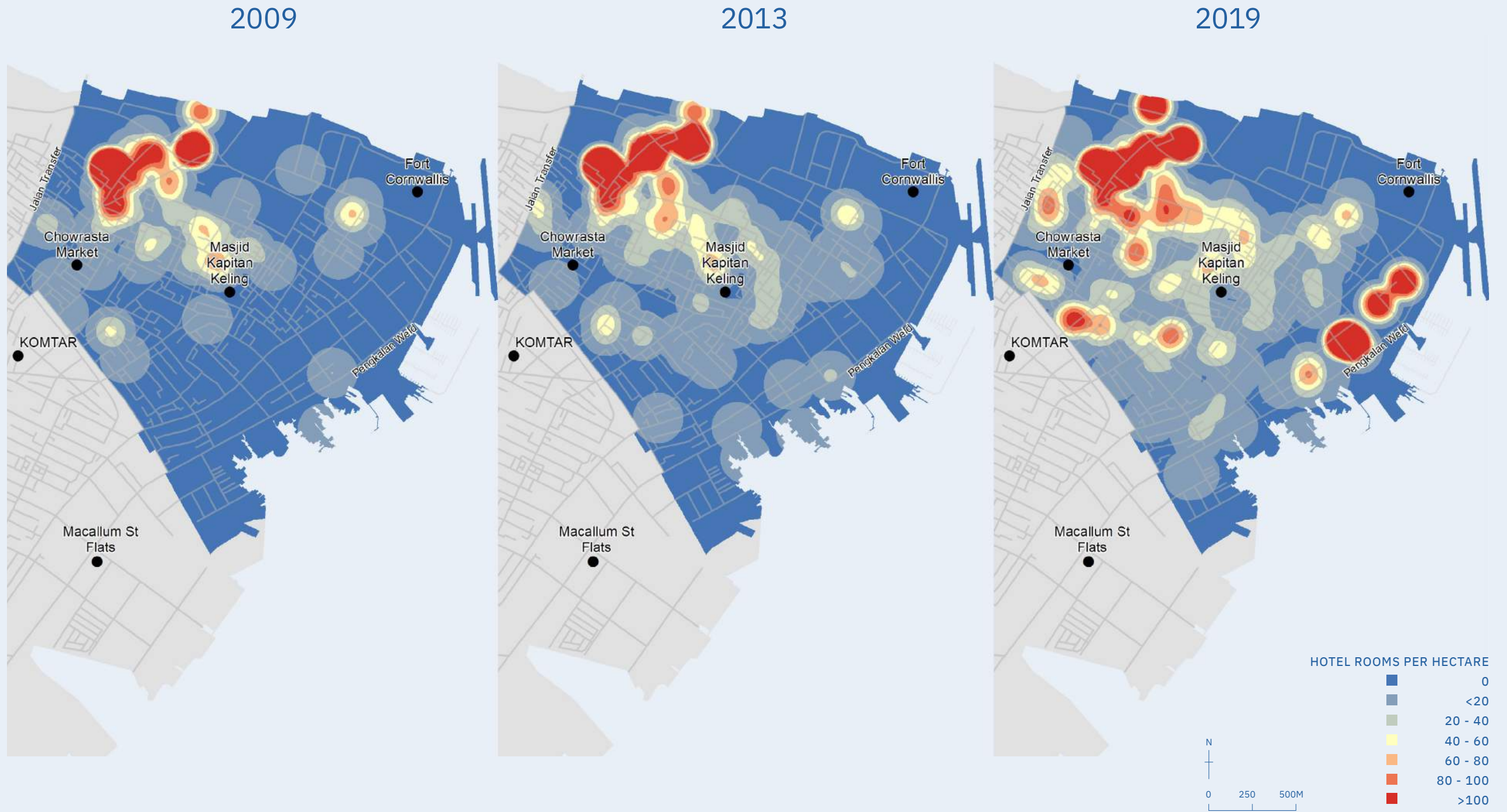
*Love Lane is one of several areas that had seen an increase in restaurants and bars*





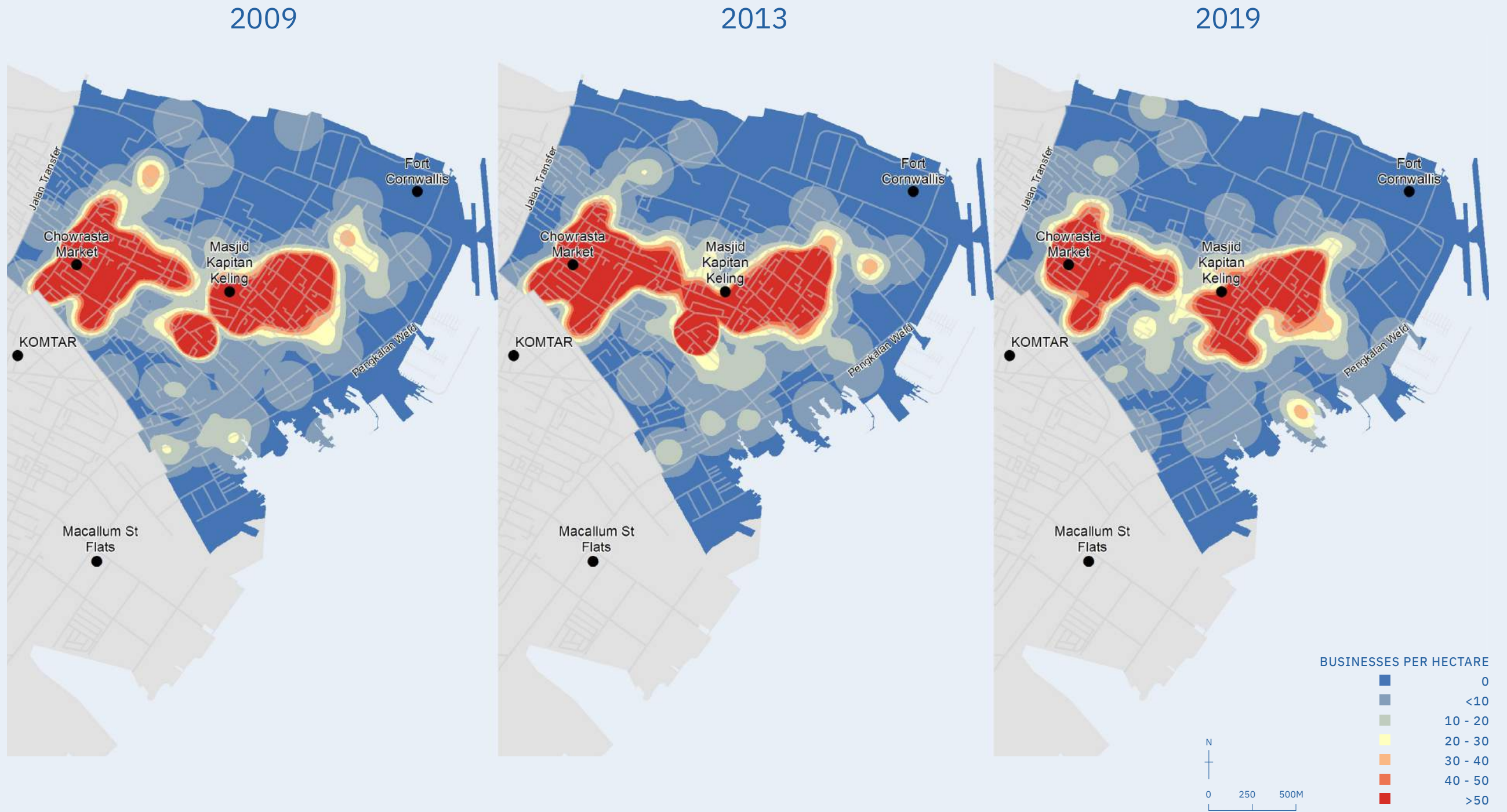
**Figure 24**  
Density of hotels (2009, 2013 & 2019)





**Figure 25**  
Density of hotel rooms (2009, 2013 & 2019)





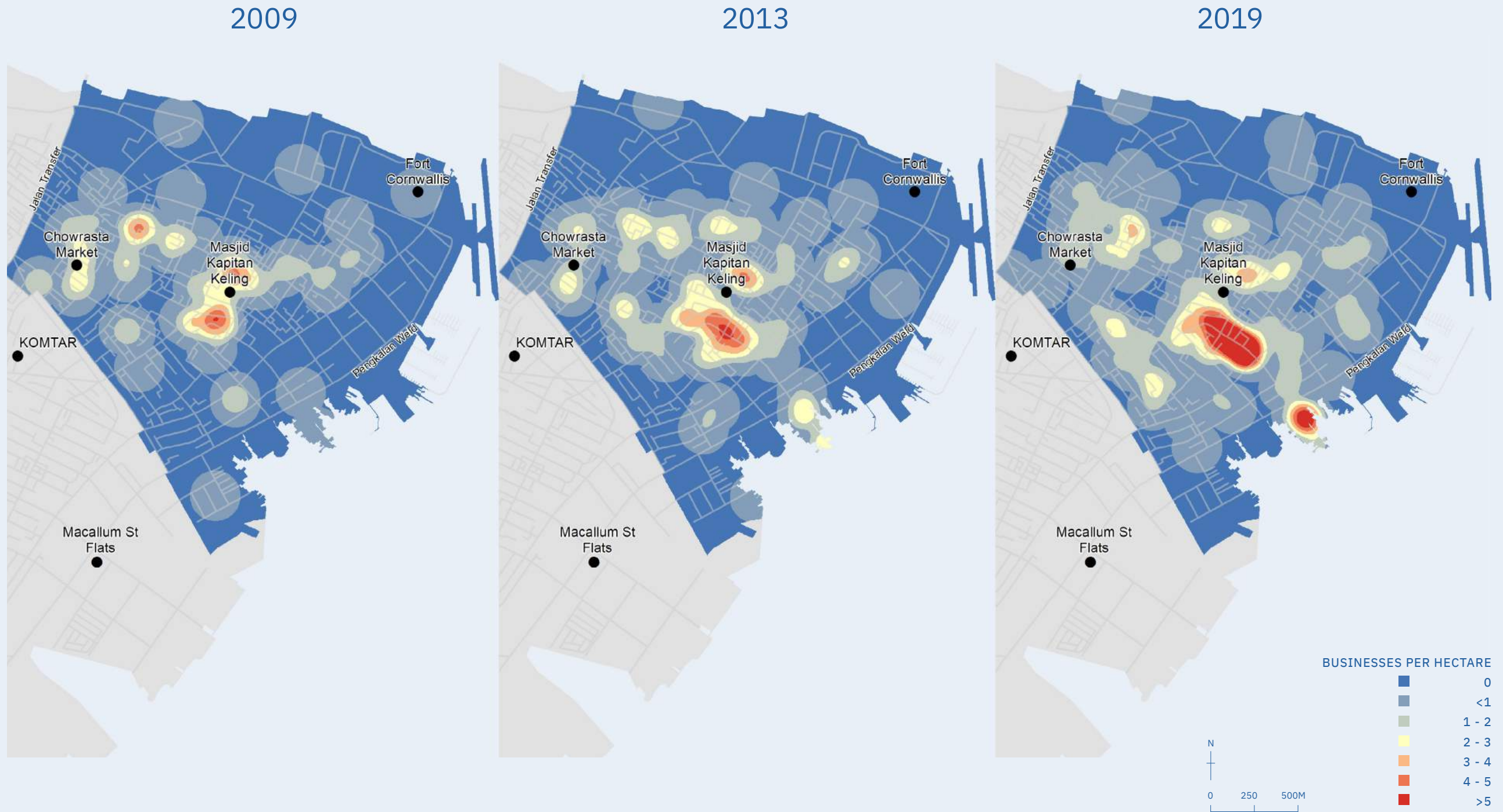
**Figure 26**  
Density of fashion, clothing and textile stores (2009, 2013 & 2019)





*Kebaya purveyors, of Baba Nyonya heritage, form part of the Fashion, Clothing and Textiles industry (Courtesy of PGT)*





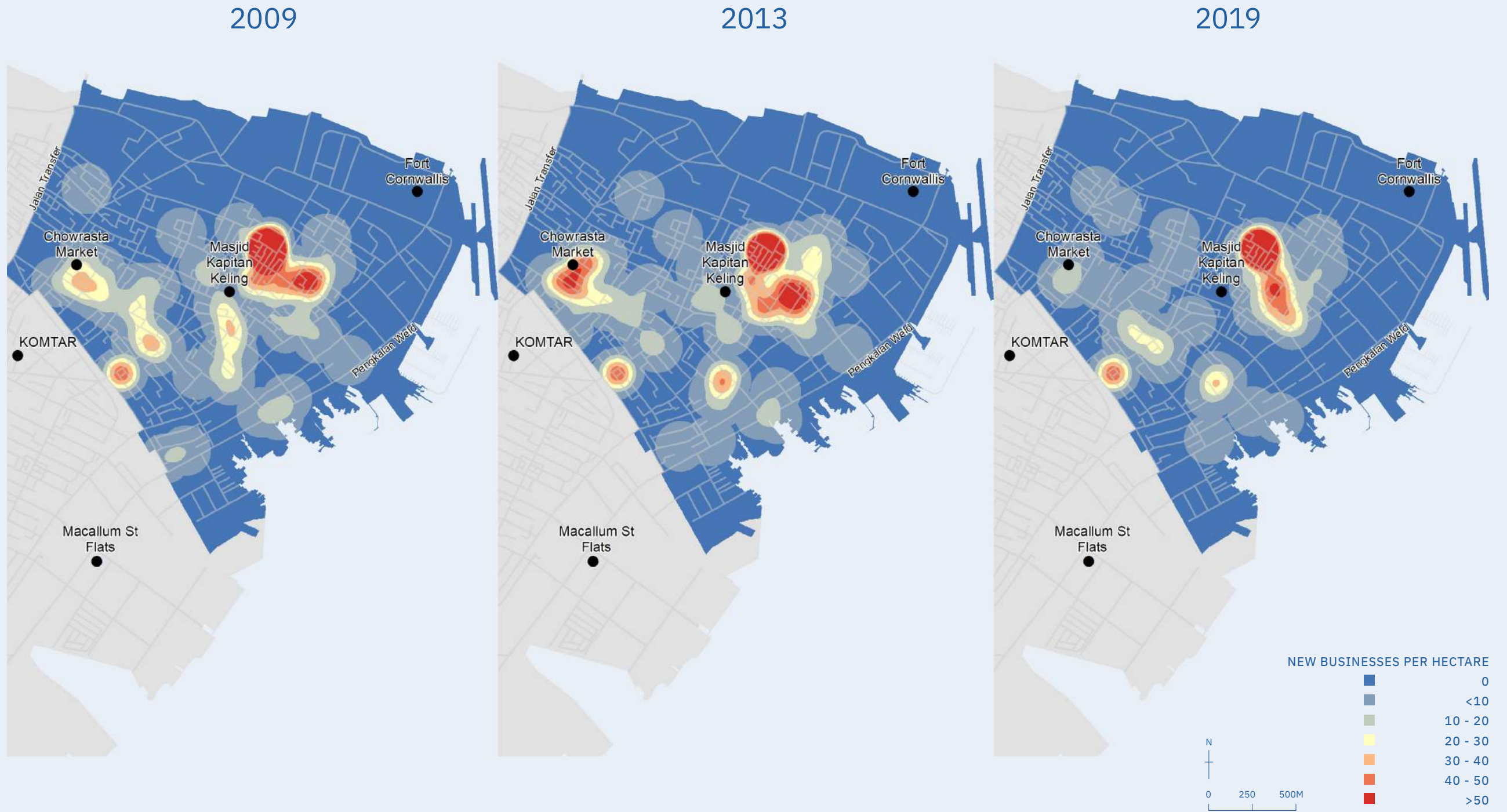
**Figure 27**  
Density of art, culture and craft establishments (2009, 2013 & 2019)





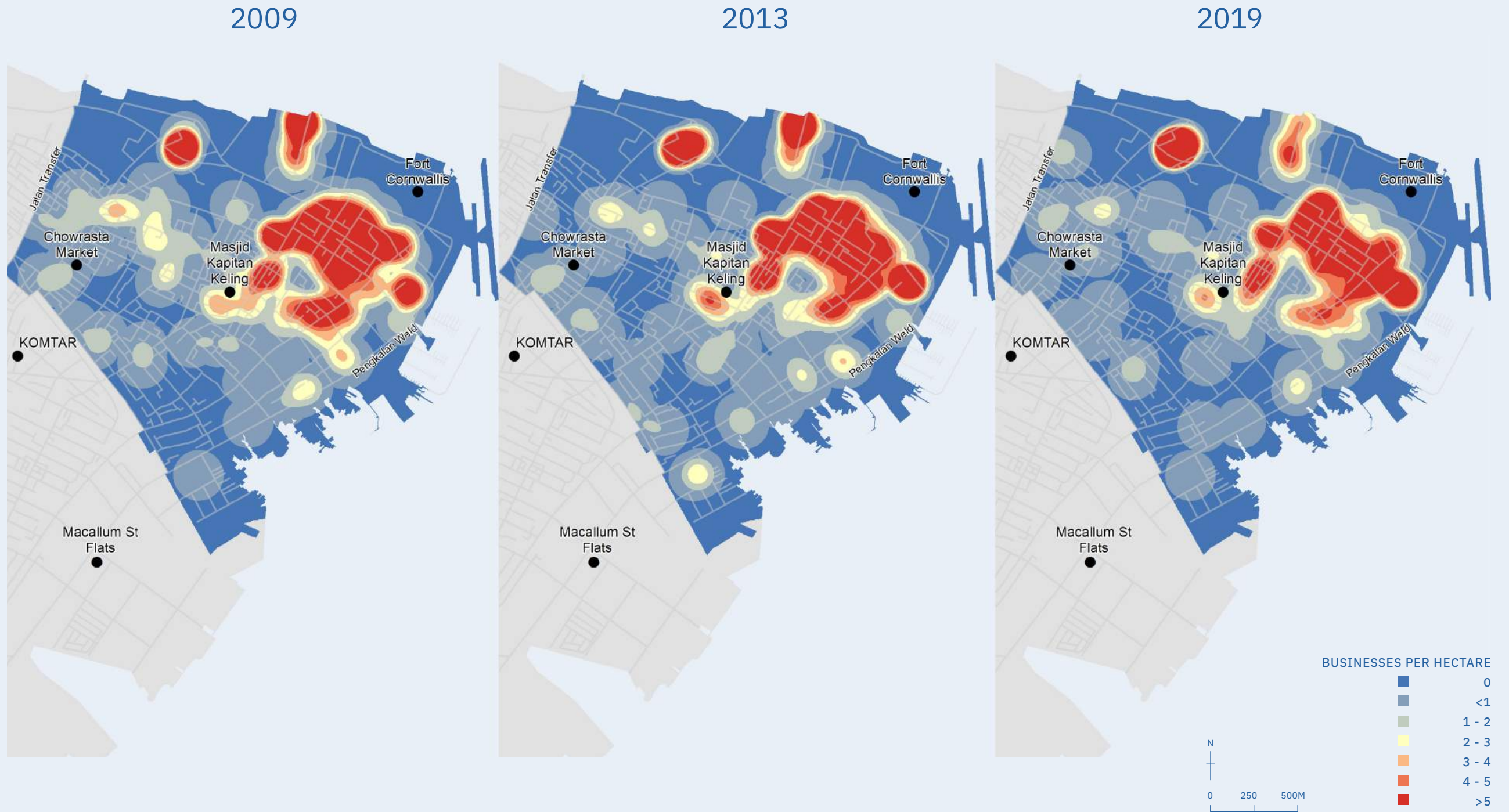
*A rattan weaver shop in Lebu Pantai (Courtesy of PGT)*





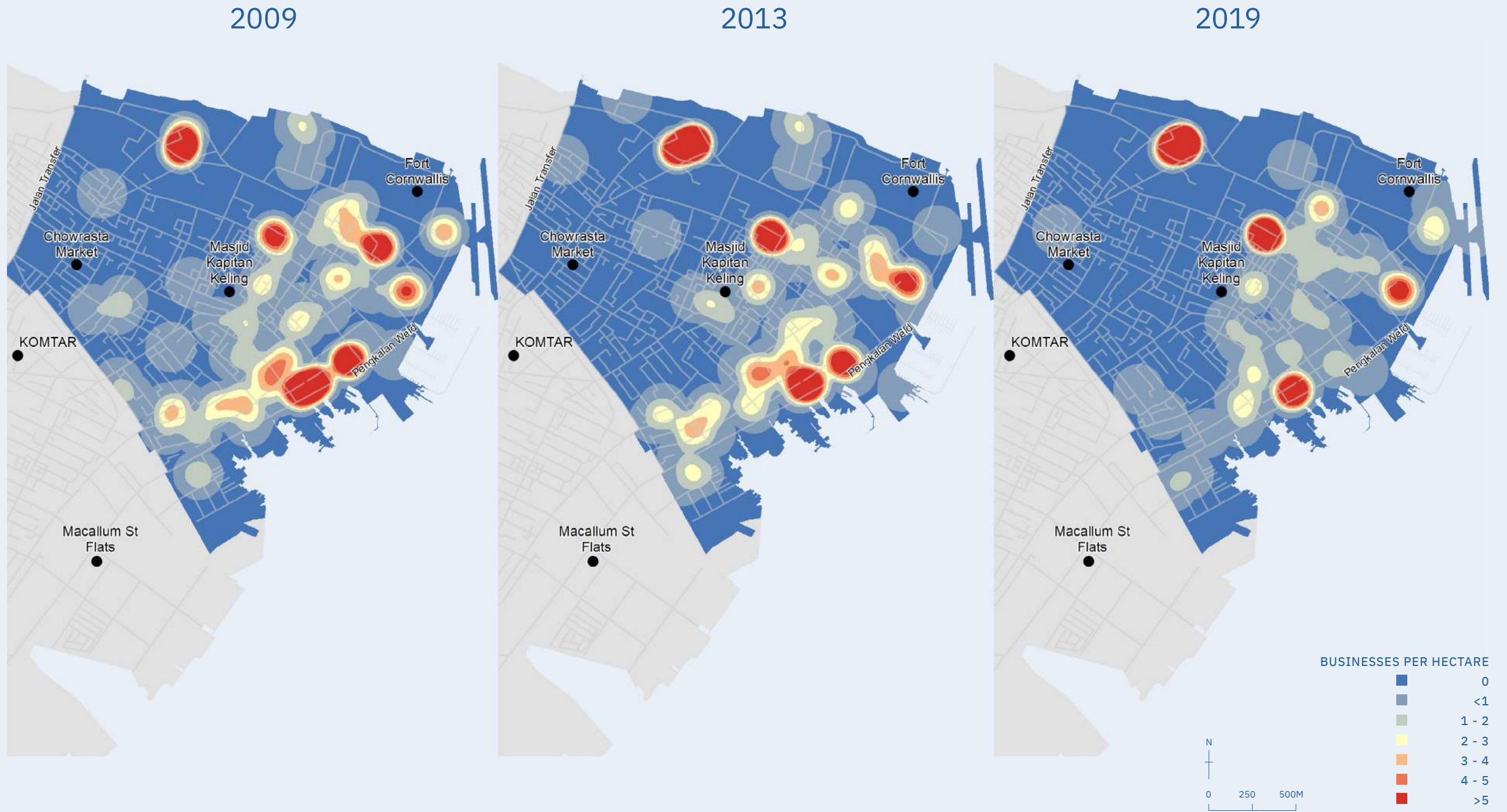
**Figure 28**  
Density of religious and cultural product retailers and services (2009, 2013 & 2019)





**Figure 29**  
Density of finance, banking and legal service providers (2009, 2013 & 2019)





**Figure 30**  
Density of transport, import / export and logistics firms (2009, 2013 & 2019)





*View from George Town across Penang Straits towards the North Butterworth Container Terminal*



### Box 1 Insights into the Hotel and Tourist Accommodation Industry

Of the 30 land use categories assigned in this study, *Hotel and Tourist Accommodation* occupied the most floorspace in 2019, surpassing residential use which was the highest in 2009 and 2013. There has been a significant increase in the number of hotels and tourist accommodation businesses, especially smaller boutique hotels, budget accommodation and home stay accommodation associated with Airbnb (Table 12). The number of available rooms rose from 2,246 in 2009 to 2,924 in 2013 and climbed to 5,571 in 2019, an increase of 3,325 rooms (148.0%) in a decade (Table 13). Mid-range and luxury accommodation has become dominant, compared to budget hotels previously (Figure 31 and Figure 32).

These changes are reflected in the shifting nature of the tourism industry, which, pre-COVID, had been increasingly defined by more independent travellers (i.e. those who arranged their own flights, accommodation and itineraries) demanding higher quality accommodation. There was also an increase in regional tourism, mostly guests from Singapore and China (Table 14). Most international and domestic guests stayed for an average of 1-3 nights (Figure 33), which is consistent with Tourism Malaysia's Domestic Tourism Survey 2019 where domestic guests stayed on average 2.5 days. The average occupancy rate is 59.6% which is similar to the average rate of Penang state (55.9%)<sup>6</sup> and Malaysia (58.8%)<sup>7</sup>.

**Table 12**  
Change in the number of hotels / tourist accommodation by type (2009, 2013 & 2019)

Hotel Type	2009		2013		2019		Change					
	No.	% Total	No.	% Total	No.	% Total	2009–2013		2013–2019		2009–2019	
							No.	% Change	No.	% Change	No.	% Change
<b>Economy</b>												
Hotel – Budget	34	60.7%	47	47.31%	59	33.7%	13	38.2%	12	25.5%	25	73.5%
Hostel	2	3.6%	16	17.2%	17	9.7%	14	700.0%	1	6.3%	15	750.0%
Home Stay	4	7.1%	9	9.7%	5	2.9%	5	125.0%	-4	-44.4%	1	25.0%
<b>Subtotal</b>	<b>40</b>	<b>71.4%</b>	<b>72</b>	<b>77.4%</b>	<b>81</b>	<b>46.3%</b>	<b>32</b>	<b>80.0%</b>	<b>9</b>	<b>12.5%</b>	<b>41</b>	<b>102.5%</b>
<b>Mid-range to luxury</b>												
Hotel 3-5 Star – less than 70 rooms	8	14.3%	6	6.5%	35	20.0%	-2	-25.0%	29	483.3%	27	337.5%
Hotel 3-5 Star – more than 70 rooms	6	10.7%	6	6.5%	12	6.9%	0	0.0%	6	100.0%	6	100.0%
Hotel – Boutique	2	3.6%	9	9.7%	33	18.9%	7	350.0%	24	266.7%	31	1,550.0%
<b>Subtotal</b>	<b>16</b>	<b>28.6%</b>	<b>21</b>	<b>22.6%</b>	<b>80</b>	<b>45.7%</b>	<b>5</b>	<b>31.3%</b>	<b>59</b>	<b>281.0%</b>	<b>64</b>	<b>400.0%</b>
<b>Emerging</b>												
Airbnb	0	0.0%	0	0.0%	13	7.4%	0	0.0%	13	7.4%	13	7.4%
Serviced Apartment	0	0.0%	0	0.0%	1	0.6%	0	0.0%	1	0.6%	1	0.6%
<b>Subtotal</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>14</b>	<b>8.0%</b>	<b>0</b>	<b>0.0%</b>	<b>14</b>	<b>8.0%</b>	<b>14</b>	<b>8.0%</b>
<b>Total</b>	<b>56</b>	<b>100.0%</b>	<b>93</b>	<b>100.0%</b>	<b>175</b>	<b>100.0%</b>	<b>37</b>	<b>66.1%</b>	<b>82</b>	<b>88.2%</b>	<b>119</b>	<b>212.5%</b>

Note: Excludes "Unable to Survey" data

<sup>6</sup> Penang Institute (2019). Penang Statistics Quarter 4, 2019. George Town: Penang Institute.

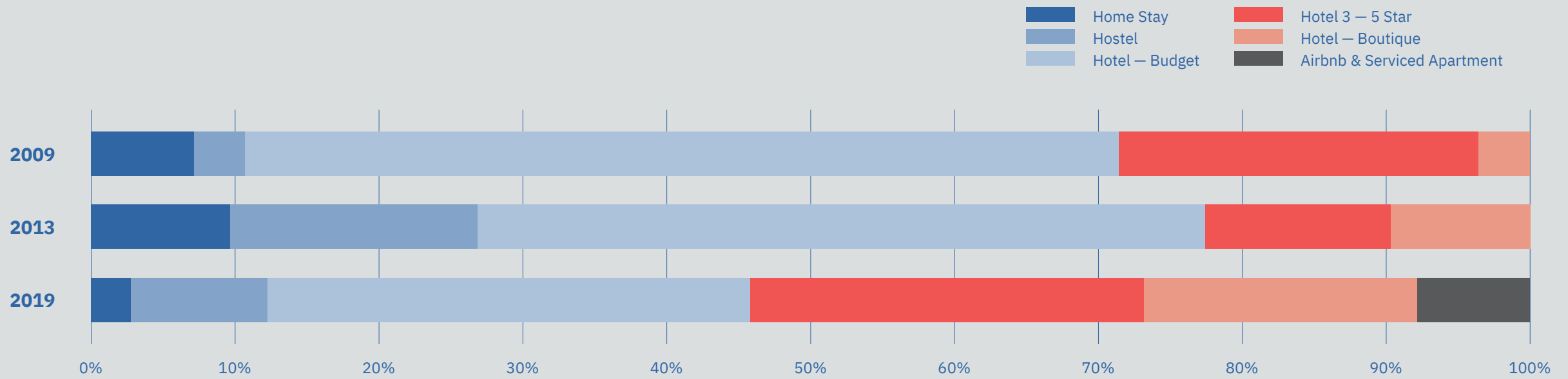
<sup>7</sup> United Nations World Tourism Organisation (UNWTO). (2020). Tourism Statistics.



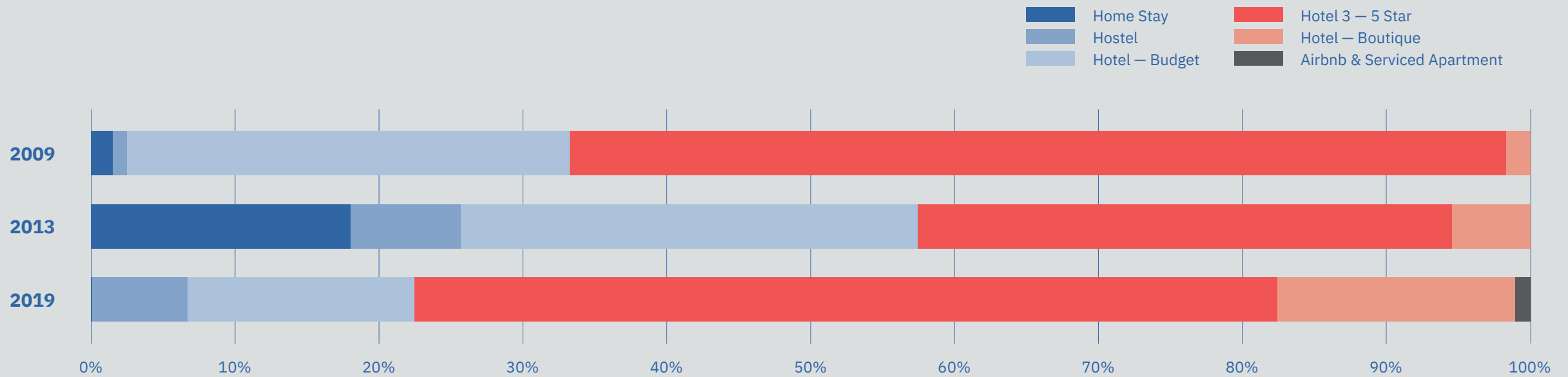
**Table 13**  
Change in the number of hotel rooms by hotel type (2009, 2013 & 2019)

Hotel Type							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
<b>Economy</b>												
Hotel – Budget	690	30.7%	927	31.7%	853	15.3%	237	34.3%	-74	-8.0%	163	23.6%
Hostel	23	1.0%	225	7.7%	364	6.5%	202	878%	139	61.8%	341	1,482.6%
Home Stay	34	1.5%	527	18.0%	26	0.5%	493	1,450%	-501	-95.1%	-8	-23.5%
<b>Subtotal</b>	<b>747</b>	<b>33.3%</b>	<b>1,679</b>	<b>57.4%</b>	<b>1,243</b>	<b>22.3%</b>	<b>932</b>	<b>124.8%</b>	<b>-436</b>	<b>-26.0%</b>	<b>496</b>	<b>66.4%</b>
<b>Mid-Range to Luxury</b>												
Hotel 3-5 Star – less than 70 rooms	270	12.0%	111	3.8%	980	17.6%	-159	-59%	869	782.9%	710	263.0%
Hotel 3-5 Star – more than 70 rooms	1,191	53.0%	975	33.3%	2,377	42.7%	-216	-18%	1,402	143.8%	1,186	99.6%
Hotel – Boutique	38	1.7%	159	5.4%	910	16.5%	121	318%	751	472.3%	872	2,294.7%
<b>Subtotal</b>	<b>1,499</b>	<b>66.7%</b>	<b>1,245</b>	<b>42.5%</b>	<b>4,267</b>	<b>76.8%</b>	<b>-254</b>	<b>-16.9%</b>	<b>3,022</b>	<b>242.7%</b>	<b>2,768</b>	<b>184.7%</b>
<b>Emerging</b>												
Serviced Apartment	0	0.0%	0	0.0%	1	0.0%	0	0.0%	1	0.0%	1	0.0%
Airbnb	0	0.0%	0	0.0%	60	1.1%	0	0.0%	60	1.1%	60	1.1%
<b>Subtotal</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>61</b>	<b>1.1%</b>	<b>0</b>	<b>0.0%</b>	<b>61</b>	<b>1.1%</b>	<b>61</b>	<b>1.1%</b>
<b>Total</b>	<b>2,246</b>	<b>100.0%</b>	<b>2,924</b>	<b>100.0%</b>	<b>5,571</b>	<b>100.0%</b>	<b>678</b>	<b>30.2%</b>	<b>2,647</b>	<b>90.5%</b>	<b>3,325</b>	<b>148.0%</b>





**Figure 31**  
Percentage of hotels / tourist accommodation by type (2009, 2013 & 2019)

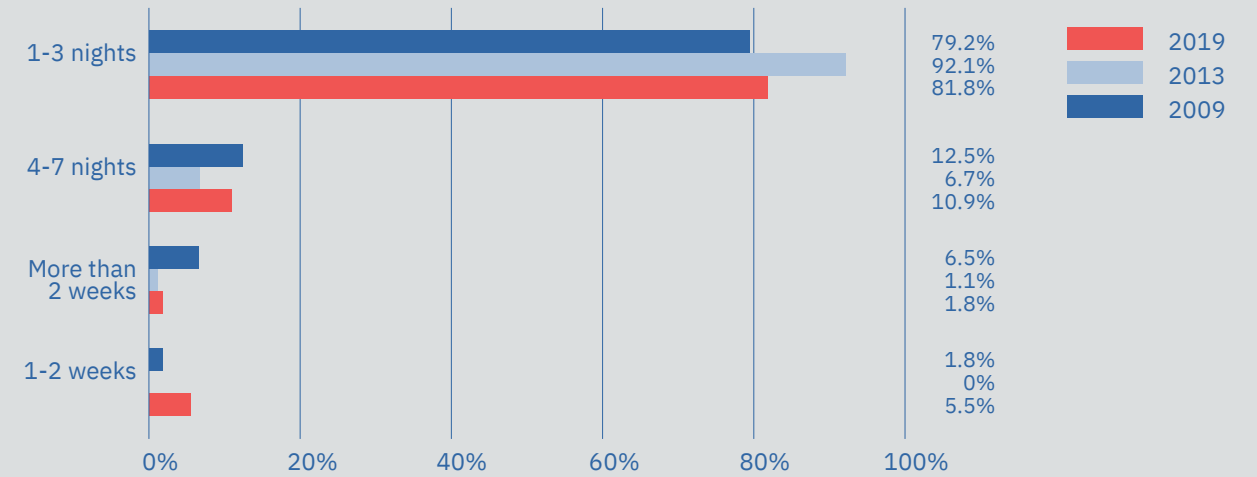


**Figure 32**  
Percentage of hotel rooms by hotel type (2009, 2013 & 2019)

**Table 14**  
Country of origin of most hotel guests (2009, 2013 & 2019)

Country	Percentage of Hotel Respondents (%)			Change Percentage (%)		
	2009	2013	2019	2009–2013	2013–2019	2009–2019
Europe	66%	59%	64%	-7.3%	5.2%	-2.1%
Malaysia	46%	49%	45%	2.4%	-3.8%	-1.4%
China	21%	51%	39%	29.9%	-12.3%	17.6%
Australia	43%	36%	32%	-6.6%	-4.3%	-10.9%
Singapore	18%	39%	31%	20.9%	-7.8%	13.1%
Indonesia	25%	29%	23%	3.8%	-5.8%	-2.0%
Thailand	21%	19%	23%	-2.6%	4.2%	1.6%
India	9%	21%	9%	12.4%	-11.9%	0.5%
Myanmar	5%	13%	4%	7.1%	-8.4%	-1.3%
Cambodia	4%	6%	3%	2.7%	-3.3%	-0.6%
Other*	14%	31%	13%	17.0%	-18.3%	-1.3%

Note: Percentages do not add up to 100%. Hotel managers can choose more than one country of origin.  
\* Other includes Africa, Middle East, Japan, Korea, Pakistan, Philippines, UK, USA, Vietnam



**Figure 33**  
Average length of guest stay (2009, 2013 & 2019)



## Box 2 Change in Art, Culture and Craft Industry

The art, culture and craft industry in this study comprises 19 different types of businesses and supporting services such as handicraft, museums, arts suppliers, studios and galleries (Table 15). The doubling in the number of entities in this industry over the last decade is mainly due to increases in handicraft, artefacts and souvenir outlets (192%, +25), private museums (1300%, +13) and art galleries (129%, +9). These new activities are primarily

oriented towards tourism, with private ‘museums’ focused on amusement and entertainment rather than education and inspiration. Similarly, new ‘handicraft’ businesses are largely souvenir shops. It should be noted there are creative enterprises such as bookstores and cultural products / services documented under different categories that could be considered a part of the art, culture and craft industry.

**Table 15**  
Change in art, culture and craft establishments (2009, 2013 & 2019)

Type	Change											
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Museum – Private / Association	1	1.8%	5	5.7%	14	12.5%	4	400.0%	9	180.0%	13	1300.0%
Handicraft, Artefacts and Souvenirs	13	22.8%	31	35.6%	38	33.9%	18	138.5%	7	-1.7%	25	192.3%
Calligraphy	1	1.8%	0	0.0%	1	0.9%	-1	-100.0%	1	0.9%	0	0.0%
Coins, Money and Stamps Trader	1	1.8%	3	3.4%	3	2.7%	2	200.0%	0	0.0%	2	200.0%
Art Gallery – Private / Association	7	12.3%	9	10.3%	16	14.3%	2	28.6%	7	77.8%	9	128.6%
Handcrafted Arts – Glass	1	1.8%	2	2.3%	2	1.8%	1	100.0%	0	0.0%	1	100.0%
Antiques and Artefacts	17	29.8%	20	23.0%	19	17.0%	3	17.6%	-1	-5.0%	2	11.8%
Arts and Craft Supplier	0	0.0%	0	0.0%	5	4.5%	0	0.0%	5	0.0%	5	0.0%
Event Space for Art – Private	0	0.0%	0	0.0%	5	4.5%	0	0.0%	5	0.0%	5	0.0%
Handcrafted Arts – Paper	0	0.0%	2	2.3%	0	0.0%	2	0.0%	-2	-2.3%	0	0.0%
Music Recording and Production Studio	0	0.0%	0	0.0%	1	0.9%	0	0.0%	1	0.0%	1	0.0%
Drama, Dance and / or Cultural Studio	0	0.0%	1	1.1%	0	0.0%	1	0.0%	-1	-100.0%	0	0.0%
Artist Studio	1	1.8%	2	2.3%	1	0.9%	1	100.0%	-1	-50.0%	0	0.0%
Handcrafted Arts – Wood	2	3.5%	2	2.3%	2	1.8%	0	0.0%	0	0.0%	0	0.0%
Frame Supplier and Manufacturer	3	5.3%	4	4.6%	2	1.8%	1	33.3%	-2	-50.0%	-1	-33.3%
Handcrafted Arts – Stone / Clay	3	5.3%	1	1.1%	2	1.8%	-2	-66.7%	1	100.0%	-1	-33.3%
Picture / Photo Framer	4	7.0%	3	3.4%	1	0.9%	-1	-25.0%	-2	-66.7%	-3	-75.0%
Handcrafted Arts – Metal	1	1.8%	1	1.1%	0	0.0%	0	0.0%	-1	-100.0%	-1	-100.0%
Pewter	2	3.5%	1	1.1%	0	0.0%	-1	-50.0%	-1	-100.0%	-2	-100.0%
<b>Total</b>	<b>57</b>	<b>100.0%</b>	<b>87</b>	<b>100.0%</b>	<b>112</b>	<b>100.0%</b>	<b>30</b>	<b>52.6%</b>	<b>25</b>	<b>28.7%</b>	<b>55</b>	<b>96.5%</b>





*'Little Children on a Bicycle' street art on Lebu Armenian (Courtesy of PGT)*



### Box 3 Change in Educational Institutions

The number of educational institutions increased slightly between 2009 and 2013 but remained at 24 up to 2019. There was, however, a notable decline in the number of primary and secondary students (-1,144) between 2009 and 2019. This is a reflection of the decline in the GTWHS resident population and a general decline in primary and secondary school enrolment in Penang. The number of tertiary students increased significantly up from 2,790 in 2009 to 7,073 in 2019. Tertiary institutes have expanded their capacity with more floorspace and employees to cater to increased student enrolment. For example, the SEGi College on Jalan Green Hall now occupies nearby buildings that were formerly used for financial and legal services.

**Table 16**  
Change in educational institutions (2009, 2013 & 2019)

	2009	2013	2019	Change		
				2009–2013	2013–2019	2009–2019
	No.	No.	No.	No.	No.	No.
Institutes	19	24	24	5	0	5
Employees	607	643	778	36	135	171
Primary and Secondary School Students	3,644	4,226	2,500	582	-1,726	-1,144
College / Tertiary Students	2,790	2,944	7,073	154	4,129	4,283

Note: Excludes "Unable to Survey" data

#### Box 4 Change in Market and Street Vendor

Market and street retailing are a significant part of the cultural life in George Town. They make up an important aspect of its intangible heritage. Keeping in mind that the number of stalls can vary from day to day, the overall number of stalls / hawkers have halved, decreasing from 854 in 2009 to 441 in 2019 (-413). While a proportion of these are related to the relocation of the Lebuh Armenian Flea Market, there is also a marked decline in hawkers operating inside buildings by -38.3% (-132), with the decline mostly between 2013 and 2019. The relocation of the flea market means that there are fewer vendors who use

ground mats and trestle tables. Most activities are food and clothing related. There has been a small increase in those selling cooked food but a decline in those selling food produce (see Appendix Table A5 and Table A6). This is possibly related to the declining number of residents and therefore demand for market produce, as well as a general preference for shopping in supermarkets or chain stores due to convenience, hygiene and product availability. There has been a decline in those selling clothes and textiles, likely due to the relocation of the Lebuh Armenian Flea Market.

**Table 17**  
Change in market and street vendors (2009, 2013 & 2019)

Stall type	2009		2013		2019		Change						
	No.	% Total	No.	% Total	No.	% Total	2009–2013		2013–2019		2009–2019		
							No.	% Change	No.	% Change	No.	% Change	
<b>Market vendor</b>													
Inside building / complex	345	40.4%	353	46.2%	213	48.3%	8	2.3%	-140	-39.7%	-132	-38.3%	
<b>Street vendor</b>													
Mobile cart / steel structure with canvas roof	209	24.5%	202	26.4%	199	45.1%	-7	-3.3%	-3	-1.5%	-10	-4.8%	
Trestle table	172	20.1%	42	5.5%	n.a.	n.a.	-130	-75.6%	n.a.	n.a.	n.a.	n.a.	
Ground mat	91	10.7%	113	14.8%	3	0.7%	22	24.2%	-110	-97.3%	-88	-96.7%	
Van / car	16	1.9%	24	3.1%	16	3.6%	8	50.0%	-8	-33.3%	0	0.0%	
Bicycle / tricycle	17	2.0%	21	2.7%	3	0.7%	4	23.5%	-18	-85.7%	-14	-82.4%	
Motorbike	4	0.5%	9	1.2%	7	1.6%	5	125.0%	-2	-22.2%	3	75.0%	
<b>Total</b>	<b>854</b>	<b>100.0%</b>	<b>764</b>	<b>100.0%</b>	<b>441</b>	<b>100.0%</b>	<b>-90</b>	<b>-10.5%</b>	<b>-323</b>	<b>-42.3%</b>	<b>-413</b>	<b>-48.4%</b>	

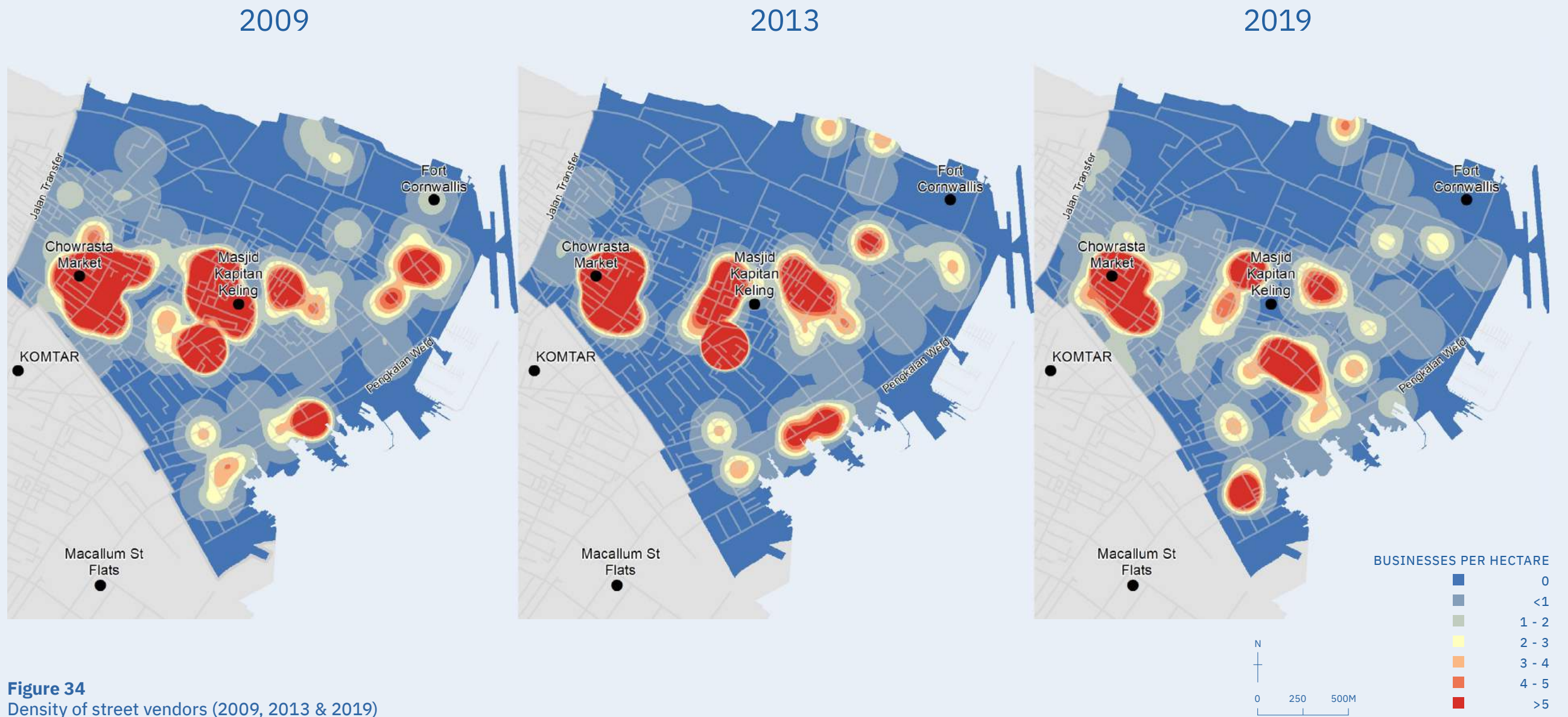




*A street vendor preparing the iconic local dish, Char Koay Teow (Courtesy of PGT)*



In terms of the density in street vendor activity, the broad pattern remains, with high densities around Jalan Penang, Jalan Kimberley and Little India (Figure 34). Changes of note include the relocation of the Lebuhs Armenian Flea Market, the emergence of tourist-oriented stalls along Lebuhs Armenian, the disappearance of vendors from Lebuhs Pantai and Pengkalan Weld and a decline in street activity around Chowrasta Market.



**Figure 34**  
Density of street vendors (2009, 2013 & 2019)



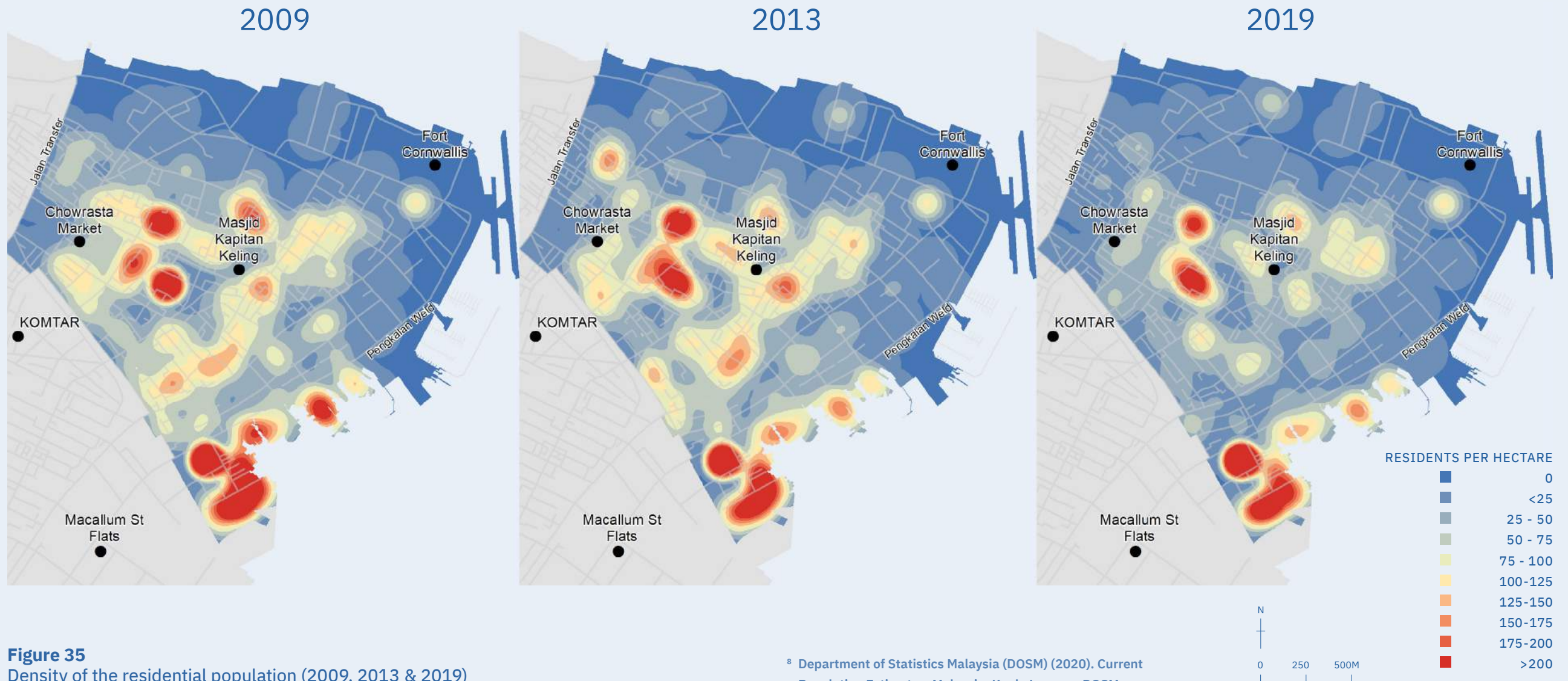
### 3.4 DEMOGRAPHIC SHIFTS

#### 3.4.1 POPULATION

Parallel to the economic shifts described above, the GTWHS has experienced a significant decline in the residential population since its UNESCO listing. In comparison, the state population was estimated to have increased by 14%<sup>8,9</sup> between 2009 and 2019. During the same period, the GTWHS population dropped by a third, from 10,159 to 6,939 (-3,220) (Table 18). The decline was fastest between 2013 and 2019 which accounts for more than

three quarters of the losses (-2,486 compared to -734 between 2009 and 2013). Overall, the number of households fell by a third between 2009 and 2019, from 2,533 to 1,852, a net loss of 681 (this includes households that were not able to be surveyed).

Figure 35 illustrates the degree to which the GTWHS population has declined. While modest populations remain in formalised housing off Pengkalan Weld, in Police Quarters and the People’s Court (off Lebuah Cintra), shophouse living has largely disappeared.



**Figure 35**  
Density of the residential population (2009, 2013 & 2019)

<sup>8</sup> Department of Statistics Malaysia (DOSM) (2020). Current Population Estimates, Malaysia. Kuala Lumpur: DOSM.

<sup>9</sup> Department of Statistics Malaysia (DOSM) (2015). Intercensal Mid-Year Population Estimates Malaysia and State 2001-2009. Kuala Lumpur: DOSM.

### 3.4.2 HOUSEHOLD CHARACTERISTICS

While household size remained relatively stable and slightly higher than the Penang State average<sup>10</sup>, its typical composition was markedly different. Notably, there are significantly fewer females, the proportion of children (15 years and under) has dropped by 62% and the average number of children per household decreased by 45% from 0.51 to 0.28 between

2009 and 2019 (Table 18 and Table 19). This suggests that the decline in population is largely due to the outflow of young families, ageing and limited replacement / in-migration. Table 20 shows the extent of this shift, with a clear decline in the proportion of family households, and an increase in the proportion of one person, elderly and group of workers household typologies.

**Table 18**  
Change in household characteristics (2009, 2013 & 2019)

Household Characteristics							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Children 15 years and under	1,284	13%	974	10%	487	7%	-310	-24%	-487	-50%	-797	-62%
Residents 16-59 years old	7,252	71%	6,959	74%	5,269	76%	-293	-4%	-1,690	-24%	-1,983	-27%
Residents 60 years and older	1,623	16%	1,492	16%	1,183	17%	-131	-8%	-309	-21%	-440	-27%
<b>Total residents</b>	<b>10,159</b>	<b>100%</b>	<b>9,425</b>	<b>100%</b>	<b>6,939</b>	<b>100%</b>	<b>-734</b>	<b>-7%</b>	<b>-2,486</b>	<b>-26%</b>	<b>-3,220</b>	<b>-32%</b>
Households	2,326		2,191		1,746		-135	-6%	-445	-20%	-580	-25%
Average no. children per Household	0.51		0.42		0.28		-0.08	-17%	-0.14	-34%	-0.23	-45%
Average Household Size	4		4.1		4		0.1	2%	-0.1	-2%	0	0%
Residents attending Polytechnics / Universities / Colleges	378	3.7%	323	3.4%	181	2.6%	-55	-15%	-142	-44%	-197	-52%

Note: Excludes "Unable to Survey" household, which in 2009 was 207, 111 for 2013 and 306 for 2019

**Table 19**  
Breakdown of male and female residents (2009, 2013 & 2019)

Gender							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Male residents	5,593	55%	5,365	58%	3,190	58%	-228	-4%	-2,175	-41%	-2,403	-43%
Female residents	4,486	45%	3,879	42%	2,284	42%	-607	-14%	-1,595	-41%	-2,202	-49%
<b>Total</b>	<b>10,079</b>	<b>100%</b>	<b>9,244</b>	<b>100%</b>	<b>5,474</b>	<b>100%</b>	<b>-835</b>	<b>-8.3%</b>	<b>-3,770</b>	<b>-40.8%</b>	<b>-4,605</b>	<b>-45.7%</b>

Note: In some instances this question was unanswered

<sup>10</sup> The Penang State average household size was 3.6 in 2019. Department of Statistics Malaysia (DOSM) (2019).

Penang Household Income and Basic Amenities Survey Report by State and Administrative District. Kuala Lumpur: DOSM.



**Table 20**

Change in household typology (2009, 2013 &amp; 2019)

Household Typology							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Elderly couple	89	3.9%	93	4.6%	111	8.6%	4	4.5%	18	19.4%	22	24.7%
One-person household	283	12.3%	274	13.6%	230	17.9%	-9	-3.2%	-44	-16.1%	-53	-18.7%
Group of workers	270	11.7%	309	15.3%	199	15.5%	39	14.4%	-110	-35.6%	-71	-26.3%
Elderly couple with mature children (living at home)	334	14.5%	352	17.4%	237	18.4%	18	5.4%	-115	-32.7%	-97	-29.0%
Married couple with children and extended family	253	11.0%	227	11.2%	125	9.7%	-26	-10.3%	-102	-44.9%	-128	-50.6%
Family with rented rooms to workers or others	44	1.9%	18	0.9%	20	1.6%	-26	-59.1%	2	11.1%	-24	-54.5%
More than one family	158	6.9%	77	3.8%	69	5.4%	-81	-51.3%	-8	-10.4%	-89	-56.3%
Married couple with young children	183	8.0%	124	6.1%	70	5.4%	-59	-32.2%	-54	-43.5%	-113	-61.7%
Married couple with mixed aged children (living at home)	194	8.4%	204	10.1%	73	5.7%	10	5.2%	-131	-64.2%	-121	-62.4%
Single parent household	171	7.4%	84	4.2%	63	4.9%	-87	-50.9%	-21	-25.0%	-108	-63.2%
Married couple with teenage children	189	8.2%	131	6.5%	61	4.7%	-58	-30.7%	-70	-53.4%	-128	-67.7%
Couple with no children (at home)	131	5.7%	127	6.3%	29	2.3%	-4	-3.1%	-98	-77.2%	-102	-77.9%
<b>Total</b>	<b>2,299</b>	<b>100.0%</b>	<b>2,020</b>	<b>100.0%</b>	<b>1,287</b>	<b>100.0%</b>	<b>-279</b>	<b>-12.1%</b>	<b>-733</b>	<b>-36.3%</b>	<b>-1,012</b>	<b>-44.0%</b>

Note: The respondents could choose more than one option.

### 3.4.3 ETHNICITY AND LANGUAGE

While the population has declined and its make-up is different than when it was listed by UNESCO, the GTWHS is still a rich mosaic of religion, culture and ethnicity. A total of 17 ethnicities and nationalities, 18 main household languages and 5 religions were documented in 2019. However, the proportion of the mix has changed. The largest shift in ethnicity is the decline in the proportion of Chinese households, which in 2009 made up 70% of households, but had declined to only 62% in 2019. There is a higher percentage of non-Malaysian households, increasing from 8% to 12% (Table 21).

**Table 21**  
Change in the main household ethnicity (2009, 2013 & 2019)

Ethnicity	2009		2013		2019		Change						
	No.	% Total	No.	% Total	No.	% Total	2009–2013		2013–2019		2009–2019		
							No.	% Change	No.	% Change	No.	% Change	
<b>Malaysian</b>													
Malaysian Chinese	1,701	69.9%	1,505	64.8%	1,023	62.4%	-196	-11.5%	-482	-32.0%	-678	-39.9%	
Malaysian Malay	225	9.2%	252	10.9%	220	13.4%	27	12.0%	-32	-12.7%	-5	-2.2%	
Malaysian Indian	304	12.5%	242	10.4%	200	12.2%	-62	-20.4%	-42	-17.4%	-104	-34.2%	
Malaysian Other	11	0.5%	6	0.3%	2	0.1%	-5	-45.5%	-4	-66.7%	-9	-81.8%	
<b>Subtotal</b>	<b>2,241</b>	<b>92.1%</b>	<b>2,005</b>	<b>86.4%</b>	<b>1,445</b>	<b>88.1%</b>	<b>-236</b>	<b>-10.5%</b>	<b>-560</b>	<b>-27.9%</b>	<b>-796</b>	<b>-35.5%</b>	
<b>Other Nationalities</b>													
Indian – From India	49	2.0%	74	3.2%	70	4.3%	25	51.0%	-4	-5.4%	21	42.9%	
Bangladeshi	47	1.9%	82	3.5%	57	3.5%	35	74.5%	-25	-30.5%	10	21.3%	
Indonesia	46	1.9%	49	2.1%	28	1.7%	3	6.5%	-21	-42.9%	-18	-39.1%	
Nepalese	13	0.5%	20	0.9%	15	0.9%	7	53.8%	-5	-25.0%	2	15.4%	
Thai	2	0.1%	5	0.2%	7	0.4%	3	150.0%	2	40.0%	5	250.0%	
Myanmar	14	0.6%	18	0.8%	6	0.4%	4	28.6%	-12	-66.7%	-8	-57.1%	
Pakistani – from Pakistan	0	0.0%	1	0.0%	4	0.2%	1	0.0%	3	300.0%	4	0.0%	
Vietnamese	5	0.2%	11	0.5%	2	0.1%	6	120.0%	-9	-81.8%	-3	-60.0%	
Filipino	2	0.1%	7	0.3%	1	0.1%	5	250.0%	-6	-85.7%	-1	-50.0%	
Australian	1	0.0%	5	0.2%	1	0.1%	4	400.0%	-4	-80.0%	0	0.0%	
United Kingdom	1	0.0%	4	0.2%	0	0.0%	3	300.0%	-4	-100.0%	-1	-100.0%	
Chinese – From China	8	0.3%	12	0.5%	0	0.0%	4	50.0%	-12	-100.0%	-8	-100.0%	
Mixed Nationality / Other	4	0.2%	28	1.2%	4	0.2%	24	600.0%	-24	-85.7%	0	0.0%	
<b>Subtotal</b>	<b>192</b>	<b>7.9%</b>	<b>316</b>	<b>13.6%</b>	<b>195</b>	<b>11.9%</b>	<b>124</b>	<b>64.6%</b>	<b>-121</b>	<b>-38.3%</b>	<b>3</b>	<b>1.6%</b>	
<b>Total</b>	<b>2,433</b>	<b>100.0%</b>	<b>2,321</b>	<b>100.0%</b>	<b>1,640</b>	<b>100.0%</b>	<b>-112</b>	<b>-4.6%</b>	<b>-681</b>	<b>-29.3%</b>	<b>-793</b>	<b>-32.6%</b>	

Note: The respondents could choose more than one option.



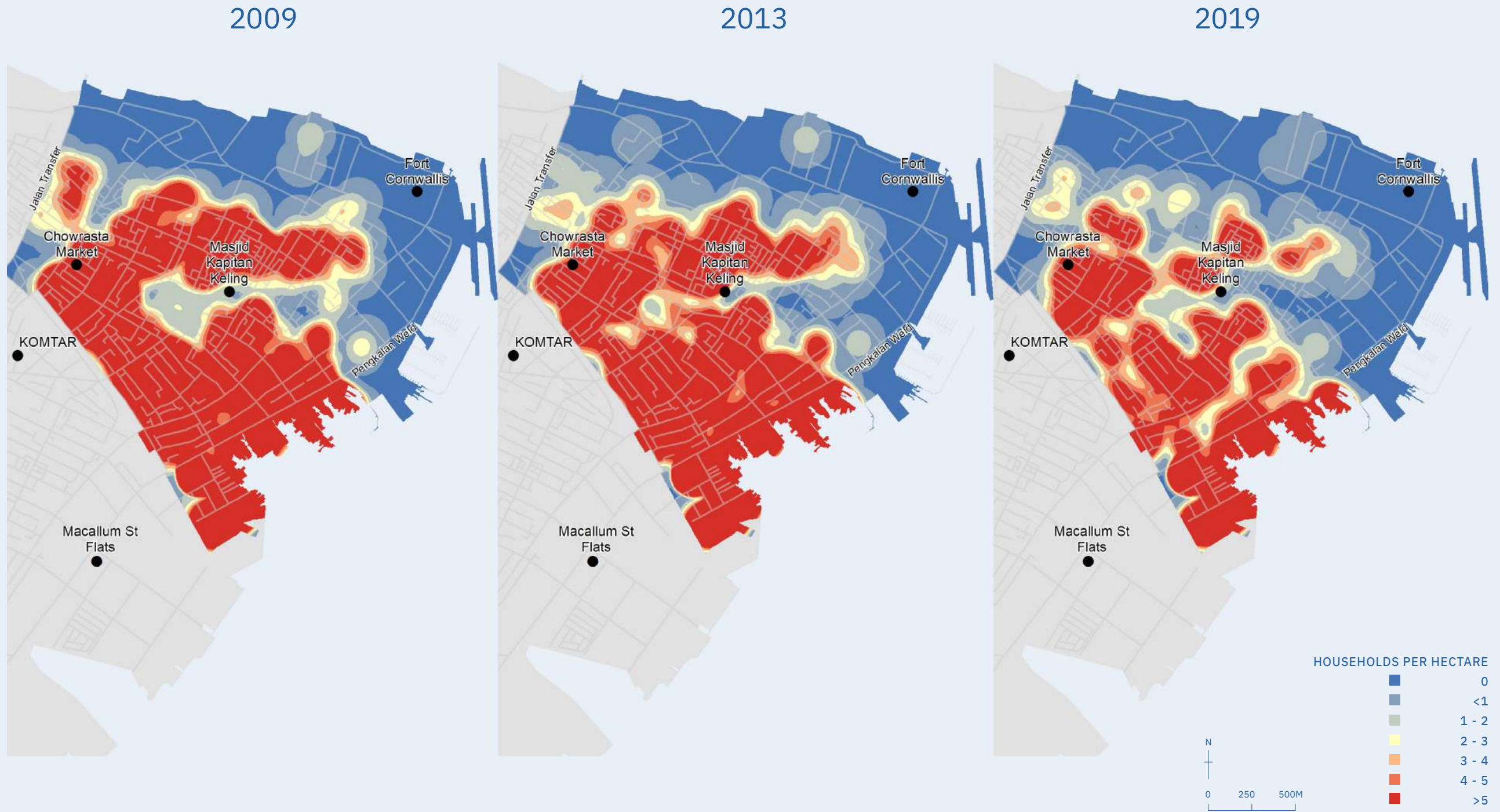
Changes in the ethnic make-up are matched by shifts in the main language spoken at home. While Hokkien remains the dominant language, it has declined proportionately and in absolute terms (Table 22 and Figure 36). The same trend applies to other dialects, with large declines in Cantonese, Teochew and Tamil speaking households (Figure 37). Increases in

Mandarin and Malay, as well as some languages that may be associated with migrant workers were observed. Interestingly, the proportional breakdown for household religion has not changed as dramatically (Table 23).

**Table 22**  
Change in the main language spoken at home (2009, 2013 & 2019)

Language							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Hokkien	1285	44.0%	1167	42.2%	832	35.2%	-118	-9.2%	-335	-28.7%	-453	-35.3%
Bahasa Malaysia	382	13.1%	435	15.7%	488	20.6%	53	13.9%	53	12.2%	106	27.7%
Mandarin	320	11.0%	266	9.6%	342	14.5%	-54	-16.9%	76	28.6%	22	6.9%
English	133	4.6%	169	6.1%	218	9.2%	36	27.1%	49	29.0%	85	63.9%
Tamil	247	8.5%	234	8.5%	199	8.4%	-13	-5.3%	-35	-15.0%	-48	-19.4%
Cantonese	347	11.9%	250	9.0%	142	6.0%	-97	-28.0%	-108	-43.2%	-205	-59.1%
Bengali	23	0.8%	66	2.4%	41	1.7%	43	187.0%	-25	-37.9%	18	78.3%
Hindi	46	1.6%	52	1.9%	40	1.7%	6	13.0%	-12	-23.1%	-6	-13.0%
Bahasa Indonesian	22	0.8%	30	1.1%	13	0.5%	8	36.4%	-17	-56.7%	-9	-40.9%
Teochew	52	1.8%	36	1.3%	12	0.5%	-16	-30.8%	-24	-66.7%	-40	-76.9%
Hakka	25	0.9%	15	0.5%	11	0.5%	-10	-40.0%	-4	-26.7%	-14	-56.0%
Urdu	5	0.2%	0	0.0%	10	0.4%	-5	-100.0%	10	0.0%	5	100.0%
Thai	1	0.0%	5	0.2%	5	0.2%	4	400.0%	0	0.0%	4	400.0%
Hainanese	12	0.4%	7	0.3%	4	0.2%	-5	-41.7%	-3	-42.9%	-8	-66.7%
Punjabi	3	0.1%	4	0.1%	3	0.1%	1	33.3%	-1	-25.0%	0	0.0%
Hockchew	13	0.4%	18	0.7%	2	0.1%	5	38.5%	-16	-88.9%	-11	-84.6%
Vietnamese	2	0.1%	9	0.3%	2	0.1%	7	350.0%	-7	-77.8%	0	0.0%
Filipino	1	0.0%	1	0.0%	1	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>Total</b>	<b>2,919</b>	<b>100.0%</b>	<b>2,764</b>	<b>100.0%</b>	<b>2,365</b>	<b>100.0%</b>	<b>-155</b>	<b>-5.3%</b>	<b>-399</b>	<b>-14.4%</b>	<b>-554</b>	<b>-19.0%</b>

Note: The respondents could choose more than one option.



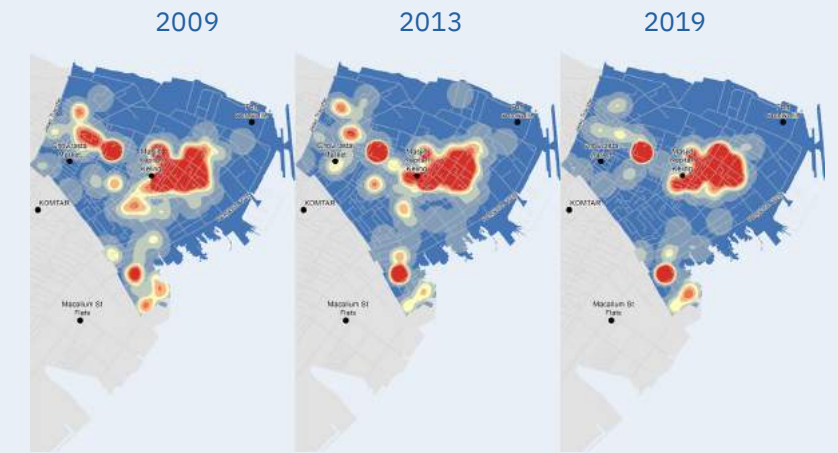
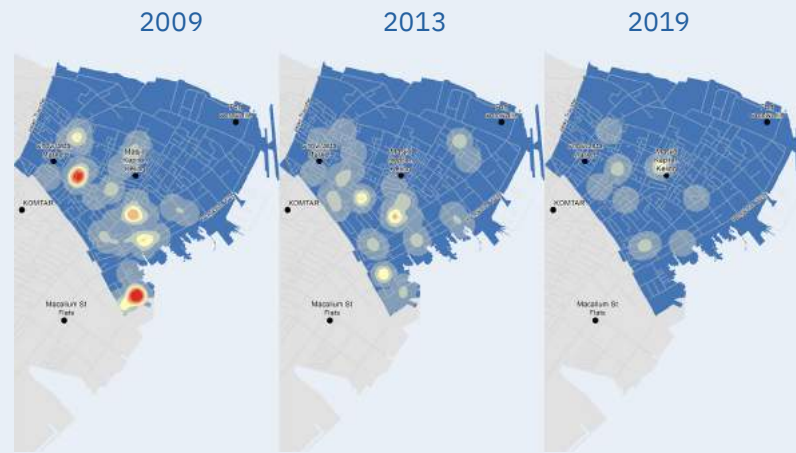
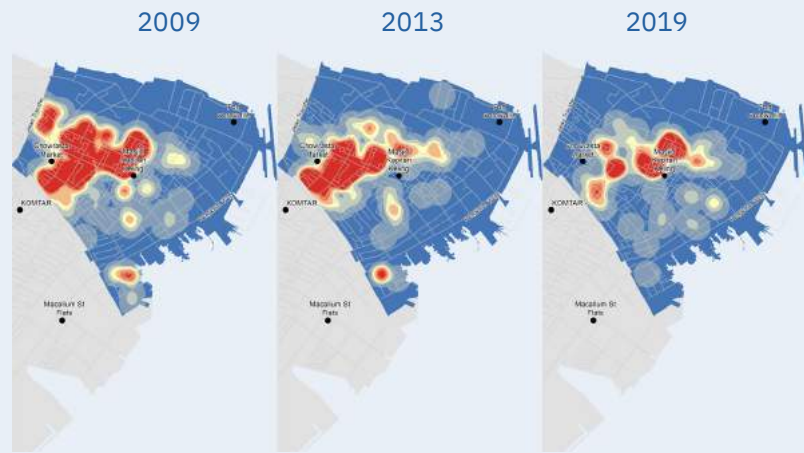
**Figure 36**  
Density of households where Hokkien is spoken at home (2009, 2013 & 2019)



Density of households where Cantonese is spoken

Density of households where Teochew is spoken

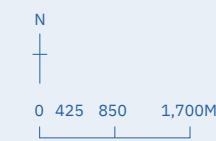
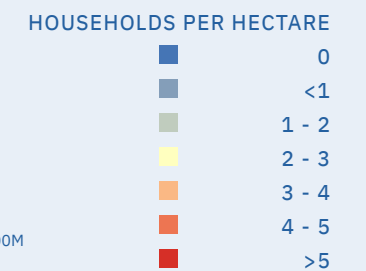
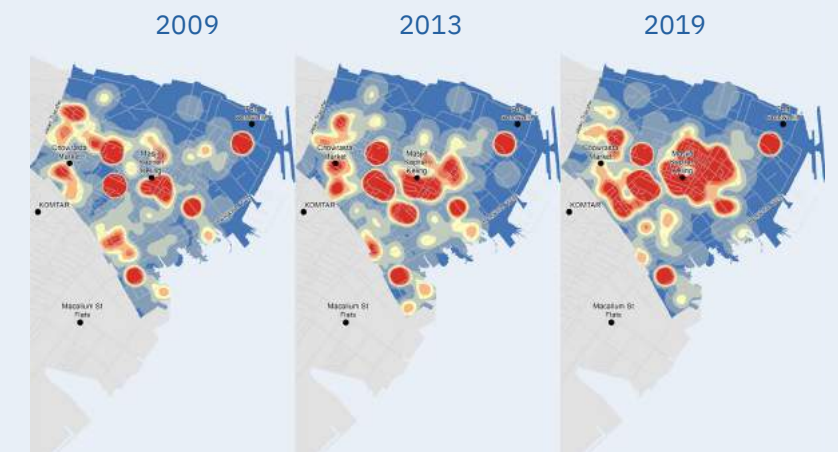
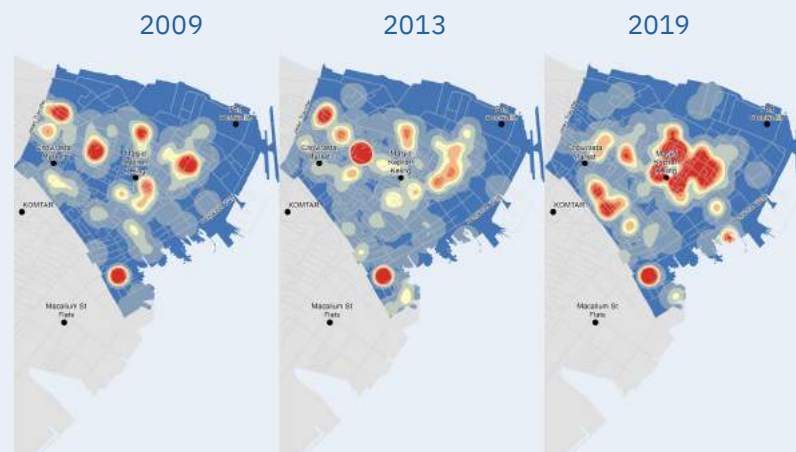
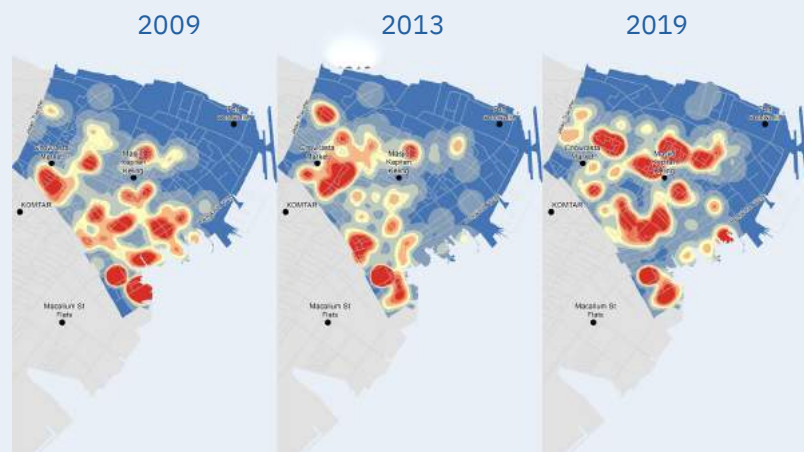
Density of households where Tamil is spoken



Density of households where Mandarin is spoken

Density of households where English is spoken

Density of households where Malay is spoken



**Figure 37**  
Density of main language spoken at home (2009, 2013 & 2019)

**Table 23**  
Change in the main religion of households

Religion							Change					
	2009		2013		2019		2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Buddhist / Taoist	1,677	71%	1,487	67%	1,017	71%	-190	-11.3%	-470	-31.6%	-660	-39.4%
Muslim	401	17%	438	20%	239	17%	37	9.2%	-199	-45.4%	-162	-40.4%
Hindu	201	8%	191	9%	147	10%	-10	-5.0%	-44	-23.0%	-54	-26.9%
Christian	56	2%	77	3%	27	2%	21	37.5%	-50	-64.9%	-29	-51.8%
Other	41	2%	18	1%	11	1%	-23	-56.1%	-7	-38.9%	-30	-73.2%
<b>Total</b>	<b>2,376</b>	<b>100%</b>	<b>2,211</b>	<b>100%</b>	<b>1,441</b>	<b>100%</b>	<b>-165</b>	<b>-6.9%</b>	<b>-770</b>	<b>-34.8%</b>	<b>-935</b>	<b>-39.4%</b>

Note: In some instances this question was unanswered

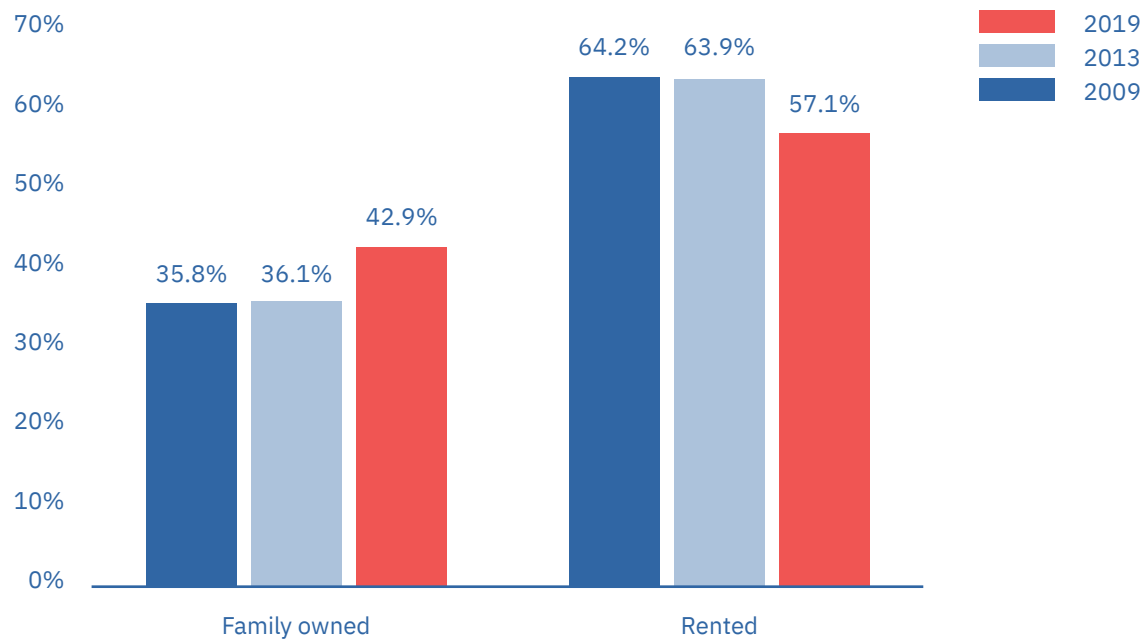


The GTWHS is rich with multicultural living heritage. From left to right: Thean Hou Temple (Hainan Association and Temple) (Courtesy of PGT), Kapitan Keling Mosque and Sri Mahamariamman Temple.

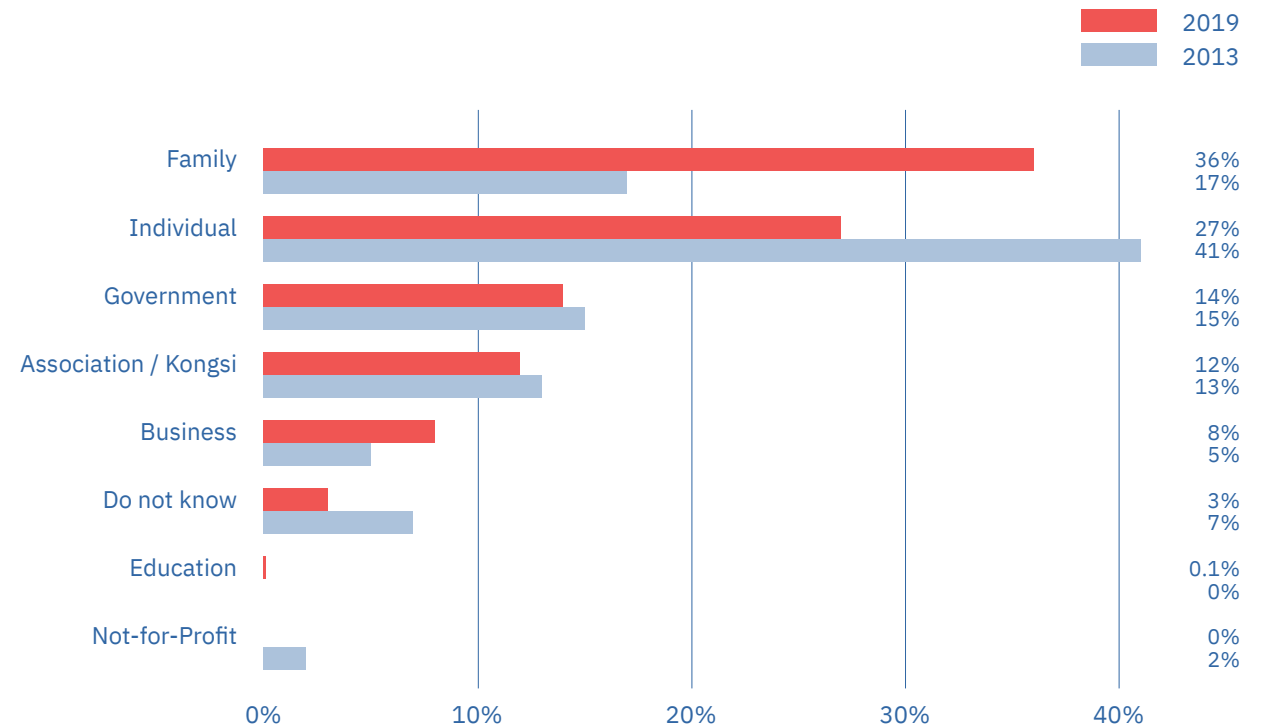


### 3.4.4 TENANCY, LENGTH OF STAY AND INTENTIONS

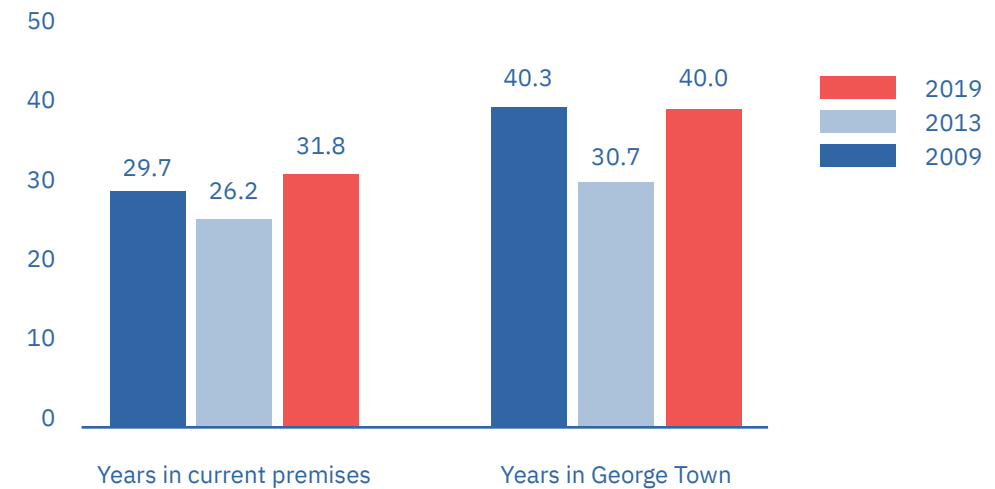
With respect to tenancy, the majority (57.1%) of households still rent, but the proportion who state that they own their premises has increased (Figure 38). This is likely a product of who remains and who has left rather than an actual increase in owner-occupiers. A significant proportion of the remaining population are those living in the Clan Jetties. We see a similar phenomenon with those who state that their premises is family owned (Figure 39). This may also account for the increase in the average number of years residents have been living in the current premises (Figure 40). It was established earlier that the elderly now make up a greater proportion of the population, and therefore it is logical that if the ‘old timers’ have remained, the average length of stay goes up.



**Figure 38**  
Residential tenancy type (2009, 2013 & 2019)



**Figure 39**  
Residential ownership type (2013 & 2019)



**Figure 40**  
Average residential tenancy length (2009, 2013 & 2019)



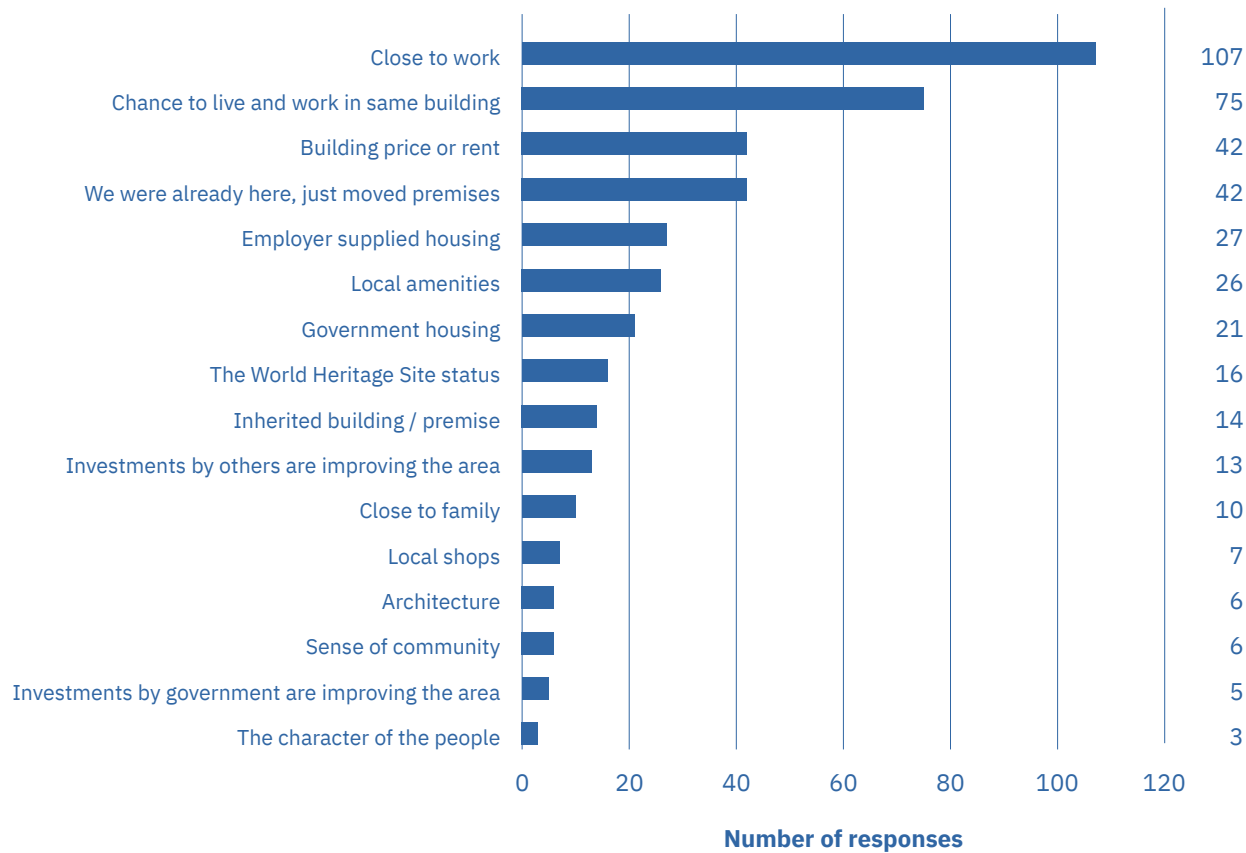


*A significant proportion of the remaining population are those living in the Clan Jetties and formalised housing off Pengkalan Weld*



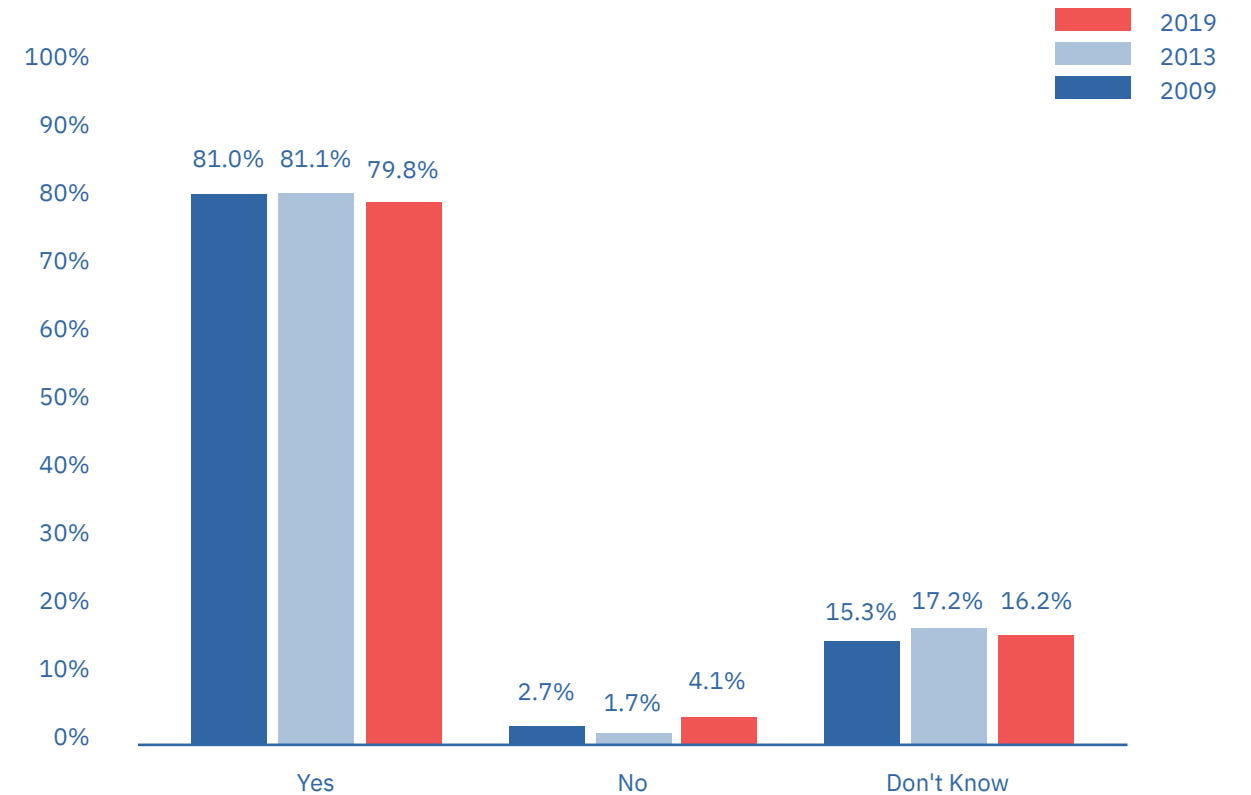
3.0 POPULATION AND LAND USE CHANGE (2009-2019)

For new residents (moved in within the last 5 years), the main reasons for moving into the heritage site were to be close to work and being able to live and work in the same building, rather than amenity or liveability factors (Figure 41).



**Figure 41**  
Reasons why residents moved to the GTWHS (2019)

A high percentage of residents, 80%, intend to remain in the GTWHS in the next 5 years (Figure 42). The figure has remained relatively consistent since 2009 yet there was a decline in the population by nearly a third, indicating that residents have relocated due to circumstances beyond their control. There is a slight increase in residents who do not intend to continue residing in the neighbourhood from 2.7% in 2009 to 4.1% in 2019.



**Figure 42**  
Intention to remain in the neighbourhood in the next 5 years (2009, 2013 & 2019)

### 3.4.5 RESIDENTS' EMPLOYMENT CHARACTERISTICS

Residents' employment rate declined steeply between 2013 and 2019 from just under 60% to less than half the population (Table 24). This is likely a result of the ageing population and the fact that the loss of residents has mainly been working age families. Part-time employment remains low.

Between 2009 and 2019, residents' employment fell in all industry categories except for restaurants which had a small increase (see Appendix Table A7). With respect to employment position, the proportion of residents working as general labourers / workers increased while the proportion of professional and technical experts declined (see Table 25).

**Table 24**

Change in residents' employment type and employment participation rate (2009, 2013 & 2019)

Employment Type	2009	2013	2019	Change		
				2009–2013	2013–2019	2009–2019
Full-time	5,774	5,777	3,334	3	- 2,443	- 2,440
Part-time	239	106	89	- 133	- 17	- 150
<b>Total employed</b>	<b>6,013</b>	<b>5,883</b>	<b>3,423</b>	<b>- 130</b>	<b>- 2,460</b>	<b>- 2,590</b>
Total population	10,159	9,425	6,939	-734	-2,486	-3,220
Employment rate	59.2%	62.4%	49.3%	-2.2%	-41.8%	-43.1%

**Table 25**

Change in residents' employment position (2009, 2013 & 2019)

Employment Position	2009		2013		2019		Change					
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
General Worker	1,037	39.0%	971	41.2%	675	44.9%	-66	-6.4%	-296	-30.5%	-362	-34.9%
Not Working / Retired	164	6.2%	163	6.9%	141	9.4%	-1	-0.6%	-22	-13.5%	-23	-14.0%
Hands-on-expert	15	0.6%	29	1.2%	23	1.5%	14	93.3%	-6	-20.7%	8	53.3%
Manager / Director	19	0.7%	30	1.3%	22	1.5%	11	57.9%	-8	-26.7%	3	15.8%
Technician	55	2.1%	30	1.3%	24	1.6%	-25	-45.5%	-6	-20.0%	-31	-56.4%
Self-employed (owner working in own business)	807	30.3%	618	26.2%	427	28.4%	-189	-23.4%	-191	-30.9%	-380	-47.1%
Labourer (buruh kasar)	175	6.6%	180	7.6%	65	4.3%	5	2.9%	-115	-63.9%	-110	-62.9%
Professional Expert	211	7.9%	224	9.5%	74	4.9%	13	6.2%	-150	-67.0%	-137	-64.9%
Administrator	178	6.7%	113	4.8%	54	3.6%	-65	-36.5%	-59	-52.2%	-124	-69.7%
<b>Total</b>	<b>2,661</b>	<b>100.0%</b>	<b>2,358</b>	<b>100.0%</b>	<b>1,505</b>	<b>100.0%</b>	<b>-303</b>	<b>-11.4%</b>	<b>-853</b>	<b>-36.2%</b>	<b>-1,156</b>	<b>-43.4%</b>



### 3.5 DAY-TIME AND NIGHT-TIME POPULATION

Like most city centres, the GTWHS is vastly different during the day compared to evenings. There are different types of economic activity, social behaviours and visitors. This difference is commonly referred to as the day-time and night-time population. Based on a combination of visitor estimates, workers, residents and hotel guests, peak day- (2 p.m.) and night-time (10 p.m.) populations have been derived for the GTWHS (Table 26).

As with previous censuses, the population was significantly lower at night than during the day in 2019. There was an increase in day-time activity, up from an estimated peak day-time population of 38,315 in 2009 to 46,960 in 2019 (+22.6%). The majority of this increase is due to the presence of more college students and workers. In contrast, night-time activity has increased modestly from a peak night-time population of 16,106 in 2009 to 18,612 in 2019 (+15.6%). While there was a loss of residents, there were increases in hotel guests and visitors between the census years. Nevertheless, it is evident that the economic gains made in the GTWHS have been in day activities at the expense of some night-time activities (namely residents), leading to a greater disparity in the ratio of day- to night-time population.



The day-time activities in the GTWHS have diminished due to COVID-19 related restrictions

**Table 26**

Day-time and night-time population estimates (2009, 2013 & 2019)

	2009		2013		2019	
	Day	Night	Day	Night	Day	Night
Residents at home	2,728	10,159	2,245	9,425	2,937	6,939
Workers at peak time	20,285	2,455	20,928	2,493	23,203	2,710
School students	3,644	0	4,226	0	2,500	0
University / college students	2,790	0	2,944	0	7,073	0
Hotel occupants*	1,250	1,786	1,970	2,814	3,211	4,588
Visitors from outside at peak hour**	7,527	1,596	7,494	3,206	7,916	4,225
Itinerant visitors***	90	110	110	130	120	150
<b>Total population at peak time</b>	<b>38,315</b>	<b>16,106</b>	<b>39,917</b>	<b>18,068</b>	<b>46,960</b>	<b>18,612</b>
<b>Ratio day-time to night-time population</b>	<b>2.4</b>		<b>2.2</b>		<b>2.5</b>	

\*Estimated from average hotel occupancy rates for Penang's city hotels in 2009, 2013, 2019<sup>11,12,13</sup>

\*\*The model is constructed based on customer-to-employee ratio per hour against 30 types of businesses. In the day-time, 70% percent of customers / visitors are assumed to overlap with residents, workers, students or hotel occupants present. Day-time visitors are assumed to stay for half a day (4 hours) maximum. Night-time takes into account customer-to-employee ratio against types of business that operate at night or 24 hours.

\*\*\*Those who travel from one place to another, e.g. taxi driver, trishaw man, parking attendant, e-hailing driver.

<sup>11</sup> Marzuki, A., Tan, L. Y. and Razak, A., A. (2012). What women want: Hotel characteristics preferences of women travellers, In M. Kasimoglu, (Ed.) Strategies for tourism industry – micro and macro perspectives (pp. 143-164). InTech. doi: 10.5772/37101

<sup>12</sup> Penang Institute (2013). Penang Statistics Quarter 3, 2013. George Town: Penang Institute

<sup>13</sup> Penang Institute (2019). Penang Statistics Quarter 4, 2019. George Town: Penang Institute



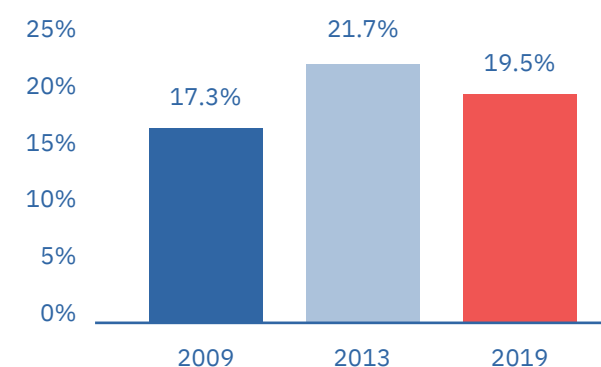


*Pre-pandemic night-time activities along Lebuhraya Armenian (Courtesy of Keir Grivil)*



### 3.6 VACANCIES

Despite the increase in economic activity that the GTWHS experienced between 2009 and 2019 the extent of vacancies measured by percentage of total floorspace remained relatively stable, ranging between 17.3% and 21.7% (Figure 43). In comparison, the vacancy rate in Penang in 2009 was 22.3%, decreasing to 17.8% in 2019, for private offices and 29.8% and 26.3% for shopping complexes<sup>14,15</sup>. There were, however, changes in the type and location of vacancies across the three censuses. While the most common vacancy type is whole buildings or floors within a building, there was an increase in buildings under renovation and for sale. There were also fewer derelict buildings (Table 27).



**Figure 43**  
Percentage of vacant floorspace (2009, 2013 & 2019)

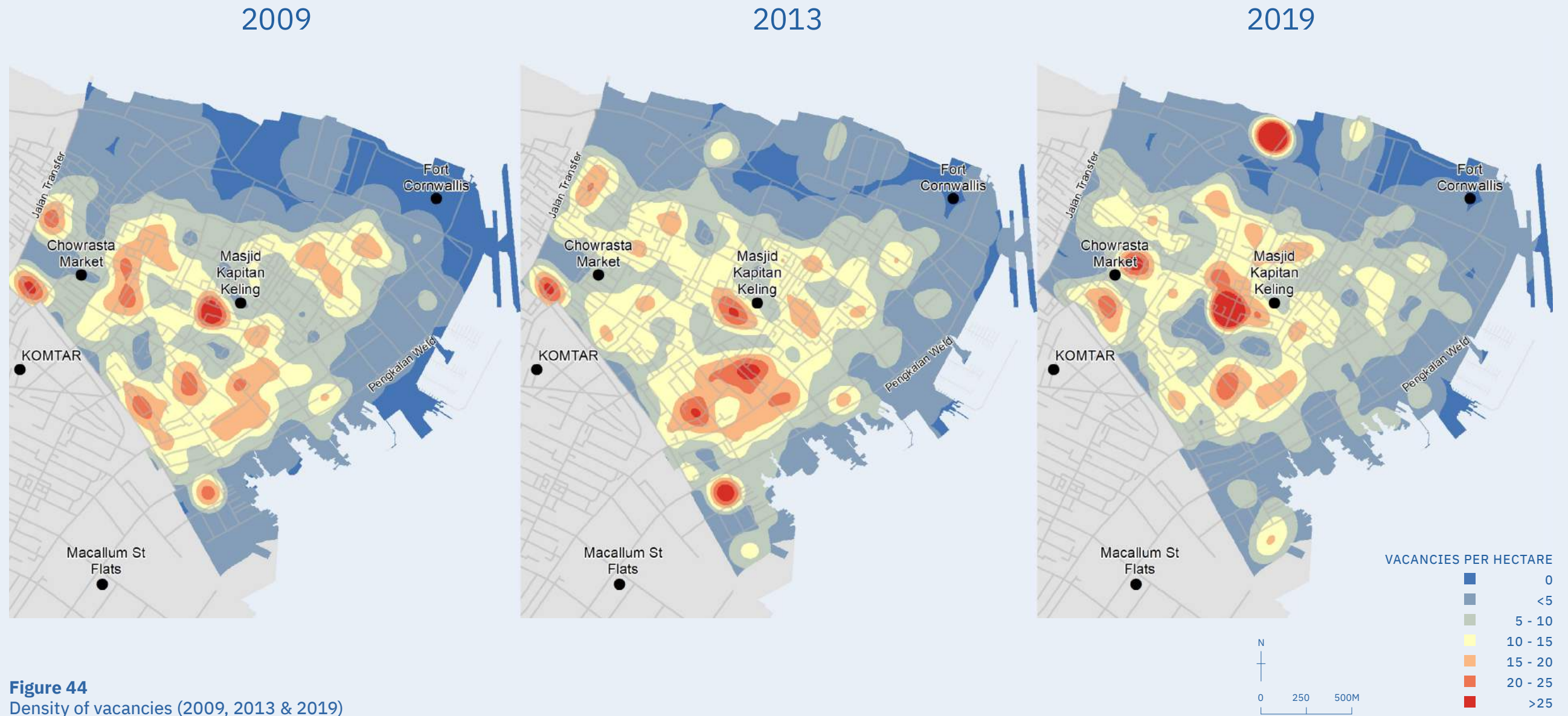
**Table 27**  
Change in vacancy type (2009, 2013 & 2019)

Vacancy Type	2009		2013		2019		Change					
							2009–2013		2013–2019		2009–2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change	No.	% Change	No.	% Change
Building, house of unit for sale	16	1.2%	25	1.6%	97	7.2%	9	56.3%	72	288.0%	81	506.3%
Vacant lot	67	5.2%	256	16.9%	147	10.9%	189	282.1%	-109	-42.6%	80	119.4%
Building, house or unit under renovation	89	6.8%	159	10.5%	115	8.6%	70	78.7%	-44	-27.7%	26	29.2%
Car park – no charge	23	1.8%	67	4.4%	18	1.3%	44	191.3%	-49	-73.1%	-5	-21.7%
Derelict (unoccupiable) building	54	4.2%	79	5.2%	38	2.8%	25	46.3%	-41	-51.9%	-16	-29.6%
Building, house or unit for rent / lease	171	13.2%	142	9.4%	136	10.1%	-29	-17.0%	-6	-4.2%	-35	-20.5%
Vacant building / floor	864	66.5%	751	49.5%	794	59.0%	-113	-13.1%	43	5.7%	-70	-8.1%
Other	16	1.2%	37	2.4%	0	0.0%	21	131.3%	-37	-100.0%	-16	-100.0%
<b>Total</b>	<b>1,300</b>	<b>100.0%</b>	<b>1,516</b>	<b>100.0%</b>	<b>1,345</b>	<b>100.0%</b>	<b>216</b>	<b>16.6%</b>	<b>-171</b>	<b>-11.3%</b>	<b>45</b>	<b>3.5%</b>

<sup>14</sup> National Property Information Centre (NAPIC) (2009). Property Market Reports 2009. Kuala Lumpur: Valuation and Property Services Department.

<sup>15</sup> National Property Information Centre (NAPIC) (2019). Property Market Reports 2019. Kuala Lumpur: Valuation and Property Services Department.

The location of vacancies also changed. In 2009 and 2013, the highest vacancy densities were in an area bounded by Lebuhs Carnarvon, Lebuhs Pantai and Lebuhs Aceh. In all years, buildings along Jalan Buckingham were underutilised. “The Shorefront” residential development on Gat Lebuhs Leith (completed in 2018) had a high vacancy rate when the 2019 census was undertaken (Figure 44).



**Figure 44**  
Density of vacancies (2009, 2013 & 2019)





Medan Lebu Campbell in the evening



# 4.0

## DRIVERS OF CHANGE AND EMERGING VULNERABILITIES

- 4.1 Drivers of Change
- 4.2 Emerging Vulnerabilities





The analyses provided in the previous sections have shown that the GTWHS is a city in transition that changed dramatically in the decade after UNESCO listing. The two most significant shifts are 1), the economic restructuring away from household goods, finance, logistics and vehicle repair industries towards hospitality and tourism; and 2), a loss of residents. Economic restructuring has seen heightened economic activity, while the loss of residents was largely the result of out-migration of young working families and an ageing population with limited replacement. Understanding the drivers of change, both exogenous and endogenous, and the emergence of new vulnerabilities including those associated with the COVID-19 pandemic, can help frame the policy interventions necessary to build additional resiliency in the GTWHS.

### 4.1 DRIVERS OF CHANGE

#### 4.1.1 ECONOMIC RESTRUCTURING

The economic changes between 2009 and 2019 in the GTWHS are a combination of push and pull factors. They are both complex and intertwined. Upon listing as a UNESCO World Heritage Site, there was much fanfare, excitement and indeed property speculation. It is well documented that there was a spike in the turnover of property sales and prices in the years after UNESCO listing, mostly by local investors<sup>16</sup>. The turnover led to some evictions and change in building use. In parallel, there was a surge in demand for visitor accommodation and amenities. It should be noted that during this period, there was a global and regional boom in mass tourism and travel spurred by the growth of budget airlines and digital start-ups (e.g. TripAdvisor, Instagram, Uber, Airbnb) that empowered independent travellers. In 2011, global travellers numbered 1 billion versus 1.4 billion in 2018, a 40% growth in just seven years<sup>17</sup>. As media coverage and publicity increased, the GTWHS rode this tourism boom, with record numbers of domestic, international and cruise arrivals. This led to an increase in the number of hotels, restaurants, cafes, private museums and souvenir shops. Heightened demand also saw increases in rent with local entrepreneurs seeking to secure prime locations. Local tastes have evolved in parallel as new types of cuisine and restaurant formats emerged, as well as boutique furniture, fashion, made-in-Malaysia and antique outlets. Similar trends are observable in other Malaysian inner cities. Changes in legislation also saw discouragement of polluting businesses such as vehicle and motorcycle repairs. Regulations also encouraged new types of activities and influenced where activities appeared (see Box 5).

There are also pull factors at play. Logistics and import and export companies, for example, no longer view the GTWHS in the same light, with the locational advantages of the area eroding for these types of firms. The shift in port activities to the mainland alongside competition from other Malaysian ports, new transport hubs on the city's outskirts and changing technology have led to relocations. In a similar vein, firms selling electronic goods and white goods have been disrupted by online shopping and competition from large format chain stores in new shopping complexes (e.g Gurney Paragon and Queensbay Mall). Fashion and clothing businesses have been similarly affected by online retailers and changing consumer tastes. While still present in large numbers in the GTWHS, fashion and textile businesses now employ fewer people. Banking and finance has also been disrupted, as technology (through online banking and business services outsourcing) means that customers require less physical interaction with banks and thus they no longer require large inner city offices with relatively high operational costs.

#### 4.1.2 DEMOGRAPHIC CHANGES

As with the loss of some firm types in the GTWHS, the loss of residents was driven by increasing property prices, rent hikes and in some cases, evictions for new activities. However, it is important to note that the pull factors at play here are strong. Underpinning this is the Penang State Government's commitment to building modern affordable housing, much of it on the fringes of the GTWHS (e.g the Macallum Street Ghaut PDC Flats). For many, the choice of living in unsewered jetty houses or shophouses in the GTWHS versus a more affordable and modern unit nearby is straightforward. Parking issues, traffic congestion, schools and few open spaces are also factors for young families. For the older generation whose attachment to streets and traditions is stronger, it is a more complicated decision, with the data showing that many have chosen to remain. Declining national and state household sizes and birth rates are also factors that account for the GTWHS's population decline. The influx of migrant workers is partly related to the increase in hospitality jobs and their general preference to live near their place of employment and renting as a group to save on transport and living costs.

<sup>16</sup> Geografia (2014). *George Town World Heritage Site Property Price and Housing Study*. George Town: George Town World Heritage Incorporated.

<sup>17</sup> United Nations World Tourism Organization (UNWTO) (2020). *Global and Regional Tourism Performance*. Tourism Dashboard





*Clan Jetties capitalised on the influx of tourists by converting home frontages to souvenir shops*



## DRIVERS OF CHANGE

### Population Push and Pull Factors

- Increase in property price and rent
- Affordable housing development outside GTWHS
- Higher quality amenities and tenancy security outside GTWHS

### Economic Push and Pull Factors

- Increase in flights and events
- New economic hubs outside GTWHS
- New transport and logistic hubs outside GTWHS
- Disruptive technology (e.g. online banking & e-commerce)
- New policies / regulations (e.g. Special Area Plan) and public sector investment
- COVID-19 travel restrictions

## INDICATORS OF CHANGE

- More than a third of total buildings restored
- Increase in tourists
- Increase in hotels
- Increase in restaurants and bars
- Decline in residents
- Fewer young families
- Higher proportion of elderly
- Fewer households speaking dialects
- Loss of long-standing economic activities

## CONSEQUENCES

- Notable number of buildings conserved
- Enhanced public realm and amenities
- Heightened economic activities
- Increasing gap between day- and night-time population
- Few residents' "eyes on the street"
- Overreliance on tourism
- Emergence of new vulnerabilities (e.g. economic shocks & climate change)

*Note: Drivers, indicators and consequences as articulated in this report*

**Figure 45**  
Drivers of population and land use change in the GTWHS



## 4.2 EMERGING VULNERABILITIES

The state of physical conservation in the GTWHS over the past decade has vastly improved, with significant private and public sector investments in the restoration and rehabilitation of the site's cultural assets. Prior to the COVID-19 pandemic, there were more people patronising the site, especially during the day. There were more jobs and the economic value of Penang's cultural heritage had been greatly boosted. However, while factors that threatened the physical heritage prior to UNESCO listing have been largely overcome, new vulnerabilities have emerged. The most obvious is the actual and potential loss of intangible heritage as some traditional trades and cultural traditions are diminishing for various reasons. Additionally, there are less obvious vulnerabilities that need focused policy interventions.

The loss of residents is problematic on several fronts. First, there is a risk that a depleted resident population affects other aspects of the city, including attachment to place, public safety, community use of public spaces, viability of schools and increased commute times as workers live further away. Smaller residential populations mean that some activities (e.g. wet markets traditionally catering to household daily needs) are less viable, especially as Penang's outer areas evolve and develop urban centres. Secondly, the remaining population is increasingly made up of vulnerable individuals, migrant workers and the elderly. They are less likely to be able to afford increasing rents and some live in overcrowded or less ideal conditions. Lastly, it is clear that the decline of residents brings with it a decline in intangible heritage values such as dialects spoken at home.

The other main vulnerability that has emerged is an overreliance on tourism and hospitality. While the evidence that the GTWHS suffered from "over-tourism" prior to the COVID-19 pandemic is slim, it is obvious that the economic restructuring that has occurred has made it vulnerable to external shocks. This overreliance, coupled with other exogenous influences, such as a change in technology and consumer preferences, mean that the GTWHS requires more diverse economic offerings. While tourism is likely to return in strength in the months and years ahead as a global COVID-19 vaccination programme is rolled-out, the city needs to diversify its economic offering, while also taking into account the holistic needs and resources of Penang State, to build resilience against any future crises.

### Box 5

#### Impact of the Special Area Plan on Land Use Change

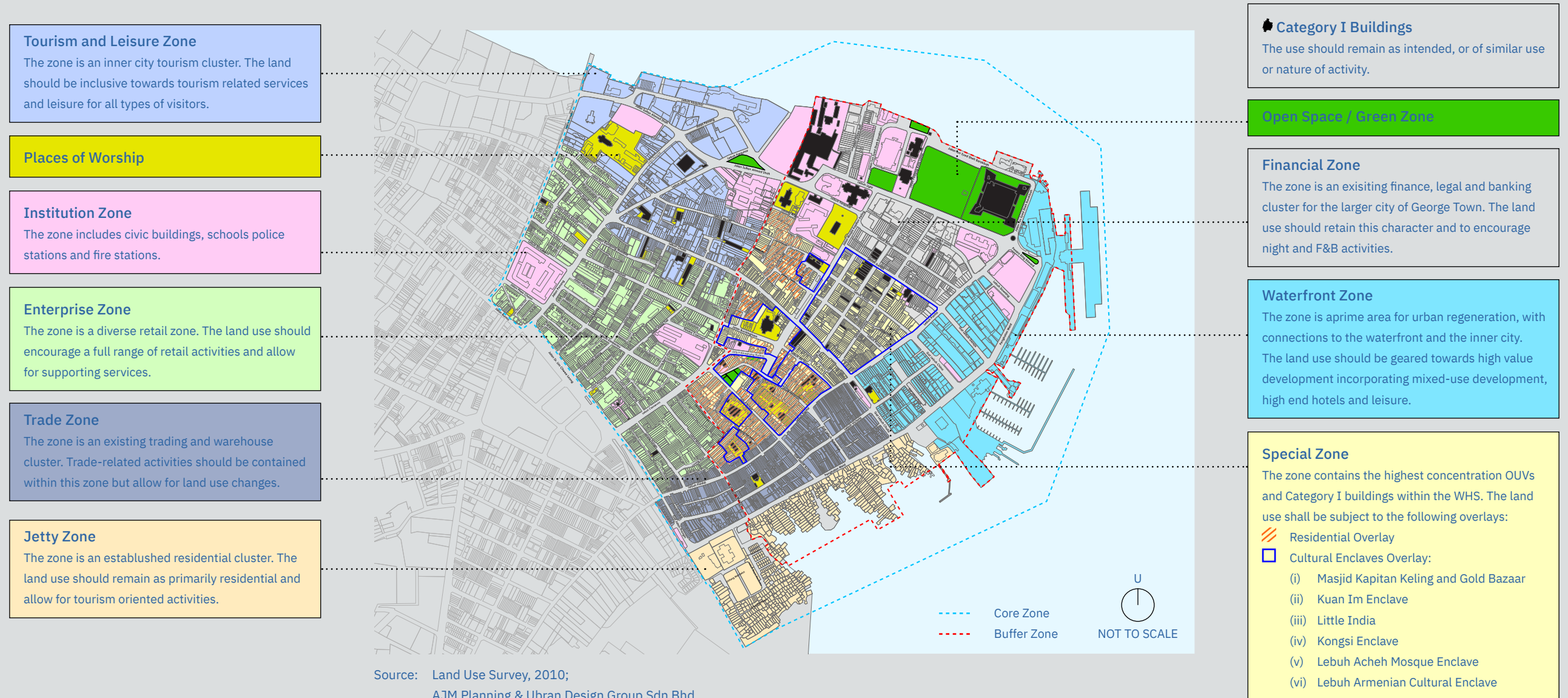
The George Town World Heritage Site Special Area Plan (SAP) was officially gazetted in 2016, although it was used as a guide for decisions prior to that in terms of development controls. A key aspect of the SAP is the designation of seven zones with permissible and non-permissible activities (Figure 46). A basic assessment of regulations against the spatial changes seen in the GTWHS over the last decade is provided in Table A8 (see Appendix). In summary between 2009 and 2019:

- The loss of residents is most significant in the *Enterprise* and *Trade Zones*, with the *Enterprise Zone* whittled down to civil servant quarters and public housing. While the *Jetty Zone* which is primarily a residential area had retained most of its community, the population had declined.
- As an indicator of the effectiveness of the SAP regulations, new high-end hotels increased in the *Waterfront Zone* and a cluster of hotels grew in the *Tourism and Leisure Zone*. Smaller hotels increased in most zones except for the *Institution* and *Financial Zones*.
- Restaurants / bars grew in all zones which is consistent with the SAP.
- Arts, culture and craft activities grew in the *Special, Jetty* and *Enterprise Zones*, again activities allowed by the SAP.
- The *Financial* and *Institution Zones* maintained most of their original land use activities, a central tenet of the SAP. There was, however, a loss of some financial / banking activities, likely as a result of online banking and emergence of banking facilities in suburban areas.
- Traditional economic activities such as import-export, transport and logistics previously located in the *Trade* and *Enterprise Zones* declined due to the erosion of location advantages for these industries.
- Religious / cultural products and services remain in the *Special Zone* though they declined in the *Enterprise Zone*.

This snapshot assessment of the land use changes in the GTWHS suggests that they are generally in accordance with the SAP's zoning framework. This is an important signpost that despite the multitude of external factors and influences, regulatory frameworks can and

do shape the location of land use activity, and possibly also encourage and channel private sector investment. The SAP has not, however, been an effective instrument for addressing population decline, suggesting that alternate tools need to be considered.

**Activity Zoning Diagram**



**Figure 46**  
Special Area Plan Activity Zoning<sup>18</sup>



# 5.0 BUILDING A MORE RESILIENT HERITAGE CITY

- 5.1 Economic Diversification
- 5.2 Public and Institutional Cultural Assets Investment
- 5.3 Comfort and Liveability Improvements
- 5.4 Repopulation Strategies
- 5.5 Concluding Remarks



The data and analysis presented here highlight changes in land use and the socio-economic make-up of the GTWHS in the decade after World Heritage listing. The recurring theme is that due to a combination of local investments, policy interventions and broader industry shifts, the site was revitalised with a range of new activities that leveraged its heritage and cultural characteristics. There were more businesses, increased visitors and an expanded day-time population. However, the related loss of residents and reliance on tourism has created new vulnerabilities which have been both illuminated and exacerbated by the COVID-19 pandemic and associated mobility restrictions. The proposed policy framework outlined in this section is targeted at building social and economic resilience in the GTWHS. A four-pronged approach is proposed that focuses on diversifying the economy, investing in public cultural assets, improving comfort and liveability and repopulating the site.

### 5.1 ECONOMIC DIVERSIFICATION

The abrupt halt of international travel combined with domestic mobility restrictions in 2020 and 2021 has highlighted the risks associated with an overreliance on a single economic activity. In the GTWHS case, tourism and hospitality have been particularly adversely affected. Moving forward new types of economic activity need to be encouraged – ones that are connected to the special qualities that the site, and more broadly Penang, offers. One potential is to build an ecosystem of innovation-aligned firms and activities. Penang's economy essentially has two poles – high tech manufacturing and the cultural economy. However, the two rarely intersect, which presents an opportunity for economic diversification in the GTWHS.

As global firm arrangements shift away from large format offices and factories towards research and collaboration hubs – trends which have been accelerated by the COVID-19 pandemic, the cultural and heritage assets in the GTWHS have potential to attract economic activity aligned to technology, and the creative industries and the talent necessary to support them. In short there are parts of the city that are primed to become innovation and digital hubs for the intersection of culture, heritage and technology. There is already a fledgling innovation ecosystem with new co-working spaces and Facebook and Digital Penang establishing a presence. Other possible areas of diversification include expanded higher education activities, with some institutions already having shown interest demonstrated by Universiti Sains Malaysia's School of Arts and Wawasan University setting up facilities and SEGi College expanding its footprint. An international school is also earmarked to take over Convent Light Street School. Diversification strategies should also include a focused effort on longer stay and higher-end tourism with post-pandemic tourists likely to be seeking immersive cultural experiences.

### 5.2 PUBLIC AND INSTITUTIONAL CULTURAL ASSETS INVESTMENT

Large sections of the GTWHS's cultural assets and monuments are either under public or institutional ownership. In preparation for a likely surge in post-pandemic tourism, it is an opportune time for institutions to invest in the upgrade and enhancement of visitor experiences. Importantly though these investments need to be of high standard and authentic. An initial focus on education and domestic tourism is a possible strategy to be adopted, before pivoting to experiential and high-end tourism. Networks and collaborations should also be encouraged – including the possibility of shared branding, marketing, ticketing and promotions. Plans for the rehabilitation of waterfront assets should be accelerated to stimulate economic recovery.





*Aerial view of Little India (Courtesy of PGT)*



### 5.3 COMFORT AND LIVEABILITY IMPROVEMENTS

To encourage both residents and visitors back into the GTWHS, efforts to improve the liveability and comfort levels need to continue. Ongoing investments in the public realm (e.g. pedestrian amenity and laneways) and enhanced mobility are required, as well as improvements to basic services such as sewerage and drainage management. Low carbon initiatives as well as smart city interventions should form part of the milieu of required programmes. The GTWHS is ideally suited to become a ‘15-minute city’ with jobs, amenities, education facilities and housing in close proximity. George Town also has the advantage of being human scale and in parts potentially pedestrian and cycle friendly. Climate change adaptation activities that are already being promoted need to be given priority, including urban cooling strategies via greenery and flood mitigation.

### 5.4 REPOPULATION STRATEGIES

Five core repopulation strategies are proposed for the GTWHS. First and foremost is preventing the loss of remaining residents, focusing on the Clan Jetties, public housing and essential worker accommodation (police and fire brigade). The Clan Jetties require urgent revitalisation, upgrade and improvement of living conditions especially sewerage systems. Public housing (e.g. the People’s Court) and civil worker housing need to be guaranteed and revitalised. Second, endeavours should be made to enable a decoupling of shophouse living (e.g upstairs living from ground floor commercial activities). Possibilities include changes to rear / laneway access and separate frontages. Third, opportunities for student accommodation and co-living arrangements ought to be considered and regulated accordingly. Some examples have already appeared (e.g. Forward School Co-living in Lebuah Acheh). Fourth, new residential developments (e.g. the East Seafront) and adaptive re-use of vacant offices and tourism accommodation could serve to attract new residents into the area. Finally, opportunities for residential land use on the fringes or just outside the GTWHS with strong transport connections can also address some of the vulnerabilities highlighted in this report, particularly in terms of patronage of markets and other household-oriented businesses.

### 5.5 CONCLUDING REMARKS

Cities are dynamic. Land use evolves, investments are made, new activities emerge and urban communities transition. The direction and pace of transformation will depend on a combination of drivers that vary from region to region. These include geopolitical issues, macro-economic conditions, broader societal trends, regulatory frameworks and investment decisions. Every day, individual, uncoordinated decisions by firms and households that collectively shape cities are made without adequate city-wide information or data.

This is why the empirical evidence outlined in this report is critical. It enables an accurate understanding of issues, tracking of changes, measurement of impacts, assessment of policy instruments’ effectiveness, and design of recalibration mechanisms if needed. This is particularly important in sensitive locations such as the GTWHS.<sup>19,20</sup> Detailed, fine-grained longitudinal data can help pinpoint shifts that either enhance the sustainability of a city and its significant cultural characteristics, or that lead to emerging vulnerabilities and loss of heritage values. Importantly, based on this data, underlying causes can be identified and counter-measures implemented.

This report is testimony to the value of this proposition. It represents an extensive, decade-long endeavour to monitor and understand the changes to the GTWHS in a robust manner. It is clear that the changes and their effects are mixed. Many positives are evident but there are new vulnerabilities including loss of residents and declining economic diversity. These vulnerabilities have been further illuminated and exacerbated by the COVID-19 pandemic. Mobility restrictions have brought tourism to an abrupt halt, that over a sustained period has led to temporary, and in some cases, permanent business closures.

<sup>19</sup> UNESCO (2011). *The UNESCO Recommendation on the Historic Urban Landscape*.

<sup>20</sup> Bandarin, F. and van Oers, V. (2012). *The Historic Urban Landscape: Managing heritage in an urban century*. Wiley-Blackwell: UK. doi: 10.1002/9781119968115

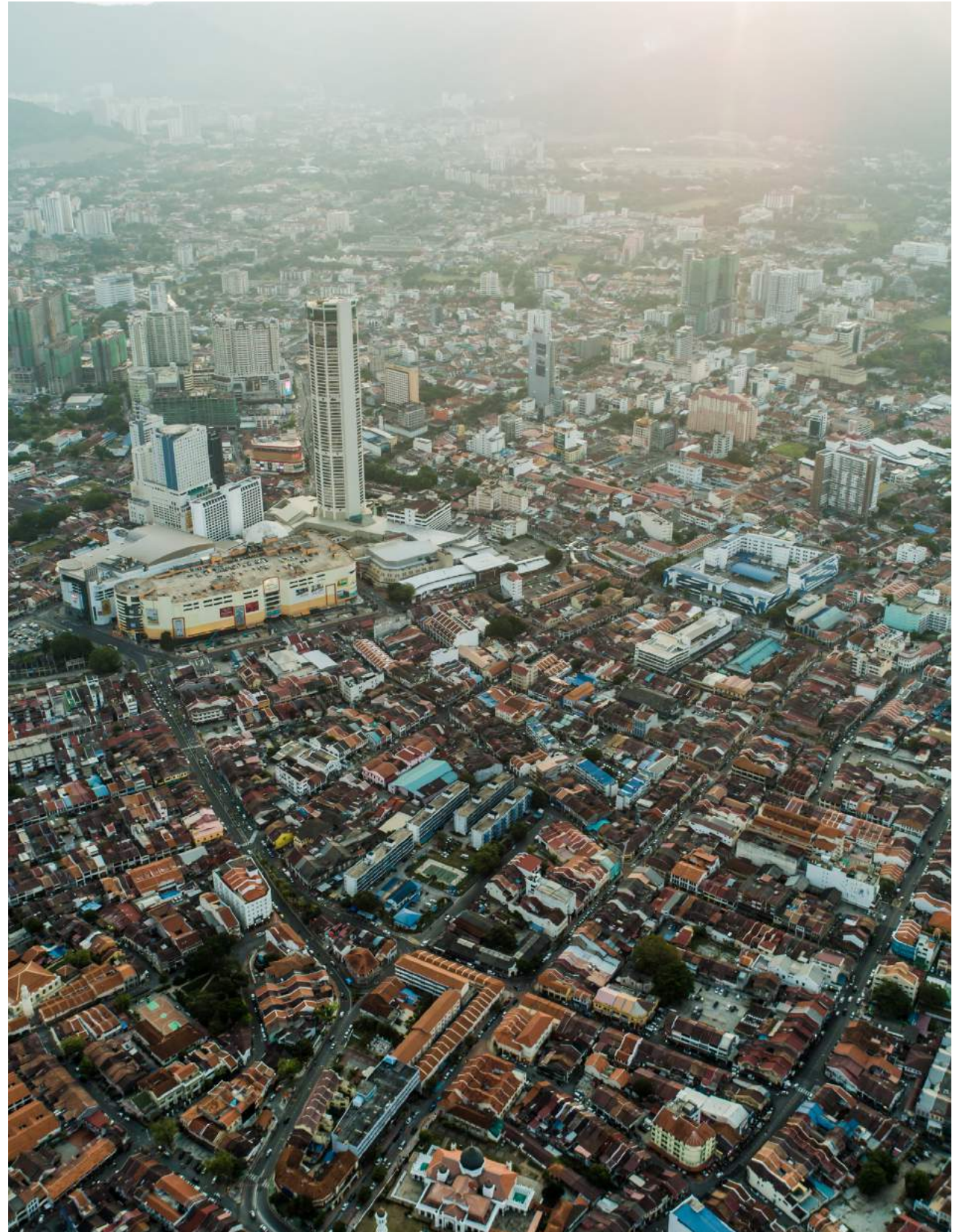


George Town is not alone. Globally, many inner cities and tourist dependent heritage areas have suffered due to the pandemic. Indeed, there are even calls to re-examine the role of cities and central business districts as the future use of office space changes and work-from-home trends become entrenched. There are also arguments for a new form of cultural tourism, with the UNWTO stating that the pandemic is an opportunity “to move away from unsustainable practices of the past, towards more resilient, inclusive and resource-efficient models that contribute to the Sustainable Development Goals (SDGs).”<sup>21</sup> Likewise, the OECD recommends “shifting toward business models that focus on longer and repeat stays rather than on very high volumes of short visits, including through creative tourism.”<sup>22</sup>

Achieving a more sustainable and resilient heritage site requires aspirational leadership and active stewardship. New thinking and innovative ideas are necessary for George Town to reclaim its role as a central urban space in Penang. However, this is not the role of government alone. It will only occur through the collective endeavours of the wider community, business owners, associations, investors, regulatory authorities and policy makers. Awareness and open discussion on the issues and their causes, as well as the validity of different remedies is paramount. It is hoped that this report and its recommendations make a positive contribution in this regard.

<sup>21</sup> UNWTO (2021). UNWTO Inclusive Recovery Guide – Sociocultural Impacts of COVID-19. Issue 2: Cultural Tourism

<sup>22</sup> OECD (2020). Culture Shock: COVID-19 and the Cultural and Creative Sectors



Aerial view of heritage core and buffer area (Courtesy of PGT)





*GTWHS by evening (Courtesy of PGT)*



# 6.0 APPENDIX





**Table A1**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Department / General Store</b>		<b>01</b>
	Department Store	0101
	Mini-Mart / Convenience Store – Modern	0102
	Grocery / Convenience Store	0103
	Kedai Runcit Sundry Shop – Traditional	0104
	Ottu Kedai	0105
	Direct Selling Company or Online	0106
	Migrant Grocery / Convenience Store	0107
<b>Food Produce and Beverage (Production and / or Sale)</b>		<b>02</b>
	Bakery, Cake, Kuih and Sweets	0201
	Butcher – Meat and Poultry	0202
	Biscuit / Kuih Factory	0203
	Coffee Supply/Processing	0204
	Dried / Processed Goods	0205
	Dried Fruits	0206
	Food Packaging	0207
	Flour Mill and / or Supplier	0208
	Fruit and Vegetables	0209
	Ice Producer / Supplier	0210
	Liquor	0211
	Mineral Water/ Drinks Supplier	0212
	Noodle Supplier	0213
	Food Products / Restaurant Supply – Traditional	0214
	Seafood – Fresh	0215
	Spices	0216
	Soya Sauce / Ketchup Producer / Condiment Supplier	0217
	Tobacco	0218
	Tea and Tea Accessories	0219
	Frozen Foods	0220
	Oil (Food) Supplies	0221

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Food Produce and Beverage (Production and / or Sale) – (cont'd)</b>		<b>02</b>
	Rice Supplier	0222
	Food Catering	0223
	Bread Seller	0224
	Coconut Supplier	0225
	Eggs Supplier	0226
	Snacks – Peanuts , Corn & Roasted Chestnuts	0227
	Ice cream Shop	0228
	Canned Food Supplier	0229
	Desserts	0230
<b>Restaurant / Bar – Food and Beverage</b>		<b>03</b>
	Chinese Coffee Shop - Kopi Tiam	0301
	Restaurant – Chinese	0302
	Restaurant – Indian Muslim	0303
	Restaurant – Indian	0304
	Restaurant – Malay	0305
	Restaurant – Vegetarian	0306
	Restaurant / Cafe – Fusion / Mixed	0307
	Restaurant – Western	0308
	Restaurant – Other	0309
	Café Western	0310
	Café and Other Product	0311
	Bar / Night Club	0312
	Bar and Comfort Services	0313
	Karaoke Bar	0314
	Medicated Tea	0315
	Todi Shop	0316
	Tea House	0317
	Canteen	0318
	Burger Stall	0319



**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Restaurant / Bar – Food and Beverage – (cont'd)</b>		<b>03</b>
	Drinks Stall	0320
	Foodcourt (Shopping Mall)	0321
	Restaurant / Café – Nepalese	0322
	Restaurant / Café – Bangladesh	0323
	Restaurant / Café – Pakistan	0324
	Restaurant / Café – Philippines	0325
	Restaurant / Café – Arab	0326
	Restaurant / Café – Thai	0327
	Restaurant / Café – Indonesia	0328
	Restaurant / Café – Vietnamese	0329
	Bubble Tea	0330
	Bird Nest	0331
<b>Household Goods and Services</b>		<b>04</b>
	Cane and Bamboo Products	0401
	Ceramic Goods	0402
	Cleaning Product Supplies	0403
	Coal and Charcoal Supplier	0404
	Electrical Appliances – Household White Goods Only	0405
	Electrical Appliances – Mixed Goods	0406
	Gas – Domestic	0407
	Grindstone Supplier / Manufacturer	0408
	Household Utilities Supplier	0409
	Kitchenware	0410
	Mixed Merchandise	0411
	Nursery, Gardening and Other Outdoor Products	0412
	Rugs and Carpets	0413
	Baby and Children Accessories	0414
	Electric Appliances – Second Hand	0415
	Tools and Knife Sharpener	0416

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Furniture and Bedding</b>		<b>05</b>
	Bedding	0501
	Furniture – Antiques	0502
	Furniture – Household	0503
	Furniture – Second-hand	0504
	Chair Specialist	0505
<b>Fashion, Clothing and Textiles</b>		<b>06</b>
	Bags and Accessories	0601
	Bridal / Wedding Dresses and Suits	0602
	Children Clothing and Accessories	0603
	Clothes and Fabrics – Cultural	0604
	Clothes & Fashion Accessories – Mixed Gender Modern	0605
	Clothes & Fashion Accessories – Female	0606
	Clothes & Fashion Accessories – Male	0607
	Cobbler	0608
	Cosmetics, Perfumes and Beauty Products	0609
	Embroidery	0610
	Fashion Accessories	0611
	Uniform Supplier	0612
	Lingerie	0613
	Fabrics and Textiles	0612
	Footwear and Accessories	0613
	Haberdashery – Sewing and Tailoring Accessories	0614
	Hat Supplier	0615
	Jeweller / Goldsmith / Silversmith	0616
	Leather Goods	0617
	Perfumery – Traditional	0618
	Tailor	0619
	Shoes	0620
	Sunglasses	0621



**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Fashion, Clothing and Textiles – (cont'd)</b>		<b>06</b>
	Clothes – Second Hand and Recycled	0622
	Beads and Stones	0623
	Jewellery Boxes	0624
	Fashion Design	0625
	School Uniforms, Bags and Accessories	0626
	Sportswear	0627
	Clothes and Shoes (Modern)	0628
	Winterwear	0629
	Handbags and Accessories (Modern)	0630
	Socks	0631
	Swimsuits	0632
	Clothing and Shoes Raw Materials	0633
<b>Personal Services</b>		<b>07</b>
	Barber	0701
	Beautician	0702
	Bridal and Wedding Services	0703
	Cleaning Services	0704
	Events / Wedding Planner	0706
	Florist / Gift Shop	0707
	Hairdresser	0708
	Party Supplies, Costumes and Decorations	0709
	Laundry and Dry Cleaning	0710
	Match-Making / Relationship Counselling	0711
	Nursery / Baby Sitter	0712
	Tattoo Parlour	0713
	Nails and Waxing	0714

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Health and Medical</b>		<b>08</b>
	Acupuncturist	0801
	Counselling / Psychiatrist	0802
	Dental Clinic and Related Services	0803
	Dialysis Centre	0804
	Doctor Clinic and Surgery	0805
	Health/ Nutritional Products	0806
	Massage, Spa and Health Centre	0807
	Massage – Traditional	0808
	Medical Equipment Supplier	0809
	Medicine / Herbalists – Traditional	0810
	Optometrist and Eye Glasses	0811
	Pharmacy / Pharmaceutical supplies	0812
	Veterinarian	0813
	Medical Specialist	0814
	Weight Watch and Slimming Centre	0815
	Health Support Services	0816
	Aged Care Facility	0817
	Pathology Centre	0818
	Massage – Blind	0819
<b>TV, Electronics and Computer</b>		<b>09</b>
	Battery Supplies	0901
	Camera and Accessories	0902
	Computer and Accessories	0903
	Electronic Components	0904
	Electronic Repairs	0905
	Entertainment Electronic Goods – Household	0906
	Internet Café	0907



**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>TV, Electronics and Computer – (cont'd)</b>		<b>09</b>
	IT Services	0908
	Lights, Lamps and Bulbs	0909
	Mobile Phone – Plans and Uploads	0910
	Mobile Phone – Sales and Services	0911
	Watches and Clocks	0912
	Mobile Phone Accessories	0913
	Audio Equipment	0914
<b>Office Supplies, Stationery, Photo, Books and Printing</b>		<b>10</b>
	Bookstore – New	1001
	Bookstore – Second Hand	1002
	Bookstore – Mixed	1003
	Calligraphy Supplies	1004
	Education Supplies	1005
	Engraving	1006
	Office Furniture	1007
	Printing and Photocopying – Office	1008
	Printing and Publication	1009
	Paper Manufacturer / Supplier	1010
	Promotional Signage, Business Cards, Invites, Rubber Stamps and Labels	1011
	Stationery	1012
	Sign Boards and Sign Writing	1013
	Trophy Supplies	1014
	Photography and Photographic Supplies	1015
	Newspaper Seller	1016
	Banners, Posters and Streamers	1017
	Bookstore and Cafe	1018
	Records and Files Management	1019
	Printing Mould Services	1020
	3D Printing Services	1021

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Religious / Cultural Product / Services</b>		<b>11</b>
	Incense Supplier	1101
	Flower Shop – Ritual	1102
	Funeral Services/ Offerings	1103
	Lantern Producer / Supplier	1104
	Palmist, Card Reader, Feng Shui or Fortune Teller	1105
	Plaques – Traditional	1106
	Religious / Cultural Product – Christian	1107
	Religious / Cultural Product – Buddhist / Taoism	1108
	Religious / Cultural Product – Hindu	1109
	Religious / Cultural Product – Muslim	1110
	Religious / Cultural Product – Other	1112
	Puppet Performance	1113
<b>Recreation, Hobby, Pets, Entertainment and Leisure</b>		<b>12</b>
	Aquarium and Fish Supplies	1201
	Bowling Alley	1202
	Bird Shop	1203
	Cinema	1204
	DVDs, CDs and Records Sales Only	1205
	Fitness Equipment Only	1206
	Lottery	1207
	Pet Store and Pet Related Products	1208
	Pet Food Supplies	1209
	Mahjong / Card Playing	1210
	Music Equipment	1211
	Recreational Fishing Related Goods	1212
	Snooker Hall	1213
	Sports Equipment	1214
	Sport and Outdoor Merchandise	1215
	Toy Shop	1216

**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Recreation, Hobby, Pets, Entertainment and Leisure – (cont'd)</b>		<b>12</b>
	Yoga	1217
	Video and DVD Rental	1218
	Amusement Games and Machines	1219
	Entertainment Agent	1220
	Leisure and Sports Management	1221
	Gymnasium or Fitness Centre	1222
	Children's Play Centre	1223
	Martial Arts Centre	1224
	Pet Accessories	1225
	Pet Accommodation	1226
	Board game	1227
<b>Art, Culture and Craft</b>		<b>13</b>
	Antiques and Artefacts	1301
	Art Gallery – Private / Association	1302
	Artists Studio	1303
	Calligraphy	1304
	Coins, Money and Stamps Trader	1305
	Drama, Dance and / or Cultural Studio	1306
	Frame Supplier and Manufacturer	1307
	Handicraft, Artefacts and Souvenirs	1308
	Handcrafted Arts – Glass	1309
	Handcrafted Arts – Metal	1310
	Handcrafted Arts – Paper	1311
	Handcrafted Arts – Wood	1312
	Handcrafted Arts – Stone / Clay	1313
	Museum – Private / Association	1314
	Pewter	1315
	Picture / Photo Framer	1316
	Arts and Craft Supplier	1317

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Art, Culture and Craft – (cont'd)</b>		<b>13</b>
	Event space for art – Private	1318
	Music Recording and Production Studio	1319
<b>Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail</b>		<b>14</b>
	Air Conditioning – Vehicle	1401
	Bicycle Sales and Repairs	1402
	Car and Motorcycle Accessories	1403
	Car and Lorry Repairs	1404
	Car Sales	1405
	Car Spray Painting and Body Repairs	1406
	Car Wash	1407
	Driving School	1408
	Petrol Station	1409
	Machine and Tools Repair / Sales Shop	1410
	Motorcycle Repairs Only	1411
	Motorcycle Repair and Sales	1412
	Motorcycle Sales	1413
	Number Plate and Licensing	1414
	Trishaw Repairs and Manufacture	1415
	Tyre Sale and Fitting	1416
	Tyre Retreading	1417
	Vehicle Accessory Repairs – General	1418
	Vehicle Spare Parts	1419
	Vehicle Window Supplies	1420
	Vehicle Rental – Car / Motorbike	1421
	Bicycle Rent	1422
	Vehicle Refurbishments	1423
	Truck and Lorry Sales	1424
	Ship and / or Boat Building Company	1425



**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail – (cont'd)</b>		<b>14</b>
	Vehicle Oil Supplier	1426
	Towing and Insurance Services	1427
	Shipping oil	1428
<b>Transport, Import / Export and Logistics</b>		<b>15</b>
	Courier Service	1501
	Crane and Hoist Supply / Hire	1502
	Ferry Service	1503
	Freight Forwarding, Cargo and Logistics	1504
	Import – Export / Distribution	1505
	Port Management	1506
	Taxi Services	1507
	Transport, Trucking and Removals	1508
	Shipping Company	1509
	Aeroplane or Rail Manufacture, Servicing and Parts	1510
	Bus Station / Depot	1511
	LRT / Monorail Station	1512
	Specialist Rail or Public Transport Company	1513
<b>Travel and Tourism Services</b>		<b>16</b>
	Airline	1601
	Bus Services Only	1602
	Duty Free	1603
	Immigration / Visa Service Only	1604
	International Call Station	1605
	Internet Café – Mixed	1606
	Travel and Tour – Mixed Services	1607
	Travel and Tour Services Only	1608
	Train Services	1609

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Travel and Tourism Services – (cont'd)</b>		<b>16</b>
	Travel and Tour Service – Religious	1610
	Tourism Information and Ticket Services	1611
	Tourist Fashion Souvenirs	1612
	Hotel / Accommodation Management Services	1613
<b>Finance, Legal and Banking</b>		<b>17</b>
	Accountant	1701
	Bank	1702
	Business Management and Support Services	1703
	Car and Motor Vehicle Loans	1704
	Commissioner of Oaths – Only	1705
	Insurance Company	1706
	Financial Advisor	1707
	Money Changer	1708
	Money Changer and Books	1709
	Money Lender, Loans and Guarantees	1710
	Pawn Shop	1711
	Money Transfer	1712
	Mutual Fund, Investments and Bonds	1713
	Solicitors / Lawyers Office	1714
	Solicitor and Commissioner of Oaths	1715
	Stock Exchange / Share Trader	1716
	Debt Collector / Bankruptcy	1717
	Cheque Processing and Exchange	1718
	Discount Vouchers	1719
	Arbitration Services	1720
	Employee Provident / Superannuation Fund	1721

**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Finance, Legal and Banking – (cont'd)</b>		<b>17</b>
	Money Transfer	1712
	Mutual Fund, Investments and Bonds	1713
	Solicitors / Lawyers Office	1714
	Solicitor and Commissioner of Oaths	1715
	Stock Exchange / Share Trader	1716
	Debt Collector / Bankruptcy	1717
	Cheque Processing and Exchange	1718
	Discount Vouchers	1719
	Arbitration Services	1720
	Employee Provident / Superannuation Fund	1721
<b>Professional, Employment and Scientific Services</b>		<b>18</b>
	Architectural, Heritage and Planning Services	1801
	Employment and Recruitment Service	1802
	Education Support Services	1803
	Interior Design and Decorations	1804
	Laboratory and Testing Services	1805
	Translations / Petition Writer / Wills	1806
	Engineering Services	1807
	Evaluation Services	1808
	Data Entry Services	1809
	Quantity Surveyor	1810
	Scientific Equipment and Software	1811
	Mining or Quarry Company	1812
	Land Surveyor and GIS Services	1813
<b>Media, Marketing and Graphic Design Related Services</b>		<b>19</b>
	Advertising and Marketing	1901
	Graphic Design and Multi Media	1902
	Print Media	1903

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Media, Marketing and Graphic Design Related Services – (cont'd)</b>		<b>19</b>
	Public Relations	1904
	TV and Film Productions	1905
	LED Screen Advertising	1906
	Broadcasting Services	1907
<b>Real Estate and Property</b>		<b>20</b>
	Auctioneer	2001
	Building Company	2002
	Construction Firm	2003
	Building Maintenance Services	2004
	Land and Property Developer	2005
	Property Appraisal / Valuation	2006
	Property Management – General	2007
	Property Development	2008
	Real Estate Agent	2009
	Building and Infrastructure Surveyor	2010
	Guard House	2011
	Serviced Office	2012
	Co-working space	2013
<b>Building Renovation, Fittings and Furnishings</b>		<b>21</b>
	Air Conditioning – Buildings	2101
	Awnings, Tents and Canopy Products	2102
	Bathroom Fittings	2103
	Carpenter – Building	2104
	Carpenter – Furniture	2105
	Curtains and Blinds Supplier	2106
	Floor Coverings and Interior Decorations	2107
	Hardware	2108
	Kitchen Fittings	2109



**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Building Renovation, Fittings and Furnishings – (cont'd)</b>		<b>21</b>
	Locksmith, Door Knobs, and Locks	2110
	Paint Supplier	2111
	Pest Control	2112
	Power Tools	2113
	Roofer	2114
	Plumbing Suppliers / Services	2115
	Tile Supplies and Fitting	2116
	Window and Door Supplier	2117
	Electrician	2118
	Letterboxes, Fences and Gates	2119
	Mirror and Glass	2120
<b>Industry Supplies and Services</b>		<b>22</b>
	Aluminium and Stainless Steel Supplier	2201
	Beauty Product Supplier	2202
	Chemical Product Supplier	2203
	Elevator and Escalator Supplier	2204
	Gas – Industrial	2205
	Glass Merchant Only	2206
	Instruments and General Supplies – Industrial	2207
	Lathe Supplies and Repairs	2208
	Metal Worker	2209
	Packaging – General	2210
	Photocopy and Printer Repairs	2211
	Restaurant Furniture, Equipment and Kitchenware Supplier	2212
	Safety Equipment and / or Clothes	2213
	Scales and Weighing Products	2214
	Shelving and Displays	2215
	Strapping and Binding Supplies	2216

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Industry Supplies and Services – (cont'd)</b>		<b>22</b>
	Stone Mason	2217
	Timber Supplier	2218
	Trolley, Wheelbarrows, and Wheel Supplier	2219
	Building Material Supplies	2220
	PVC, Plastic Tubing and Rubber Supplies	2221
	Plastic Product Supplies	2222
	Bottles and Bottle Caps	2223
	Security Firm	2224
	Industrial Machine Supplier	2225
	Plastic and Paper Bags	2226
	Electroplating	2227
	Fertilizer Supplier	2228
	Sawmill	2229
	Waste Disposal Specialist	2230
	Industrial Cleaning Services	2231
<b>Agriculture, Aquaculture and Fishing</b>		<b>23</b>
	Agricultural Produce Agency	2301
	Anchor Supplier	2302
	Aquaculture – Shrimp / Prawn Farming	2303
	Fishing	2304
	Fishing and Allied Industry Supplies	2305
	Marine / Boat Products	2306
	Seed Supplier	2307
	Swiftlet House	2308
	Agriculture Management	2309
	Animal / Pet Food Supplier	2310
	Animal Pound / Hospital	2411

**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Recycling</b>		<b>24</b>
	Recycling – Cardboard / paper	2401
	Recycling – Metal	2402
	Recycling – Mixed	2403
	Recycling – Plastic	2404
	Recycling – Wood / building material	2405
	Recycling – Oil / Food Products	2406
<b>Storage, Parking and Distribution</b>		<b>25</b>
	Car Park	2501
	Food and Beverage Distribution	2502
	General Storage	2503
	Parking Coupon	2504
<b>Utilities</b>		<b>26</b>
	Electricity	2601
	Sewerage	2602
	Telecommunications	2603
	Water	2604
	Public Toilet	2605
<b>Hotel and Tourist Accommodation</b>		<b>27</b>
	Home Stay	2701
	Hostel	2702
	Hotel – Budget / Guest House	2703
	Hotel – Budget / Comfort Services	2704
	Hotel 3-5 Star – less than 70 rooms	2705
	Hotel 3-5 Star – more than 70 rooms	2706
	Hotel – Boutique	2707
	Resort – Exclusive	2708
	Serviced Apartment	2709
	Airbnb	2710

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Government</b>		<b>28</b>
	Ambulance	2801
	Art Gallery – Government	2802
	Court House	2803
	Community Hall – Government	2804
	Government Office – Local	2805
	Government Office – State	2806
	Government Office – Federal	2807
	Library – Government	2808
	Museum – Government	2809
	Parliament / City Hall	2810
	Police	2811
	Post Office	2812
	Toilet – Public	2813
	Fire Station	2814
	Government Storage / Depot	2815
	Consulate / Embassy	2816
	Marriage Registration Centre	2817
	Convention Centre	2818
<b>Education and Research</b>		<b>29</b>
	Pre-Primary / Kindergarten	2901
	Primary School	2902
	High (Secondary) School	2903
	Primary-High School Mixed	2904
	Language School	2905
	Arts / Drama / Dancing / Music Studio or Academy	2906
	Special School	2907
	College / Training Institute	2908
	Religious School / College	2909
	University – Private	2910



**Table A1 – (cont'd)**  
Land Use Census and Survey Attribute System (LUCSA)

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Education and Research – (cont'd)</b>		<b>29</b>
	University – Public	2911
	Tuition Centre	2912
	School – Mixed	2913
	Learning Centre	2914
	Scientific Research and Education Centre	2915
	Cooking Class	2916
<b>Clan, Not for Profit, Religious Association and / or Political Organisation</b>		<b>30</b>
	Association / Society	3001
	Buddhist Temple	3002
	Business Association/Union	3003
	Chamber of Commerce	3004
	Church	3005
	Clan Temple	3006
	Clan Association	3007
	Community Hall/Meeting Room – Association	3008
	Halfway House	3009
	Hindu Temple	3010
	Home Shrine	3011
	Library – Community / Association	3012
	Mosque	3013
	Non Government Organisation	3014
	Political Organisation	3015
	Prayer Room	3016
	Shrine / Tomb	3017
	Sikh Temple	3018

Lucsa Super-Class (Category)	Lucsa Sub-Class (Business / Agency / Institution Type)	LUCSA Code
<b>Clan, Not for Profit, Religious Association and / or Political Organisation – (cont'd)</b>		<b>30</b>
	Sports Club	3019
	Religious Ceremony Storage	3020
	Orphanage	3021
	Taoism Temple	3022
	Gaming Association	3023
	Swimming Club	3024
	Sports or Recreation Facility	3025
	Youth Club	3026
	Cemetery	3027
<b>Residence / Household</b>		<b>40</b>
	Residence in Apartment / Unit	4001
	Residence in Bungalow	4002
	Resident Building Caretaker	4003
	Resident / Worker Accommodation	4004
	Serviced Apartment – Residences Mostly Staying More than 3 months	4005
<b>Vacancy and Unable to Determine</b>		<b>50</b>
	Vacant building or floor	5001
	Vacant lot	5002
	Vacant lot with building under construction	5003
	Vacant building under restoration	5004
	Business unable to categorise	5005
	Vacant building demolished	5006

**Table A2**  
Changes in day- and night-time business

Business Type	2009				2013				2019				Change 2009 – 2019			
	Day-time		Night-time		Day-time		Night-time		Day-time		Night-time		Day-time		Night-time	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Restaurant / Bar – Food and Beverage	589	16%	354	39%	583	16%	329	30%	778	23%	456	42%	189	26%	102	3%
Hotel and Tourist Accommodation	56	2%	56	7%	93	3%	93	9%	175	5%	175	16%	119	15%	119	10%
Art, Culture and Craft	58	2%	7	1%	85	2%	16	1%	118	4%	14	1%	60	0%	7	1%
Storage, Parking and Distribution	73	2%	21	2%	80	2%	87	8%	98	3%	47	4%	25	2%	26	2%
Travel and Tourism Services	44	1%	19	1%	64	2%	13	1%	57	2%	12	1%	13	0%	2	0%
Utilities	3	0%	0	0%	12	0%	10	1%	11	0%	7	1%	8	1%	7	1%
Professional, Employment and Scientific Services	25	1%	0	0%	26	1%	0	0%	24	1%	1	0%	-1	-1%	1	0%
Agriculture, Aquaculture and Fishing	26	1%	2	0%	23	1%	3	0%	21	1%	2	0%	-5	-1%	0	0%
Department / General Store	97	3%	49	5%	125	3%	68	6%	91	3%	62	6%	-6	3%	13	0%
Furniture and Bedding	20	1%	2	0%	22	1%	8	1%	13	0%	1	0%	-7	0%	-1	0%
Recycling	32	1%	1	0%	28	1%	1	0%	22	1%	2	0%	-10	-1%	1	0%
Personal Services	81	2%	29	3%	80	2%	31	3%	70	2%	29	3%	-11	0%	0	0%
Recreation, Hobby, Pets, Entertainment and Leisure	65	2%	18	2%	63	2%	20	2%	52	2%	11	1%	-13	-1%	-7	-1%
Media, Marketing and Graphic Design Related Services	29	1%	2	0%	40	1%	2	0%	16	0%	0	0%	-13	-1%	-2	0%
Health and Medical	149	4%	30	3%	139	4%	36	3%	131	4%	40	4%	-18	0%	10	0%
Building Renovation, Fittings and Furnishings	108	3%	5	1%	96	3%	3	0%	88	3%	3	0%	-20	-3%	-2	0%
Food Produce and Beverage (Production and / or Sale)	378	11%	62	7%	413	11%	89	8%	355	11%	64	6%	-23	-5%	2	-1%
Religious / Cultural Product / Services	92	3%	36	4%	99	3%	29	3%	67	2%	19	2%	-25	-1%	-17	-2%
Real Estate and Property	75	2%	1	0%	62	2%	2	0%	49	1%	5	0%	-26	-2%	4	0%
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	130	4%	14	2%	126	3%	23	2%	101	3%	14	1%	-29	-2%	0	0%
Office Supplies Stationery, Photo, Books and Printing	166	5%	26	3%	148	4%	20	2%	132	4%	11	1%	-34	-4%	-15	-2%
Industry Supplies and Services	110	3%	3	0%	108	3%	12	1%	69	2%	2	0%	-41	-3%	-1	0%
Household Goods and Services	93	3%	11	1%	68	2%	21	2%	46	1%	1	0%	-47	-3%	-10	-1%
TV, Electronics and Computer	107	3%	33	4%	72	2%	17	2%	43	1%	7	1%	-64	-2%	-26	-3%
Transport, Import / Export and Logistics	146	4%	3	0%	143	4%	6	1%	82	2%	5	0%	-64	-4%	2	0%
Finance, Legal and Banking	284	8%	13	1%	276	8%	10	1%	218	7%	11	1%	-66	-7%	-2	0%
Fashion, Clothing, and Textiles	538	15%	123	13%	558	15%	143	13%	394	12%	76	7%	-144	-8%	-47	-6%
<b>Total</b>	<b>3,574</b>	<b>100%</b>	<b>911</b>	<b>100%</b>	<b>3,631</b>	<b>100%</b>	<b>1,092</b>	<b>100%</b>	<b>3,321</b>	<b>100%</b>	<b>1,077</b>	<b>100%</b>	<b>-253</b>	<b>-7.1%</b>	<b>166</b>	<b>18.2%</b>

Note: Includes market and street vendor data



**Table A3**  
Change in occupied floorspace by industry (2013 & 2019)

Land use	2013			2019			Change 2013 – 2019	
	Total area size (m <sup>2</sup> )	% Total average size per land use entity	Average size per land use entity	Total area size (m <sup>2</sup> )	% Total average size per land use entity	Average size per land use entity	Change in total area size (m <sup>2</sup> )	% Change
Hotel and Tourist accommodation	295,601	13.9%	3,047	382,674	17.9%	2,141	87,073	29.5%
Residence / Household	362,742	17.0%	158	259,165	12.1%	182	-103,577	-28.6%
Education and Research	191,344	9.0%	6,378	204,727	9.6%	8,530	13,383	7.0%
Restaurant / Bar – Food and Beverage	100,145	4.7%	282	183,910	8.6%	262	83,765	83.6%
Government	225,368	10.6%	5,241	162,165	7.6%	1,695	-63,203	-28.0%
Storage, Parking and Distribution	136,958	6.4%	901	128,493	6.0%	818	-8,465	-6.2%
Finance, Legal and Banking	149,420	7.0%	539	107,202	5.0%	425	-42,218	-28.3%
Clan, Not for Profit, Religious Association and / or Political Organisation	100,133	4.7%	464	94,223	4.4%	250	-5,910	-5.9%
Fashion, Clothing and Textiles	72,686	3.4%	186	69,556	3.3%	186	-3,130	-4.3%
Food Produce and Beverage (Production and / or Sale)	55,647	2.6%	285	66,511	3.1%	224	10,864	19.5%
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	33,465	1.6%	255	52,819	2.5%	518	19,354	57.8%
Art, Culture and Craft	23,389	1.1%	269	47,106	2.2%	432	23,717	101.4%
Department / General Store	16,833	0.8%	136	44,650	2.1%	388	27,817	165.3%
Transport, Import / Export and Logistics	47,259	2.2%	326	43,420	2.0%	388	-3,839	-8.1%
Real Estate and Property	25,717	1.2%	408	40,287	1.9%	610	14,570	56.7%
Health and Medical	37,537	1.8%	289	39,905	1.9%	300	2,368	6.3%
Office Supplies Stationery, Photo, Books and Printing	53,853	2.5%	390	32,049	1.5%	247	-21,804	-40.5%
Building Renovation, Fittings and Furnishings	29,086	1.4%	294	24,918	1.2%	293	-4,168	-14.3%
Religious / Cultural Product / Services	19,535	0.9%	210	19,529	0.9%	287	-6	0.0%
Recreation, Hobby, Pets, Entertainment and Leisure	17,458	0.8%	317	19,243	0.9%	370	1,785	10.2%
TV, Electronics and Computer	14,106	0.7%	188	18,707	0.9%	416	4,601	32.6%
Industry Supplies and Services	34,689	1.6%	299	18,540	0.9%	244	-16,149	-46.6%
Personal Services	10,614	0.5%	131	14,400	0.7%	203	3,786	35.7%
Travel and Tourism Services	13,804	0.6%	212	13,958	0.7%	222	154	1.1%
Household Goods and Services	16,743	0.8%	356	12,644	0.6%	301	-4,099	-24.5%
Media, Marketing and Graphic Design Related Services	8,471	0.4%	207	8,571	0.4%	429	100	1.2%
Professional, Employment and Scientific Services	6,263	0.3%	241	7,932	0.4%	274	1,669	26.6%
Agriculture, Aquaculture and Fishing	11,240	0.5%	416	5,768	0.3%	275	-5,472	-48.7%
Utilities	5,377	0.3%	244	4,162	0.2%	277	-1,215	-22.6%
Recycling	7,021	0.3%	251	3,842	0.2%	160	-3,179	-45.3%
Furniture and Bedding	7,349	0.3%	283	3,780	0.2%	270	-3,569	-48.6%
<b>Total</b>	<b>2,129,853</b>	<b>100.0%</b>	<b>23,203</b>	<b>2,134,856</b>	<b>100.0%</b>	<b>21,618</b>	<b>5,003</b>	<b>0.2%</b>

**Table A4**  
Change in the average number of employees by industry (2009, 2013 & 2019)

Industry	2009		2013		2019		Change		
	No.	Avg	No.	Avg	No.	Avg	2009 - 2013	2013 - 2019	2009 - 2019
Professional, Employment and Scientific Services	25	8.2	26	5.4	29	12.4	-2.8	7.0	4.2
Agriculture, Aquaculture and Fishing	28	3.9	27	4.1	21	7.2	0.2	3.1	3.3
Transport, Import / Export and Logistics	148	8.8	145	6.7	112	11.9	-2.1	5.2	3.1
Clan, Not for Profit, Religious Association and / or Political Organisation	171	1.6	199	2.5	174	3.9	0.9	1.4	2.3
Finance, Legal and Banking	285	12.5	277	12.4	251	15.2	-0.1	2.8	2.7
TV, Electronics and Computer	100	4	75	3.4	48	6.3	-0.6	2.9	2.3
Art, Culture and Craft	57	2.2	87	2.3	112	3.8	0.1	1.5	1.6
Storage, Parking and Distribution	165	1.2	152	2.2	157	2.4	1.0	0.2	1.2
Real Estate and Property	75	10	63	10.4	66	11.0	0.4	0.6	1.0
Personal Services	80	2.9	81	2.7	72	3.8	-0.2	1.1	0.9
Furniture and Bedding	20	3.7	26	3.0	15	4.6	-0.7	1.6	0.9
Education and Research	19	31.8	24	27.2	24	32.4	-4.6	5.2	0.6
Household Goods and Services	65	3.4	47	4.8	42	3.7	1.4	-1.1	0.3
Religious / Cultural Product / Services	90	2.9	93	2.8	70	3.2	-0.1	0.4	0.3
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	132	4.3	131	4.8	103	4.6	0.5	-0.2	0.3
Media, Marketing and Graphic Design Related Services	30	7.4	41	5.7	20	7.6	-1.7	1.9	0.2
Recycling	32	2.6	28	2.7	24	2.7	0.1	0	0.1
Department / General Store	87	4.2	124	3.4	115	4.2	-0.8	0.8	0.0
Health and Medical	142	4.5	130	4.6	133	4.5	0.1	-0.1	0.0
Office Supplies Stationery, Photo, Books and Printing	157	5.4	138	6.7	132	5.3	1.3	-1.4	-0.1
Fashion, Clothing, and Textiles	374	3.9	390	3.9	283	3.4	0.0	-0.5	-0.5
Food Produce and Beverage (Production and / or Sale)	166	5.4	195	5.6	308	5.0	0.2	-0.6	-0.4
Travel and Tourism Services	44	5.8	65	5.5	62	5.0	-0.3	-0.5	-0.8
Industry Supplies and Services	113	5.7	116	5.6	76	4.7	-0.1	-0.9	-1.0
Restaurant / Bar – Food and Beverage	309	7.3	355	7.5	539	6.7	0.2	-0.8	-0.6
Building Renovation, Fittings and Furnishings	112	6.9	99	5.6	87	4.9	-1.3	-0.7	-2.0
Government	36	65.7	45	62.8	53	61.0	-2.9	-1.8	-4.7
Recreation, Hobby, Pets, Entertainment and Leisure	56	7.1	55	4.5	52	3.8	-2.6	-0.7	-3.3
Utilities	3	10.3	22	3.0	15	5.2	-7.3	2.2	-5.1
Hotel and Tourist Accommodation	56	16.7	93	12.4	175	11.5	-4.3	-0.9	-5.2

Note: Excludes market and street vendor data



**Table A5**  
Change in street vendors by industry (2009, 2013 & 2019)

Industry	2009		2013		2019		2009 - 2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change
Restaurant / Bar – Food and Beverage	180	36.8%	137	32.1%	108	46.6%	-72	9.7%
Food Produce and Beverage (Production and / or Sale)	139	28.4%	150	35.1%	64	27.6%	-75	-0.8%
Fashion, Clothing, and Textiles	89	18.2%	92	21.5%	24	10.3%	-65	-7.9%
Art, Culture and Craft	1	0.2%	0	0.0%	10	4.3%	9	4.1%
Office Supplies Stationery, Photo, Books and Printing	8	1.6%	7	1.6%	5	2.2%	-3	0.5%
Household Goods and Services	29	5.9%	5	1.2%	5	2.2%	-24	-3.8%
Department / General Store	4	0.8%	2	0.5%	4	1.7%	0	0.9%
Personal Services	1	0.2%	0	0.0%	3	1.3%	2	1.1%
Building Renovation, Fittings and Furnishings	1	0.2%	0	0.0%	3	1.3%	2	1.1%
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	1	0.2%	0	0.0%	2	0.9%	1	0.7%
Recreation, Hobby, Pets, Entertainment and Leisure	11	2.2%	8	1.9%	1	0.4%	-10	-1.8%
Health and Medical	9	1.8%	12	2.8%	1	0.4%	-8	-1.4%
Real Estate and Property	0	0.0%	0	0.0%	1	0.4%	1	0.4%
Education and Research	0	0.0%	0	0.0%	1	0.4%	1	0.4%
TV, Electronics and Computer	8	1.6%	0	0.0%	0	0.0%	-8	-1.6%
Religious / Cultural Product / Services	8	1.6%	7	1.6%	0	0.0%	-8	-1.6%
Travel and Tourism Services	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Finance, Legal and Banking	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Industry Supplies and Services	0	0.0%	1	0.2%	0	0.0%	0	0.0%
Storage, Parking and Distribution	0	0.0%	2	0.5%	0	0.0%	0	0.0%
Utilities	0	0.0%	1	0.2%	0	0.0%	0	0.0%
Government	0	0.0%	3	0.7%	0	0.0%	0	0.0%
<b>Total</b>	<b>489</b>	<b>100.0%</b>	<b>427</b>	<b>100.0%</b>	<b>232</b>	<b>100.0%</b>	<b>-257</b>	<b>-52.6%</b>

**Table A6**  
Change in market vendors by industry (2009, 2013 & 2019)

Industry	2009		2013		2019		2009 - 2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Change
Restaurant / Bar – Food and Beverage	142	41.2%	120	37.0%	162	76.1%	20	34.9%
Fashion, Clothing, and Textiles	82	23.8%	82	25.3%	32	15.0%	-50	-8.7%
Food Produce and Beverage (Production and / or Sale)	88	25.5%	88	27.2%	15	7.0%	-73	-18.5%
Finance, Legal and Banking	0	0.0%	0	0.0%	1	0.5%	1	0.5%
Personal Services	1	0.3%	1	0.3%	1	0.5%	0	0.2%
Travel and Tourism Services	2	0.6%	2	0.6%	1	0.5%	-1	-0.1%
Department / General Store	12	3.5%	12	3.7%	1	0.5%	-11	-3.0%
Building Renovation, Fittings and Furnishings	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Motor Vehicle, Motorcycle, Machinery and Bicycle and Related Retail	0	0.0%	1	0.3%	0	0.0%	0	0.0%
Real Estate and Property	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Education and Research	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Industry Supplies and Services	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Storage, Parking and Distribution	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Utilities	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Government	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Recreation, Hobby, Pets, Entertainment and Leisure	1	0.3%	1	0.3%	0	0.0%	-1	-0.3%
Religious / Cultural Product / Services	1	0.3%	1	0.3%	0	0.0%	-1	-0.3%
Health and Medical	2	0.6%	2	0.6%	0	0.0%	-2	-0.6%
TV, Electronics and Computer	2	0.6%	2	0.6%	0	0.0%	-2	-0.6%
Art, Culture and Craft	3	0.9%	3	0.9%	0	0.0%	-3	-0.9%
Household Goods and Services	3	0.9%	3	0.9%	0	0.0%	-3	-0.9%
Office Supplies Stationery, Photo, Books and Printing	6	1.7%	6	1.9%	0	0.0%	-6	-1.7%
<b>Total</b>	<b>345</b>	<b>100.0%</b>	<b>324</b>	<b>100.0%</b>	<b>213</b>	<b>100.0%</b>	<b>-132</b>	<b>-38.3%</b>



**Table A7**  
Household main industry of employment (2009, 2013 & 2019)

Industry of Employment							Change					
	2009		2013		2019		2009 - 2013		2013 - 2019		2009 - 2019	
	No.	% Total	No.	% Total	No.	% Total	No.	% Total	No.	% Total	No.	% Total
Restaurant	238	8.0%	243	9.5%	264	16.9%	5	2.1%	21	8.6%	26	10.9%
Mining	0	0.0%	1	0.0%	2	0.1%	1	0.0%	1	100.0%	2	0.0%
Retired	164	5.5%	170	6.7%	127	8.1%	6	3.7%	-43	-25.3%	-37	-22.6%
Other	265	8.9%	150	5.9%	182	11.7%	-115	-43.4%	32	21.3%	-83	-31.3%
Street Vendor	112	3.8%	109	4.3%	72	4.6%	-3	-2.7%	-37	-33.9%	-40	-35.7%
Shop or Department Store	345	11.6%	260	10.2%	208	13.3%	-85	-24.6%	-52	-20.0%	-137	-39.7%
Manufacturing	236	7.9%	189	7.4%	130	8.3%	-47	-19.9%	-59	-31.2%	-106	-44.9%
Fishing	11	0.4%	6	0.2%	6	0.4%	-5	-45.5%	0	0.0%	-5	-45.5%
Personal Services	133	4.5%	223	8.7%	72	4.6%	90	67.7%	-151	-67.7%	-61	-45.9%
Transport and Logistics	78	2.6%	48	1.9%	40	2.6%	-30	-38.5%	-8	-16.7%	-38	-48.7%
Banking Finance and Insurance	27	0.9%	28	1.1%	13	0.8%	1	3.7%	-15	-53.6%	-14	-51.9%
Education and Training	34	1.1%	30	1.2%	16	1.0%	-4	-11.8%	-14	-46.7%	-18	-52.9%
Real Estate	9	0.3%	4	0.2%	4	0.3%	-5	-55.6%	0	0.0%	-5	-55.6%
Professional Services	124	4.2%	80	3.1%	55	3.5%	-44	-35.5%	-25	-31.3%	-69	-55.6%
Health Services	48	1.6%	38	1.5%	21	1.3%	-10	-20.8%	-17	-44.7%	-27	-56.3%
Government	40	1.3%	49	1.9%	16	1.0%	9	22.5%	-33	-67.3%	-24	-60.0%
Retail Sales	376	12.6%	413	16.2%	150	9.6%	37	9.8%	-263	-63.7%	-226	-60.1%
Cleaning	62	2.1%	38	1.5%	24	1.5%	-24	-38.7%	-14	-36.8%	-38	-61.3%
Unemployed / Looking for work	83	2.8%	48	1.9%	28	1.8%	-35	-42.2%	-20	-41.7%	-55	-66.3%
Hospitality / Tourism	122	4.1%	63	2.5%	39	2.5%	-59	-48.4%	-24	-38.1%	-83	-68.0%
Contractor / Labourer	261	8.8%	196	7.7%	76	4.9%	-65	-24.9%	-120	-61.2%	-185	-70.9%
Utilities & Communication	46	1.5%	28	1.1%	13	0.8%	-18	-39.1%	-15	-53.6%	-33	-71.7%
Emergency Services (e.g. Police, Fire, Ambulance)	145	4.9%	122	4.8%	2	0.1%	-23	-15.9%	-120	-98.4%	-143	-98.6%
<b>Total</b>	<b>2,959</b>	<b>100.0%</b>	<b>2,536</b>	<b>100.0%</b>	<b>1,560</b>	<b>100.0%</b>	<b>-423</b>	<b>-14.3%</b>	<b>-976</b>	<b>-38.5%</b>	<b>-1,399</b>	<b>-47.3%</b>

Note: In addition to the listed industries, respondents could select the other options such as "retired" and "unemployed / looking for work".

**Table A8**  
Analysis of significant changes in the seven zones of the Special Area Plan

	Institution zone	Financial zone	Tourism and Leisure Zone	Enterprise zone	Trade Zone	Jetty Zone	Special Zone	Waterfront Zone
<b>Characteristics</b>	<ul style="list-style-type: none"> <li>Historic-civic administrative area, historic schools cluster</li> </ul>	<ul style="list-style-type: none"> <li>Financial clusters</li> </ul>	<ul style="list-style-type: none"> <li>High-end Hotel Cluster (3-5 Star Hotels, Boutique Hotels), cluster of budget hotels</li> </ul>	<ul style="list-style-type: none"> <li>Fashion &amp; textiles</li> </ul>	<ul style="list-style-type: none"> <li>Import-Export, Transport &amp; Storage</li> </ul>	<ul style="list-style-type: none"> <li>Jetty, temples, water village and resident community</li> </ul>	<ul style="list-style-type: none"> <li>6 cultural enclaves</li> </ul>	<ul style="list-style-type: none"> <li>Jetties, ferry, port, godown and merchant houses</li> </ul>
<b>Regulation</b>	<ul style="list-style-type: none"> <li>Retain original use</li> </ul>	<ul style="list-style-type: none"> <li>Retain original use</li> <li>Allows night activities and F&amp;B</li> <li>Mixed-use zone<sup>21</sup></li> </ul>	<ul style="list-style-type: none"> <li>Allow new hotel – boutique or star rated</li> <li>Mixed-use zone</li> </ul>	<ul style="list-style-type: none"> <li>Import-export, transport &amp; storage, market and food stalls clusters</li> <li>Mixed-use zone</li> </ul>	<ul style="list-style-type: none"> <li>Allow new hotel – boutique or star rated, new wholesale / storage</li> <li>Mixed-use zone</li> </ul>	<ul style="list-style-type: none"> <li>Primarily 100% residential but allow limited tourism related activities and sundry shops within residential premises</li> <li>Mixed-use zone</li> </ul>	<ul style="list-style-type: none"> <li>Temples and clan houses, religious buildings and religious community</li> <li>Retain major clan and religious landmarks</li> <li>Mixed-use zone</li> </ul>	<ul style="list-style-type: none"> <li>High value development incorporating mixed use and high-end hotel and leisure</li> <li>Mixed-use zone</li> </ul>
<b>Significant changes</b>								
Significant loss of residents				Yes	Yes	Gradual loss	Yes	
Significant concentration of residents remained				Yes		Yes		
Increase in big hotels			Yes	Yes				Yes
Increase in small hotels			Yes	Yes	Yes	Yes	Yes	Yes
Increase in restaurants and bars	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Increase in market and street vendors			Yes		Yes	Yes	Yes	
Decline in market and street vendors		Yes		Yes				
Increase in arts, culture, craft activities				Yes		Yes	Yes	
Decline in finance / banking services	Yes	Yes						
Decline in transport / export-import / logistics facilities				Yes	Yes			Yes
Decline in religious and cultural products / services				Yes				

<sup>21</sup> Mixed-use zone allows the use of land for either 100% Commercial, 100% Residential and Residential-with-Commercial





**Figure A1**  
Map used in survey to identify location of employee homes

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