Gauteng Province

HOUSEHOLD TRAVEL SURVEY REPORT

2019/20

REGIONAL REPORT FOR THE CITY OF JOHANNESBURG

GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA

GAUTENG HOUSEHOLD TRAVEL SURVEY REPORT

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FOREWORD

This report documents the high-level results of the 2019/20 Gauteng Household Travel Survey (GHTS) carried out by the Gauteng Department of Roads and Transport for the City of Johannesburg. The survey was managed and undertaken by a multi-disciplinary team, including officials from metropolitan and district municipalities in the province.

Apart from fulfilling legislative imperatives, the survey work improves government accountability to the citizens of Gauteng Province. Now that three sets of household travel surveys have been carried out in the five regions of Gauteng since 2002, trends relating to travel by residents can be reliably assessed.

The results indicate urgent interventions are necessary to address transport service delivery backlogs, the long travel times, and limited access to good quality public transport services. While the majority of households are fundamentally dependent on the provision of public transport services, it is becoming clear that crime in the province is beginning to offset the gains made in the past. The vandalism of train service infrastructure and the threats of criminal attacks made to individuals when accessing public transport services is reflected in the declining levels of residents' confidence in public transport. Therefore, improved collaboration with law enforcement bodies has become a priority.

The need to coordinate transport service delivery through the Gauteng Transport Authority is self-evident. This is because the transport network in Gauteng Province functions as one. However, this does not take away the responsibility of local government, such as the City of Johannesburg, to fulfil its mandated transport functions. Greater efforts to formulate and implement uniform norms and standards for public transport service delivery in the province would make programmes such as those of the Gauteng Transport Authority even more meaningful.

COVID-19 has had a severe impact on transport systems and operations, especially in eroding confidence in travelling by public transport. In this regard, the Gauteng Department of Roads and Transport will continue to monitor the situation closely with follow-up surveys to inform more innovative approaches to delivering services in the interest of public safety and to support the financial viability of operations.

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Mr Jacob Mamabolo

MEC: Roads and Transport

KEY FINDINGS

The Gauteng Household Travel Survey (GHTS) questionnaire is designed to measure metrics relating to weekday household and individual travel choices, experiences and constraints. Out of a total target sample of 37 000 households for the province, the City of Johannesburg was targeted to have a sample of 9 000 households, but 6 722 responses were obtained. While lower than the target, the response is relatively high for surveys of this magnitude.

For the City of Johannesburg (CoJ), the following key findings are notable:

- The average household size declined from 3.5 people in 1996 to 2.9. This would imply that household trip rates would decline. However, this would be offset by the increased number of households and a younger and more mobile population.
- The CoJ is increasingly relying on lower capacity modes of transport at the expense of higher capacity public transport.
- The CoJ household car access of 0.42 cars per household is significantly higher than the national figure of 0.31, and the average figure for metropolitan municipalities of 0.398.
- About 60% of households in the CoJ spend more than 10% of their household income on public transport. This is exacerbated by the increasing number of households without an employed person.
- Johannesburg South, which includes areas such as Winchester Hills and Kibler Park, is emerging as increasingly affluent and is characterised by relatively high household incomes and high levels of car ownership. At the other extreme, the Orange Farm area is becoming increasingly impoverished, and its residents experience long travel distances.
- It is quicker to access a non-residential destination from the last public transport stop than it is to access the service from homes. This is particularly the case for train services. This requires improved public transport network densities in residential areas as well as locating developments closer to high-capacity public transport services.
- About a third of workers in the CoJ report to work more than five days a week. This has implications on how fare policies are formulated, as well as the need to supply public transport services during weekends.
- More than 50% of households in the CoJ have no household member with a driver's licence and the number of such households is on the increase, further indicating a basic dependence on public transport.
- The average number of cars per household is 0.47 and is lower than the provincial average of 0.6.
- Household members are more satisfied than dissatisfied with public transport services. Where individuals are dissatisfied, they cite overcrowding (buses and trains); being a likely victim of crime (trains and while accessing minibus taxis); the roadworthiness of minibus taxis; the poor off-peak frequency of buses; poor treatment from minibus taxi drivers; the high cost of using minibus taxis; and the poor state of public transport stop infrastructure for buses and minibus taxis.
- Close to 2% of individuals in the City of Johannesburg have some form of disability or mobility constraint which must be catered for in the design and operation of transport services.
- Travel within the CoJ is much higher than travel to and from other municipalities in the province. This requires the CoJ to continue its focus on improving transport service delivery within its jurisdiction while collaborating with the Gauteng Transport Authority.

A more detailed analysis of the survey data is necessary to develop responsive transport plans. The limitations of physical household surveys, including threats to the security of field survey staff, warrant that additional and more innovative survey methods be explored to enhance data quality.

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ABBREVIATIONS AND ACRONYMS

CAPI – Computer Assisted Personal Interviews

CS 2016 – Community Survey 2016

CoJ – City of Johannesburg

CSIR – Council for Scientific and Industrial Research

DF – Dwelling Frame

GDRT – Gauteng Department of Roads and Transport

GPS – Geographic Positioning System

GTI – Dwelling Frame

GHTS – Gauteng Household Travel Survey

GTI – GeoTerraImage

GTS – Gauteng Transport Study 2000

ITP – Integrated Transport Plan

HTS – Household Travel Survey

IDP – Integrated Development Plans

IPTN – Integrated Public Transport Network

NHTS – National Household Travel Survey

NLTA – National Land Transport Act

PSC – Project Steering Committee

PTNS – Public Transport Network & Systems

StatsSA – Statistics South Africa

TAZ – Transport Analysis Zone

QR – Quick Response

1 INTRODUCTION

Section 9 of the National Land Transport Act, 2000 (Act No 22 of 2000) requires the MEC responsible for transport to:

- Monitor the implementation of provincial land transport policy.
- Assist municipalities that lack the necessary resources to perform their land transport functions; and,
- Regularly report on the state of transport affairs in the provinces.

In this regard, the 2019/20 Gauteng Household Travel Survey (GHTS) forms part of a series of provincial surveys conducted by the Gauteng Department of Roads and Transport (GDRT) to improve the understanding of changes in the relationship between the demand and supply of transport services and infrastructure at a household level and its implications for transport service delivery. The information is also necessary for improved planning and to support evidence-led decision-making.

This regional report provides outcomes of the 2019/20 GHTS for the City of Johannesburg. Where necessary, comparisons have been made with the results of the previous surveys for the City. The detailed datasets, provided by these surveys, will allow the City to carry out further analyses as part of its transportation planning process and to develop responsive transport models in line with Section 11 of the NLTA.

The report structure is as follows:

- Section 1 introduces the report
- Section 2 presents the overall project scope
- Section 3 explains the sampling process
- Section 4 covers the fieldwork methodology and data control procedures
- Sections 5 to 9 present various thematic findings from the survey
- Section 10 provides some concluding remarks.

The results presented in the report are high-level. It may be necessary to carry out detailed analyses of the survey datasets to conclusively inform transport planning and management interventions.

The survey was completed before the widespread emergence of the COVID-19 pandemic which has enormously impacted travel patterns globally. Therefore, the results of the 2019/20 survey represent a baseline that can be used when assessing the relative impact of and recovery from the pandemic.

2 OVERALL PROJECT SCOPE

The data collected by the 2019/20 GHTS – from 20 May 2019 to 7 August 2019 – allows authorities to:

a) Undertake better and improved transport planning.

b) Update strategic transport models.

c) Measure performance against set standards.

d) Inform decisions relating to the financing of transport infrastructure and services; and,

e) Assess household attitudes towards transport services and infrastructure.

The project was carried out by a multi-disciplinary team led by the GDRT through a Steering Committee comprising all cities and district municipalities in the province. The project team composition is summarised in Table 1. The City of Johannesburg survey distribution sample is illustrated in Figure 1.

Table 1: Project team

Organisation	Team Members	Role in the project
Gauteng Department of Roads and Transport (GDRT)	Project Manager: Integrated Planning Project Leader: Malebo Ndamase	Client
Council for Scientific and Industrial Research (CSIR)	Project Managers, Project Leaders and Researchers specialising in • Statistics • GIS • Transport Engineering • Transport planning • Transport Economics. • Information Technology • Data mining and analytics	Implementation agent
SiQ (Pty) Ltd	• Survey Specialist • Fieldwork Manager • Fieldwork Coordinator • Fieldworkers	Provided overall support for the fieldwork
Project Steering Committee (PSC)	Municipal officials in Sedibeng, West Rand, Johannesburg, Ekurhuleni, Tshwane and GDRT officials	Joint oversight and fieldwork facilitation

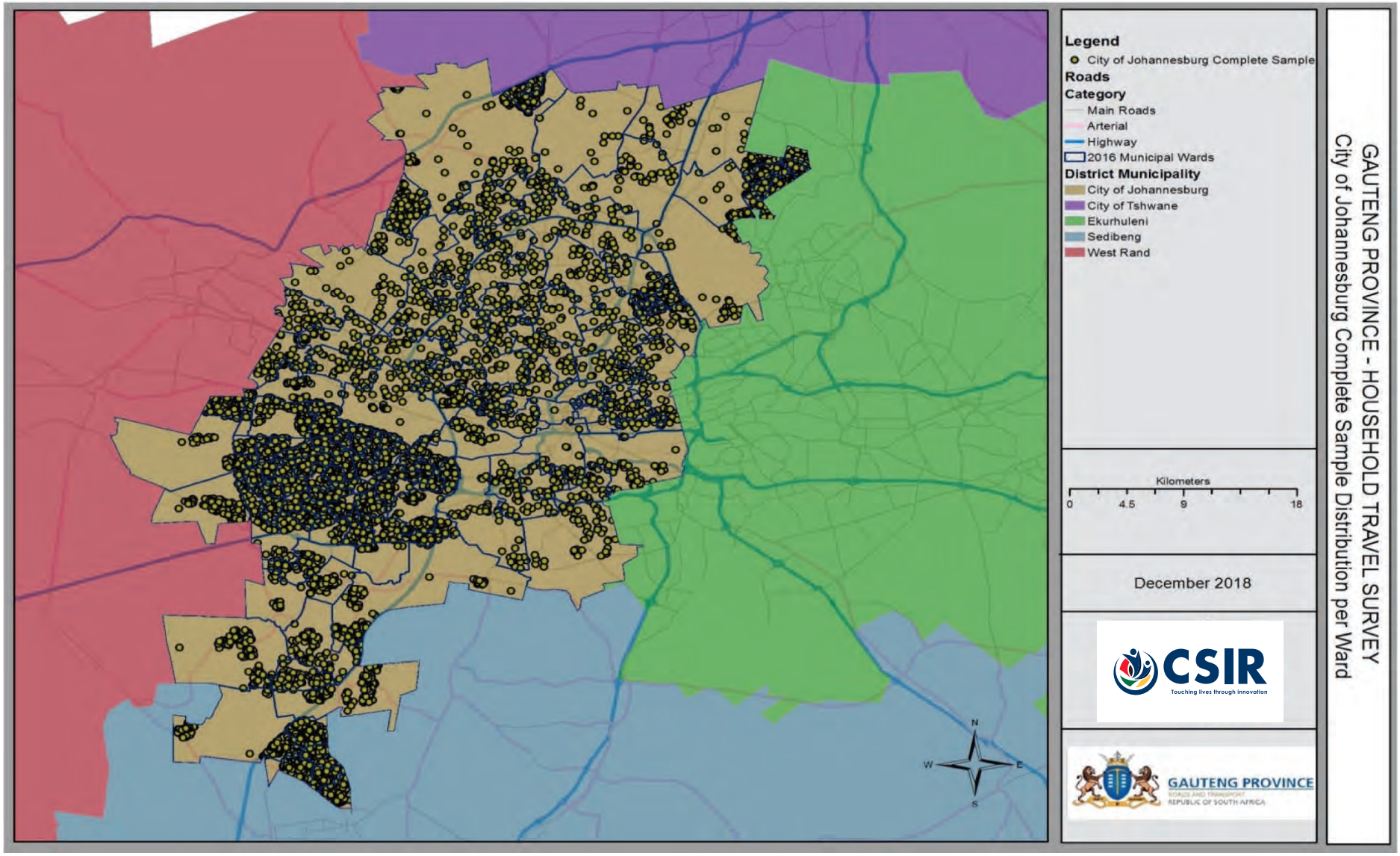

Figure 1: Johannesburg survey sample distribution across municipal wards

3 SAMPLING METHODOLOGY, INCLUSIONS AND EXCLUSIONS

3.1 Dwelling Frame (DF)

A Dwelling Frame (DF) is a spatially referenced framework of all built structures (residential and non-residential) and facilitates the drawing of a sample. The process to obtain a dwelling frame for the survey entailed a request to Statistics South Africa (StatsSA) to access its dwelling frame. However, StatsSA indicated that it does not share its dwelling frame. Therefore, the CSIR team developed a dwelling frame for this study using a variety of secondary data that includes: GeoTerraImage (GTI) Dwelling Points 2010; GeoTerraImage (GTI) Dwelling Points 2018; Census 2011 household data; and, the Gauteng Provincial Boundary.

As illustrated in Figure 2, the dwelling points were assigned to spatial layers from which they were further located using (1) Main-places; (2) Sub-places; and (3) Wards and Transport Analysis Zones (TAZs) as levels of reporting. A sampling frame (see Figure 3) with the abovementioned spatial variables including GPS coordinates and exact street addresses for multi-units was subsequently produced. The output was packaged in the form of a GIS shapefile and associated database. The GTI[1] building counts for both 2011 and 2018 were acquired to guide the representation of all structures in the province. The data was further classified in terms of land use. The GTI datasets were particularly useful in enhancing the robustness of the sampling method. The resulting DF is illustrated in Figure 4 and is reflective of all the growth areas identified since 2010.

3.2 Exclusions

Public institutions were excluded from the sample. These included a) Retirement Villages / Old Age Homes; b) Student Hostels; c) Orphanages, Children's Homes and Places of Safety; and, d) Correctional Services (Warden Housing - Cluster).

Owing to ethical considerations, persons less than 18 years were not directly interviewed. A person was considered a household member only if he or she had spent four consecutive nights in the same household.

[1] GTI is a database or catalogue that categorizes the built environment in terms of settlements and into 70 different types of structures in South Africa by identifying every structure according to a set of comprehensive land use definitions (see Annexure A). The residential points sub-dataset for main buildings is further disaggregated into 17 tertiary classes and these were selected to form the basis of the survey sampling frame development.

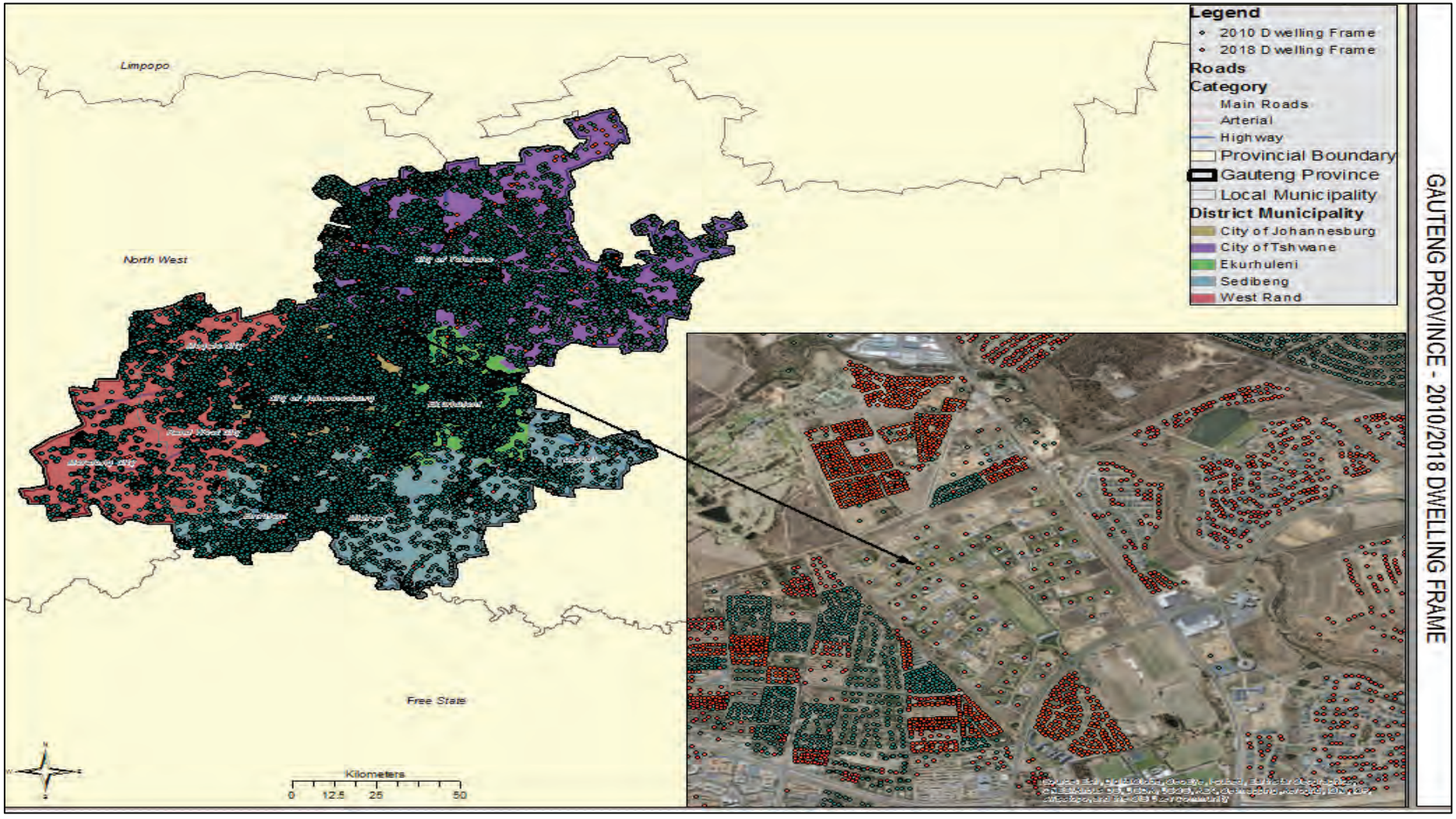

Figure 2: Dwelling points growth over an eight-year period (Year 2010 Green Points – Year 2018 Red Points

3.3 Target sample

A sample size of 9 000 households was planned for the survey in the CoJ, which is equivalent to about a quarter of the total provincial sample.

3.4 Selection of the main sample

The selection of a sample of dwelling units was done through multi-stage sampling. The first stage involved a proportional random selection of the required number of dwelling units, as presented in Figure 3 – via stratification by Transport Analysis Zone (TAZ) and main-place – to allow for adequate coverage at the spatial level.

A selected list of dwelling units was evaluated to identify and isolate "multiple-dwelling" units from individual "single-dwelling" units. Multiple-dwelling units were those units that represented a group of dwelling units, such as clustered residential units within complexes, flats, security estates and villages.

The proportion of multiple-dwelling units, approximately 74%, was obtained from each of the sampled multiple-dwelling units. The proportion (74%) selected represented the number of units required from the multiple-dwelling units in the CoJ. The number of such multiple-dwelling units was then deducted from the municipal-level totals to determine the number of single dwelling units [e.g. CoJ: 9 000 – 74% from multiple dwelling units]. Both the single and multiple dwelling units were combined to provide the required sample size for each region.

Table 2 presents the distribution of the dwelling units in the main target sample. The sampling frame reflects the different types of dwelling units which consisted of stand-alone housing structures, structures in a cluster, complexes and security estates in the CoJ.

Table 2: Number and percentage distribution of residential dwelling units

Type of dwelling unit	Sampling frame	
	Total no. of dwelling units	Percentage of dwelling units
Cluster/Complexes/Estates, etc.	6 660	74%
Stand-alone housing structures	2 340	26%
Total	**9 000**	**100%**

3.5 Weighting

A stratified sampling approach encompassing a proportional allocation sample across areas (census main places and TAZs) was implemented for random selection of households based on the dwelling frame developed. This selection consisted of assigning sampling weights to each of the households. The weights were computed to improve the estimation of relevant population parameters and enable inferences to be deduced from the sampled households to represent both the Gauteng and the regional profiles as well as to correct for possible sample bias.

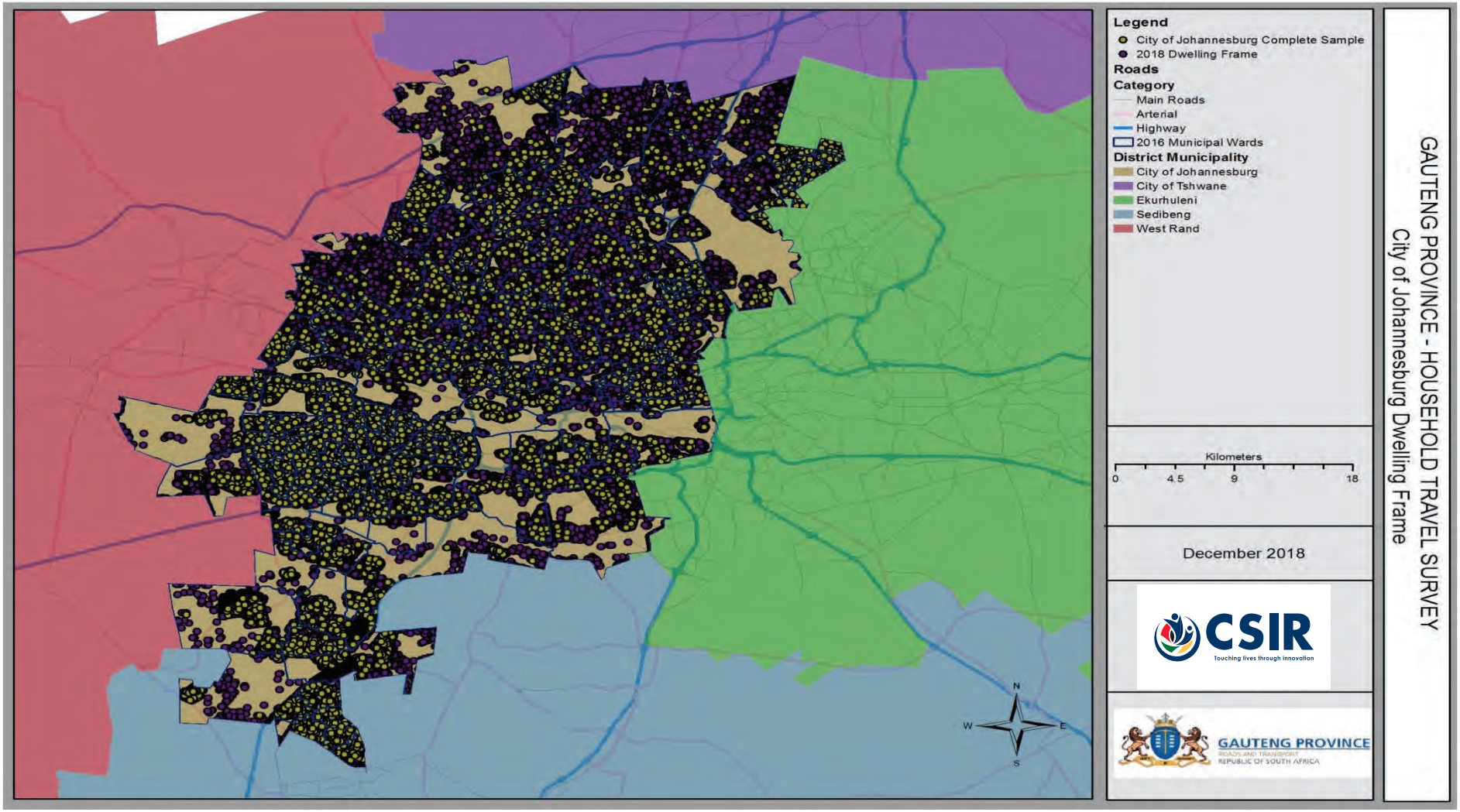

Figure 3: Survey sample overlaid to dwelling frame 2018

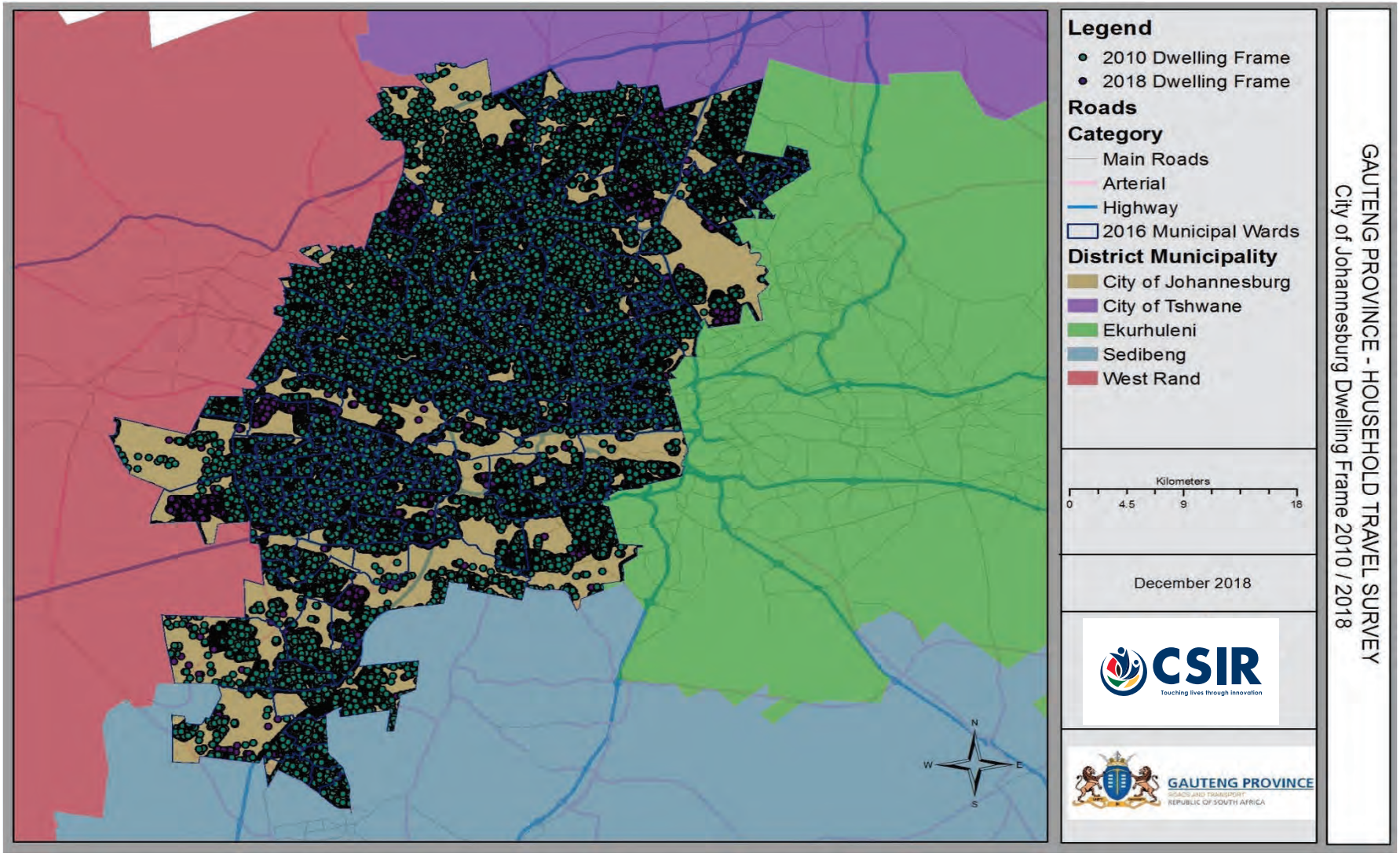

Figure 4: Dwelling Frame – A distribution of the dwelling points across Johannesburg

3.6 Data quality control

Household questionnaire validation and verification tools were developed to assist the geo-referencing of visiting points and to maintain control of where interviews were undertaken in the field. These tools enabled the data management team to detect possible and probable discrepancies in the field by, for example, correlating enumeration points to enumerator location when completing or interviewing suitable members within different households.

The interview trip data required a combination of automation and manual data cleaning methods to enable correction and conversion, where practical, of text descriptions from discrete destination responses, i.e. geocoding of destination addresses to a GIS-compatible format (coordinates).

3.7 Replacement/ Substitutions

During sampling, a comprehensive list of additional samples (about 40% of the main sample) was set aside to allow for possible replacement or substitution of inaccessible or non-responsive households during the survey. Figure 5 provides a map showing the spatial distribution of these samples.

4 FIELDWORK IMPLEMENTATION

4.1 Questionnaire design

To enable comparisons between the current and the previous surveys and monitor trends, the survey maintained a similar questionnaire, with only minor alterations. These included improving the flow of questions by shifting some around and removing a few irrelevant ones. One of the recommendations based on the experiences of previous surveys was to reduce the time it took to complete an interview. The average time to complete a survey in the past was reported to have been around 45 minutes; the aim was to reduce this time by at least 10 minutes.

Several technical workshops were hosted to refine the methodology of previous surveys and to finalise the questionnaire. The outcome included the decision to use portable devices for data collection instead of paper-based surveys. Much effort went into the design and specifications for this paperless data collection tool, particularly to establish security protocols around the collection and storage of data.

Ultimately the questionnaire was hosted on mobile devices in the form of a web application and was structured to capture information for the following sections:

a) Household characteristics

b) Population characteristics

c) Employment characteristics

d) Trip information

e) Use of and attitude towards public transport services.

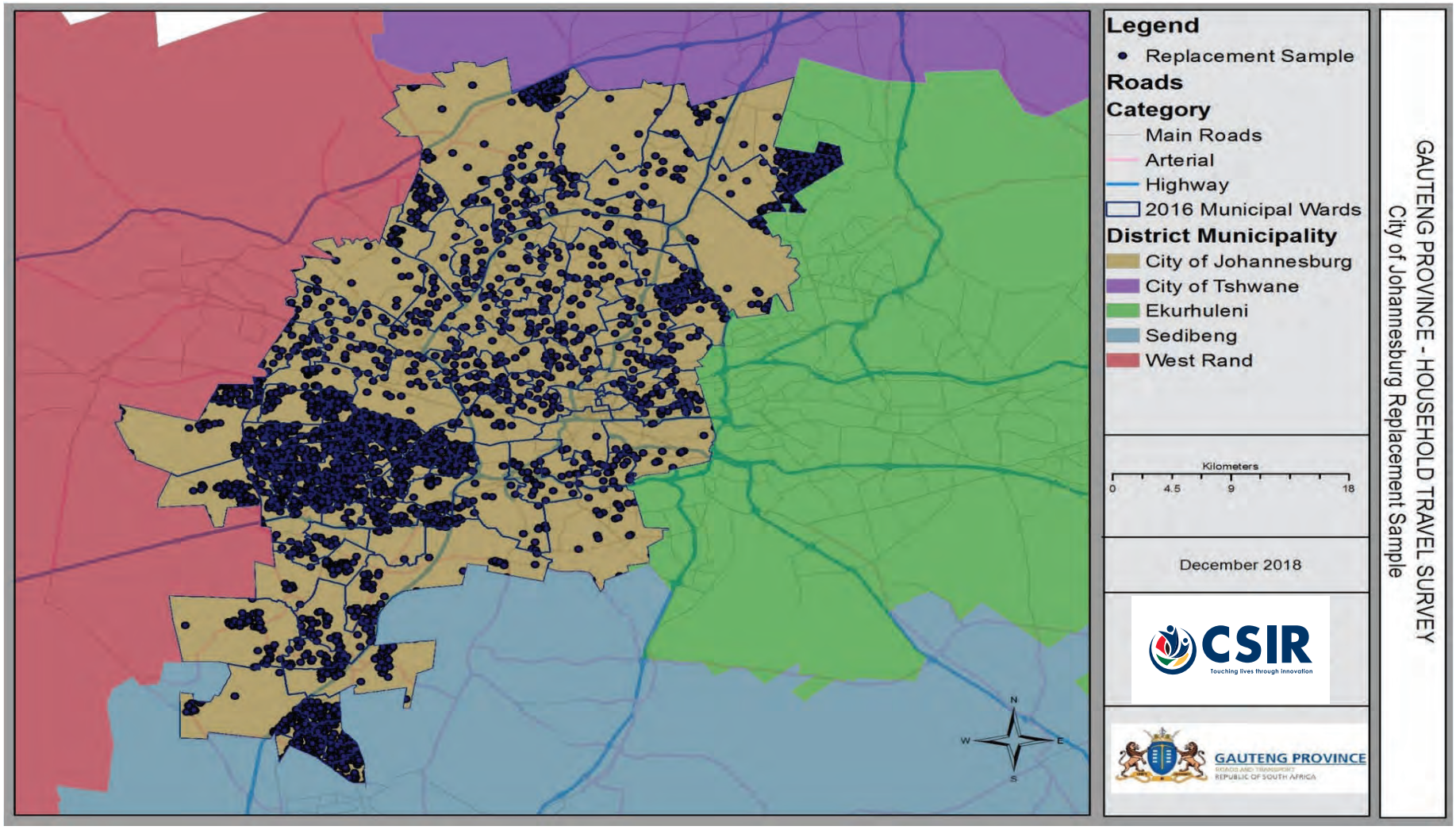

Figure 5: Replacement sample

The "train-the-trainer" programme was designed to acquaint and equip fieldworkers with the necessary tools to execute a study of this nature. The training sessions involved the trainers, enumerators and survey managers (who were to be responsible for the supervision of enumerators). The trainers equipped the enumerators with the skillset required to achieve the objectives of the GHTS project. The following were the primary training objectives:

a) Understanding of ethical procedures

b) Familiarising enumerators and survey managers with the interview questions and the web application-based survey tool

c) Supply survey managers and the enumerators with necessary information around the objectives of the study to enable them to accurately convey the objectives of the GHTS to household representatives

d) Outline terms and conditions relating to replacement tokens, consent forms, etc.

The outcomes of the training session were implemented through a pilot survey project that comprised 10% of the total sample size.

4.2 Pilot survey sample

The pilot study was conducted primarily to gauge the practicality of the survey methodology adopted, survey instruments selected, digital data collection using the existing telecommunication network, and to determine the resources required to successfully complete the full survey. A similar sampling approach to that of the pilot was adopted in the full survey. The pilot constituted 10% (900 dwelling units) of the main sample allocated to the City of Johannesburg

The results of the pre-testing exercise provided valuable insights into several potential challenges that could be encountered during the execution of the main field survey. The issues identified during the pilot were subsequently used to conduct further enumerator training. A detailed summary of the timeframes leading to the main survey execution in the CoJ is provided in Table 3.

Table 3: Project schedule

Activity	Date
Stakeholder inception meeting	5 March 2019
Preparation of devices	6–11 March 2019
Enumerator recruitment	12–15 March 2019
CSIR Train-the-trainer	22 March 2019
Pilot project	30 March–7 April 2019
Main survey	20 May–7 August 2019

4.3 Principal survey sample

A sample size of 9 000 households is consistent with previous surveys. The CoJ sample is illustrated spatially in Figure 6.

4.4 Survey method

Data collection took the form of Computer-Assisted Personal Interviews (CAPI) in which the fieldworkers used tablet computers to record the responses of households. The consent to participate in the study was sought from suitable adult members of the households, who responded on behalf of all applicable household members. Handicapped people, adults who were unable to participate and child-headed households were excluded from the survey. Trips generated by minors below 6 years of age were also excluded.

Household visits were conducted from Wednesday to Sunday to interview households regarding their travel patterns undertaken within the preceding week. A household was expected to be visited three times before it qualified to be replaced by another household in the same region.

The survey was initially planned to start before the official commencement date of 20 May 2019 but unforeseen disruptions during April 2019 delayed the start. These disruptions included political campaigning for the General Elections (8 May 2019), as well as the winter school holidays that started on 12 June 2019.

Precautionary measures were put in place in case criminals took advantage of the programme and invaded people's premises in the name of the GHTS. Reflector jackets were redesigned with exclusive features to help minimise the possibility of criminal invasions. These reflector jackets were front branded with logos of the relevant stakeholders; namely, the GDRT and the CSIR as well as the name badge of the enumerator. The name badge of the enumerator consisted of an identity photograph of the enumerator, the ID number of the enumerator as well as a Quick Response (QR) code which, when scanned, revealed the contact details of the project manager at the CSIR. The QR code was attached to both the name badge and the reflector jackets separately. On the rear, the reflector jacket was branded with the project name – "Gauteng General Household Travel Survey 2019".

In addition to the aforementioned safety measures, major media campaigns were held through CSIR communications departments as well as other platforms such as radio broadcasts and social media. The aim was to sensitise people about the GHTS and to empower the public on how to authenticate the enumerators.

Consent forms were designed by the CSIR to form part of the ethical compliance for GHTS. During training and workshops, service providers were instructed to only proceed with interviews when consent forms were completed and signed by both parties.

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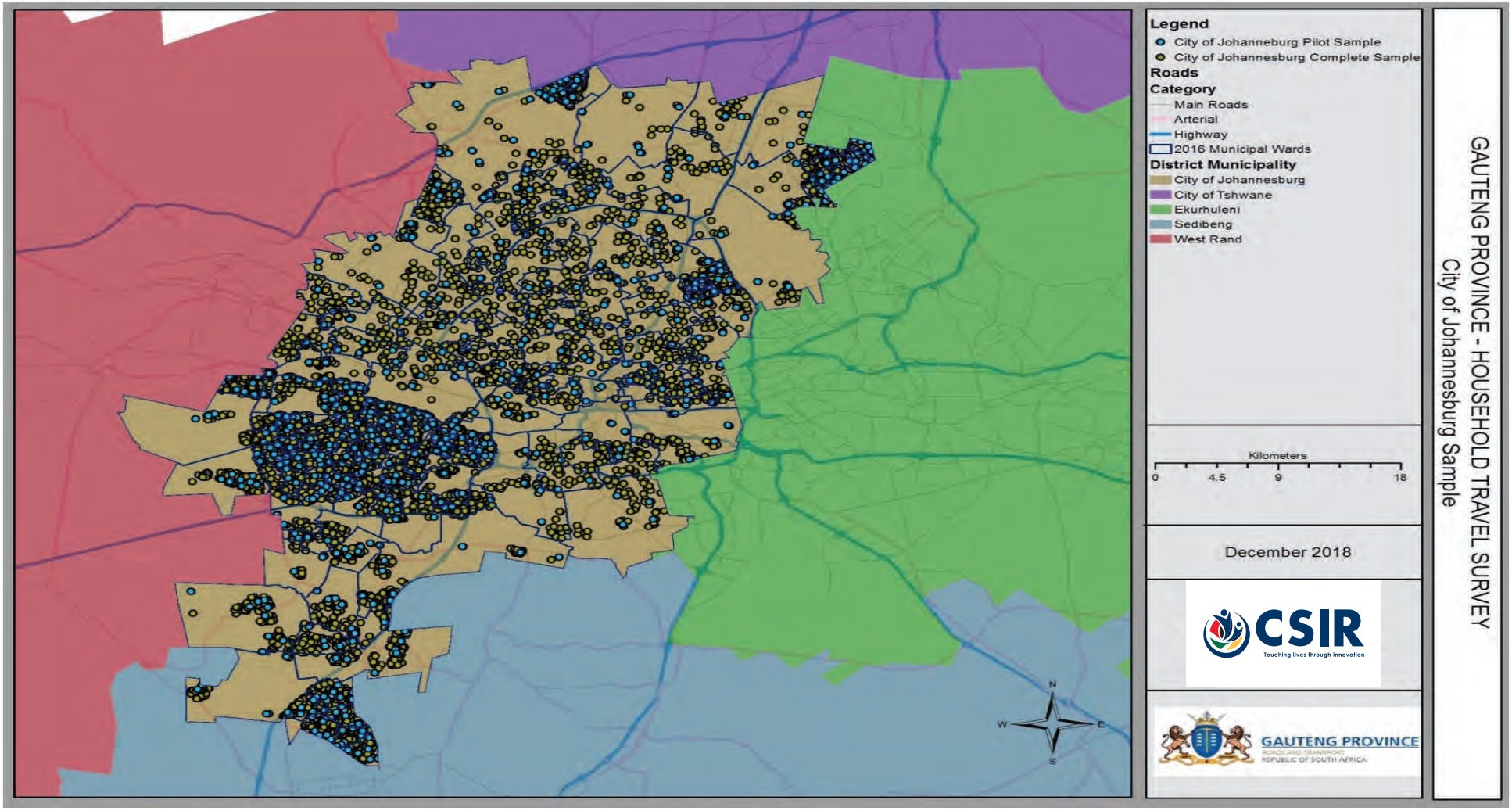

Figure 6: Principal and pilot sample

4.5 Survey Challenges

4.5.1 Survey Disruptions

The disruptions of trip patterns caused by school closures and other public holidays necessitated delays in fieldwork activities on several occasions. The school break in June, the Easter holidays and the national and provincial elections that occurred in April and May, respectively, are examples of some of the challenges encountered. Other survey challenges were those associated with enumeration fatigue, unavailability of members of households and refusal to participate (partial or complete).

4.5.2 Technological Challenges

Lack of sufficient Geographic Positioning System (GPS) coverage for some telecommunication network services in some parts of the province presented challenges. The use of live navigation services was required to enable enumeration teams to locate sampled points. However, telecommunication signal coverage in remote areas was at times poor. Most of the low to medium specification mobile devices were found to be problematic in executing digital data collection while high-end specification devices using advanced network efficiency were able to resolve the connectivity challenges.

4.5.3 Non-responsive households

During the planning phase, it was anticipated that the substitution or replacement of households would be necessary for a variety of reasons. These included perceived difficulties in gaining access to gated communities and complexes, where multiple-dwelling units were required to be visited. This was one of the issues identified during the pilot study. Also, refusals and the incapacity of households to participate would necessitate substitution.

The CSIR adopted a set of rules to improve the chances of gaining access to gated communities and complexes; namely, seeking permission to access such communities before field visits with the understanding that should permission not be granted a substitution would be necessary. The substitution of multiple dwelling units in instances where access was not achieved posed significant challenges and delays to fieldwork activities. Frequently, Body Corporates (property management agencies) would deny the enumerators access, citing a variety of reasons for refusals, thus making it impractical to undertake enumeration without consent from the property managers of the sample gated population.

The number of dwelling units in gated communities differed significantly and so it was unlikely that a replacement multiple dwelling unit would be of an exact size to that which it was meant to replace. In occurrences where questionnaires were found to be incomplete, a replacement sample was allocated to substitute the incomplete questionnaire. In certain instances, a replacement was difficult to pursue and a compromise was reached. A compromise entailed a mutual agreement between the CSIR and field teams to no longer substitute inaccessible households that refused to participate partially or completely and report these as a non-response. Common reasons for replacing households are provided in Table 4.

Table 4: Reasons for household replacement

Reason for replacement	Number of replacements
Selected respondent / Nobody at home after three calls	19 (2.1%)
Vacant house	99 (10.9%)
No person qualifies for the survey due to age	27 (3.0)%
Respondent is mentally or physically unfit	18 (2.0%)
Refusal	658 (72.2%)
Other	90 (9.9%)
Total	**(911) 100%**

4.6 Stakeholder engagement

To enable fieldworkers to efficiently solicit interviews with the households, relevant procedures were adopted. This included putting into place fieldwork protocols and liaising with relevant stakeholders including community structures (where possible) for increased awareness and to lessen safety and security concerns. Community engagements would have been difficult to facilitate in the absence of municipal representation. The involvement of municipal representatives in the Project Steering Committee (PSC) helped facilitate awareness and in communicating project objectives to ward councillors, communities and stakeholders.

4.7 Data quality control

The validation and verification tool were developed to assist in geo-referencing the visiting points and so maintain control of where interviews were undertaken in the field. This tool enabled the data management team to detect possible discrepancies in the field; for example, correlating enumeration points to enumerator location when interviewing members within different households.

The analysis of individual trip information was an extremely tedious and challenging task. The interview trip data required a combination of automation and manual data cleaning methods to enable correction and conversion, where practical, of text descriptions from discrete destination responses; that is, geocoding of destination addresses to Geographic Information Systems (GIS) compatible format (coordinates).

4.7.1 Weighting and analysis

As the whole planned sample was not able to be surveyed, the planned design weights would not be directly applicable during the analysis since they were calculated in proportion to the overall sample. To compensate for a smaller number of households than the required sample sizes being visited in certain areas, particularly those along the major transport corridors, a decision was made to include the pilot data in the main survey.

A pilot sample of approximately 900 households was selected and 438 questionnaires were fully completed. Since no changes were made to the questionnaire after the pilot survey questionnaire, all the completed pilot surveys were used in the data analysis along with the main survey interviews. Hence, it was possible to incorporate the pilot sample into the main sample for analysis.

The weights had to be adjusted because the households selected in the pilot phase had design weights that differed from the design weights of the main survey. Therefore, post-stratification adjustments were built, including using auxiliary data from the 2016 Community Survey (CS) survey (Statistics South Africa, 2016).

The CS is one of the largest nationwide surveys conducted between census periods (2011 and 2021) to provide updated information on population and household characteristics at the municipal level (the lowest administrative dissemination layer). Certain variables were adjusted using weights based on known population estimates (Lavallée & Beaumont, 2015) from CS 2016; while in cases where no such information was available, extrapolation by adjusting the sample results was done. For this task, the estimates were produced using the sampling frame data (e.g. including the total number of households from the lowest spatial resolution (main places or sub-regions) and aggregating the results to the desired spatial layers.

The sampling frame contained geographic information from the sub-place level, and this information had been updated to include growth areas and recent developments that have occurred since the 2011 census dwelling frame and also made use of a variety of data sources to provide the 2018 status quo. Therefore, the analysis contains two sets of results, those that were weighted by CS 2016 and those extrapolated from the sample of the results to match the current (2018) status.

The results estimated from smaller samples may be susceptible to large variances and so should be used cautiously, particularly for lower spatial resolutions.

5 FINDINGS: HOUSEHOLD CHARACTERISTICS

To maintain consistency with the previous surveys, some of the CoJ results are presented in terms of sub-regions as depicted in Figure 7. However, the datasets can be spatially configured to other forms of sub-regions.

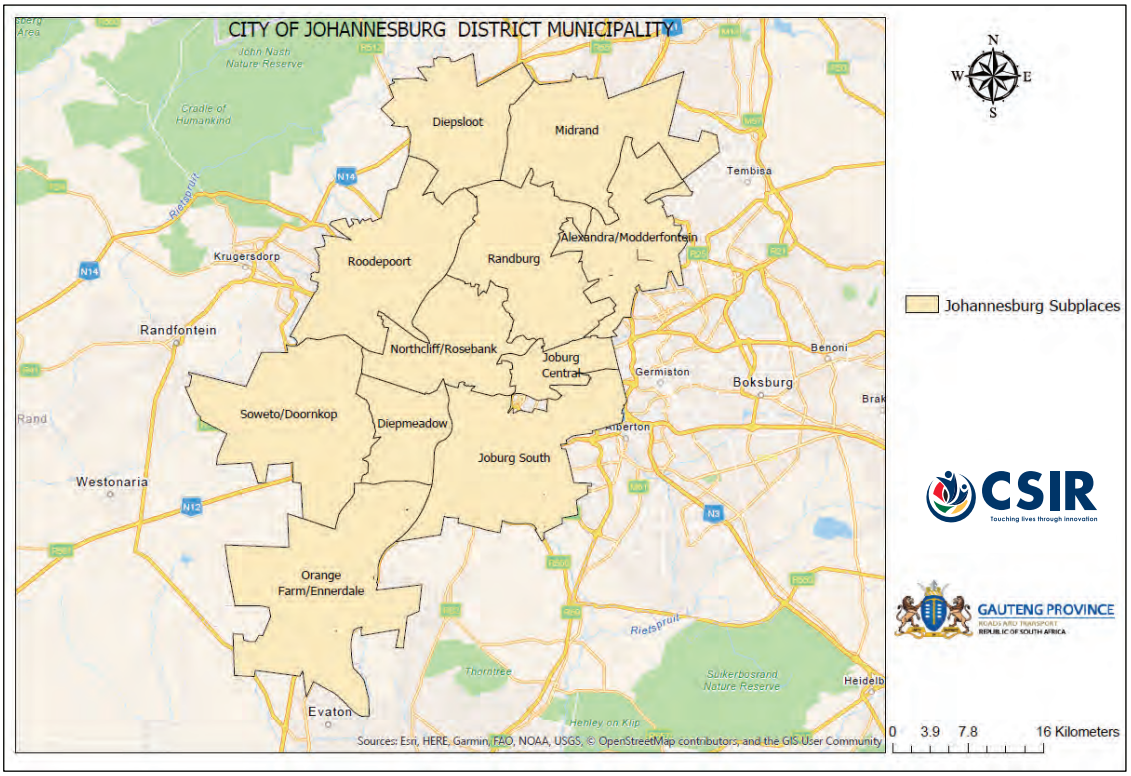

Figure 7: City of Johannesburg sub-regions

Figure 8 depicts the responses achieved relative to a target sample of 9 000 households – 74% of these households participated in the survey. The response rate is relatively high compared to some of the key national surveys carried out by Statistics South Africa. For example, the 2020 national household travel survey in Johannesburg that was carried out by Statistics South Africa could only achieve a response rate of 55.7%[2]. Similarly, the 2018 StatsSA General Household Survey in the CoJ had a response of 68%[3]. The main reason for non-responses is a refusal to participate in the survey.

[2] http://www.statssa.gov.za/publications/P0320/P03202020.pdf
[3] http://www.statssa.gov.za/publications/P0318/P03182018.pdf

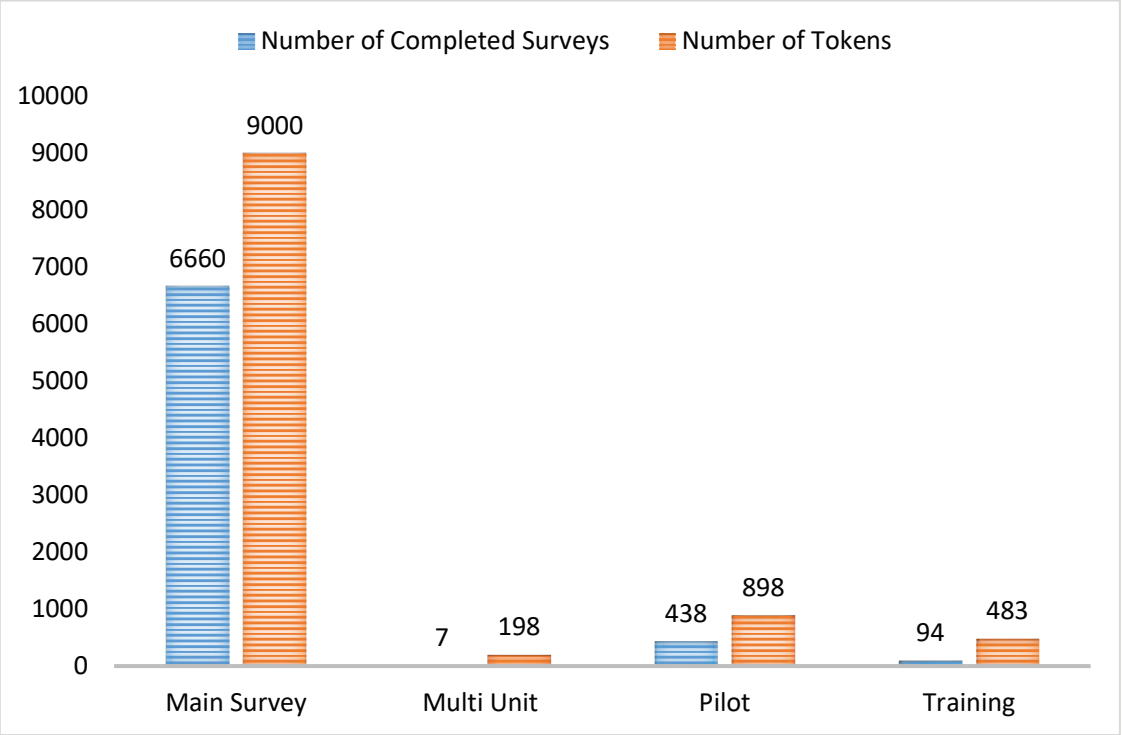

Figure 8: Household responses relative to targeted households in the City of Johannesburg

Table 5 shows the distribution of both the sampled and weighted dwelling unit types in the CoJ. Close to 65% of households in the CoJ lived in stand-alone brick houses. Informal dwellings accounted for about 16% of households, and formal backyard dwellings constituted nearly 8% of households. The proportion of informal dwellings is significantly high, implying also that travel from informal dwellings cannot be ignored for transport planning purposes. The situation warrants that the City develops appropriate methods for providing transport services in less formal settlements.

Table 5: Main types of dwelling units in the City of Johannesburg

Dwelling Type	No. of households sampled	% of households sampled	Weighted number of households	Weighted % of households
Stand-alone brick house	4 647	65.8	731 690	64.4
Shack dwelling in settlement	1 498	21.2	186 862	16.4
Formal dwelling/house/flat/room in backyard	277	3.9	87 354	7.7
Townhouse	224	3.2	28 890	2.5
Cluster house in a complex	128	1.8	18 794	1.7
Other	102	1.4	6 109	0.5
Semi-detached house	78	1.1	3 067	0.3
Flat or apartment in a block of flats	55	0.8	69 512	6.1
Traditional dwelling/hut	45	0.6	3 580	0.3
Total	**7 054**	**100**	**1 135 858**	**100**

Table 6 shows the distribution of the number of persons per household. About 80% of households had four or fewer persons. The weighted household size is 2.9 persons per household, which has reduced from 3.5 in 1996.

Table 6: Household size for the CoJ

Number of persons in household	Number of households sampled	% Households sampled	Weighted number of households	% Weighted totals
1	1 967	29.3	539 397	29.1
2	1 988	29.6	408 729	22.1
3	1 459	21.7	316 016	17.1
4	772	11.5	261 971	14.1
5	314	4.7	152 815	8.2
6	200	3.0	80 912	4.4
7	8	0.1	40 921	2.2
8	8	0.1	22 251	1.2
9	4	0.1	13 169	0.7
10+	2	0.0	17 190	0.9
Total	**6 722**	**100.0%**	**1 853 371**	**100.0**

Table 7 depicts the income distribution of households in the CoJ. Over 1% of the households indicated that they had no source of income, 50% disclosed some level of income and 49% either refused to disclose their income or did not know the total household income. As has been the case with other surveys, disclosed household income is becoming a less reliable statistic.

Table 7: Household Income distribution

Income Distribution	Number of households (sample)	Weighted number of households	% Households
Nothing	85	23 436	1.3
R1 - R200	31	8 547	0.5
R201 - R500	153	42 185	2.3
R501 - R1 000	224	61 761	3.3
R1 001 - R1 500	334	92 090	5.0
R1 501 - R2 500	570	157 159	8.5
R2 501 - R3 500	382	105 324	5.7
R3 501 - R4 500	364	100 361	5.4
R4 501 - R6 000	410	113 044	6.1
R6 001 - R8 000	301	82 991	4.5
R8 001 - R11 000	222	61 209	3.3
R11 001 - R16 000	184	50 732	2.7
R16 001 - R30 000	121	33 362	1.8
R30 001 or more	81	22 333	1.2
Refused to answer	2 272	626 429	33.8
Don't know	988	272 409	14.7
Total	**6 722**	**1 853 371**	**100.0**

Table 8 presents the median monthly household income by sub-region. The overall median household income is R3 556. The highest median income of R7 667 is in the Johannesburg South sub-region, followed by Northcliff/Rosebank and Sandton/Randburg which both have a median

monthly income of R5 501, and R5 101 respectively. The Orange Farm/Ennerdale sub-region, which is located in the southern periphery, has the lowest median household income of R2 527.

Table 8: Median monthly household income by sub-region

Municipality	Sub-regions	Number of Households	% Households	Median monthly income (Rand)
City of Johannesburg	Alexandra / Modderfontein	85 877	4.8	3 556
	Diepmeadow	236 243	13.3	2 625
	Diepsloot	94 425	5.3	2 589
	Joburg Central	100 224	5.6	3 376
	Joburg South	93 205	5.2	7 667
	Midrand	197 435	11.1	2 674
	Northcliff / Rosebank	98 858	5.6	5 501
	Orange Farm / Ennerdale	210 861	11.9	2 527
	Roodepoort	127 713	7.2	3 353
	Sandton / Randburg	190 398	10.7	5 101
	Soweto / Doornkop	343 898	19.3	4 461
	Total	**1 779 137**	**100.0**	**3 556**

Table 9 depicts the relationship between monthly household income and household car access. Car ownership or access to a car remains highly correlated with income. It is notable, however, that some higher-income households do not have access to a car, implying some dependence on public transport provision.

Households that refused to disclose their income have 1.38 cars per household, implying that these households are likely to be in the higher income groups. The CoJ household car access of 0.42 cars per household is significantly higher than the national figure of 0.31 and the average figure for metropolitan municipalities of 0.398[4].

[4] http://www.statssa.gov.za/publications/P0318/P03182019.pdf

Table 9: Car ownership by income and average car ownership per household

Income Range	Weighted number of households	Weighted Number of households with access to car	% of households per income group with access to a car	Average number of cars per household	Weighted estimated number of cars
Nothing	16 621	4 265	25.7	0.07	3 741
R1 - R200	2 096	227	10.9	0.00	159
R201 - R500	33 231	2 565	7.7	0.07	2 883
R501 - R1 000	52 012	6 717	12.9	0.19	6 906
R1 001 - R1 500	150 793	35 300	23.4	0.13	10 379
R1 501 - R2 500	186 821	41 542	22.2	0.15	14 434
R2 501 - R3 500	89 861	11 492	12.8	0.19	15 433
R3 501 - R4 500	85 249	15 306	18.0	0.21	18 256
R4 501 - R6 000	97 455	17 721	18.2	0.28	20 470
R6 001 - R8 000	67 083	24 956	37.2	0.42	28 842
R8 001 - R11 000	51 882	28 322	54.6	0.69	35 949
R11 001 - R16 000	78 373	59 594	76.0	0.88	45 138
R16 001 - R30 000	95 125	79 652	83.7	1.28	49 878
R30 001 or more	58 988	50 125	85.0	1.27	60 820
Don't know	247 154	67 099	27.1	0.30	87 842
Refuse to answer	540 626	178 995	33.1	1.38	226 913
Total	**1 853 371**	**623 877**	**34.9**	**0.42**	**628 043**

Table 10 shows that 48% of households, had no driving licences. About 38% of households had one member with a driver's licence. Only 14% of households had at least two members with a driver's licence.

Table 10: Number of licensed drivers in a household

Number of licensed drivers in households	Weighted number of households	Percentage of households
0	890 015	48.0%
1	706 112	38.1%
2	204 031	11.0%
3	35 292	1.9%
4+	17 922	1.0%
Total	**1 853 371**	**100.0%**

Table 11 shows the distribution of household-owned vehicles in the CoJ (excluding motorcycles). About three-quarters (75%) of households owned no vehicle. Notwithstanding an above-average household car ownership in comparison to the country as a whole, the majority of households in the CoJ do not have access to a car and are therefore dependent on public transport.

Table 11: Vehicle ownership per household

Number of vehicles owned per household	Weighted number of households	Percentage of households
0	1 390 993	75.1%
1	365 050	19.7%
2	76 649	4.1%
3	13 786	0.7%
4	6 893	0.4%
Total	**1 853 371**	**100.0%**

Table 12 represents the distribution of employer-owned vehicles within the CoJ households. About 98% of the households in the CoJ did not have access to employer-owned vehicles, showing that where households have access to a vehicle it is more likely to be privately owned.

Table 12: Employer-owned vehicles per household

Number of employer-owned vehicles per household	Weighted number of households	Percentage of households
0	1 815 873	98.0%
1	31 707	1.7%
2	3 033	0.2%
3	276	0.0%
4+	2 481	0.1%
Total	**1 853 371**	**100.0%**

Table **13** presents the distribution of vehicle access and licensed drivers across sub-regions. In line with the positively correlated relationship between household income and access to a private vehicle, sub-regions with higher average household incomes are likely to have higher levels of private car access – these include Joburg South, Northcliff and Sandton

Table 13: Vehicle distribution by sub-region

Municipality	Sub-region	Number of households	Average car access per household	Average number of licensed drivers per household
City of Johannesburg	Alexandra/ Modderfontein	85 877	0.33	0.14
	Diepmeadow	236 243	0.21	0.14
	Diepsloot	94 425	0.16	0.06
	Joburg Central	100 224	0.35	0.12
	Joburg South	93 205	0.76	0.19
	Midrand	197 435	0.28	0.13
	Northcliff/ Rosebank	98 858	0.74	0.19
	Orange Farm/ Ennerdale	210 861	0.4	0.11
	Roodepoort	127 713	0.43	0.14
	Sandton/ Randburg	190 398	0.51	0.18
	Soweto/ Doornkop	343 898	0.4	0.13
		1 779 137	**0.42**	**0.14**

6 FINDINGS: POPULATION CHARACTERISTICS

Table 14 shows the age distribution for the CoJ. The City is characterised by a population with a large proportion of young people. Younger people tend to be more mobile, implying that the City should ordinarily gear itself to providing demand-responsive services.

Table 14: Age group

Age group (years)	Population size	% Population
0 – 6	651 209	13.2%
7-17	803 494	16.2%
18 – 25	653 557	13.2%
26 – 65	2 601 744	52.6%
65+	239 342	4.8%
Total	**4 949 347**	**100.0%**

The age distribution is further represented in Figure 9 in five-year intervals. Population representation in the age groups 0–5, 26–30 and 36–40 years is particularly high, further confirming the need for demand responsive transport services for some time to come.

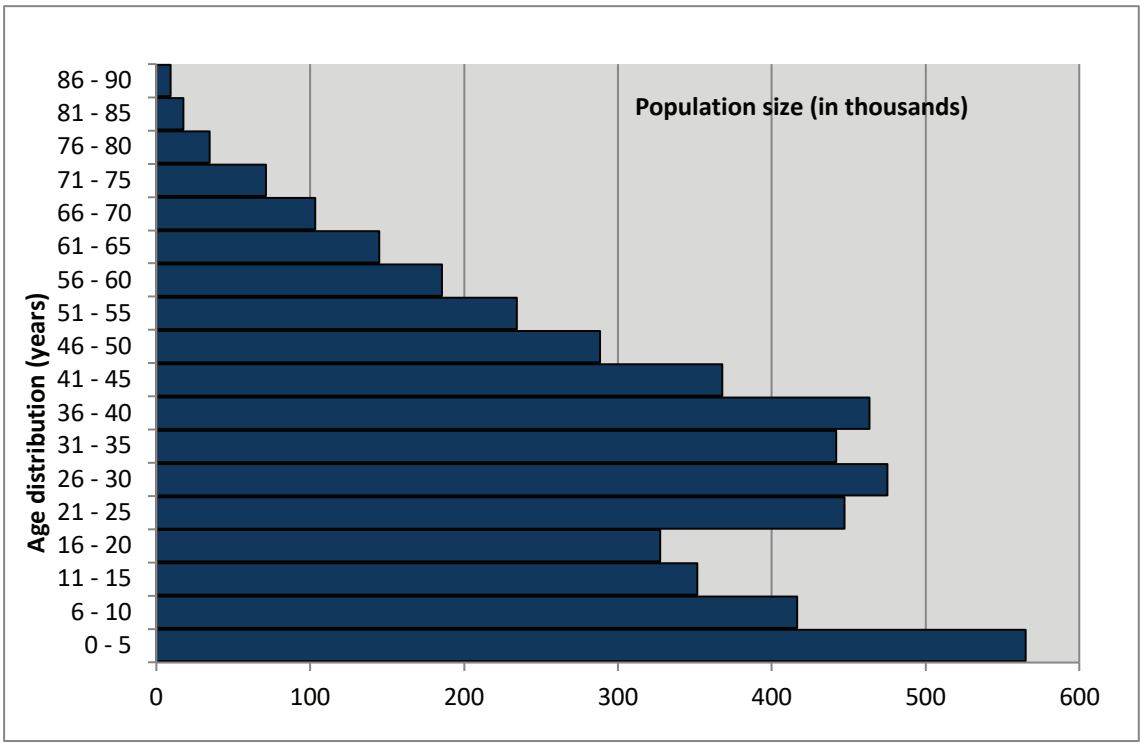

Figure 9: Age distribution of the population in the City of Johannesburg

Table 15 presents the profile of disabilities and physical difficulties reported by the respondents in the CoJ survey. A total number of 83 851 persons, representing 1.69% of the population in the CoJ, live with some form of disability or some form of mobility constraint. The predominant form of impairment was related to mobility where the use of crutches was necessary for about 0.48% of the population.

Table 15: Persons living with mobility constraints

Disability or difficulty	Number of persons	Percentage of persons with difficulty
Climbing stairs	7 595	0.15
Hearing	8 810	0.18
Mentally handicapped	911	0.02
Needs wheelchair	7 595	0.15
Other	10 026	0.20
Sight impaired or blind	17 317	0.35
Speech impairment	1 215	0.02
Travels with a baby	6 380	0.13
Uses crutches or stick	24 001	0.48
Total	**83 851**	**1.69**

Table 16 presents the profile of occupations for CoJ household members. About 28% were in full-time employment, while about 5% were employed on a part-time basis. The percentage of unemployed people who wished to work was reported as being just over 25%. The number of unemployed people is significantly high warranting an assessment in the CoJ's transport plan on how they travel. Based on these numbers, the CoJ could also decide the budget required to support concessionary fares, if required.

Table 16: Occupational status

Occupational Status	Weighted number of Persons	Percentage of population
Child staying at home	182 360	3.7
Full-time worker	1 361 273	27.5
Housewife or househusband	167 826	3.4
Learner: high school	244 636	4.9
Learner: pre-school child	58 205	1.2
Learner: primary school	311 236	6.3
Learner: university or college student	91 452	1.8
Other	342 854	6.9
Part-time worker	256 116	5.2
Pensioner or retired	399 192	8.1
Unable to work; handicapped or ill	39 277	0.8
Unemployed: would like to work	1 240 113	25.1
Unspecified	254 807	5.1
Total	**4 949 347**	**100.0**

Table 17 categorises the CoJ population in terms of the highest level of education attained. Just over 38% of the population had completed high school, while only about 13% of the population had some tertiary education qualification.

Table 17: Educational level attained

Educational level	Weighted number of people	Percentage of population
None	221 173	4.5
Some primary school	381 280	7.7
Completed primary	196 564	4.0
Some high school	1 114 674	22.5
Completed high school	1 891 209	38.2
Diploma with no matric	24 001	0.0
Diploma with matric	162 841	3.3
University or college	483 967	9.8
Unspecified	473 638	9.6
Total	**4 949 347**	**100.0**

Figure 10 compares the cumulative distributions of household expenditure on public transport between the CoJ and Gauteng Province. On average, households in the CoJ spend relatively more on public transport. Significantly about 60% of households in the CoJ spend more than 10% on public transport.

Figure 10: Comparison of cumulative distributions of household expenditure on public transport

Table 18 shows the weighted gender distribution in the CoJ and Gauteng Province. Generally, the gender distribution is similar for the province and the City, with marginally more males than females in the CoJ. Travel patterns for males and females tend to be different. Therefore, using the detailed survey datasets, the CoJ will be in a position to understand the associated planning implications.

Table 18: Gender split

Area	Male	Female	Total
City of Johannesburg	50.1%	49.9%	100%
Gauteng Province	50.4%	49.6%	100%

Table 19 shows the population of the CoJ and Gauteng in terms of population groups. Blacks / Africans comprise 80.5% of the population, followed by whites at about 9.8%. For historical reasons, the population groups are generally correlated with affluence.

Table 19: Population groups

Area	Black/African	White	Coloured	Indian/Asian	Total
City of Johannesburg	80.5%	9.8%	5.3%	4.4%	100%
Gauteng	80.4%	13.6%	3.3%	2.7%	100%

More than anything, the above population statistics are useful for confirming the reliability of the survey sample. Often these variables need to be used in conjunction with others to offer a better explanation of travel behaviour.

7 FINDINGS: EMPLOYMENT CHARACTERISTICS

Table 20 shows the distribution of the number of full-time employed persons per household. More than half the households do not have any full-time employed person. The design of services, including fare policy, should recognise that the majority of the population is not fully employed.

Table 20: Number of full-time employed persons

Number of full-time employed per household	Weighted number of households	Percentage of full-time employed per household
0	928 891	50.1
1	799 304	43.1
2	108 908	5.9
3	12 683	0.7
4+	3 584	0.2
Total	1 853 371	100.0

Table 21 illustrates the distribution of employment across the CoJ. Overall, the ratio of employment to unemployment is 53:47. Sub-regions with higher unemployment such as Midrand and Diepsloot may require attention in the form of subsidised transport services. Other interventions that include directing employment opportunities to such areas would also provide some relief.

Table 21: Employment status by sub-region

Municipality	Sub-region	Number of households	% Employed	% Unemployed
City of Johannesburg	Alexandra / Modderfontein	85 877	54	46
	Diepmeadow	236 243	47	53
	Diepsloot	94 425	47	53
	Joburg Central	100 224	51	49
	Joburg South	93 205	68	32
	Midrand	197 435	41	59
	Northcliff / Rosebank	98 858	61	39
	Orange Farm / Ennerdale	210 861	45	55
	Roodepoort	127 713	52	48
	Sandton / Randburg	190 398	68	32
	Soweto / Doornkop	343 898	52	48
	Total	**1 779 137**	**53**	**47**

Table 22 shows the number of days workers in the CoJ travel to work by household income. Just over 60% of the workers worked five days a week. However, almost a third of the workers report working more than five days a week. This observation is important for fare policy formulation.

Table 22: Days worked per week by household monthly income

Monthly household income	Weighted number of trips	0	1	2	3	4	5	6	7
Nothing	7 241	0.0%	0.0%	0.0%	0.0%	0.0%	43.7%	54.0%	2.3%
R1 - R200	2 842	0.0%	0.0%	24.6%	0.0%	0.0%	0.0%	69.5%	6.0%
R201 - R500	5 323	0.0%	2.3%	5.3%	35.3%	10.9%	12.0%	2.3%	31.9%
R501 - R1 000	16 043	0.0%	2.4%	2.7%	8.6%	11.7%	30.8%	20.5%	23.4%
R1 001 - R1 500	20 806	0.0%	2.5%	1.6%	12.9%	3.2%	35.4%	13.1%	31.4%
R1 501 - R2 500	40 651	0.0%	0.0%	2.7%	4.5%	5.2%	45.5%	25.3%	16.8%
R2 501 - R3 500	63 526	0.0%	0.0%	0.4%	8.6%	7.8%	32.4%	17.5%	33.2%
R3 501 - R4 500	72 553	0.0%	0.5%	0.4%	6.1%	5.8%	39.7%	38.7%	8.7%
R4 501 - R6 000	104 529	0.2%	0.0%	0.2%	1.4%	10.8%	50.3%	27.6%	9.6%
R6 001 - R8 000	86 587	0.0%	0.0%	0.0%	0.2%	6.5%	55.9%	26.0%	11.4%
R8 001 - R11 000	71 986	0.0%	0.0%	0.8%	6.2%	2.1%	60.9%	25.2%	4.8%
R11 001 - R16 000	69 180	0.0%	0.0%	0.0%	2.2%	4.1%	76.6%	12.1%	5.0%
R16 001 - R30 000	91 642	0.4%	0.0%	0.0%	0.0%	0.4%	72.0%	25.4%	1.8%
R30 001 or more	165 547	0.0%	0.0%	0.0%	2.5%	4.7%	80.5%	3.0%	9.5%
Do not know	207 610	0.0%	0.3%	0.8%	9.8%	5.4%	53.5%	18.6%	11.6%
Refuse to answer	516 706	0.1%	0.2%	0.3%	1.8%	4.1%	65.0%	18.6%	9.9%
Total	**1 542 773**	**0.1%**	**0.2%**	**0.5%**	**3.8%**	**5.0%**	**60.1%**	**19.6%**	**10.8%**

8 FINDINGS: TRIP INFORMATION

The morning peak-period travel refers to a trip that starts between 06:00 and 09:00. Table 23 presents the estimated number of morning peak trips by purpose. Work trips accounted for 43% of total morning peak-period trips, and education-related trips about 12%. It is, however, possible that education trips were underreported by households, resulting from ethical considerations associated with reporting on minors.

Table 23: Morning-peak trips by purpose

Trip purpose	Weighted number of trips	Percentage of trips
Drop or pickup someone	15 671	1.1
Educational	173 467	12.2
Looking for work	23 416	1.7
Medical purposes	48 008	3.4
Other	58 180	4.1
Recreational	5 642	0.4
Shopping	104 646	7.4
To go home	200 921	14.2
Traditional healer visit	365	0.0
Unspecified	107 884	7.6
Visiting friend or relative	31 177	2.2
Welfare offices	8 927	0.6
Work at usual workplace	560 608	39.6
Work somewhere else	49 270	3.5
Worship	29 174	2.1
Total	**1 417 356**	**100.0**

Table 24 presents the mode used during the morning peak. Minibus taxi was the dominant mode, followed by car as the driver and walking all the way. The Gautrain bus, cycling and motorcycle are some of the least used modes. The reasons for walking rather than cycling require further investigation.

Table 24: Morning peak trip by mode

Mode of transport	Weighted number of peak trips	Percentage of trips
Commuter or minibus taxi	442 215	31.2
Walk all the way	303 314	21.4
Car as a driver	401 112	28.3
Car as a passenger	62 364	4.4
Unspecified	53 860	3.8
Bus	34 017	2.4
School Bus	9 921	0.7
Other	58 112	4.1
Metered taxi	14 174	1
Company transport	15 591	1.1
Train	4 252	0.3
Lift club passenger	5 669	0.4
Lift club driver	4 252	0.3

Mode of transport	Weighted number of peak trips	Percentage of trips
Gautrain	4 252	0.3
Bicycle	2 835	0.2
Motorcycle	1 276	0.09
Gautrain bus	142	0.01
Total	**1 417 356**	**100.0**

Table 25 shows the average travel time for peak-period trips. Of all the travel modes, trains had the highest average travel time (an average of 1 hour and 24 minutes), while the average travel time for walking all the way was 48 minutes. Significantly, the overall average travel time surpassed an hour which has been an upper limit policy norm.

Table 25: Average total travel time for peak-period trips (one-way)

Mode of transport	Weighted number of peak trips	% Peak trips	Average travel time (hours)
Bus	43 938	3.1	01:18
Car as a driver	491 823	34.7	01:16
Car as a passenger	66 616	4.7	00:52
Commuter or minibus taxi	425 207	30.0	01:07
Company transport	15 591	1.1	01:16
Gautrain	5 669	0.4	01:00
Lift club driver	1 417	0.1	01:07
Lift club passenger	17 008	1.2	01:15
Metered taxi	12 756	0.9	00:59
Other	19 843	1.4	01:30
School bus	18 426	1.3	00:58
Train	8 504	0.6	01:24
Walk all the way	291 975	20.6	00:48
Total	**1 417 356**	**100.0**	**01:08**

Table 26 shows the distribution of departure times for morning peak-period trips by trip purpose. About 35% of peak-period trips were made between 06:00 and 06:59. Over 71% of work trips were made before 07:00. The profile further shows that trips made for educational purposes were mostly made between 07:00 and 07:59.

Table 26: Departure times by trip purpose

Trip purpose	Weighted number of trips	Before 06:00	06:00 – 06:59	07:00 – 07:59	08:00 – 09:00
Drop or pickup someone	18 831	16.8%	21.2%	48.1%	13.9%
Education	176 182	1.5%	33.1%	57.3%	8.0%
Looking for work	28 364	17.4%	24.4%	26.8%	31.4%
Medical purposes	53 142	9.0%	32.9%	35.7%	22.4%
Other	69 276	16.0%	13.5%	29.5%	40.9%
Recreational	6 007	6.1%	19.5%	9.4%	65.0%

Trip purpose	Weighted number of trips	Before 06:00	06:00 – 06:59	07:00 – 07:59	08:00 – 09:00
Shopping	107 126	2.3%	9.5%	17.1%	71.0%
To go home	239 670	16.2%	41.2%	25.8%	16.8%
Unspecified	57 461	42.3%	13.6%	25.6%	18.5%
Visiting friend or relative	33 673	7.4%	7.1%	15.4%	70.1%
Welfare offices	9 303	4.0%	23.1%	41.2%	31.7%
Work at usual work place	805 648	21.8%	43.6%	25.4%	9.2%
Work somewhere else	66 210	17.6%	32.0%	20.3%	30.2%
Worship	30 242	3.5%	2.6%	16.8%	77.1%
Total	**1 701 135**	**16.7%**	**34.8%**	**28.5%**	**20.0%**

Table 27 shows morning peak-period departure times according to household income. Individuals from lower-income households tend to travel earlier, perhaps to offset the lower public transport speeds of their modes of travel and/or longer travel distances.

Table 27: Trip departure times by income category

Household income	Weighted number of tips	Before 06:00	06:00 – 06:59	07:00 – 07:59	08:00 – 09:00
Nothing	22 208	15.0%	19.0%	22.8%	43.2%
R1 - R200	5 500	44.6%	13.4%	15.5%	26.5%
R201 - R500	24 837	22.5%	15.5%	27.1%	35.0%
R501 - R1 000	41 883	18.6%	21.1%	32.7%	27.6%
R1 001 - R1 500	63 213	15.5%	21.4%	32.6%	30.5%
R1 501 - R2 500	104 590	16.9%	18.6%	32.8%	31.7%
R2 501 - R3 500	85 379	15.4%	23.1%	35.8%	25.7%
R3 501 - R4 500	77 243	17.9%	30.7%	30.7%	20.7%
R4 501 - R6 000	97 613	21.0%	33.1%	30.6%	15.3%
R6 001 - R8 000	71 271	18.7%	37.1%	29.6%	14.6%
R8 001 - R11 000	62 848	16.2%	46.9%	27.4%	9.5%
R11 001 - R16 000	56 658	17.0%	31.1%	34.4%	17.4%
R16 001 - R30 000	58 575	6.5%	39.1%	27.0%	27.4%
R30 001 or more	73 417	5.1%	46.5%	25.2%	23.2%
Don't know	246 306	19.4%	38.1%	24.2%	18.3%
Refuse to answer	609 594	16.6%	39.6%	27.5%	16.4%
Total	**1 701 135**	**16.7%**	**34.8%**	**28.5%**	**20.0%**

Table 28 shows the average number of trips – for various purposes – that were made during the morning peak period per household and by income group. It is worth noting that households that reported zero income made a relatively high number of trips. Household members who refused to disclose their income made a relatively high number of trips, a further indication that they are likely to be in higher-income categories. The reduced trip rate at income above R11 000 is anomalous and may represent an underreporting of trips by higher-income households.

Table 28: Number of daily trips per household by income group (unidirectional)

Household income	Average number of trips	Going home	Going to school	Going to work	Shopping	Other
Don't know	1.02	1.15	2.37	1.09	0.23	0.25
Nothing	0.85	0.89	2.00	0.90	0.21	0.24
R1-R200	0.18	0.00	0.00	0.33	0.20	0.35
R201-R500	0.71	0.75	1.50	0.70	0.32	0.30
R501-R1 000	1.56	1.54	4.83	0.74	0.38	0.29
R1 001-R1500	1.31	1.25	3.82	0.90	0.29	0.31
R1 501-R2 500	1.52	0.73	5.44	0.81	0.25	0.36
R 2501-R3 500	1.14	1.36	3.00	0.76	0.22	0.34
R3 501-R4 500	1.31	1.23	4.00	0.79	0.28	0.26
R 4501-R6 000	1.37	1.15	4.14	0.76	0.50	0.28
R6 001-R8 000	2.04	1.56	7.00	0.82	0.53	0.29
R8 001-R11 000	2.21	1.56	8.00	0.88	0.38	0.23
R11 001-R16 000	1.13	1.40	3.00	0.94	0.09	0.20
R16 001-R30 000	0.58	1.33	0.00	1.05	0.20	0.32
Refuse to answer	1.54	1.28	5.08	0.86	0.32	0.18
Average number of trips	**0.87**	**0.79**	**2.66**	**0.54**	**0.20**	**0.17**

Table 29 shows the mode of travel by trip purpose. While a large proportion of trips in the CoJ were undertaken for work or education, as well as to go home, it is worth noting that bicycles, buses, company transport, own car as well as lift clubs were predominantly used for trips undertaken for work at usual workplace purposes. Notwithstanding its low sampling rate, the Gautrain tended to be used for occasional work destinations.

Table 29: Mode of travel according to purpose

Trip purpose	Bicycle	Bus	Car as a driver	Car as a passenger	Commuter or minibus taxi	Company transport	Gautrain	Lift club driver	Lift club passenger	Metered taxi	Motorcycle	Other	School bus	Train	Unspecified	Walk all the way
Drop or pickup someone	0%	0%	3%	1%	1%	1%	0%	8%	0%	1%	0%	0%	0%	1%	0%	2%
Educational	0%	4%	1%	6%	3%	0%	0%	0%	3%	1%	0%	6%	77%	1%	0%	12%
Looking for work	0%	1%	0%	1%	3%	0%	0%	0%	0%	2%	0%	0%	0%	5%	0%	1%
Medical purposes	0%	0%	1%	4%	5%	1%	0%	0%	0%	10%	0%	6%	0%	0%	0%	4%
Other	20%	0%	2%	6%	4%	1%	0%	0%	2%	0%	0%	21%	0%	6%	0%	10%
Recreational	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%
Shopping	0%	1%	7%	12%	13%	0%	0%	0%	0%	12%	0%	14%	0%	3%	0%	15%
To go home	0%	20%	24%	32%	26%	29%	14%	25%	41%	43%	50%	13%	19%	27%	1%	27%
Unspecified	0%	0%	1%	1%	0%	0%	29%	0%	0%	1%	0%	0%	2%	0%	98%	0%
Visiting friend or relative	0%	2%	2%	5%	5%	1%	0%	0%	0%	3%	50%	2%	0%	4%	0%	11%
Welfare offices	0%	0%	0%	3%	1%	0%	0%	0%	1%	1%	0%	0%	0%	1%	0%	0%
Work at usual work place	80%	67%	53%	20%	34%	61%	14%	58%	51%	21%	0%	29%	3%	45%	0%	11%
Work somewhere else	0%	3%	4%	5%	2%	6%	43%	8%	1%	2%	0%	5%	0%	4%	0%	2%
Worship	0%	1%	2%	3%	3%	0%	0%	0%	0%	3%	0%	5%	0%	1%	0%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 30**Table 35** shows the proportion of morning peak-period trips by trip purpose relative to all trips made by households in a day. The high proportion of peak period trips for work and education purposes may generally be reflective of an underreporting of off-peak travel by households.

Table 30: Morning peak trips by purpose

Trip purpose during morning peak	% of peak trips over all trips generated by households	Weighted number of trips	% of peak trips
Work at usual workplace	69.1	661 905	46.7
Educational	91.9	188 508	13.3
To go home	14.9	225 360	15.9
Shopping	21.7	65 198	4.6
Medical purposes	65.5	48 190	3.4
Other	34.0	51 025	3.6
Work somewhere else	58.3	56 694	4.0
Looking for work	58.6	21 260	1.5
Unspecified	47.7	29 764	2.1
Visiting friend or relative	15.1	24 095	1.7
Worship	26.3	15 591	1.1
Drop or pickup someone	36.3	18 426	1.3
Welfare offices	68.2	8 504	0.6
Recreational	30.8	2 821	0.199
Traditional healer visit	16.7	14	0.001
Total	**41.0**	**1 417 356**	**100.0%**

Table 31 shows the travellers' average walking time to access their first mode of public transport and to reach their final destination during the morning peak period. Train users had the longest walking access times while Gautrain users had the lowest access times.

Table 31: Walking time to access public transport and at trip end by transport mode

Mode of transport	Weighted number of trips	Average walking time at start	Average walking time at the end of trip
Bus	43 938	10.3	9.0
Commuter or minibus taxi	425 207	11.6	10.1
Gautrain	5 669	5.2	6.2
Train	8 504	16.9	14.0
Total	**483 318**	**11.0**	**9.8**

Table 32 shows the average walking time of users of public transport to access their first mode of public transport and to reach their final destination during the morning peak period by income group (limited to records where all information was provided). Average walking times at the start and the end of the trip were almost similar – amounting to approximately 12 minutes and 11 minutes respectively. The travellers from relatively high-income households, specifically those earning from R11 000 upwards, had shorter walking times.

Table 32: Walking time to access public transport according to income

Household monthly income	Number of trips (sample)	Weighted number of trips	% trips	Average walking time at trip start (min)	Average walking time from trip end (min)
Do not know	257	74 253	32.5%	11.3	10.1
Nothing	8	37 664	16.5%	16.3	18.1
R1 - R200	6	34 269	15.0%	16.7	15.8
R201 - R500	29	10 900	4.8%	14.7	15.3
R501 - R1 000	54	3 696	1.6%	16.5	16.0
R1 001 - R1 500	90	11 172	4.9%	12.4	12.7
R1 501 - R2 500	156	1 105	0.5%	11.4	10.6
R2 501 - R3 500	124	1 175	0.5%	11.5	9.6
R3 501 - R4 500	153	10 989	4.8%	11.9	9.5
R4 501 - R6 000	165	549	0.2%	11.4	9.1
R6 001 - R8 000	119	8 181	3.6%	10.7	8.8
R8001 - R11 000	77	5 179	2.3%	14.0	8.9
R11 001 - R16 000	46	1 994	0.9%	7.9	7.9
R16 001 - R30 000	13	4 817	2.1%	6.2	5.1
R30 001 or more	5	18 749	8.2%	6.2	4.4
Refuse to answer	547	3 437	1.5%	10.4	9.3
Total	**1 849**	**228 128**	**100.0%**	**11.8**	**10.7**

Table 33 shows morning peak-period access times for education trips by transport mode at trip start and trip end. The bus users tend to experience the longest access times, while access times to the school buses were relatively low at both the start and end of the trip.

Table 33: Walking time for peak-period trips for educational purposes according to mode of travel

Public transport mode	Weighted number of trips	% trips	Walking time to trip start	Walking time from trip end to destination
Bus	2 250	4.8%	18.3	16.1
Commuter or minibus taxi	23 001	48.9%	9.6	8.4
Metered taxi	250	0.5%	5.0	5.0
Other	2 000	4.3%	8.8	8.1
School bus	19 251	41.0%	7.8	6.8
Train	250	0.5%	5.0	10.0
Total	**47 003**	**100.0%**	**9.1**	**9.1**

Table 34 shows the estimated walking times for learners using public transport by household income (limited to records where all information was available). Lower-income households tend to have longer travel times to access public transport.

Table 34: Access times for education-related trips during peak-period by household income

Household monthly income	Weighted number of trips	% trips	Average walking time at trip start (min)	Average walking time from trip end (min)
Nothing	37 664	16.5%	16.3	18.1
R1 - R200	34 269	15.0%	16.7	15.8
R201 - R500	10 900	4.8%	14.7	15.3
R501 - R1 000	3 696	1.6%	16.5	16.0
R1 001 - R1 500	11 172	4.9%	12.4	12.7
R1 501 - R2 500	1 105	0.5%	11.4	10.6
R2 501 - R3 500	1 175	0.5%	11.5	9.6
R3 501 - R4 500	10 989	4.8%	11.9	9.5
R4 501 - R6 000	549	0.2%	11.4	9.1
R6 001 - R8 000	8 181	3.6%	10.7	8.8
R8 001 - R11 000	5 179	2.3%	14.0	8.9
R11 001 - R16 000	1 994	0.9%	7.9	7.9
R16 001 - R30 000	4 817	2.1%	6.2	5.1
R30 001 or more	18 749	8.2%	6.2	4.4
Don't know	74 253	32.5%	11.3	10.1
Refuse to answer	3 437	1.5%	10.4	9.3
Total	**228 128**	**100.0%**	**11.8**	**10.7**

Table 35 shows the estimated origin and destination trip distribution matrix in Gauteng Province for a typical weekday in 2019/20. Intra-municipal trips continue to be highest in Johannesburg, followed by Tshwane and Ekurhuleni. Inter-municipal trips originating from the CoJ were mostly destined for Ekurhuleni, and vice versa. Inter-municipal trips originating from the West Rand were relatively high and mainly destined for the CoJ. The trips reported in this table are highly sensitive to underreporting and trip origin-destination sampling and are therefore only indicative.

Table 35: Gauteng origin and destination matrix

	Trip destination							
	Regions	**Ekurhuleni**	**Johannesburg**	**Sedibeng**	**Tshwane**	**West Rand**	**Outside Gauteng**	**Total**
Trip origin	**Ekurhuleni**	1 724 992	136 100	1 055	10 550	0	9 495	1 882 193
	Johannesburg	66 456	3 092 909	9 879	37 718	58 374	14 369	3 279 705
	Sedibeng	1 786	23 212	1 346 277	1 786	1 786	10 713	1 385 559
	Tshwane	11 989	5 994	0	2 225 944	0	8 992	2 252 919
	West Rand	0	295 037	0	3 598	1 501 571	482 134	2 282 340
	Outside Gauteng	224	224	0	0	0	0	449
	Total	**1 805 447**	**3 553 476**	**1 357 211**	**2 279 596**	**1 561 730**	**525 703**	**11 083 165**

9 FINDINGS: ATTITUDES TOWARDS PUBLIC TRANSPORT USE

Table 36 provides indicative levels of satisfaction with buses across various service attributes. While bus users were generally more satisfied than dissatisfied with the services, they were mostly dissatisfied with facilities at stops, levels of crowding on buses and off-peak service frequency.

Table 36: Satisfaction with various bus service attributes

Bus attributes	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Behaviour of the bus drivers to passengers	8%	3%	23%	43%	23%
Bus fare	8%	9%	23%	43%	17%
Bus service overall	8%	6%	22%	48%	15%
Distance of the bus stop from home	7%	9%	23%	45%	15%
Distance of the bus stop from work	6%	7%	27%	48%	12%
Facilities at the bus stop	10%	15%	26%	35%	15%
Level of crowding in the bus	11%	13%	26%	36%	14%
Off-peak frequency of buses	10%	11%	29%	37%	13%
Peak-period frequency of buses	8%	11%	27%	34%	19%
Perceived accidents of the bus	9%	8%	31%	38%	13%
Punctuality of buses	9%	9%	26%	40%	16%
Road worthiness of buses	9%	7%	24%	39%	20%
Security at the bus stop	8%	14%	26%	35%	16%
Security on the bus	9%	8%	25%	43%	15%
Security on walk to bus	8%	9%	24%	43%	15%
Travel time in the bus	6%	8%	20%	50%	16%
Grand Total	**8%**	**9%**	**25%**	**41%**	**16%**

Table 37 provides reasons given by household members for not using bus services. The general unavailability of bus services tends to be the main reason for not using buses.

Table 37: Reasons for not using buses

Reasons bus not used	Percentage
No bus available	52.3
Buses don't go where needed	9.4
Buses are crowded	7.6
Bus not available at the right time	5.7
Bus not available often enough	5.6
Bus stop too far from home	5.5
Bus stop too far from destination	5.0
Buses always late	5.0
Bus too expensive	2.5

Reasons bus not used	Percentage
Prefer taxi	0.5
No Knowledge of time table and routes	0.5
Prefer private transport	0.2
Travel time too long or too slow	0.1
Have to change transports	0.1
Other	0.0
Too much crime/dangerous	0.0
Total	**100.0**

Table 38 provides indicative levels of satisfaction by household members with various minibus taxi service attributes. While minibus taxi users are more satisfied than dissatisfied with services, they tend to be dissatisfied with fares, the behaviour of drivers, roadworthiness of vehicles, and security when walking to access the services.

Table 38: Satisfaction with minibus taxi services

Taxi attributes	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Behaviour of the taxi drivers to passengers	17%	19%	30%	26%	8%
Distance of the taxi stop from home	11%	13%	25%	40%	12%
Distance of the taxi stop from work	10%	14%	33%	34%	10%
Facilities at the taxi ranks or stops	14%	17%	30%	30%	9%
Level of crowding in the taxi	9%	17%	29%	37%	9%
Off-peak frequency of taxis	10%	15%	29%	35%	12%
Peak-period frequency of taxis	10%	13%	27%	36%	13%
Perceived accidents of the taxi	14%	17%	34%	26%	8%
Punctuality of taxis	10%	13%	30%	34%	13%
Roadworthiness of taxis	14%	21%	30%	25%	10%
Security at the taxi rank or stop	11%	19%	29%	32%	10%
Security in the taxi	10%	17%	29%	34%	9%
Security on walk to taxi	13%	21%	28%	29%	10%
Taxi fares	15%	17%	28%	32%	9%
Taxi service overall	11%	17%	38%	27%	7%
Travel time in the taxi	9%	15%	29%	34%	13%
Waiting time for taxis	10%	16%	30%	32%	11%
Grand Total	**12%**	**17%**	**30%**	**32%**	**10%**

Table 39 provides the main reasons disclosed for not using taxis, where the predominant reason is indicated as a preference for private transport, followed by taxis being too expensive. Taxis not

being roadworthy is one of the least cited reasons for not using taxis and may imply that the taxi recapitalisation programme is becoming effective.

Table 39: Reasons for not using taxis

Reasons taxi not used	Percentage
Prefer private transport	26.8%
Taxi too expensive	22.8%
Taxi not available at the right time	19.0%
Taxis are crowded	12.7%
No taxi available	4.1%
Taxi stop too far from destination	3.1%
Taxis do not go where needed	3.1%
Taxi stop too far from home	3.0%
Prefer train	3.0%
Taxis always late	1.2%
Taxis not roadworthy	1.2%
Total	**100.0%**

Table 40 provides indicative levels of satisfaction of household members with various train service attributes. Household members tend to be more satisfied than dissatisfied with train services. The household members are mainly dissatisfied with levels of crowding on trains. Other areas of concern are security when accessing services and the speed of services.

Table 40: Level of satisfaction with train services

Train attributes	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Distance of station from home	22%	18%	17%	33%	10%
Distance of station from work	19%	16%	34%	25%	6%
Facilities at stations	10%	18%	21%	31%	20%
Level of crowding in the train	36%	20%	14%	23%	7%
Off-peak frequency of trains	17%	16%	33%	28%	6%
Peak-period frequency of train	17%	18%	30%	29%	7%
Perceived accidents of the train	11%	13%	37%	26%	13%
Punctuality of trains	23%	16%	19%	29%	13%
Security at the station	22%	20%	13%	27%	18%

Train attributes	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Security on the train	20%	22%	15%	27%	16%
Security on walk to train	18%	27%	17%	28%	9%
The train service overall	15%	20%	26%	26%	12%
Train fares	8%	11%	21%	43%	16%
Travel time by train	23%	20%	15%	28%	14%
Grand Total	**19%**	**18%**	**22%**	**29%**	**12%**

Table 41 provides reasons disclosed by household members for not using trains. The main reason is the unavailability of the services, followed by overcrowding.

Table 41: Reasons for not using trains

Reason train not used	Percentage
No train available at all	22.5%
Trains are crowded	14.1%
Prefer taxi	8.9%
Too much crime or dangerous	8.8%
Train stop too far from home	8.5%
Train stop too far from destination	8.0%
Trains always late	7.6%
Trains don't go where needed	6.9%
Travel time too long or too slow	3.5%
Train not available often enough	2.5%
Train not available at the right time	2.5%
Prefer private transport	2.3%
Train too expensive	1.9%
Have to change transport	1.1%
Too many accidents	0.8%
Total	**100.0%**

10 CONCLUDING REMARKS

Household travel surveys are instrumental for an improved understanding of travel behaviour by members of households. The report provides a high-level overview of the responses received from some 6 722 households in the CoJ regarding transport and travel.

While Gauteng Province and the CoJ do not have explicit policy targets, indications are that service quality is deteriorating, as characterised by increased travel times and reliance on lower capacity transport modes for a city whose population is rapidly increasing. Crime is also emerging as a threat for users of public transport. Respondents particularly feel unsafe when walking to access public transport services. Therefore, improved collaboration with policing services to improve the personal security of public transport users is imperative.

The survey encountered several challenges, some of which impacted the quality of the data. These include the prevalence of crime encountered by enumerators, which resulted in “no-go areas” for fieldworkers. The refusal of some households to participate, particularly in gated communities, also presented an enormous challenge. The increased distrust of households for this mode of measuring household characteristics warrants the introduction of less intrusive measurement approaches. Trip underreporting presents a particular challenge for off-peak travel. Underreporting of trip destinations also compromises the trip matrices for transport modelling purposes.

For the CoJ, it is recommended that:

- Datasets are made available for more detailed and targeted analyses.
- Transport policy targets are set in a manner that facilitates the measurement of backlogs.

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12 ANNEXURES

ANNEXURE A: THE MAIN RESIDENTIAL CLASSES OF THE RESIDENTIAL POINT DATASET

Class No	Class Name	Class Description
7	Residential	Residential
7.1	Formal	Free Hold Formal houses
7.2	Informal	Informal Structures
7.2.1	Informal	All Informal housing structures
7.2.2	Transitional	Housing structures that are difficult to classify as either Informal or Formal
7.2.3	Backyard Structures	All Backyard structures associated with formal housing that may be used for housing purposes (formal or informal)
7.3	Cluster/Complexes	Cluster/Complexes
7.3.1	Flats	Typical Flats, includes single or more levels of flats above commercial buildings
7.3.2	Hostels	Mainly worker hostels, typical or mining areas, etc.
7.3.4	Townhouses	Includes Townhouses and housing complexes
7.3.5	Duet	Formal Duet Housing
7.4	Estates	Small Holdings / Agriculture
7.4.1	Estate Gate ID	Point placed at the estate gate with the name (no unit count)
7.4.2	Estate Housing	Every individual estate house receives a point with the estate name
7.5	Security Villages	Security Estates
7.5.1	Security Village gate	Point placed at the Security Village gate with the name (no unit count)
7.5.2	Security Village Housing	Every individual Security Village house received a point with the village name
7.6	Smallholdings / Agriculture	Small Holdings / Agriculture
7.6.1	Smallholdings	Smallholding Housing Units (Excludes labour housing)
7.6.2	Farmsteads	Farmstead Housing Unit (Excludes labour housing)
7.7	Rural Workers Housing	Includes all rural workers housing on smallholdings, farms, forestry areas, etc.
7.8	Villages	Villages as found in mainly in KZN and the Eastern Cape provinces

12.1 ANNEXURE B: SURVEY QUESTIONNAIRE

PARTICULARS OF THE DWELLING

1 Number of dwelling units on this stand

…….. Select dwelling

1.1

1.2 Indicate the type of main dwelling that the household occupies: (Drop down list)

1.	Dwelling/house or brick/concrete block structure on a separate stand or yard or on farm
2.	Traditional dwelling/hut/structure made of traditional materials
3.	Flat or apartment in a block of flats
4.	Cluster house in complex
5.	Town house (semi-detached house in complex)
6.	Semi-Detached house
7.	Dwelling/house/flat/room in backyard
8.	Informal dwelling/shack in backyard
9.	Informal dwelling/shack Not in backyard, e.g. in an informal/squatter settlement or on farm
10.	Room/ flatlet on a property or a larger dwelling/servant's quarters/granny flat
11.	Hostel – Family unit
12.	Hostel – Students
13.	Hostel – Single gender
14.	Caravan/tent
15.	Other (Specify)

2 Dwelling unit number of selected dwelling unit

…….. (generated by program)

3 Total number of households at selected dwelling unit

…….. Select dwelling

4 Household number of selected household

…….. (generated by program)

5 Preferred method of contact for selected household

……..

1 HOUSEHOLD INFORMATION (ALL QUESTIONS IN 1 ARE ANSWERED BY MAIN RESPONDENT)

1.1 Are you the head of the household?

O Yes

O No

1.2 How many people in total (including yourself) usually stay in this household for at least four nights per week?

RECORD ONE NUMERICAL ANSWER

……..

1.2.1 Is there any other person usually residing in this household, for at least four nights a week, other than those already mentioned?

1 HOUSEHOLD INFORMATION (ALL QUESTIONS IN 1 ARE ANSWERED BY MAIN RESPONDENT)

1.4 From your home, how long do you think it will take me to walk to the nearest bus stop?

And to the nearest taxi service/rank?

And to the nearest train station?

RECORD ONE NUMERICAL ANSWER IN MINUTES FOR EACH SERVICE

Mode	Minutes	Don't know	No Service
Bus			
Taxi			
Train Station			

1.5 How do members of your household get to the nearest of each of the following facilities?

And how long does it take to get there in minutes (from this household to the facility, door to door)?

(IF MORE THAN ONE MEMBER OF THE HOUSEHOLD TRAVELS TO A FACILITY, RECORD THE TYPE OF TRANSPORT USED BY THE PERSON WHO GOES THERE MOST OFTEN. IF MORE THAN ONE TYPE OF TRANSPORT IS USED, MARK THE ONE USED OVER THE LONGEST DISTANCE) (MARK ONLY ONE MODE FOR EACH FACILITY)

Drop down list: Walk, Train, Gautrain, Bus, Gautrain bus, Taxi, Metered taxi, Car/Bakkie/,Truck/Lorry, Tractor/Trailer, Motorcycle/Scooter, Bicycle, Can't get there, Do not need to go there

Service	Mode	Minutes
Grocery shop		
Other shops		
ATM's/banks		
Medical Services (Health services)		
Post Office/Agent		
Welfare(social services e.g. SASSA) office		
Police Station		
Municipal Office		
Tribal Authority		

Community hall		
Communal water point (		
Others		

1 HOUSEHOLD INFORMATION (ALL QUESTIONS IN 1 ARE ANSWERED BY MAIN RESPONDENT)

1.6 How many of the following vehicles (in working order) do members of this household have available for private use?

Vehicle	Quantity
Bicycles	
Motor cycles and motorised scooters	
Cars/bakkies/station-wagons/combis owned by employer/company	
Cars/bakkies/station wagons/combis owned by household	
Other Specify	

1.7 What are the sources of income for this household?

READ ALL THE OPTIONS – MULTIPLE RESPONSES POSSIBLE

☐ Salaries/wages/commission

☐ Income from own business

☐ Remittances/ including child maintenance

☐ Pensions

☐ Grants

☐ Sales of farming products and services

☐ Income from UIF

☐ Other income sources e.g. rental income, interest

1.8 Which one of the above income sources usually provides the most money for the household? (CHOOSE ONLY ONE SOURCE)

……

Drop down list:

Salaries/wages/commission

Income from own business

Remittances/ including child maintenance

Pensions

Grants

Sales of farming products and services

Income from UIF

Other income sources e.g. rental income, interest

1.9 (SHOW CARD) What is the total monthly income in a typical monthfor this household? Include the salaries, wages, pensions and other income (such as interest and rent) for all members of the household before deductions.

Drop down list

1. Nothing
2. R 1 – R 200
3. R 201 – R 500
4. R 501 – R 1000
5. R 1 001 – R 1 500
6. R 1 501 – R 2 500
7. R 2 501 – R 3 500
8. R 3 501 – R 4 500
9. R 4 501 – R 6 000
10. R 6 001 – R 8 000
11. R 8 001 – R 11 000
12. R 11 001 – R 16 000
13. R 16 001 – R 30 000
14. R 30 001 or more
15. Don't know
16. Refused

1.11 What is this household's monthly expenditure on public transport in a typical month for the following purposes? (Include the expenditure of all household members)

Work ……..

Education ……..

Other ……..

Total …….

The total monthly expenditure on public transport is: _____. Is that correct?

2. PARTICULARS OF EACH OF THE ……. PERSONS IN THE HOUSEHOLD

Add person

2.1 First Name				
2.2 Surname				
2.3 Gender				
2.4 Age (in completed years)				
2.5 Race				

Delete person	Delete person	Delete person	Delete person

Interview Person	Interview Person	Interview Person	Interview Person
☐ Interview done	☐ Interview done	☐ Interview done	☐ Interview done

2.3 Drop down list Gender

Male

Female

2.4 Drop down list Age

0-1 years = 0

888 = Refused to answer

999 = Don't Know

2.5 Drop down list Race

Black/African

Coloured

Indian / Asian

White

Other Specify

Refused to answer

2.6 Do you/ does…… (HOUSEHOLD MEMBER NAME) have any condition that limits their ability to travel? IF NO, SKIP TO QUESTION 2.9

O Yes

O No

2.7 What is the nature of the condition?

☐	Blind/severe visual limitations	☐	Deaf, profoundly hard of hearing
☐	Needs wheel chair	☐	Uses crutches/walking stick/can't walk far
☐	Has problems with stairs	☐	Mentally handicapped
☐	Travels with small children and/or baby	☐	Other Specify
☐	Not applicable	☐	

2.8 What is the highest level of education that you /…(HOUSEHOLD MEMBER NAME) have successfully completed?

Drop down list

None

Some primary school

Primary school complete (Grade 7 or Standard 5)

Some high school

High school complete (Grade 12 or Standard 10)

Some university/college

Diploma with less than Grade 12

Degree or Diploma with Grade 12

Other post-matric qualification (specify)

Other Specify

2.10 Do you/does ….. (HOUSEHOLD MEMBER NAME) have a driver's license?
Drop down list

No

Yes

Not applicable

2.10.1 Which of the following licence type do you have (can choose more than one option)?

	A/A1 (motorcycle)		B (car)
	C / C1 (Small Truck)		EB/EC/EC1
	PrDP (Professional Driving Permit)		Other, specify

2.11 What is your …..(HOUSEHOLD MEMBER NAME)'s main occupation?
Drop down list

Full-time worker

Part-time worker

Unemployed, would like to work

Unable to work (chronically ill/mentally handicapped/physically handicapped)

Pensioner/retired

Housewife/husband

Student at university or college (post-matric)

High school learner

Primary school learner

Child attending pre-school/nursery school/crèche/day-mother

Child staying at home

Other Specify

3. EMPLOYED (BUSINESS)

3.1 Do you/does …have a job/run a business or did he/she do any work in the past seven days, even if he/she was absent from work due to leave or illness?

Drop down list

Yes – formal sector (registered)

Yes – Informal sector

No

Not applicable

3.2 Do you/does … work for ……..?

Yourself

Another organization/person

Not applicable

3.2.1 Do you/ does ….. work from home?

Drop down list

Yes

No

Not applicable

3.3 In which industrial sector are you/ is …… employed or running a business?

Drop down list

Agriculture, forestry and fishing

Mining/Quarrying

Electricity, gas or water supply

Construction

Tourism/hospitality

Wholesale & Retail

Transport, storage & communication

Financial, insurance and business services

Services, including government

Domestic work

Other Specify

3.4 What is your/ …'s occupation category?

Drop down list

Managers

Professionals

Technician and trade workers

Machine operators and drivers

Sales workers

Labourers

Community and personal service workers

Clerical and administrative workers

Other Specify

Not applicable

3.6 What is the full physical address of your/…..'s employer/business?

Enter address IF THE RESPONDENT WORKS AT DIFFERENT PLACES ON DIFFERENT DAYS, RECORD THE ADDRESS OF THE PLACE WHERE HE/SHE WORKED ON TRAVEL DAY. IF HE/SHE DID NOT GO TO WORK ON TRAVEL DAY, RECORD THE ADDRESS OF THE PLACE WHERE HE/SHE WORKS MOST OFTEN

3.7 How many days per week do you/ does …..usually work?

……

999 = Not applicable

3.8 Do you have/ does ….fixed or flexible working hours?

Drop down list

Fixed

Flexible

Not applicable

3.9 At what time do you/ does …. usually start work?

…… : …… AM/PM

3.10 At what time do you/ does …. usually end work?

…… : …… AM/PM

3.11 What is your/ …'s total salary/pay/earnings at your/his/her main job? Choose per week, per month or per year (SHOW CARD)

Choose weekly		Choose monthly	Choose annually
1.	None	1. None	1. None
2.	R1 – R46	2. R1 – R200	2. 1 – R2 400
3.	R47 – R115	3. R201 – R500	3. R2 401 – R6 000
4.	R116 - R231	4. R501 – R1 000	4. R6 001 – R12 000
5.	R232 - R346	5. R1 001 – R1 500	5. R12 001 – R18 000
6.	R347 - R577	6. R1 501 – R2 500	6. R18 001 – R30 000
7.	R578 - R808	7. R2 501 – R3 500	7. R30 001 – R42 000
8.	R809 - R1 039	8. R3 501 – R4 500	8. R42 001 – R54 000
9.	R1 040 - R1 386	9. R4 501 - R6 000	9. R54 001 – R72 000
10.	R1 387 - R1 848	10. R6 001 – R8 000	10. R72 001 – R96 000
11.	R1 849 - R2 540	11. R8 001 – R11 000	11. R96 001 – R132 000
12.	R2 541 - R3 695	12. R11 001 – R16 000	12. R132 001 – R192 000
13.	R3 696 - R6 928	13. R16 001 – R30 000	13. R192 001 – R360 000
14.	R6 929 OR MORE	14. R30 001 OR MORE	14. R360 001 OR MORE
15.	Don't know	15. Don't know	15. Don't know
16.	Refuse	16. Refuse	16. Refuse

3.12 Does your/…'s employer/business give you/him/her an allowance to cover transport costs e.g. cash for public transport tickets, car allowance or fuel coupons?

Drop down list

Yes

No

Not applicable

3.12.1. If any, what type of allowance or support do you/is…. receive from employer/business?

3.13 How much is this worth per month?

R……..

-999 = Not applicable

4. LEARNER

4.1 Name of pre-school/school/college/university

……

4.2 Address of pre-school/school/college/ university

Enter address

4.3 How many days a week is pre-school/school/college/university attended?

……

4.4 Start time of pre-school/school/college/university

…… : …… AM/PM

4.5 End time of pre-school/school/college/ university

…… : …… AM/PM

5. GENERAL TRIP INFORMATION

5.0. Thinking of ……, where were you/…. at 3 AM?

Drop down list

Home

Work

Other

5.1 Did you/ …… leave the premises (…..) any time on …….. to go somewhere else, such as going to work, home, school or shops or to visit a friend?

Drop down list

Yes

No

5.2 What is the main reason why…….. did not make any trips/travel on ……..?

Drop down list

Did not need to travel

Usual transport not available

No available public transport

Disabled: transport inaccessible

Public transport too expensive

Public transport too far

Strike action/Conflict in transport sector

Unwell, sick

Leave

Other (specify)

5.3 Is …. available to answer questions about her/his trips on ……..?

Drop down list

Yes

No

PLEASE TELL ME WHERE YOU WENT ON TRAVEL DAY (DO NOT SKIP ANYTHING, EVEN IF YOU DO NOT THINK IT IS IMPORTANT) SUMMARISE ALL THE PLACES THAT ALL HOUSEHOLD MEMBERS WENT TO ON THE TRAVEL DAY. THE RESPONDENT SHOULD USUALLY RETURN TO THE PLACE WHERE THE FIRST TRIP STARTED.

USE THE TRIP AID DOCUMENT.

TRIP	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	Person 9
first departure point	Name:	Name:	Name:	Name:	Name:	Name:	Name:	Name:	Name:
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

5. PERSONAL TRIP INFORMATION

5.4 Where did the trip start?

Drop down list

Home

Usual workplace

Work place

Educational institution

Friend/relative's house

Recreational place

Health centre

Place of worship

Welfare offices

Other Government offices

Shops/shopping centre

Other Specify

5.5 Please give the name and physical address of the place where the trip started

…….. Enter address

5.6 At what time did you leave there?

…… : …… AM/PM

5.7 Where did the trip end?

Drop down list

Home

Usual workplace

Work place

Educational institution

Friend/relative's house

Recreational place

Health centre

Place of worship

Welfare offices

Other Government offices

Shops/shopping centre

Other Specify

5.8 Please give the name and physical address of where the trip ended

…….. Enter address

5.9 At what time did you arrive there?

…… : …… AM/PM

5.10 What were the modes of transport for the trip in order of use?

Choose mode of transport 1 Choose mode of transport 2 Choose mode of transport 3 Choose mode of transport 4 Choose mode of transport 5 Choose mode of transport 6

Walk all the way

Commuter taxi/minibus taxi

Bus (BRT/Rea Vaya)

School bus

Bus (other)

Gautrain bus

Train

Gautrain

Company transport

Metered taxi

Lift club driver

Lift club passenger

Car, as driver

Car, as passenger

Motor cycle

Bicycle

Other Specify

5.11 What was the main purpose of the trip?

Drop down list

Work at usual workplace

In the course of work, but not at usual workplace

Visiting friends/relatives

To drop someone off/ to pick someone up

Educational

Shopping

Looking for work

Medical/health purposes

Traditional healer

Welfare offices

Recreational

To go home

Worship

Other Specify

5.12 How much do you pay for each mode? R.....

HERE ASK FOR ANSWER IN UNITS (RANDS)

Include the options “I do not pay (meaning "free" travel)" coded as -888 and "Not applicable (meaning no out of pocket costs expected)" coded as -999

5.13 Unit of payment

Drop down list of possible answers:

Per single trip

Per return trip

Per week

Per month

Not applicable

5.14 How long (in minutes) did you walk at the start of the trip (to your first transport)?

……

5.15 How long (in minutes) did you walk at the end of the trip (from your last transport to your destination)?

……

5.16 State whether the information was provided in person or by another household member?

Drop down list

In person

Another household member

5.17 Did you/he/she go anywhere else after that?

Drop down list

Yes

No

ATTITUDES/PERCEPTIONS/STATED PREFERENCE SECTION (THIS SECTION OF THE QUESTIONNAIRE IS TO GAUGE THE TRADE-OFFS DONE BY PUBLIC TRANSPORT USERS)

5.18 If there were disruptions in the transport system, how else would you have travelled for the main purpose trip? What would be the modes of transport for the trip in order of use?

Choose mode of transport 1 Choose mode of transport 2 Choose mode of transport 3 Choose mode of transport 4 Stranded

5.19 How long in minutes would the trip had taken using the alternative option?

5.20 How much would you pay for each of the alternative modes? R.....

HERE ASK FOR ANSWER IN UNITS (RANDS)

Include the options “I do not pay (meaning "free" travel)" coded as -888 and "Not applicable (meaning no out of pocket costs expected)" coded as -999

5.21 Unit of payment

Drop down list of possible answers:

Per single trip

Per return trip

Per week

Per month

Not applicable

5.22 How long (in minutes) would you walk at the start of the trip (to your first transport)?

……

5.23 How long (in minutes) would you walk at the end of the trip (from your last transport to your destination)?

5.24 What are the two most important transport problems experienced by this household?

Problem1……
……

Problem2……
……

OPEN ENDED – PROBE THOROUGHLY (SEEK A "MODE-RELATED" ANSWER AS FAR AS POSSIBLE E.G. "TAXIS ARE EXPENSIVE" INSTEAD OF "TRANSPORT IS EXPENSIVE")

RECORD ONLY ONE ANSWER IN EACH SPACE.

IF THE RESPONDENT HAS NO PROBLEMS, RECORD NONE FOR PROBLEM 1

6. SATISFACTION WITH ATTRIBUTES OF BUSES, RAIL AND TAXIS

INTERVIEW THE HEAD OF THE HOUSEHOLD IF EMPLOYED, OTHERWISE SELECT ONE EMPLOYED HOUSEHOLD MEMBER AT HOME AT THE TIME OF THE INTERVIEW, TO RESPOND. IF NOBODY IN THE HOUSEHOLD WORKS, INTERVIEW ANY ADULT.

6.0 Select the name of the respondent of Section 6 of the questionnaire

……

6.1 Have you used a publicly operated BUS in the past month?

Drop down list

Yes

No

6.1.1 (SHOW CARD) Thinking about your recent BUS trip or trips, how satisfied are you with the …
READ OUT EACH ATTRIBUTE IN TURN AND RECORD ONE ANSWER FOR EACH

Distance of bus stop from home	Choose satisfaction level	Drop down list
Distance of bus stop from work	Choose satisfaction level	Very satisfied
Travel time in the bus	Choose satisfaction level	Satisfied
Security on walk to bus	Choose satisfaction level	Neither satisfied nor dissatisfied
Security at the bus rank or bus stops	Choose satisfaction level	Dissatisfied

Security on the bus	Choose satisfaction level	Very dissatisfied
Level of crowding in the bus	Choose satisfaction level	
Safety from accidents when traveling by bus	Choose satisfaction level	
Peak-period frequency of buses	Choose satisfaction level	
Off-peak frequency of buses	Choose satisfaction level	
Punctuality of buses	Choose satisfaction level	
Bus fares	Choose satisfaction level	
Facilities at bus ranks or bus stops	Choose satisfaction level	
Roadworthiness of buses	Choose satisfaction level	
Behaviour of bus drivers towards passengers	Choose satisfaction level	
Bus service overall	Choose satisfaction level	

6.1.2 How important are the following to you?

Distance of bus stop from home	Choose importance level	Drop down list
Distance of bus stop from work	Choose importance level	Very important
Travel time in the bus	Choose importance level	Important
Security on walk to bus	Choose importance level	Not important
Security at the bus rank or bus stops	Choose importance level	
Security on the bus	Choose importance level	
Level of crowding in the bus	Choose importance level	
Safety from accidents when traveling by bus	Choose importance level	
Peak-period frequency of buses	Choose importance level	
Off-peak frequency of buses	Choose importance level	
Punctuality of buses	Choose importance level	
Bus fares	Choose importance level	
Facilities at bus ranks or bus stops	Choose importance level	
Roadworthiness of buses	Choose importance level	
Behaviour of bus drivers towards passengers	Choose importance level	
Overall quality of bus service	Choose importance level	

6.1.3 Give two reasons why you did not use a BUS in the past month?

……

Drop down list

No bus available at all

Bus not available often enough

Bus not available at the right times

Bus too expensive

Too much crime (Too dangerous)

Travel time to long/Too slow

Buses too crowded

Buses always late

Buses don't go where needed

Bus stop too far from home

Bus stop too far from destination

Have to change transport (transfer)

6.2 No knowledge of timetable and routes

Too many accidents

Prefer private transport

Prefer taxi

Prefer train

Can walk

Have you used a TAXI during the past month?

Drop down list

Yes

No

6.2.1 Too many accidents

Other Specify

(SHOW CARD) Thinking about your recent TAXI trip or trips, how satisfied are you with the …

READ OUT EACH ATTRIBUTE IN TURN AND RECORD ONE ANSWER FOR EACH

Distance of taxi service from home	Choose satisfaction level
Distance of taxi service from work	Choose satisfaction level
Travel time in the taxi	Choose satisfaction level
Security on walk to taxi	Choose satisfaction level
Security at ranks/stops	Choose satisfaction level
Security in the taxi	Choose satisfaction level
Level of crowding in the taxi	Choose satisfaction level
Safety from accidents when traveling in the taxi	Choose satisfaction level
Peak-period frequency of taxis	Choose satisfaction level
Off-peak frequency of taxis	Choose satisfaction level
Waiting time for taxis	Choose satisfaction level
Taxi fares	Choose satisfaction level
Facilities at taxi ranks	Choose satisfaction level
Roadworthiness of taxis	Choose satisfaction level
Behaviour of taxi drivers towards passengers	Choose satisfaction level
Taxi service overall	Choose satisfaction level

Drop down list

Very satisfied

Satisfied

Neither satisfied nor dissatisfied

Dissatisfied

Very dissatisfied

6.2.2 How important are the following to you?

Distance of taxi service from home	Choose importance level
Distance of taxi service from work	Choose importance level
Travel time in the taxi	Choose importance level
Security on walk to taxi	Choose importance level
Security at ranks/stops	Choose importance level
Security in the taxi	Choose importance level
Level of crowding in the taxi	Choose importance level

Drop down list

Very important

Important

Not important

Safety from accidents when traveling in the taxi	Choose importance level
Peak-period frequency of taxis	Choose importance level
Off-peak frequency of taxis	Choose importance level
Waiting time for taxis	Choose importance level
Taxi fares	Choose importance level
Facilities at taxi ranks	Choose importance level
Roadworthiness of taxis	Choose importance level
Behaviour of taxi drivers towards passengers	Choose importance level
Overall quality of taxi service	Choose importance level

6.2.3 Give two reasons why you did not use a TAXI in the past month?

……

Drop down list

No taxis available at all
Taxis not available often enough
Taxis not available at the right times
Taxis too expensive
Too much crime (Too dangerous)
Travel time too long
Taxis too crowded
Have to wait too long for/in taxis
Taxis don't go where needed
Taxis too far from home
Too much violence/ wars
Have to pay cash
Drivers are rude
Taxis not roadworthy
Too many accidents
Drivers drive recklessly
Prefer private transport
Prefer train
Prefer bus
Other Specify

6.3 Have you used a TRAIN during the past month?

Drop down list

Yes

No

6.3.1 (SHOW CARD) Thinking about your recent TRAIN trip or trips, how satisfied are you with the …
READ OUT EACH ATTRIBUTE IN TURN AND RECORD ONE ANSWER FOR EACH

Distance of station from home	Choose satisfaction level
Distance of station from work	Choose satisfaction level
Travel time by train	Choose satisfaction level
Security on the walk to/from the station	Choose satisfaction level

Drop down list

Very satisfied

Satisfied

Neither satisfied nor dissatisfied

6.3.2

Security at the station	Choose satisfaction level
Security on the train	Choose satisfaction level
The level of crowding in the train	Choose satisfaction level
Safety from accidents	Choose satisfaction level
Peak-period frequency of trains	Choose satisfaction level
Off-peak frequency of trains	Choose satisfaction level
Punctuality of trains	Choose satisfaction level
Train fares	Choose satisfaction level
Facilities at stations	Choose satisfaction level
The train service overall	Choose satisfaction level

Dissatisfied

Very dissatisfied

How important are the following to you?

Distance of station from home	Choose importance level
Distance of station from work	Choose importance level
Travel time by train	Choose importance level
Security on the walk to/from the station	Choose importance level
Security at the station	Choose importance level
Security on the train	Choose importance level
The level of crowding in the train	Choose importance level
Safety from accidents	Choose importance level
Peak-period frequency of trains	Choose importance level
Off-peak frequency of trains	Choose importance level
Punctuality of trains	Choose importance level
Train fares	Choose importance level
Facilities at stations	Choose importance level
Overall quality of the train service	Choose importance level

Drop down list

Very important

Important

Not important

6.3.3 Give two reasons why you did not use a TRAIN in the past month?

……

……

Drop down list

No train available at all

Train not available often enough

Train not available at the right times

Train too expensive

Too much crime (Too dangerous)

Travel time to long/Too slow

Trains too crowded

Trains always late

Trains don't go where needed

Station too far from home

Station too far from destination

Have to change transport (transfer)

No knowledge of timetable and routes

Prefer private transport

Prefer taxi

Prefer bus

Can walk

Other Specify

6.4 In your opinion, how should public transport be improved in your area?

Drop down list

1 Must be more affordable

2 Improved security (security from crime)

3 Improved safety (safety from accidents)

4 Must be reliable/punctual/show up on time

5 More regular/frequent

6 Direct services from origin to destination (don't want to change bus/train/taxi en route)

7 Services must be made available

8 Vehicles must be roadworthy/ in good condition

9 More services in the off-peak periods (day and night off peak)

10 Must cater for my physical limitations (disability/age etc.)

11 Travel time should be lower

12 Other

888 N/A; Missing; Don't know; Refused

999 NONE - do not use public transport

NOTES

NOTES

CONTACT

Mr Thomas Vanner
Email: thomas.vanner@gauteng.gov.za

GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA