Gauteng Province

# HOUSEHOLD TRAVEL SURVEY REPORT

2019/20


REGIONAL REPORT FOR THE WEST RAND DISTRICT MUNICIPALITY

GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA


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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 Department of Roads and Transport for the West Rand District Municipality. 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 West Rand District residents can be reliably assessed.

The burden of unaffordable public transport services is clearly demonstrated in the West Rand District Municipality as household members walk long distances to offset the cost of the fares charged. Those travelling by car tend to travel longer and depart relatively early for work. Where trains are available, they tend to be unreliable and have low travel speeds.

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 West Rand District Municipality, 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 vitality 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 West Rand District Municipality was targeted to have a sample of 6 000 households, but 5 330 responses were obtained. While lower than the target, the response is relatively high for surveys of this magnitude.

For the West Rand District Municipality, the following key findings are notable:

- About 46% of households spend more than 10% of their household income on public transport, which is one of the lowest levels of expenditure in the Gauteng Province. However, it appears households offset the cost of public transport by walking longer distances. In the more rural areas of Randfontein, as much as 70% of household members walk all the way for various trip purposes. On average, walking all the way is 50 minutes one way.
- The WRDM household car access of 0.53 cars per household is higher than the national figure of 0.31, and the average figure for metropolitan municipalities of 0.398.
- Over 66% of households do not have access to a car, making public transport service delivery a basic need.
- Close to 10 000 people in the WRDM live with some form of disability thus transport infrastructure and services that are designed for universal access are required.
- On average, accessing public transport from trip origins takes 12 minutes. On the other hand, accessing destinations from public transport stops take an average of 11 minutes. Such access times are among the lowest in the province.
- Household members are relatively satisfied with bus services, albeit these are mainly supplied by private workplaces. However, household members are generally dissatisfied with train and minibus taxi services, particularly as relates to taxi fares, the unreliability of trains and low train speeds.
- Travel, in terms of the volume of trips, within the West Rand District Municipality is much higher than travel to and from other municipalities in the province. This requires the West Rand District Municipality 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 for developing responsive transport plans. Furthermore, for the WRDM, several anomalous observations warrant more in-depth investigations. 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.

## Table of Contents

## TABLE OF FIGURES



## LIST OF TABLES

**ABBREVIATIONS AND ACRONYMS**

CAPI – Computer Assisted Personal Interviews

CS 2016 – Community Survey 2016

WRDM – West Rand District Municipality

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 (NLTA) 5 of 2009 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 West Rand. 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 West Rand District Municipality (WRDM) sample, including the dwelling frame, 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<br>Project Leader: Malebo Ndamase | Client |
| Council for Scientific and Industrial Research (CSIR) | Project Managers, Project Leaders and Researchers specialising in<br>• Statistics<br>• GIS<br>• Transport planning<br>• Transport Economics.<br>• Information Technology<br>• Data mining and analytics | Implementation agent |
| Kuhle Solutions and Development | • Survey Specialist<br>• Fieldwork Manager<br>• Fieldwork Coordinator<br>• 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 |

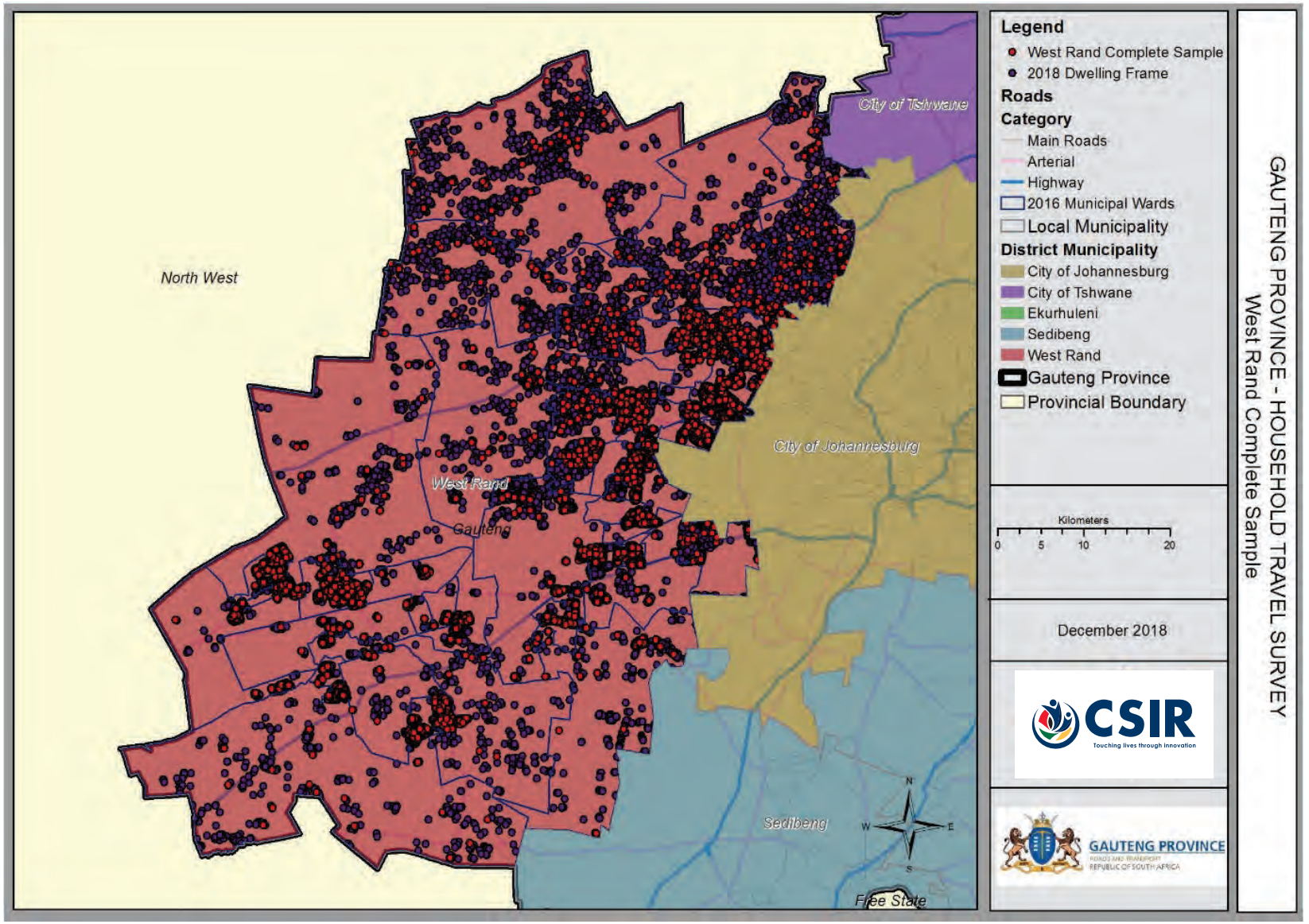


**Figure 1: West Rand sample and dwelling frame locations**

# 3 SAMPLING METHODOLOGY

## 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.

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 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 2 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.

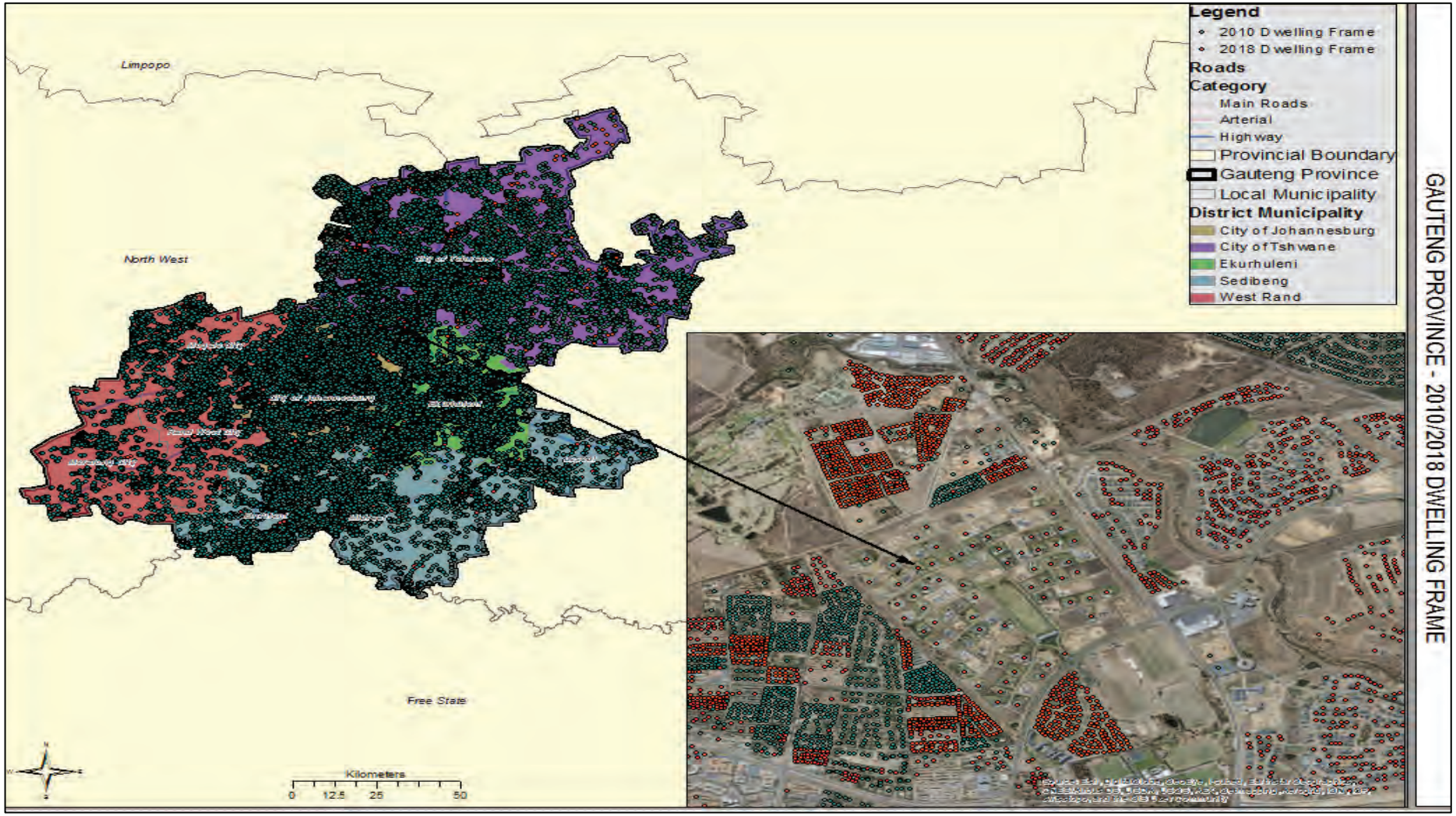


**Figure 2: Dwelling points growth over an eight-year period (Year 2010 Green Points – Year 2018 Red Points)**

## 3.3 Target sample

A sample size of 6 000 households was planned for the WRDM, which is equivalent to about 16% 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 the proportional random selection of the required number of dwelling units, 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.

## 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.

## 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 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.

# 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 finalize 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.

## 4.2 Training of enumerators

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 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.

## 4.3 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% (600 dwelling units) of the main sample allocated to the WRDM.

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 WRDM is provided in Table 2.

**Table 2: 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 |

## 4.4 Principal survey sample

A sample size of 6 000 households is consistent with previous surveys. However, a total of 5 330 households successfully participated in this survey.

## 4.5 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 further 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 from Tuesday to Thursday. 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 (held on 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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## 4.6 Survey Challenges

### 4.6.1 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).

### 4.6.2 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.

### 4.6.3 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 3.

**Table 3: Reasons for household replacement**

| Reason for replacement | Number of replacements |
|---|---|
| Selected respondent / Nobody at home after three calls | 49 (13%) |
| Vacant house | 13 (3%) |
| Respondent cannot communicate with interviewer | 7 (2%) |
| Refusal | 191 (50%) |
| Other | 124 (32%) |
| **Total** | **384 (100%)** |

## 4.7 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.

## 4.8 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).

### 4.8.1 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 600 households was implemented. Since no changes were made to the questionnaire after the pilot, all the fully completed pilot survey interviews 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 subregions) 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 WRDM results are presented in terms of the sub-regions as depicted in Figure 3. However, the datasets can be spatially configured to other forms of sub-regions.

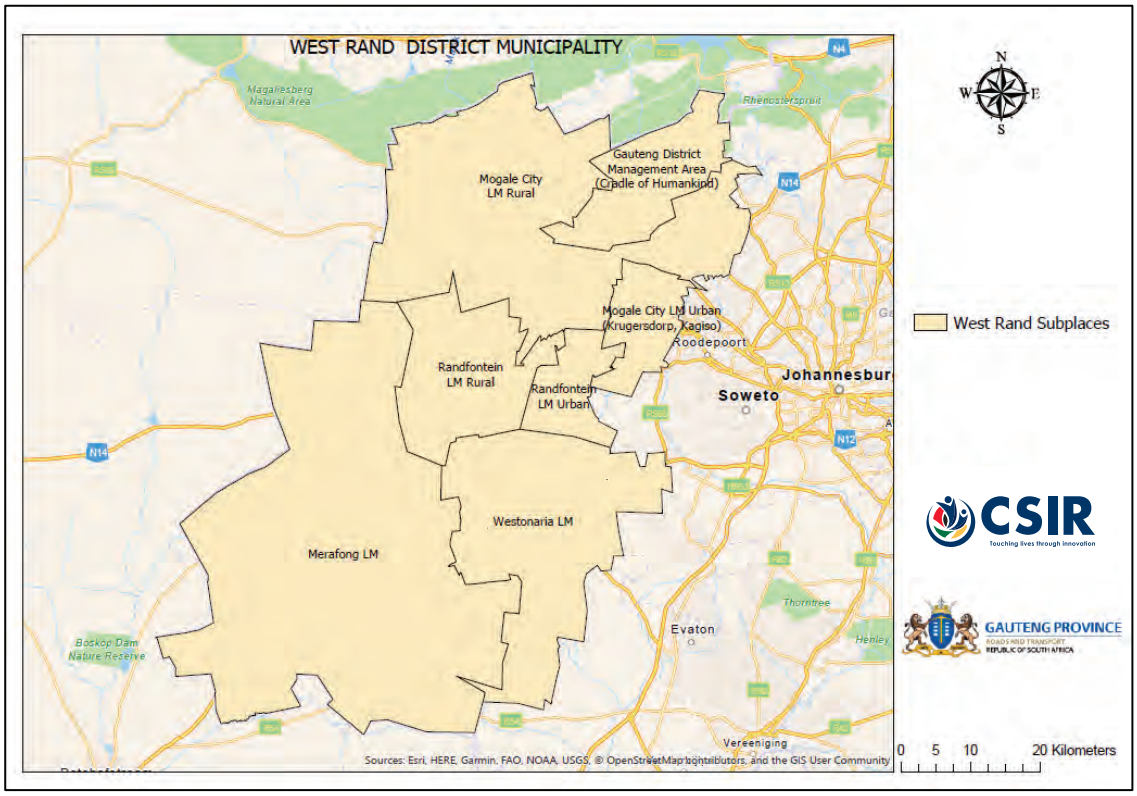


**Figure 3: West Rand District Municipality sub-regions**

Relative to a target sample of 6 000 households, 5 330 households successfully participated in the survey, which is equivalent to an 88% response rate. 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 Gauteng non-metro areas that was carried out by Statistics South Africa could only achieve a response rate of 79%[2]. The main reason for non-responses is a refusal to participate in the survey.

Table 4 shows the distribution of both the sampled and weighted dwelling unit types in the WRDM. Close to 61% of households in the West Rand District Municipality lived in stand-alone brick houses. Informal dwellings accounted for about 23% of households, and formal backyard dwellings constituted nearly 9% of households. The proportion of informal dwellings is significantly high, implying also that travel from informal dwellings cannot be ignored for transport planning purposes.

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

The situation warrants that the District develops appropriate methods for providing transport services in less formal settlements.

**Table 4: Main types of dwelling units in the West Rand District Municipality**

| Type of Dwelling | No. of households sampled | % Households sampled | Weighted no. of households | Weighted % households |
|---|---|---|---|---|
| Stand-alone brick house | 3 544 | 68.8 | 201 274 | 60.9 |
| Shack dwelling | 1 005 | 19.5 | 74 533 | 22.5 |
| Formal dwelling in backyard | 294 | 5.7 | 28 655 | 8.7 |
| Flat or apartment in block of flats | 26 | 0.5 | 12 503 | 3.8 |
| Cluster house in complex | 21 | 0.4 | 3 749 | 1.1 |
| Townhouse | 165 | 3.2 | 4 280 | 1.3 |
| Semi-detached house | 29 | 0.6 | 1 930 | 0.6 |
| Other | 57 | 1.1 | 2 415 | 0.7 |
| Traditional dwelling/hut | 10 | 0.2 | 1 205 | 0.4 |
| Caravan or Tent | 2 | 0.0 | 29 | 0.0 |
| **Total** | **5 153** | **100** | **330 572** | **100** |

Table 5 shows the distribution of the number of persons per household. About 82% of households had four or fewer persons; with 51% of households only having one or two members. The weighted household size is 2.9 persons per household.

**Table 5: Household size for the WRDM**

| Household size | No. of households sampled | % Responding households | Weighted no. of households | Weighted % households |
|---|---|---|---|---|
| 1 | 2020 | 39.2 | 93 528 | 28.3 |
| 2 | 1677 | 32.5 | 75 014 | 22.7 |
| 3 | 920 | 17.9 | 55 478 | 16.8 |
| 4 | 352 | 6.8 | 46 699 | 14.1 |
| 5 | 108 | 2.1 | 28 094 | 8.5 |
| 6 | 76 | 1.5 | 15 268 | 4.6 |
| 7 | 0 | 0.0 | 7 788 | 2.4 |
| 8 | 0 | 0.0 | 3 918 | 1.2 |
| 9 | 0 | 0.0 | 2 299 | 0.7 |
| 10+ | 0 | 0.0 | 2 485 | 0.8 |
| **Total** | **5 153** | **100** | **330 572** | **100** |

Table 6 depicts the income distribution of households in the WRDM. A third of households refused to disclose their income. As has been the case with other surveys, disclosed household income is becoming a less reliable statistic. Nonetheless, less than 1% of the households indicated that they had no source of income, and over 4% did not know their household income.

**Table 6: Household Income distribution**

| Income Distribution | Number of households sampled | Weighted number of households | % Households |
|---|---|---|---|
| Nothing | 33 | 2 047 | 0.6 |
| R1 - R200 | 17 | 1 054 | 0.3 |
| R201 - R500 | 141 | 8 745 | 2.6 |
| R501 - R1 000 | 229 | 14 203 | 4.3 |
| R1 001 - R1 500 | 319 | 19 785 | 6.0 |
| R1 501 - R2 500 | 518 | 32 127 | 9.7 |
| R2 501 - R3 500 | 416 | 25 801 | 7.8 |
| R3 501 - R4 500 | 327 | 20 281 | 6.1 |
| R4 501 - R6 000 | 294 | 18 234 | 5.5 |
| R6 001 - R8 000 | 273 | 16 932 | 5.1 |
| R8001 - R11 000 | 333 | 20 653 | 6.2 |
| R11 001 - R16 000 | 236 | 14 637 | 4.4 |
| R16 001 - R30 000 | 154 | 9 551 | 2.9 |
| R30 001 or more | 38 | 2 357 | 0.7 |
| Refuse to answer | 1 773 | 109 963 | 33.3 |
| Don't know | 229 | 14 203 | 4.3 |
| **Total** | **5 330** | **330 572** | **100.0** |

Table 7 presents the median monthly household income by sub-region. The overall median household income is R3 407. The highest median income is in the urban areas of Randfontein followed by Westonaria. The rural parts of Mogale City have the lowest median household income.

**Table 7: Median monthly household income by sub-region**

| Sub-region | Number of households | Percentage | Median monthly income (Rand) |
|---|---|---|---|
| Merafong LM | 86 620 | 23 | 2 673 |
| Mogale City LM Rural | 48 048 | 13 | 2 521 |
| Mogale City LM Urban (Krugersdorp / Kagiso) | 126 737 | 34 | 3 381 |
| Randfontein LM Rural | 7 228 | 2 | 3 084 |
| Randfontein LM Urban | 53 799 | 14 | 4 865 |
| Westonaria LM | 54 057 | 14 | 3 916 |
| **Total** | **376 489** | **100** | **3 407** |

Table 8 depicts the relationship between monthly household income and household car access. Car ownership or access to a car remains highly correlated with income. The WRDM household car access of 0.53 cars per household is significantly higher than the national figure of 0.31, and

the average figure for urban areas in South Africa of 0.343[3]. Households refusing to disclose their income have 0.63 cars per household, implying that these households are likely to have a middle-income status.

**Table 8: 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 | 2 020 | 74 | 3.6 | 0.06 | 74 |
| R1 - R200 | 864 | 121 | 14.0 | 0.24 | 246 |
| R201 - R500 | 8 540 | 685 | 8.0 | 0.06 | 763 |
| R501 - R1 000 | 12 665 | 1 193 | 9.4 | 0.07 | 1 284 |
| R1 001 - R1 500 | 17 496 | 2 597 | 14.8 | 0.11 | 3 133 |
| R1 501 - R2 500 | 31 593 | 6 621 | 21.0 | 0.19 | 7 297 |
| R2 501 - R3 500 | 27 027 | 6 555 | 24.3 | 0.22 | 7 157 |
| R3 501 - R4 500 | 23 836 | 5 360 | 22.5 | 0.26 | 6 023 |
| R4 501 - R6 000 | 21 556 | 7 287 | 33.8 | 0.44 | 8 644 |
| R6 001 - R8 000 | 22 380 | 10 985 | 49.1 | 0.66 | 13 748 |
| R8 001 - R11 000 | 35 444 | 19 386 | 54.7 | 0.73 | 24 127 |
| R11 001 - R16 000 | 29 460 | 18 535 | 62.9 | 0.96 | 24 261 |
| R16 001 - R30 000 | 15 786 | 11 320 | 71.7 | 1.07 | 16 494 |
| R30 001 or More | 2 900 | 2 630 | 90.7 | 1.50 | 4 595 |
| Don't know | 18 421 | 6 568 | 35.7 | 0.38 | 9 181 |
| Refused to answer | 147 304 | 77 256 | 52.4 | 0.63 | 96 596 |
| **Grand Total** | **417 293** | **177 173** | **35.5** | **0.53** | **117 845** |

The majority of the adult population in the WRDM do not hold a driver's licence. Table 9 shows that 41% of households with members above 18 years of age, had no members with driving licences. About 37% of households had one member with a driver's licence and about 16% of households had at least two members with a driver's licence.

**Table 9: Number of licensed drivers in a household**

| Number of licenced drivers in household | Weighted no. of households | Percentage of households |
|---|---|---|
| 0 | 169 218 | 47.0 |
| 1 | 133 112 | 37.0 |
| 2 | 47 141 | 13.1 |
| 3 | 8 450 | 2.3 |
| 4+ | 1 955 | 0.5 |
| **Total** | **359 877** | **100.0** |

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

Table 10 shows the distribution of household-owned vehicles in the WRDM (excluding motorcycles). Just over 66% 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 WRDM do not have access to a car and are therefore dependent on public transport.

**Table 10: Vehicle ownership per household**

| Number of vehicles owned by households | Weighted number of households | Percentage of households |
|---|---|---|
| 0 | 238 987 | 66.4 |
| 1 | 94 352 | 26.2 |
| 2 | 21 440 | 6.0 |
| 3 | 3 981 | 1.1 |
| 4+ | 1 117 | 0.3 |
| **Total** | **359 877** | **100.0** |

Table 11 represents the distribution of employer-owned vehicles within the WRDM households. About 98% of the households in the WRDM 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 11: Employer-owned vehicles per household**

| Number of employer-owned vehicles | Weighted number of households | Percentage of households |
|---|---|---|
| 0 | 352 404 | 97.9 |
| 1 | 6 704 | 1.9 |
| 2 | 419 | 0.1 |
| 3 | 140 | 0.0 |
| 4+ | 210 | 0.1 |
| **Total** | **359 877** | **100.0** |

# 6 FINDINGS: POPULATION CHARACTERISTICS

Table 12 shows a population age distribution for the WRDM. The District is characterised by a population with a large proportion of young people. Younger people tend to be more mobile, implying that the District should gear itself to providing demand-responsive services.

**Table 12: Population age distribution**

| Age group (years) | Population size | % of population |
|---|---|---|
| 0 – 6 | 97 389 | 11.6 |
| 7-17 | 133 943 | 16.0 |
| 18 – 25 | 114 758 | 13.7 |
| 26 – 65 | 454 040 | 54.1 |
| 65+ | 38 462 | 4.6 |
| **Total** | **838 594** | **100** |

Table 13 presents the profile of disabilities and physical difficulties reported by the respondents in the WRDM survey. A total number of 9 751 persons, representing 1.2% of the population in the WRDM, 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 0.24% of the population.

**Table 13: Persons living with mobility constraints**

| Disability or difficulty | Number of persons | Percentage of persons with difficulty in population |
|---|---|---|
| Climbing stairs | 1 316 | 0.16 |
| Hearing | 929 | 0.11 |
| Mentally handicapped | 155 | 0.02 |
| Needs wheelchair | 1 238 | 0.15 |
| Other | 2 012 | 0.24 |
| Sight impaired or blind | 1 857 | 0.22 |
| Travels with a baby | 232 | 0.03 |
| Uses crutches or stick | 2 012 | 0.24 |
| **Total** | 9 751 | 1.16 |

Table 14 presents the profile of occupations for WRDM household members. About 24% 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 28%. The number of unemployed people is significantly high warranting an assessment in the WRDM's transport plan on how they travel. Based on these numbers, the WRDM could also decide the budget required to support concessionary fares.

**Table 14: Occupational status**

| Occupational Status | Number of persons sampled | Weighted number of Persons | Percentage |
|---|---|---|---|
| Child staying at home | 338 | 26 158 | 3.1 |
| Full-time worker | 2 574 | 199 201 | 23.8 |
| Housewife or househusband | 347 | 26 854 | 3.2 |
| Learner: High school learner | 362 | 28 015 | 3.3 |
| Learner: Pre-school child | 50 | 3 869 | 0.5 |
| Learner: Primary school | 422 | 32 658 | 3.9 |
| Learner: University or College student | 98 | 7 584 | 0.9 |
| Part-time worker | 518 | 40 088 | 4.8 |
| Pensioner or retired | 1 174 | 90 855 | 10.8 |
| Unable to work handicapped or ill | 134 | 10 370 | 1.2 |
| Unemployed would like to work | 3 013 | 233 175 | 27.8 |
| Other | 421 | 32 581 | 3.9 |
| Unspecified | 1 385 | 107 185 | 12.8 |
| **Total** | **10 836** | **838 594** | **100.0** |

Table 15 categorises the WRDM population in terms of the highest level of education status attained. Just over 37% of the population had completed high school, while only about 14% of the population had some tertiary education qualification.

**Table 15: Educational level attained**

| Educational Level | Weighted number of people | Percentage of population |
|---|---|---|
| None | 46 511 | 5.5 |
| Some primary school | 75 455 | 9.0 |
| Completed primary school | 34 903 | 4.2 |
| Some high school | 181 633 | 21.7 |
| Completed high school | 313 118 | 37.3 |
| Diploma with no matric | 9 596 | 1.1 |
| Diploma with matric | 27 009 | 3.2 |
| University or college | 84 974 | 10.1 |
| Unspecified | 65 394 | 7.8 |
| **Total** | **838 594** | **100.0** |

Figure 4 compares the cumulative distributions of household expenditure on public transport between the WRDM and Gauteng Province. About 46% of households in the WRDM spend more than 10% on public transport, a lower proportion than other areas in the province.

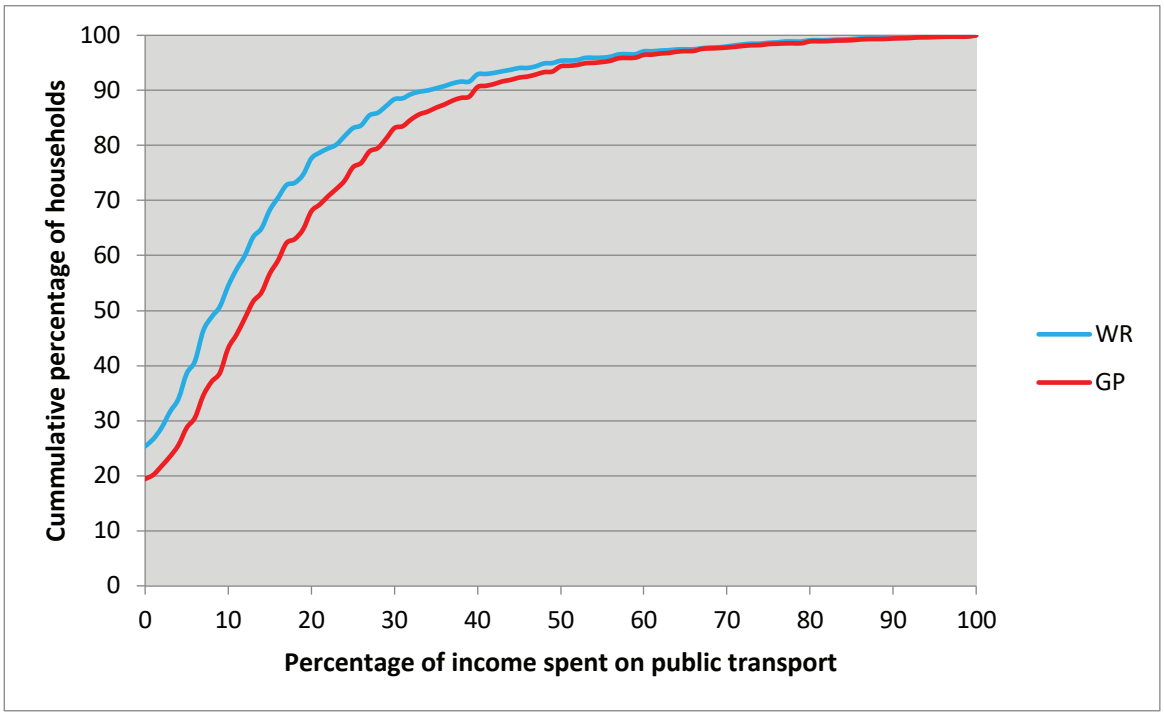


**Figure 4: Comparison of cumulative distributions of household expenditure on public transport**

Table 16 shows the weighted gender distribution in the WRDM and Gauteng Province. The WRDM has a larger proportion of males than the province as a whole. This may result from the presence of historically male-dominated industries, such as mining, within the District. Travel patterns for males and females tend to differ. Using the detailed survey datasets, the WRDM will be in a better position to understand the associated planning implications.

**Table 16: Gender split**

| Area | Male | Female | Total |
|---|---|---|---|
| West Rand District Municipality | 52.0% | 48.0% | 100% |
| Gauteng Province | 50.4% | 49.6% | 100% |

Table 17 shows the population of the WRDM and Gauteng in terms of population groups. Blacks/Africans comprise close to 79% of the population, followed by whites at about 18%. For historical reasons, the population groups are generally correlated with affluence.

**Table 17 Population groups**

| Area | Black/African | White | Coloured | Indian/Asian | Total |
|---|---|---|---|---|---|
| West Rand District Municipality | 78.7% | 17.7% | 2.5% | 1.1% | 100% |
| Gauteng | 80.4% | 13.6% | 3.3% | 2.7% | 100% |

More than anything, the above population statistics are more 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 18 illustrates the distribution of households with employed/unemployed persons across the WRDM. Overall, the ratio of employment to unemployment is 48:53, indicating that the majority of households have no employed persons.

Having a large proportion of unemployed persons implies that trips rates are likely to be relatively low. This also implies that public transport operations have low-cost recovery potential.

**Table 18: Employment status by sub-region**

| Sub-region | Number of households | % Employed | % Unemployed |
|---|---|---|---|
| Merafong LM | 86 620 | 48 | 52 |
| Mogale City LM Rural | 48 048 | 40 | 60 |
| Mogale City LM Urban (Krugersdorp / Kagiso) | 126 737 | 45 | 55 |
| Randfontein LM Rural | 7 228 | 57 | 43 |
| Randfontein LM Urban | 53 799 | 46 | 54 |
| Westonaria LM | 54 057 | 49 | 51 |
| **Total** | **376 489** | **48** | **53** |

Sub-regions with high unemployment, such as rural parts of Mogale City, may require special attention in the form of subsidised transport services. Other interventions that include directing employment opportunities to such areas would also provide some relief.

# 8 FINDINGS: TRIP INFORMATION

The morning peak-period travel refers to a trip that starts between 06:00 and 09:00. Table 19 presents the estimated number of morning peak trips by purpose. Work trips accounted for about 40% of total morning peak-period trips, and education-related trips about 13%. It is, however, possible that education trips were underreported by households, resulting from ethical considerations associated with reporting on minors.

**Table 19: Morning peak trips by purpose**

| Trip purpose | Number of trips (sample) | Weighted number of peak trips | Weighted number of peak trips by purpose | Percentage of trips |
|---|---|---|---|---|
| Work at usual workplace | 1072 | 25.4 | 91 268 | 39.7 |
| Educational | 338 | 8.0 | 28 777 | 12.5 |
| Medical purposes | 265 | 6.3 | 22 561 | 9.8 |
| Shopping | 217 | 5.1 | 18 475 | 8.0 |
| Other | 190 | 4.5 | 16 176 | 7.0 |
| Looking for work | 132 | 3.1 | 11 238 | 4.9 |
| To go home | 90 | 2.1 | 7 662 | 3.3 |
| Work somewhere else | 90 | 2.1 | 7 662 | 3.3 |
| Visiting friend or relative | 87 | 2.1 | 7 407 | 3.2 |
| Worship | 69 | 1.6 | 5 875 | 2.6 |
| Drop or pickup someone | 67 | 1.6 | 5 704 | 2.5 |
| Unspecified | 37 | 0.9 | 3 150 | 1.4 |
| Welfare offices | 26 | 0.6 | 2 214 | 1.0 |
| Recreational | 17 | 0.4 | 1 447 | 0.6 |
| **Total** | **2697** | **63.8** | **229 616** | **100.0** |

Table 20 presents the mode used during the morning peak. Walking all the way is the predominant mode of travel, followed by car as driver and minibus taxi passenger. Bus, cycling and train are some of the least used technologies. The reasons for walking rather than cycling require further investigation.

**Table 20: Morning peak trip by mode**

| Mode of transport | Number of peak trips (sample) | % of peak trips over all trips generated by households | Weighted number of peak trips | % of peak trips |
|---|---|---|---|---|
| Walk all the way | 827 | 19.56 | 70 409 | 30.7 |
| Car as a driver | 647 | 15.31 | 55 084 | 24.0 |
| Commuter or minibus taxi | 462 | 10.93 | 39 334 | 17.1 |
| Car as a passenger | 177 | 4.19 | 15 069 | 6.6 |
| Unspecified | 168 | 3.97 | 14 303 | 6.2 |
| Metered taxi | 136 | 3.22 | 11 579 | 5.0 |
| Other | 115 | 2.72 | 9 791 | 4.3 |
| School bus | 72 | 1.70 | 6 130 | 2.7 |
| Lift club passenger | 27 | 0.64 | 2 299 | 1.0 |
| Company transport | 25 | 0.59 | 2 128 | 0.9 |

| Mode of transport | Number of peak trips (sample) | % of peak trips over all trips generated by households | Weighted number of peak trips | % of peak trips |
|---|---|---|---|---|
| Bus | 13 | 0.31 | 1 107 | 0.5 |
| Bicycle | 13 | 0.31 | 1 107 | 0.5 |
| Lift club driver | 7 | 0.17 | 596 | 0.3 |
| Train | 7 | 0.17 | 596 | 0.3 |
| Motorcycle | 1 | 0.02 | 85 | 0.0 |
| **Total** | **2697** | **63.80** | **229 616** | **100.0** |

Table 21 shows the average travel time for peak-period trips. The weighted average travel time is 58 minutes. Generally, WRDM residents tend to experience long travel times. The long travel time by train, while it is an outlier with a small sample size, is of concern. Another concern is walking times as long as 50 minutes. Despite the flexibility inherent in driving a personal car, car journeys are generally long.

**Table 21: Average total travel time for peak-period trips (one-way)**

| Mode of transport | Weighted number of peak trips | % peak trips | Average travel time |
|---|---|---|---|
| Bicycle | 1 079 | 0.7% | 00:52 |
| Bus | 287 | 0.2% | 01:15 |
| Car as a driver | 43 196 | 29.4% | 01:13 |
| Car as a passenger | 7 883 | 5.4% | 00:57 |
| Commuter or minibus taxi | 25 431 | 17.3% | 00:56 |
| Company transport | 4 812 | 3.3% | 00:48 |
| Lift club driver | 542 | 0.4% | 01:04 |
| Lift club passenger | 2 271 | 1.5% | 00:49 |
| Metered taxi | 8 533 | 5.8% | 00:56 |
| Motorcycle | 127 | 0.1% | 00:30 |
| Other | 6 576 | 4.5% | 00:48 |
| School bus | 2 252 | 1.5% | 00:44 |
| Train | 75 | 0.1% | 03:30 |
| Walk all the way | 43 913 | 29.9% | 00:50 |
| **Total** | **146 978** | **100.0%** | **00:58** |

Table 22 shows the distribution of departure times for morning peak-period trips by trip purpose. A third of trips were made before 06:00; thereafter between 20% and 25% of trips are made per hour between 06:00 and 09:00. Most travel is for work purposes. Most of the trips by persons looking for work take place after 07:00.

**Table 22: 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 | 5 377 | 2.2% | 21.5% | 46.6% | 29.8% |
| Educational | 29 317 | 1.0% | 21.4% | 71.6% | 6.1% |
| Looking for work | 11 382 | 9.5% | 23.9% | 21.8% | 44.8% |
| Medical purposes | 23 010 | 2.9% | 15.8% | 38.3% | 43.0% |

| Trip purpose | Weighted number of trips | Before 06:00 | 06:00 - 06:59 | 07:00 - 07:59 | 08:00 - 09:00 |
|---|---|---|---|---|---|
| Other | 21 749 | 13.0% | 10.9% | 23.5% | 52.7% |
| Recreational | 1 790 | 4.2% | 10.6% | 28.8% | 56.5% |
| Shopping | 34 360 | 4.2% | 5.4% | 27.4% | 63.0% |
| To go home | 10 241 | 48.6% | 15.5% | 22.4% | 13.5% |
| Traditional healer visit | 471 | 0.0% | 0.0% | 56.2% | 43.8% |
| Unspecified | 21 966 | 69.0% | 2.1% | 6.0% | 22.9% |
| Visiting friend or relative | 10 633 | 8.9% | 3.4% | 22.2% | 65.4% |
| Welfare offices | 2 287 | 11.9% | 11.9% | 34.2% | 42.0% |
| Work at usual workplace | 206 526 | 49.1% | 26.7% | 18.8% | 5.3% |
| Work somewhere else | 8 972 | 15.0% | 23.8% | 33.2% | 28.0% |
| Worship | 10 569 | 3.9% | 8.5% | 16.7% | 70.9% |
| **Total** | **398 651** | **32.9%** | **19.8%** | **25.2%** | **22.1%** |

Table 23 shows morning peak-period departure times according to household income. Higher-income households in the WRDM tend to have early departure times.

**Table 23: Trip departure times by income category**

| Household income | Weighted number of trips | Before 06:00 | 06:00 - 06:59 | 07:00 - 07:59 | 08:00 - 09:00 |
|---|---|---|---|---|---|
| Nothing | 1 749 | 29.8% | 8.6% | 26.8% | 34.8% |
| R1 - R200 | 622 | 6.7% | 24.2% | 39.3% | 29.8% |
| R201 - R500 | 6 870 | 10.1% | 15.5% | 31.8% | 42.6% |
| R501 - R1 000 | 11 307 | 7.5% | 12.0% | 40.8% | 39.7% |
| R1 001 - R1 500 | 17 170 | 3.7% | 16.7% | 32.9% | 46.7% |
| R1 501 - R2 500 | 31 237 | 12.6% | 20.0% | 33.4% | 34.1% |
| R2 501 - R3 500 | 21 709 | 14.8% | 19.2% | 32.3% | 33.7% |
| R3 501 - R4 500 | 20 292 | 17.9% | 20.8% | 38.6% | 22.6% |
| R4 501 - R6 000 | 19 617 | 20.3% | 17.1% | 34.8% | 27.8% |
| R6 001 - R8 000 | 25 169 | 34.0% | 21.7% | 20.9% | 23.3% |
| R8 001 - R11 000 | 80 327 | 57.9% | 9.7% | 20.5% | 11.9% |
| R11 001 - R16 000 | 39 201 | 64.7% | 9.1% | 16.1% | 10.1% |
| R16 001 - R30 000 | 19 523 | 45.5% | 14.4% | 32.1% | 8.1% |
| R30 001 or More | 3 529 | 39.2% | 29.2% | 12.2% | 19.3% |
| Don't know | 19 668 | 30.8% | 19.8% | 28.4% | 20.9% |
| Refused to answer | 80 660 | 20.8% | 38.5% | 18.4% | 22.3% |
| **Total** | **398 651** | **32.9%** | **19.8%** | **25.2%** | **22.1%** |

Table 24 shows the average number of trips – for various purposes – that were made during the day per household and income group. An average trip rate of 1.06 per household is reported. An average trip rate of 3.5 trips per household for education trips is reported. It is worth noting that households that 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. An investigation on possible trip underreporting is warranted.

**Table 24: 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 | 1.39 | 1 | 4.11 | 1.29 | 0.3 | 0.24 |
| Nothing | 0.25 | 1.10 | 4.67 | 0.55 | 0.76 | 0.2 |
| R1 - R200 | 0.6 | 0.93 | 4.67 | 1.0 | 0.5 | 0.29 |
| R201 - R500 | 1.43 | 0.79 | 4.67 | 1.0 | 0.33 | 0.38 |
| R501 - R1 000 | 1.42 | 0.67 | 4.67 | 0.94 | 0.41 | 0.4 |
| R1 001 - R1500 | 1.7 | 1.69 | 4.83 | 1.08 | 0.37 | 0.51 |
| R1 501 - R2 500 | 1.26 | 1.45 | 2.88 | 1.06 | 0.42 | 0.47 |
| R2 501 - R3 500 | 0.88 | 0.43 | 2.46 | 0.82 | 0.31 | 0.37 |
| R3 501 - R4 500 | 0.94 | 0.57 | 2.73 | 0.79 | 0.23 | 0.41 |
| R4 501 - R6 000 | 0.97 | 1.0 | 2.38 | 0.71 | 0.48 | 0.31 |
| R6 001 - R8 000 | 1.55 | 2.0 | 4.33 | 0.79 | 0.36 | 0.28 |
| R8 001 - R11 000 | 0.94 | 0.75 | 2.67 | 0.64 | 0.31 | 0.35 |
| R11 001 - R16 000 | 0.89 | 0.6 | 2.67 | 0.68 | 0.3 | 0.22 |
| R16 001 - R30 000 | 0.72 | 0.48 | 1.29 | 0.77 | 0.57 | 0.24 |
| R30 001 or more | 0.58 | 0.38 | 1.0 | 0.57 | 1.0 | 0.58 |
| Refused to answer | 1.41 | 0.28 | 5.63 | 0.8 | 0.17 | 0.16 |
| **Average number of trips** | **1.06** | **0.88** | **3.48** | **0.84** | **0.43** | **0.34** |

Table 25 shows the proportion of morning peak-period trips by trip purpose. A large proportion of trips in the WRDM during the peak period were undertaken for work purposes. A further investigation into the reasons for the relatively small number of educational trips in the WRDM is warranted.

**Table 25: Morning peak trips by purpose**

| Trip purpose | Number of peak trips (sample) | % of peak trips | Weighted number of trips | % of weighted peak trips |
|---|---|---|---|---|
| Work at usual workplace | 1072 | 25.4 | 91 268 | 39.7 |
| Educational | 338 | 8.0 | 28 777 | 12.5 |
| Medical purposes | 265 | 6.3 | 22 561 | 9.8 |
| Shopping | 217 | 5.1 | 18 475 | 8.0 |
| Other | 190 | 4.5 | 16 176 | 7.0 |
| Looking for work | 132 | 3.1 | 11 238 | 4.9 |
| To go home | 90 | 2.1 | 7 662 | 3.3 |
| Work somewhere else | 90 | 2.1 | 7 662 | 3.3 |
| Visiting friend or relative | 87 | 2.1 | 7 407 | 3.2 |
| Worship | 69 | 1.6 | 5 875 | 2.6 |
| Drop or pickup someone | 67 | 1.6 | 5 704 | 2.5 |
| Unspecified | 37 | 0.9 | 3 150 | 1.4 |
| Welfare offices | 26 | 0.6 | 2 214 | 1.0 |
| Recreational | 17 | 0.4 | 1 447 | 0.6 |
| **Total** | **2 697** | **63.8** | **229 616** | **100** |

**Table 26: Mode of travel by West Rand District sub-region**

| WRDM sub-region | Bicycle | Bus | Car | Commuter/ Minibus taxi | Company transport | Gautrain | Gautrain bus | Lift club | Metered taxi | Motorcycle | School bus | Train | Walk all the way | Other | Unspecified | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Merafong | 0% | 5% | 41% | 15% | 6% | 0% | 0% | 1% | 3% | 0% | 0% | 0% | 11% | 12% | 5% | 100% |
| Mogale City LM Rural | 1% | 0% | 32% | 25% | 7% | 0% | 0% | 1% | 1% | 1% | 0% | 0% | 32% | 0% | 0% | 100% |
| Mogale City LM Urban (Krugersdorp/Kagiso) | 0% | 0% | 42% | 27% | 1% | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 22% | 2% | 1% | 100% |
| Randfontein LM Rural | 15% | 0% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 69% | 0% | 0% | 100% |
| Randfontein LM Urban | 0% | 0% | 37% | 23% | 3% | 0% | 0% | 4% | 4% | 0% | 0% | 0% | 17% | 2% | 10% | 100% |
| Westonaria LM | 0% | 5% | 35% | 21% | 7% | 0% | 0% | 0% | 3% | 0% | 0% | 0% | 10% | 1% | 16% | 100% |
| **Total** | **3%** | **2%** | **34%** | **19%** | **4%** | **0%** | **0%** | **2%** | **2%** | **0%** | **0%** | **0%** | **27%** | **3%** | **5%** | **100%** |

Table 26 presents peak-period trip making by mode and sub-region. Rural parts of Randfontein have a large proportion of people walking all the way and there is less use of minibus taxi services, possibly indicative of a general inability to afford minibus taxi services. The use of buses is likely to be that of employer-provided buses in the mining areas.

Table 27 shows the average walking times 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 transport mode. At 12 minutes and 11 minutes, respectively for the start and trip end, the average access times are some of the lowest in the province.

**Table 27: Walking time to and from nearest public transport**

| Walking time to access first mode of travel and reach final destination | Number of peak trips (sample) | % of peak trips | Weight of peak trips by purpose | Average walking time at start (min) | Average walking time from trip end to destination (min) |
|---|---|---|---|---|---|
| Bus | 41 | 1.0 | 3 656 | 10.7 | 10.2 |
| Commuter or minibus taxi | 842 | 20.9 | 75 078 | 10.3 | 10.5 |
| Metered taxi | 251 | 6.2 | 22 381 | 17.1 | 15.4 |
| Train | 11 | 0.3 | 981 | 7.8 | 7.5 |
| **Total** | **1 145** | **28.4** | **102 096** | **11.5** | **10.9** |

Table 28 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). Access times tend to be similar across the income groups. However, households without income tend to have the highest access times.

**Table 28: Walking time to access public transport according to 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 | 5 118 | 4.0 | 30.0 | 1.0 |
| R201 - R500 | 29 451 | 23.2 | 11.2 | 15.5 |
| R501 - R1 000 | 1 603 | 1.3 | 7.5 | 8.4 |
| R1001 - R1 500 | 3 777 | 3.0 | 13.9 | 16.0 |
| R1 501 - R2 500 | 16 830 | 13.3 | 13.7 | 12.0 |
| R2 501 - R3 500 | 26 830 | 21.1 | 9.0 | 8.7 |
| R3 501 - R4 500 | 2 360 | 1.9 | 9.4 | 8.5 |
| R4 501 - R6 000 | 4 250 | 3.3 | 11.8 | 10.2 |
| R6 001 - R8 000 | 1 067 | 0.8 | 12.5 | 12.0 |
| R8 001 - R11 000 | 3 707 | 2.9 | 16.3 | 12.3 |
| R11 001 - R16 000 | 1 488 | 1.2 | 14.4 | 15.0 |
| R16 001 - R30 000 | 7 902 | 6.2 | 10.0 | 9.2 |
| Don't know | 12 462 | 9.8 | 11.7 | 9.0 |
| Refused to answer | 10 086 | 7.9 | 9.3 | 11.9 |
| **Total** | **126 930** | **100.0** | **12.9** | **10.7** |

Table 29 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.

**Table 29: 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** |

Inter-municipal trips originating from the WRDM were mostly destined for areas outside of the province. Within Gauteng Province, inter-municipal trips originating from the West Rand were relatively high, and mainly destined for Johannesburg. The trips reported in this table are highly sensitive to underreporting and trip origin-destination sampling and are therefore only indicative.

# 9 FINDINGS: ATTITUDES TOWARDS PUBLIC TRANSPORT USE

Table 30 provides indicative levels of satisfaction with buses across various service attributes. Users are generally more satisfied than dissatisfied with bus services. Users are particularly satisfied with the distance of bus stops from their workplace.

**Table 30: Satisfaction with various bus service attributes**

| Bus attributes | Very Dissatisfied | Dissatisfied | Neutral | Satisfied | Very Satisfied |
|---|---|---|---|---|---|
| Behaviour of the bus drivers to passengers | 0% | 4% | 55% | 31% | 10% |
| Bus fare | 4% | 1% | 41% | 34% | 21% |
| Bus service overall | 0% | 4% | 53% | 34% | 9% |
| Distance of the bus stop from home | 4% | 1% | 32% | 55% | 8% |
| Distance of the bus stop from work | 4% | 1% | 34% | 57% | 4% |
| Facilities at the bus stop | 4% | 7% | 44% | 30% | 15% |
| Level of crowding in the bus | 4% | 6% | 40% | 45% | 4% |
| Off-peak frequency of buses | 4% | 5% | 48% | 36% | 7% |
| Peak-period frequency of buses | 4% | 5% | 52% | 36% | 4% |
| Perceived accidents of the bus | 4% | 5% | 53% | 34% | 4% |
| Punctuality of buses | 4% | 1% | 49% | 36% | 10% |
| Road worthiness of buses | 1% | 10% | 59% | 25% | 6% |
| Security at the bus stop | 4% | 5% | 42% | 46% | 4% |
| Security on the bus | 4% | 1% | 39% | 53% | 4% |
| Security on walk to bus | 1% | 5% | 43% | 47% | 4% |
| Travel time in the bus | 4% | 1% | 42% | 49% | 4% |
| **Grand Total** | **3%** | **4%** | **45%** | **40%** | **7%** |

Table 31 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 31: Reasons for not using buses**

| Reasons buses not used | Percentage |
|---|---|
| No bus available | 80.1 |
| Bus not available often enough | 5.7 |
| Buses are crowded | 5.3 |
| Bus stop too far from home | 2.4 |
| Bus not available at the right time | 2.1 |
| Buses do not go where needed | 1.7 |
| Buses always late | 1.6 |
| Bus stop too far from destination | 0.8 |
| Bus too expensive | 0.4 |
| No Knowledge of timetable and routes | 0.0 |
| Have to change transport | 0.0 |
| **Total** | **100.0** |

Table 32 provides indicative levels of satisfaction by household members with various minibus taxi service attributes. Users are generally more satisfied than dissatisfied with minibus taxi services. Dissatisfied users are particularly dissatisfied with the roadworthiness of taxis and fares. Satisfied

users tend to be particularly satisfied with the distance of taxi stops from both their home and workplace.

**Table 32: Satisfaction with minibus taxi services**

| Taxi attributes | Very Dissatisfied | Dissatisfied | Neutral | Satisfied | Very Satisfied |
|---|---|---|---|---|---|
| Behaviour of the taxi drivers to passengers | 15% | 18% | 37% | 24% | 6% |
| Distance of the taxi stop from home | 8% | 13% | 29% | 43% | 8% |
| Distance of the taxi stop from work | 8% | 15% | 28% | 42% | 7% |
| Facilities at the taxi ranks or stops | 14% | 20% | 33% | 28% | 6% |
| Level of crowding in taxis | 7% | 18% | 38% | 30% | 6% |
| Off-peak frequency of taxis | 10% | 21% | 33% | 30% | 6% |
| Peak-period frequency of taxis | 9% | 24% | 33% | 30% | 4% |
| Perceived accident rates of taxis | 11% | 21% | 38% | 27% | 3% |
| Punctuality of taxis | 13% | 17% | 34% | 30% | 6% |
| Roadworthiness of taxis | 16% | 22% | 32% | 24% | 5% |
| Security at the taxi rank or stop | 9% | 24% | 31% | 31% | 5% |
| Security in taxis | 8% | 20% | 36% | 31% | 6% |
| Security on walk to access taxis | 9% | 23% | 30% | 33% | 5% |
| Taxi fares | 19% | 17% | 35% | 24% | 5% |
| Taxi service overall | 13% | 18% | 35% | 29% | 5% |
| Travel time in the taxis | 7% | 19% | 31% | 37% | 7% |
| Waiting time for taxis | 12% | 22% | 33% | 27% | 6% |
| **Grand Total** | **11%** | **20%** | **33%** | **30%** | **6%** |

Table 33 provides the main reasons disclosed for not using taxis. Overwhelmingly, the reason for not using taxis in the WRDM is that they are too expensive.

**Table 33: Reasons for not using taxis**

| Reasons taxis not used | Percentage |
|---|---|
| Taxi too expensive | 95.0% |
| Taxi not available often enough | 2.5% |
| Taxis always late | 1.4% |
| Taxi stop too far from home | 0.6% |
| Taxi not available at the right time | 0.6% |
| Total | 100.0% |

Table 34 provides indicative levels of satisfaction of household members with various train service attributes. Household members tend to be more dissatisfied than satisfied with train services. The household members are mainly dissatisfied with the punctuality of trains. Household members are mostly satisfied with train fares.

**Table 34: Level of satisfaction with train services**

| Train attributes | Very Dissatisfied | Dissatisfied | Neutral | Satisfied | Very Satisfied |
|---|---|---|---|---|---|
| Distance of station from home | 9% | 12% | 68% | 10% | 0% |
| Distance of station from work | 10% | 11% | 69% | 10% | 0% |
| Facilities at stations | 8% | 14% | 64% | 13% | 1% |
| Level of crowding in the train | 12% | 13% | 59% | 16% | 0% |
| Off-peak frequency of trains | 10% | 15% | 61% | 13% | 1% |
| Peak-period frequency of train | 10% | 14% | 60% | 13% | 1% |
| Perceived accidents of the train | 10% | 14% | 64% | 13% | 0% |
| Punctuality of trains | 16% | 12% | 58% | 12% | 1% |
| Security at the station | 5% | 14% | 60% | 18% | 2% |
| Security on the train | 9% | 14% | 57% | 20% | 0% |
| Security on walk to train | 11% | 12% | 62% | 15% | 0% |
| The train service overall | 9% | 16% | 61% | 13% | 0% |
| Train fares | 7% | 8% | 58% | 23% | 4% |
| Travel time by train | 12% | 12% | 60% | 16% | 0% |
| **Grand Total** | **10%** | **13%** | **62%** | **15%** | **1%** |

Table 35 provides the reasons disclosed by household members for not using trains. The main reason is the unavailability of the services.

**Table 35: Reasons for not using trains**

| Reason for not using trains | Percentage |
|---|---|
| No train available at all | 60.0 |
| Train not available often enough | 10.9 |
| Too much crime or dangerous | 6.5 |
| Travel time too long or too slow | 4.7 |
| Trains are crowded | 4.4 |
| Train not available at the right time | 4.4 |
| Have to change transport | 4.3 |
| Trains always late | 4.3 |
| Train stop too far from home | 0.2 |
| Prefer taxi | 0.1 |
| Trains do not go where needed | 0.1 |
| Train stop too far from destination | 0.1 |
| **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 5 330 households in the West Rand District Municipality (WRDM) regarding transport and travel.

While households in the WRDM spend relatively less on public transport than households in other areas of the province this is largely achieved by relying on walking even over long distances. This is clearly illustrated by the reason for not using minibus taxis (even when they are indicated as generally available) because they are too expensive. Personal car ownership tends to be relatively high in the higher income groups; however, travel times by car tend to be relatively long, possibly indicative of a limited road network infrastructure, road network congestion or generally long travel distances. It appears that those driving to work compensate for this by departing relatively early. Train services are generally not available, but where available they tend to be unreliable and are associated with relatively long travel times.

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, 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 West Rand District Municipality, 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

## 12.1 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 |

## 12.2 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 visit

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

| | | |
|---|---|---|
| Security at the station | Choose satisfaction level | Dissatisfied |
| Security on the train | Choose satisfaction level | Very dissatisfied |
| 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 | |

6.3.2

How important are the following to you?

| | | |
|---|---|---|
| Distance of station from home | Choose importance level | Drop down list |
| Distance of station from work | Choose importance level | Very important |
| Travel time by train | Choose importance level | Important |
| Security on the walk to/from the station | Choose importance level | Not important |
| 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 | |

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


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