Western Cape Government
Transport and Public Works

CHEC
Cape Higher Education Consortium

DIRECTORATE: PERFORMANCE MONITORING AND EVALUATION

IMPACT ASSESSMENT OF THE PUBLIC TRANSPORT OPERATIONS CONDITIONAL GRANT (PTOG) 2016/17

Evaluation Report

June 2017

Document title:	Impact Assessment of the Public Transport Operations Conditional Grant (PTOG) 2016/17
Status:	Final
Date	30 June 2017
Project name:	Impact Assessment of the Public Transport Operations Conditional Grant (PTOG) 2016/17
Project reference:	L044/16
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Acronyms

CBD	Central business district
CHEC	Cape Higher Education Consortium
DORA	Division of Revenue Act, 2016
DPME	Department of Planning, Monitoring and Evaluation
DSG	Departmental Strategic Goal
DTPW	Department of Transport and Public Works
GABS	Golden Arrow Bus Services
GWMES	Government-wide Monitoring and Evaluation System
KPI	Key performance indicator
MSC	Most significant change
NDOT	National Department of Transport
NDP	National Development Plan
NEPF	National Evaluation Policy Framework
NT	National Treasury
PFMA	Public Finance Management Act, 1999
PSG	Provincial Strategic Goal
PTOG	Public Transport Operations Grant
SU	Stellenbosch University
TOC	Theory of change
WCG	Western Cape Government

Background policy summary

The policies and laws described below seek to promote the use of evaluation to improve the impact of government programmes and, at the same time, to increase transparency and accountability. They aim to emphasise the importance of evaluation in policy-making and management, and link evaluation to planning and budgeting processes. They also aim to improve the quality of evaluations and ensure that evaluation findings are utilised to improve performance, where possible. The focus is on evaluation of policies, plans, programmes and projects rather than of organisations or individuals.

The Constitution, the PFMA, the Public Service Act, and the MFMA

Section 195 of the Constitution of the Republic of South Africa, 1996, provides that, in public administration:

- Efficient, economic and effective use of resources must be promoted;
- Public administration must be development-oriented;
- Public administration must be accountable; and
- Transparency must be fostered by providing the public with timely, accessible and accurate information.

In addition, the Public Finance Management Act, 1999 (PFMA) (Act 1 of 1999) the Public Service Act, 1994 (Proclamation 103 published in Government Gazette 15791 of 3 June 1994), and the Local Government: Municipal Finance Management Act, 2003 (MFMA) (Act 56 of 2003) provide a legal basis for the efficient and effective management of public policies and programmes, including monitoring and evaluation.

Government-wide Monitoring and Evaluation System (GWMES – November 2007)

Evaluation is a time-bound and periodic exercise that seeks to provide credible and useful information to answer specific questions to guide decision making by staff, managers and policy makers. Evaluations may assess relevance, efficiency, effectiveness, impact and sustainability. Impact evaluations examine whether underlying theories and assumptions were valid, what worked, what did not work, and why. Evaluation can also be used to extract cross-cutting lessons from operating unit experiences and determining the need for modifications to strategic result frameworks.

National Evaluation Policy Framework (NEPF – 23 November 2011)

This policy framework provides the basis for a minimum system of evaluation across government. Its main purpose is to promote the generation of quality evaluations that can be used for learning aimed at improving the effectiveness and impact of government action. Evaluation reflects on what is working and what is not working in order to inform the refinement of government interventions. It seeks to improve performance through ensuring that credible and objective evidence from evaluation is used in planning, budgeting, organisational improvement, policy review, as well as ongoing programme and project management. It provides a common language for evaluation in the public service.

Division of Revenue Act, 2016 (Act 3 of 2016)

Section 11(6)(a) of the Division of Revenue Act, 2016 (DORA) (Act 3 of 2016),) requires the receiving officer of a Schedule 4 allocation (conditional grant) to a provincial department must evaluate the financial and non-financial performance of the department and submit such evaluation to the transferring officer and the relevant provincial treasury within two months of the end of the provincial department's 2016/17 financial year.

Provincial Strategic Goals (PSGs) and Departmental Strategic Goals (DSGs)

Through its commitment to optimum project management of the Public Transport Operations Grant (PTOG), the Western Cape Department of Transport and Public Works (DTPW) is helping to give effect to the Western Cape Government (WCG) PSG 4: Enable a resilient, sustainable, quality and inclusive living environment, and DSG 3: "Deliver safe, efficient and integrated transport systems in the Western Cape".

Executive Summary

The Public Transport Operations Grant (PTOG) is an historical conditional grant paid annually by National Treasury (NT) in terms of the annual Division of Revenue Act (DORA) to subsidise road-based public transport bus services provided by provincial departments of transport.

The purpose of this evaluation is to enable the Western Cape Department of Transport and Public Works (DTPW) to:

1. Assess the effectiveness of the 2016/17 PTOG grant expenditure in the Western Cape in order to provide information that will assist PTOG management to be made more effective through:
   - 1.1 Improving bus service characteristics that customers value;
   - 1.2 Improving bus operational efficiency; and
   - 1.3 Documenting customers' experience in respect of new or additional bus services implemented in the 2016/17 financial year.
2. Strengthen future PTOG evaluation processes by providing data to inform the development or review of an appropriate surveying approach to the evaluation of the management of the PTOG conditional grant to:
   - 2.1 Measure and understand trends in population behaviour; and
   - 2.2 Collect timely information on emerging travel issues.

Scope of work

Design of the PTOG impact assessment

The professional services provided for in the evaluation included: measuring aspects of the outcomes as required by the PTOG framework; and clarifying programme values based on national and provincial policy and planning directives.

The outcomes statement in the grant framework states that the grant is allocated "for the provision of public transport services in terms of contracts which are kilometre based and affordable to the users of the service".

The programme values selected for study were derived from National Development Plan (NDP) Outcome 6: "an efficient, competitive and responsive economic infrastructure network"; as well as the DTPW Annual Performance Plan: "to provide more reliable and affordable public transport with better coordination across municipalities and between different modes".

The design entailed three aspects. Firstly, the development of an appropriate survey instrument that can be replicated and improved upon every year. Secondly, conducting an impact assessment by collecting, capturing and selecting information about the most significant change (MSC) experienced by bus users as a result of the PTOG intervention. Thirdly, to measure the efficiency with which the operator delivers the services.

Evaluation methodology

The commuter survey questionnaire

The commuter survey questionnaire was administered between 13 and 23 February 2017 through face-to-face interviews with bus users on four selected Golden Arrow Bus Services (GABS) routes by a Stellenbosch University (SU) research team and the

DTPW evaluation unit. The four routes were: Chatsworth, Durbanville, Khayelitsha and Malmesbury. The selection of respondent commuters was based on their availability (in other words, accidental sampling through speaking to those commuters who were waiting at the bus stop at the time of data collection).

The survey was adapted for online completion so that WCG staff members who use any GABS service to participate. The link to the questionnaire was active on the SU online survey platform from 6 March 2017 to 13 March 2017. It was made available through the newly launched DTPW intranet web-portal which included a brief description of the evaluation process.

The MSC questionnaire

Most significant change (MSC) stories are stories collected from people most directly involved in an evaluation process, i.e. survey participants and field staff. MSC stories are collected by asking a simple question such as: "During the last month, in your opinion, what was the most significant change that took place for participants in the programme?" It is initially up to MSC respondents to allocate their stories to a pre-identified "domain of change" category. In addition to this, respondents are encouraged to say why they consider a particular change to be the most significant one.

The stories are then analysed and filtered up through the levels of authority typically found within an organisation or programme. Each level of the hierarchy reviews a set of stories received from the level below and selects the single most significant account of change within each of the domains. Each group then sends the selected stories up to the next level of the programme hierarchy, where the number of stories is whittled down through a systematic and transparent process. Every time stories are selected, the criteria used to select them are recorded and fed back to all interested stakeholders, so that each subsequent round of story collection and selection is informed by feedback from previous rounds. Through this methodology, an organisation is effectively recording and adjusting the direction of its attention – and the criteria it uses for valuing the events it sees there (Davies & Dart, 2004: 10).

Between 6 and 9 March 2017, MSC stories of change were collected through face-to-face interviews with commuters on four purposively selected GABS routes. Stories were collected from commuters at the bus stops, or on the bus while it was travelling on the route.

The bus operational efficiency assessment

The evaluation team agreed that a desktop analysis would be performed to measure the key performance indicators (KPIs) for the 2016/17 financial year in order to derive bus operation data and obtain an average of annual figures. These KPIs are taken directly from the DORA Grant Framework and measured exclusively for subsidised bus services. The data used in this analysis comes from the statistics compiled by GABS and sent to the grant manager. For the purpose of this assessment, the unsubsidised GABS services were not taken into account.

Analysis results

The commuter survey questionnaire

For the face-to-face survey a total of 529 questionnaires were administered, of which 521 were completed, predominantly targeting the four routes of interest for the study. Some of the responses obtained were from bus users who make use of one of the routes, but disembark at a destination that is not the last stop.

A total of 478 self-administered questionnaires were completed through the online platform. While the face-to-face questionnaire administered at the bus stops exclusively targeted the Chatsworth, Durbanville, Khayelitsha and Malmesbury routes, the online survey provided for inputs from a wider commuter group traveling on various GABS routes.

The evidence from the face-to-face commuter survey in respect of ***affordability*** suggests that the service is regarded as affordable, and even very affordable, by those commuters with a household income of R18 001 and higher. Respondents in the lowest income category (a household income of less than R2 000 per month) were slightly more positive than users from households earning between R2 001 and R4 000 per month. The route with the most negative user responses in respect of affordability was Khayelitsha, followed by Malmesbury in second place.

The evidence from the WCG online survey suggests that the service is regarded as mostly affordable by respondents with a monthly household income of R36 000 and higher. Respondents in the lower income categories regarded GABS bus tickets as not affordable, with perceived affordability increasing with each successive higher household income bracket, but only becoming significant from the R9 001 – R18 000 income category upwards.

In terms of ***accessibility*** of the bus service, the evidence from the face-to-face survey presents a positive picture. The majority of commuters across all routes (77%) indicated that it takes an average of 5 to 10 minutes to reach the nearest bus stop from their departure point when leaving their homes. A total of 59% of commuters indicated that it takes an average of 5 to 10 minutes to reach their destination from their final bus stop. The results are very positive in terms of accessibility for existing bus users.

The evidence on ***accessibility*** from the online survey is mostly positive, with more than 68% of respondents indicating that they reach their nearest bus stop from their home departure point within 5 to 10 minutes. While the length of time from the final bus stop to their workplace was longer, 55% of respondents reached their workplace within 15 minutes and 74% reached their workplace within 30 minutes of disembarking.

The evidence on ***reliability*** is mostly positive, with more than 70% of respondents on the four targeted routes indicating in the face-to-face survey that the bus service operates within a 5-minute variance of the times on the published schedule.

From the online survey, the evidence on the ***reliability*** is mostly positive, with 73% of respondents indicating less than 10 minutes' variance from published schedule times from their starting departure point when leaving their homes. However, when reflecting on variance compared to published schedules in respect of end-destination arrival times, this decreases to only 54%. This variance may be directly attributed to external factors that lie outside the control of the operator, e.g. congestion, road crashes and other delays on the route.

The assessment of the ***perceived level of comfort*** of the bus service was more negative in the online survey than the findings from the face-to-face survey. In the online survey, 48% of respondents were either dissatisfied or very dissatisfied with availability of seating on buses, 39% of respondents indicated that they were dissatisfied or very dissatisfied with the cleanliness and visual appearance of buses, and 68% indicated their dissatisfaction with oversubscribed or overcrowded buses.

From the face-to-face survey, 23% of respondents were dissatisfied with availability of seating on the buses, 17% indicated that they were dissatisfied or very dissatisfied with the cleanliness and visual appearance of the bus, and 44% indicated their dissatisfaction with oversubscribed or overcrowded buses.

Regarding the ***perceived safety*** of the bus service, face-to-face survey respondents overwhelmingly agreed that they feel safe from crashes while traveling on the bus, partly because of safe driver behaviour. Bus users on the Khayelitsha route seemed to feel less safe. The evidence about perceived safety while waiting at the bus stops is mixed. While it is clear that a substantial proportion of the respondents feel unsafe at the bus stops, a substantial proportion of respondents indicated that they are either unsure whether they feel safe, or that they do feel safe. The evidence suggests that respondents from the Chatsworth route feel most unsafe, followed by respondents on the Malmesbury route. This may partly be ascribed to the lack of formal bus stops on this route.

From the online survey, regarding the ***perceived safety*** of the bus service, the majority of respondents (60%) agreed that they feel safe from crashes while traveling on the bus, partly because of safe driver behaviour. The majority of respondents indicated that they do not feel safe at the bus stops and there may be a need to investigate the crime prevention infrastructure (security infrastructure, shelters and lightning) at the bus stops to promote commuter safety. It must be noted, however, that safety at bus stops falls outside the responsibility and mandate of the bus operator (GABS) as this is a law enforcement competency.

The MSC questionnaire

Between 6 and 9 March 2017, stories of change were collected through face-to-face interviews with commuters on four purposively selected GABS routes. Stories were collected from commuters at the bus stops, or on the bus while on route.

DTPW analysed the 70 stories based on 9 identified domains of change, namely, affordability, safety, reliability, mobility, comfortable, accessibility, convenience, reduced travel time, and socio-economic change/ social networks.

The stories were filtered to a list of 20 that represented the most significant changes. The selection focused on stories that reflected change aligned to the outcome statement in the grant framework in terms of improving the affordability of the bus service to the user.

After thoroughly discussing the merits of each story, one or more domains were identified in each story. A story was judged to be most significant when it represented a diverse list of domains of change, representing the more comprehensive socio-economic change that the Department pursues through its PTOG programme.

The DTPW evaluation unit filtered the stories per route, selecting the most significant stories on the Khayelitsha, Malmesbury, Chatsworth and Durbanville routes. The routes were arranged to highlight the different socio-economic conditions present in each route. Particular attention was given to identifying the impact of the bus service on commuters from the Malmesbury and Chatsworth to Bellville routes, since these routes were recently introduced.

One limitation of this approach was that it favoured the most significant change story, rather than the ***significance*** of the change. To overcome this limitation, the stories that were not included in the final list was analysed again, and the story that best represent each change domain, with specific focus on affordability, reliability and convenience, was identified. Certain stories that were not part of the first selection were added to the list of most significant change stories and presented to the programme managers for the second level of story selection.

The programme managers then selected 6 stories from the 20 presented to them based on the programme value clarification as captured in the National

Development Plan and DTPW Annual Performance Plan. The stated values taken from these planning documents and six (6) selected stories revealed the most significant changes as affordability, accessibility, reliability, and safety.

Bus operational efficiency assessment

The driver-to-bus ratio of 1.34 is extremely efficient. This favourable ratio is typically achieved by making use of a 6-day working week and rotation of bus drivers between shifts, coupled with good discipline and strict adherence to labour legislation. Adequate provision is made for leave and sick leave. According to the World Bank, in an efficiently run urban operation in a developing country, the normal range is between 1.75 and 2.5 drivers per licensed vehicle.

The number of trips per bus per month of 112 indicates a good bus utilisation of 4 to 5 trips per bus per single working day.

The number of subsidised kilometres per bus per month (3 090.11), and per bus trip (27.64), and per passenger (0.69) are indicators of good vehicle productivity. Provided vehicles are used to effectively respond to passenger demand, optimal vehicle productivity helps to cover the costs of the operation. A high kilometre per vehicle utilisation indicates intensive use. This indicator is useful to measure whether operation vehicle utilisation shows improvement over time.

Subsidy per bus per month (R68 423.95), per bus trip (R612.08) and per passenger (R15.24) is, as a result of the relative short average trip distance, extremely favourable. It also indicates that there is reasonably good use of the buses in the contra-peak direction during the morning and afternoon peak periods, when commuter flows are predominantly in one direction during each of the peak periods.

Income measured by cents per passenger kilometre (CPPK) was 55 cents over all routes. This shows a significant increase compared to the previous evaluation. This indicator is useful for assessing changes in fares over time. This is based solely on cash revenue and excludes the subsidy per passenger.

The 61.78% utilization per bus trip is an indication that buses are, on average, relatively full over the duration of bus trips, and that the subsidy paid in support of the services can therefore be viewed as good value for money.

Lessons learned and limitations of the study

What worked very well in the 2016/17 evaluation was the use of the Golden Acre bus terminus as a central data collection point. All routes were available there and it was therefore not necessary to travel to other termini to collect the data. However, uncomfortably high noise levels made it difficult for the survey administrators and respondents to hear each other. Another negative aspect of using this site was that respondents seemed to lose interest as soon as their buses arrived and the queues moved forward to board buses.

Administering the commuter questionnaire was not difficult. However, some of the questions were not applicable to certain commuters.

1. Some of the respondents do not have bus stops, so they were not able to respond to the question about whether they felt secure with regard to shelters, bus stops, and lighting.
2. Some of the respondents were unemployed, so they were not able to respond to questions about affordability and which income bracket they fell into.

3. When asked about their monthly household incomes, many respondents gave an answer that reflected their individual incomes. In future, it would be better to ask about individual income.
4. The lack of privacy in the data collection setting made it awkward to get data about household income. In future, it may be more appropriate to ask respondents to complete that part of the questionnaire themselves in writing.
5. Using Likert-scale blocks to determine levels of respondent satisfaction did not work well because survey administrators had to explain what the scale meant.

The online survey instrument allowed for very limited analysis of the data. The automatically generated graphs are only descriptive in nature and do not allow for cross comparisons, recoding of data or singling out specific interest groups (e.g. all commuters from Mitchells Plain). As a result, the electronically captured data was recaptured in the SPSS statistics software tool because it allows for cross references and comparisons between lines.

MSC story collection was carried out at the Golden Acre and Bellville bus termini as well as on the buses. Although the MSC story questionnaires gathered very limited data, the data that was collected that way was very useful for constructing short narratives that reflect the actual *end-impact* of the bus service on the lives of its users. That said, the questions in the questionnaire could have been better. Some were structured in such a way that respondents struggled to understand. Some of the questions were regarded as repetitive as respondents could not differentiate between being asked about the "difference experienced" and the value question about why these changes were significant. Most of the respondents found it particularly difficult to answer questions that sought to find out about "what is valued by others".

A main limitation of the stories of change is that they take time to collect and write down, given the narrative nature of the method. This limits the amount of stories that can be collected, and therefore the number of respondents in an MSC survey. Carrying out face-to-face MSC interviews works well because it enables respondents and interviewers to ask questions for clarity so that they can understand each other better. This also allows interviewers to find out more about interesting statements.

The MSC questionnaire did not include enough probing questions that could allow interviewer to solicit more information without leading the respondent in a particular direction. In future, MSC questions could be formulated in a way that allows for more in-depth, valuable information to be collected.

Findings

Comparing the online survey with the face-to-face survey, responses about the ***affordability*** of the bus service showed mixed perceptions. For the online survey, 42% of the 478 respondents and 51% of the 521 face-to-face survey respondents regarded the bus service as either *mostly* or *very affordable*. In addition, 10% of respondents in the online survey and 13% in the face-to-face survey found the bus service to be very unaffordable. It must be noted that 6% of respondents to the face-to-face chose to remain neutral on this question, as did 25% of respondents in the online survey.

An overwhelming majority of the face-to-face survey respondents for the Durbanville route (91%), found the bus service either *very affordable* or *mostly affordable*. The online survey results show that for Bellville (49%), Mitchells Plain (42%) and Khayelitsha (34%), respondents regarded the service as either *very affordable or mostly affordable*.

The evidence on the ***reliability*** for the face-to-face survey is mostly positive, with more than 70% of respondents on the four targeted routes agreeing that the bus operates within a 5-minute variance of the published service schedule. On the other routes in the face-to-face survey, 61% of respondents indicated that the bus service regularly arrives later than the expected time (more than five times per week). Though an overwhelming majority of respondents indicated that breakdowns happen rarely (82%), the evidence suggests that breakdowns may be more common on the Malmesbury and Chatsworth routes. From the online survey, evidence on reliability is mostly positive, with 73% of respondents indicating a less than 10-minute variance from scheduled start-point departure times. However, this decreases to only 54% in respect of scheduled end-destination arrival time. The overwhelming majority of respondents indicated that breakdowns happen rarely.

Regarding the ***perceived safety*** of the bus service, respondents overwhelmingly agreed that they feel safe from crashes while traveling on the bus, partly due to the safe driver behaviour. Bus users on the Khayelitsha route seemed to feel less safe in this regard. The evidence of perceived safety while waiting at the bus stops is contradictory. While it is clear that a substantial proportion of the respondents feel unsafe at the bus stops, there are also a substantial proportion of respondents who indicate that they are either unsure whether they feel safe, or that they do feel safe. It must be noted however, that safety at bus stops falls outside the responsibility of the bus operator as this is a law enforcement competency.

The assessment of the perceived ***comfort*** of the bus service was more negative in the online survey than the findings from the face-to-face survey. A total of 48% of respondents were either dissatisfied or very dissatisfied with the availability of seating on the buses, 39% of respondents indicated that they were dissatisfied or very dissatisfied with the cleanliness and visual appearance of the bus, and 68% indicated their dissatisfaction with oversubscribed or overcrowded buses. The findings were similar in all routes covered in this evaluation, and deviations from the main trends are highlighted in the relevant sections.

In terms of ***accessibility*** of the bus service, the evidence from the face-to-face commuter survey presents a positive picture. The majority of commuters across all routes indicated that it takes an average of 5 to 10 minutes to reach the nearest bus stop at the departure point when leaving their homes. It also takes an average of 5 to 10 minutes to reach their destination from the bus stop at which they disembark. The evidence on accessibility from the online survey is mostly positive, with more than 68% of respondents indicating that they reach the nearest bus stop from their home departure point within 5 to 10 minutes. While it takes respondents longer to get from the final bus stop where they disembark to the end destination, 55% of respondents reach their workplace within 15 minutes and 74% reach the final destination within 30 minutes of disembarking.

During the analysis of the 2016/17 ***MSC stories***, it became evident that the last change dimension (socio-economic change) is too broad as it may encompass a wide variety of social and economic changes for the respondents.

The respondents on the targeted routes in the 2016/17 evaluation identified 9 change dimensions, namely, reliability, affordability, safety, reduced travel time, accessibility, mobility, convenience, social networks and comfort. Three (3) respondents identified no change as a result of using the bus service. All other respondents said that they experienced change in between one and four of the identified change dimensions.

It must be noted that the two top change dimensions correspond with the values identified by the programme managers for the study in terms of the DTPW Annual

Performance Plan and NDP to select 6 stories from the 20 presented to them, namely reliability and affordability.

The outputs for the ***operational efficiency assessment*** are taken directly from the DORA Grant Framework and measured for subsidised bus services only. The overall analysis of the complete operation confirms that the operations of GABS are extremely efficient. The indicators reveal that the operator delivers a bus service that provides good value for money.

Recommendations

For future evaluations of the PTOG, it is recommended that the ***evaluation design*** should be aligned to and emphasise the outcomes of the grant framework as well as the programme's theory of change. Specifically, the development of the programme theory of change must be undertaken in conjunction with a value clarification exercise by programme managers in order to ensure that the evaluation concentrates on those change dimensions linked to the socio-economic outcomes of the grant. This will ensure that credible and useful data is provided to answer specific questions to guide decision making by staff, managers and policy makers.

It is recommended that the ***evaluation methodology*** should be improved by developing appropriate data collection instruments that will consider language differences. Data collection should be undertaken using a ***sampling strategy*** that ensures that the findings will allow for inferences to be made and generalised across the population.

As far as the ***affordability*** of the bus service is concerned, an evaluation synthesis is recommended to assess whether the grant allocation, which is kilometre-based, is in fact affordable to the majority of the users. The proposed method is to investigate whether the affordability public transport is within the policy ceiling of no more than 10% of household income. This should be investigated across individual routes to see whether households from socio-economically disadvantaged areas are worse off than households from the more advantaged areas.

Reliability of the bus service, identified as one of the two top change dimensions, to be more thoroughly investigated as this affects most of the commuters in the core market areas. The real impact of reliability on commuters should be further investigated. The bus service should adhere more strictly to bus service schedules and the causes of differences between scheduled times and actual times should be investigated. Ways should be found to use the electronic monitoring of the service to provide the necessary data to facilitate this process.

Evaluating the ***efficiency*** of the operator is currently best done through the in-year monitoring process employed by the programme. It is recommended that this process should continue and that this data should also be used to track trends in improvements or declines in operational efficiencies over time. Furthermore, it is recommended that valid explanations for the efficiency ratios be developed so that the underlying logic of the ratios can be explained.

1 Introduction

Section 11(6) (a) of the Division of Revenue Act, 2016 (DORA)Act 3 of 2016) requires the receiving officer of a provincial government department to evaluate the performance of all programmes partially or fully funded by Schedule 4 allocations (conditional grants) every year and submit such evaluation reports to the transferring officer and relevant provincial treasury within two months of the end of the provincial department's 2016/17 financial year.

The Provincial Transport Operations Grant (PTOG) allocation received by the Department of Transport and Public Works (DTPW) in the 2016/17 financial year must therefore be evaluated.

The purpose of this evaluation is to enable DTPW to:

1. Assess the effectiveness of the 2016/17 PTOG grant expenditure in the Western Cape in order to provide information that will assist PTOG management to be made more effective through:
   - 1.1 Improving bus service characteristics that customers value;
   - 1.2 Improving bus operational efficiency; and
   - 1.3 Documenting customers' experience in respect of new or additional bus services implemented in the 2016/17 financial year.
2. Strengthen future PTOG evaluation processes by providing data to inform the development or review of an appropriate surveying approach to the evaluation of the management of the PTOG conditional grant to:
   - 2.1 Measure and understand trends in population behaviour; and
   - 2.2 Collect timely information on emerging travel issues.

1.1 Programme profile (background to the intervention)

The PTOG is an historical conditional grant paid annually by National Treasury in terms of DORA to provide supplementary funding for contracts entered into by provincial departments of transport and public transport operators for the provision of subsidised transport services which are kilometre-based and affordable to the users of the services. The contracting authority must supervise, monitor and verify the correctness of the operator's claim in respect of the kilometres of service provided and provide a monthly summary report to the transferring officer.

If the contracting function is devolved to any municipality before the 2016/17 adjustment budget, the appropriate portion of the grant will also be devolved to the municipality. The implementation of the devolution should be in terms of section 17(5) of DORA. The municipality and province will have to make transitional arrangements to ensure payments to operators meet contractual commitments.

Should contracts be devolved during 2016/17, a service level agreement between the province and the municipality must be signed and funds must flow in line with DORA requirements. Provinces must take all reasonable measures to assist the transition within a framework to be prescribed by the national Department of Transport (NDOT) and National Treasury.

All new contracts must be aligned to the relevant legislation, comply with the Public Transport Strategy, and be approved by a Public Transport Integration Committee comprising of the three spheres of government to ensure alignment with Integrated Public Transport Network plans. Where an Intermodal Planning Committee is

established at municipal level, in terms of the National Land Transport Act 2009 (NLTA), (Act 5 of 2009), the functions of the two committees must be consolidated to ensure integration of planning, services and modes.

1.2 Evaluation profile (Background to the evaluation)

The DTPW Directorate: Performance Monitoring and Evaluation was tasked with designing an appropriate evaluation methodology and conducting an evaluation of the impact of the PTOG 2016/17.

A service provider – the Cape Higher Education Consortium (CHEC) agreement – was appointed to provide professional services for the evaluation, namely, to provide guidance on the design of an appropriate evaluation methodology that can be replicated and improved upon annually; secondly, to supervise the evaluation and supply the technical support staff that would administer, capture and analyse the survey questionnaires; and thirdly, to collect and capture individual stories of change experienced by respondents as a result of the service delivery intervention.

The PTOG evaluation was assigned an internal evaluator, supported by an evaluation administrator. These officials received support from outsourced researchers and evaluation administrators. Further technical support was provided by an evaluation advisory committee consisting of an internal supervisor and outsourced evaluation advisor.

1.3 Scope of work

1.3.1 PTOG Evaluation design

The professional services provided for the evaluation included measuring aspects of the outcomes as required by the PTOG framework as well as values expressed in relevant national and provincial policy and planning directives. The outcome statement in the grant framework states that the grant is allocated "for the provision of public transport services in terms of contracts which are kilometre-based and affordable to the users of the service". The values are captured in the National Development Plan (NDP) Outcome 6: "an efficient, competitive and responsive economic infrastructure network" as well as in the DTPW Annual Performance Plan: "to provide more reliable and affordable public transport with better coordination across municipalities and between different modes".

The design involved:

a) The design and development of the programme theory of change (TOC) was performed at a TOC workshop in conjunction with all major stakeholders from the programme as well as Golden Arrow Bus Services (GABS).
b) The design of an appropriate commuter survey instrument that can be replicated and improved upon annually was performed at a data collection instrument workshop. In terms of the evaluation and the PTOG theory of change, the purpose of the Commuter Survey is to compile a demographic profile of the bus users on the selected routes and to inform the specific evaluation questions for the 2016/17 evaluation.
c) Within the PTOG theory of change, the purpose of the MSC stories is to capture the outcomes and impact of the bus service on the users of the service. The PTOG theory of change was developed and captured during the initial workshop for the 2016/17 evaluation.
d) In order to test the efficiency of the incumbent operator, a bus operational efficiency assessment was performed using the operator statistics.

e) The evaluation used both quantitative and qualitative data to measure the impact of the intervention on the users of the bus services.

1.3.2 Evaluation Questions

The following questions were used in the evaluation design:

a) What is the most significant change experienced through the implementation of new and additional routes for the 2016/17 financial year?
b) Are the services that have been added through the implementation of new and additional routes affordable to the majority of users?
c) Are the services that have been added through the implementation of new and additional routes reliable for the majority of users?
d) How has the travel experience improved as a result of the implementation of new and additional routes?
e) How efficient are the operations of the bus service?

1.4 Literature review

In order to provide background information and input for this evaluation, the project team reviewed the following documents relevant to the impact assessment of the PTOG.

Policy documents

Division of Revenue Act (Act 3 of 2016) and DORA Framework.

DPME Evaluation Guideline No 2.2.2 Peer Review of Evaluations.

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2 Evaluation methodology

This chapter explains the design and administration of the evaluation questionnaire, the collection and selection of most significant change (MSC) stories, as well as the operational efficiency assessment conducted with the subsidy statistics received from Golden Arrow Bus Services (GABS).

2.1 Designing the evaluation questionnaire

The PTOG questionnaire from the 2015/16 evaluation was used as a baseline instrument for the commuter survey to ensure comparability of results across the evaluations for future trend analysis purposes. The finalisation of this questionnaire was done in consultation with DTPW officials and with GABS management staff.

The surveys covered questions to determine the demographics of bus users as well as the service attributes of accessibility, reliability, safety and security, convenience, comfort and affordability.

The following questions were added to the 2016/17 questionnaire:

a) Before using this mode how did you use to travel to your destination? (This question reflects the availability of alternative transport options in situations where bus users choose to make use of the bus.)
b) What type of work do you do? (This question serves to expand understanding on the demographic (professional) profile of bus users.)
c) What are your working hours (start time and end time)? (This question serves to reflect on whether buses are available when they are needed.)
d) What is the time you spend travelling on the bus?

2.2 Selection of GABS routes

Four bus routes were selected to represent different economic income groups. The Cape Town-Durbanville route represented the higher income market segment of the GABS bus service, and the Cape Town-Khayelitsha route represented the lower income market segments of the service. The Malmesbury-Bellville and Chatsworth-Bellville routes were selected because as recently introduced GABS routes, this was a valuable opportunity to capture bus users' perceptions of recently introduced routes.

2.3 Sampling

According to Babbie and Mouton (2001), the main purpose of sampling is to make generalisations about people and events that have not been observed. They define a sample as a "specific subset of a population observed in order to make inferences about the nature of the total population itself" (2001: 202). The most important reason for sampling is feasibility (Strydom, 2005: 194). It is often too costly and impractical to study an entire population and, for that reason, researchers make use of sampling to save time and resources.

The selection of respondents was based on non-probability sampling, specifically using a combination of the accidental sampling method and quota sampling.

In accidental sampling, the researcher simply selects a requisite number from cases that are available. Authors such as Bailey (1994:94) and Mc Burney (2001) call this type of sample a convenience, or availability, or haphazard sampling. Researchers who use this sampling technique draw conclusions from whatever units are available for observation. Since generalisability is questionable, caution should be exercised in making conclusions from conveniently drawn samples.

However, it must be noted that the main purpose of the survey was to test the questionnaire and not interpret the results of the survey in any significant way. Conclusions drawn from this study will then primarily be used for internal consideration, discussion at programme management level, and monitoring and evaluation.

In quota sampling, the researcher begins by dividing the population into relevant subgroups such as age, gender, race and class. The fraction of the population in each subgroup is then estimated. Finally, to obtain the correct proportions in the sample, interviewers are asked to speak to a fixed quota of respondents in each subgroup. To fill the quotas, interviewers are free to choose anyone who meets the quota requirements.

2.4 Administering the questionnaire (face-to-face interviews)

In terms of the evaluation and the PTOG theory of change, the purpose of the commuter survey was to compile a demographic profile of the bus users on the four selected routes. The evaluation questions were as follows:

1. Are the services affordable to the majority of users?
   - 1.1 How much do bus users' households earn per month and what is the cost of a GABS ticket?
   - 1.2 How much are bus users willing to pay? (minimum and maximum)
2. Are the services accessible to the majority of users?
   - 2.1 Distance to first stop (km).
   - 2.2 From last bus stop to destination (km).
   - 2.3 Is the user disabled?
3. Are the services reliable for the majority of users?
4. Are the services sufficiently safe?

Between 13 and 23 February 2017, the questionnaire was administered by the Stellenbosch University research team and the DTPW evaluation unit making use of face to face interviews with bus users on the four purposively selected GABS routes. The selection of bus users was based on their availability (in other words, respondents were chosen using accidental sampling by speaking to those who were at the stop at the time of data collection).

For those stops or bus routes where it was not possible to include all possible respondents waiting at the stop, or travelling on the bus, specific attention was paid to ensure that the final selected respondents represent different demographic details of interest in the study (e.g. different age groups, race groups, occupations). This is a characteristic of quota sampling.

The survey was conducted at the Golden Acre Bus Terminus.

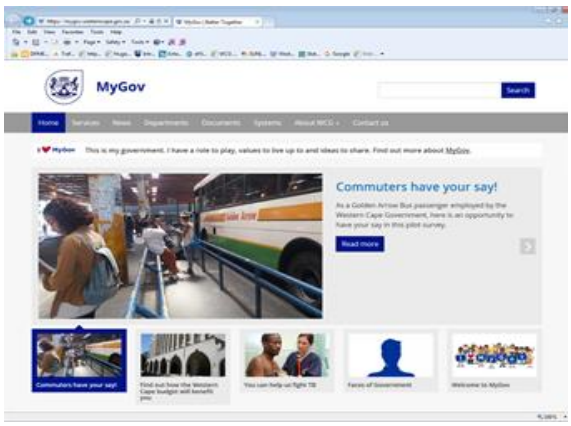
2.5 Administering the questionnaire (online survey)

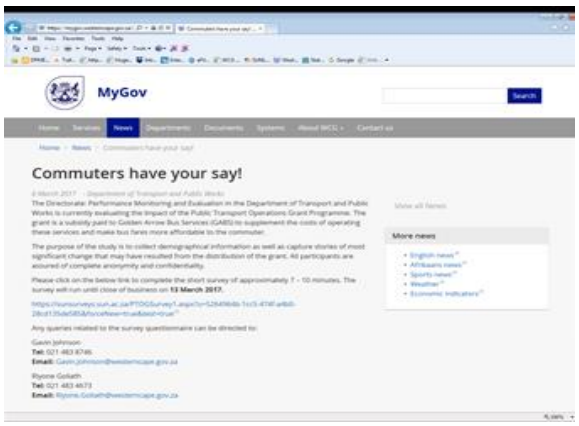
While the face-to-face survey specifically targeted the Chatsworth, Durbanville, Khayelitsha and Malmesbury routes for reasons described above, the purpose of the online survey was to augment this data by targeting the wider GABS commuter community in a cost- and time-efficient manner.

The selection of respondents was based on a non-probability, accidental sampling approach. Completion of the survey depended on the respondents' awareness of the survey, their availability within the time period and interest in the survey to complete it within the allocated time period.

The 2016/17 commuter PTOG questionnaire was adapted for online purposes to allow results to be compared with the results of the face-to-face interviews. The online survey included clearer instructions to facilitate self-administration, and all the questions were changed to close-ended questions with drop-down answer options.

The questionnaire link was active on the Stellenbosch University online survey platform from 6 March 2017 to 13 March 2017. A link to the survey was made available via the newly launched WCG web-portal with a description of the evaluation and the face-to-face interview process, and an invitation to WCG staff who are bus service users to participate in the survey online.





It is likely that the very good response rate was a result of a provocative invitation title ("commuters have your say") and the launch of the new WCG intranet interface. While it is assumed that responses are mostly from WCG staff who use public transport, the link may also have been forwarded to others bus users who would have been able to access the open link. As the survey was not on the intranet of the WCG, six employees indicated that they were unable to complete the online survey. They were provided with hard copies of the questionnaire on request and the research team captured the response in the online questionnaire data set.

2.6 Collecting most significant change stories

For this evaluation, a technique of data collection called the most significant change (MSC) was piloted to primarily collect qualitative data of customer experiences due to the implementation of new or additional routes.

The MSC technique proposed by Davies and Dart (2004) was selected to "monitor the intermediate outcomes and impact" of GABS.

MSC stories are collected from those most directly involved, such as participants and field staff. The stories are collected by asking a simple question such as: "During the last month, in your opinion, what was the most significant change that took place for participants in the programme?" It is initially up to respondents to allocate their stories to a domain category. In addition to this, respondents are encouraged to report why they consider a particular change to be the most significant one.

The stories are then analysed and filtered up through the levels of authority typically found within an organisation or programme. Each level of the hierarchy reviews a series of stories sent to them by the level below and selects the single most significant account of change within each of the domains. Each group then sends the selected stories up to the next level of the programme hierarchy, and the number of stories is whittled down through a systematic and transparent process. Every time stories are selected, the criteria used to select them are recorded and fed back to all interested stakeholders, so that each subsequent round of story collection and selection is informed by feedback from previous rounds. Through this methodology, the organisation is effectively recording and adjusting the direction of its attention – and the criteria it uses for valuing the events it sees there. (Davies & Dart, 2004: 10)

Within the PTOG theory of change, the purpose of the MSC stories is to capture the outcomes and impact of the bus service. The PTOG theory of change, as captured during the initial workshop for the 2016/17 evaluation, included the following outcomes and impacts from a bus user perspective:

a) Reliability of the bus service (Punctuality according to the bus schedule, Consistent bus trips, Safe and reliable transport system)
b) Accessibility of the bus service (Accessible departure locations)
c) Safety of the bus service (Safe and reliable transport system
d) Affordability of the bus service (Cost-efficient bus service, Affordable ticket purchase)
e) Alternative transport options (More transport options available, Additional capacity).

Between 6 and 9 March 2017, MSC stories of change were collected through face-to-face interviews with commuters on four purposively selected GABS routes. Stories were collected from commuters at the bus stops, or on the bus while it was travelling on the route.

By capturing the personal experience of bus users, these qualitative MSC stories reflect the identified outcomes and impact in the PTOG theory of change, i.e. the real-world change that the bus service contributes to people's lives. The MSC stories also help to clarify and expand the PTOG theory of change to inform future management decisions and subsequent evaluations of the service with respect to the efficiency of the bus transport service, the value of assets, and competitive economic infrastructure. These outcome and impact change elements were measured in the quantitative operational efficiency statistics of the bus service.

2.7 The bus operational efficiency assessment

In order for the evaluation to be alignment with the requirements of the grant framework, a bus operational efficiency assessment was conducted.

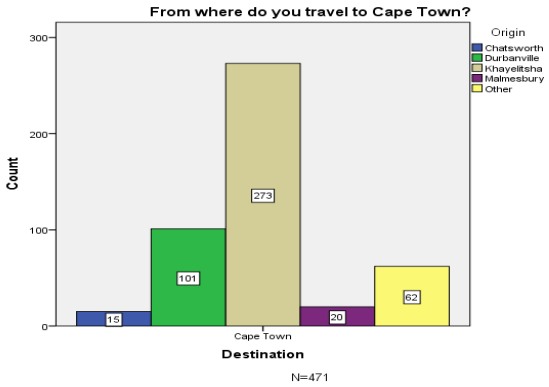
A desktop analysis was performed on the KPIs for the 2016/17 financial year. The monthly average was then used to represent a typical month of operations from which the efficiency ratios could be calculated. These KPIs are taken directly from the DORA Grant Framework and measured exclusively for subsidised bus services. The data used in this analysis comes from the GABS operational statistics sent to the grant manager.

3 Results

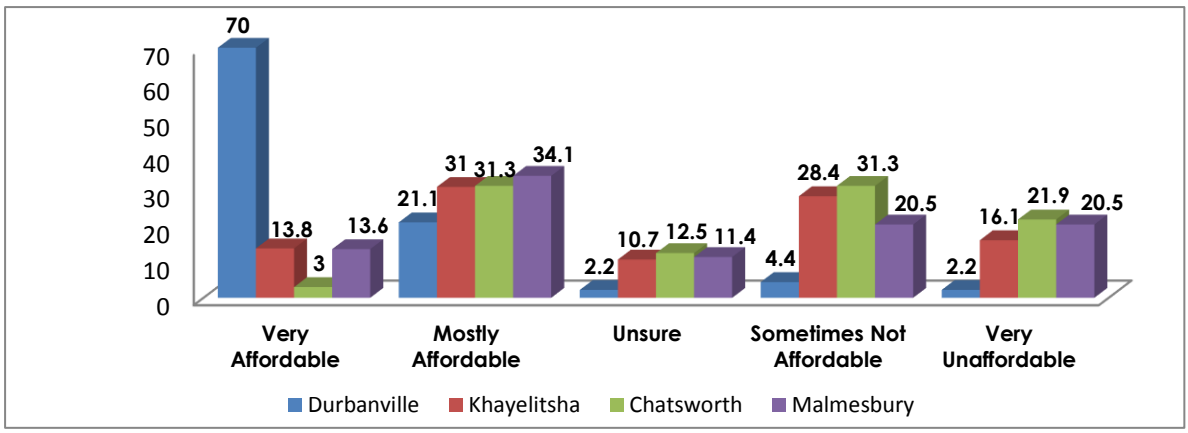
3.1 Survey questionnaire (face-to-face)

The results of the face-to-face survey are based on a total of 529 administered questionnaires of which 521 were completed, targeting the four routes of interest in the 2016/17 evaluation. Responses were also obtained from bus users who make use of these routes but transfer to another end destination.

The breakdown of responses was as follows: 15 for Chatsworth/ Dassenberg, 101 for Durbanville, 273 for Khayelitsha, 20 for Malmesbury, and 62 for other routes. The rest of the responses, a total of 50, were respondents who transferred to other routes.



In response to the evaluation question, "Are the services **affordable** to the majority of users due to the implementation of new and additional routes", the evidence from the commuter survey is as follows:



In response to the question on whether the services are affordable to the majority of the users, the evidence from the commuter survey is that the service is regarded as affordable and even very affordable by those commuters with a household income of R18 001 and more. Respondents in the lowest income category (less than R2 000 per month household income) were slightly more positive than those in the R2001 – R4000.

When analysing the information per route, this anomaly seems to be attributable to commuters from the new Chatsworth route, and to a lesser degree also the Malmesbury route, where even the lower household income categories indicated the service was very affordable, or mostly affordable. The route with the most negative responses in respect of affordability was Khayelitsha, followed by Chatsworth. Given that Malmesbury is the longest of the selected routes, the tickets on the Malmesbury route are also the most expensive.

Responses from the Khayelitsha, Malmesbury and Chatsworth routes were mixed. On the Khayelitsha route, respondents were evenly split on whether the tickets were affordable or not (45% each). On the Malmesbury route, a slightly larger percentage of respondents believed the service was affordable (48%) than not affordable (41%). On the Chatsworth route, just more than half of respondents (53%) felt that the service is not affordable. The Durbanville route is the only route where a significant majority of respondents believe tickets to be affordable (91%).

Across the four routes, just over half (51%) of the respondents indicated that they find the bus service either very affordable or mostly affordable; 30% indicated that they were either unsure about the affordability or found it unaffordable at times; 13% found the bus service very unaffordable; and 6% were neutral.

In response to the evaluation question, "*How has the travel experience improved as a result of the implementation of new and additional routes*", the evidence from the face-to-face survey is described below.

In respect of ***accessibility*** of the bus service, the picture is positive. In respect of travel time from place of residence to the nearest bus stop, 52% of respondents indicated that it takes them 5 minutes or less to reach the nearest bus stop with a further 25% indicating that it takes between 5 and 10 minutes to reach the nearest bus stop. When comparing the four study routes, most respondents indicated that it takes them on average 5 minutes to reach the nearest bus stop, with the exception of Malmesbury route respondents, who indicated an average time of 10 minutes to the nearest bus stop.

In respect of travel time from the final bus stop to their end destination (work, school, tertiary institution or other), 35% of respondents indicated that it takes them a maximum of 5 minutes to reach their destination, with a further 24% indicating that it takes 5 to 10 minutes to reach their destination from the final bus stop. When comparing the four routes, most respondents on the Durbanville route indicated that it takes 5 minutes, most respondents on the Khayelitsha, Malmesbury and Chatsworth route indicated that it takes 10 minutes.

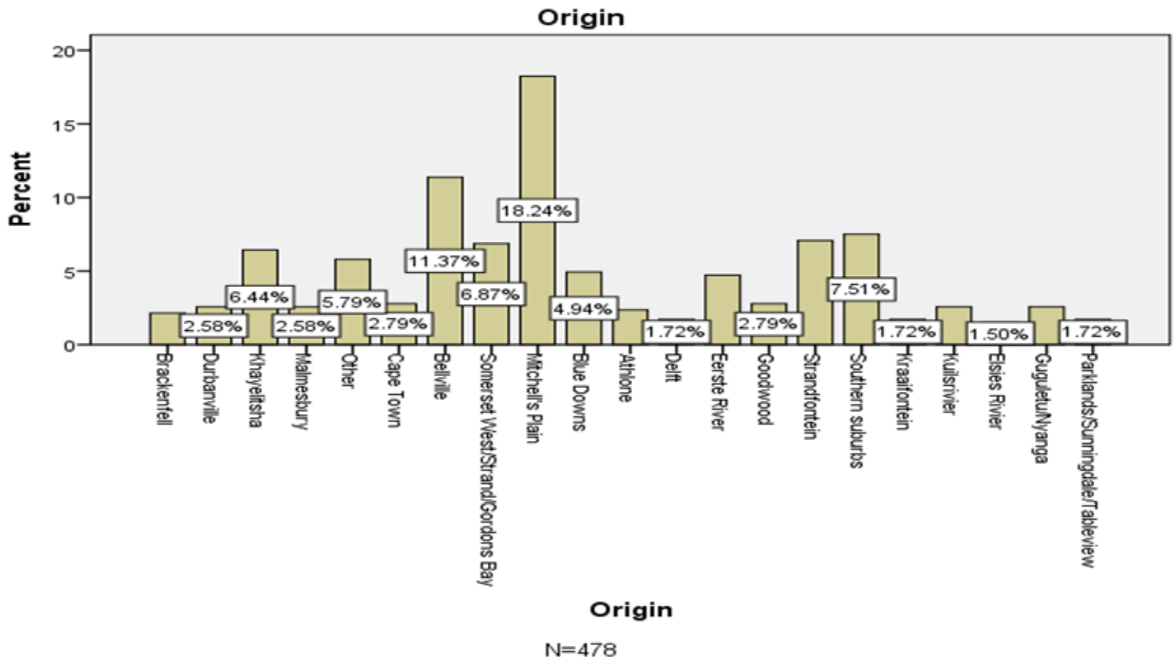
In respect of the ***perceived safety*** of the bus service, respondents overwhelmingly agreed that they feel safe from crashes while traveling on the bus due to safe driver behaviour. Bus users on the Khayelitsha route seemed to feel less safe. The evidence about perceived safety while waiting at the bus stops is mixed. While it is clear that a substantial proportion of the respondents feel unsafe at bus stops, there is also a substantial proportion of respondents who indicate that they are either unsure about safety, or that they do feel safe. The evidence suggests that respondents from the Chatsworth route feel most unsafe, followed by respondents on the Malmesbury route. It must be noted however, that safety at bus stops fall outside the responsibility and mandate of the bus operator as this is a law enforcement competency.

In respect of the evaluation question, "*Are the services **reliable** for the majority of users due to the implementation of new and additional routes*", the evidence from the face-to-face survey is summarised below.

The evidence in respect of ***reliability*** is mostly positive, with more than 70% of respondents on the four targeted routes agreeing that the bus operates within a 5 minute variance the times on the published schedules. Though an overwhelming majority (82%) of respondents indicated that breakdowns happen rarely, the evidence suggests that breakdowns may be more common on the Malmesbury and Chatsworth routes.

The 2016 GABS survey showed 56% of commuters were satisfied or very satisfied with buses being available when needed while 32% were dissatisfied or very dissatisfied. In addition, 88% of those surveyed find this service attribute to be important or extremely important. With respect to reliability of buses, i.e. not breaking down, the 2016 GABS survey reveals that 69% of the commuters were satisfied to very satisfied, with 85% finding this service attribute as being very to extremely important.

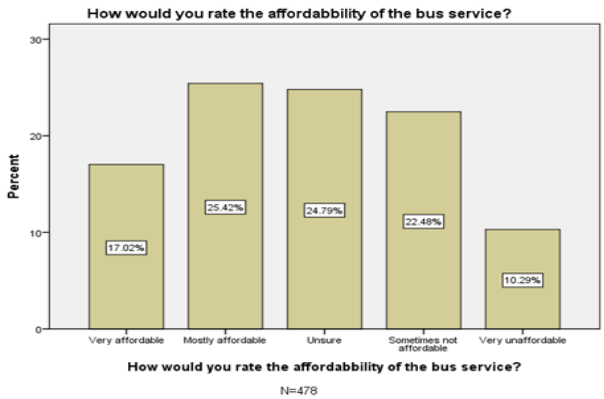
3.2 Survey questionnaire (online)



A total of 478 self-administered questionnaires were completed through the online platform. While the face-to-face questionnaire administered at the bus stops exclusively targeted the Chatsworth, Durbanville, Khayelitsha and Malmesbury routes, the online survey provided a channel for inputs from a wider commuter group traveling on different GABS routes. The graph provides a breakdown of the main routes covered in the PTOG online survey. The online survey presents findings in respect of the specific evaluation questions.

In respect of the evaluation question, "*Are the services **affordable** to the majority of users due to the implementation of new and additional routes*", the evidence from the online survey is summarised below.

The evidence suggests that the service is regarded as mostly affordable by respondents with a monthly household income of R36 000 and more. Respondents in the lower income categories regarded the bus tickets as not being affordable, with perceptions of these being affordable increased as household income increased, becoming significant from the R9 001 – R18 000 income category.



Overall responses for the question show mixed perceptions about the affordability of the tickets, slightly skewed towards the positive end of the rating scale. A total of 17% regarded the bus service as very affordable with a further 25% regarding it as mostly affordable. By contrast, 10% regard the bus service as very unaffordable with a further 22% considering it to be sometimes not affordable. A total of 25% indicated that they were not sure about affordability.

In respect of the evaluation question, "*How has the **travel experience** improved as a result of the implementation of new and additional routes*", the evidence from the online survey is summarised below.

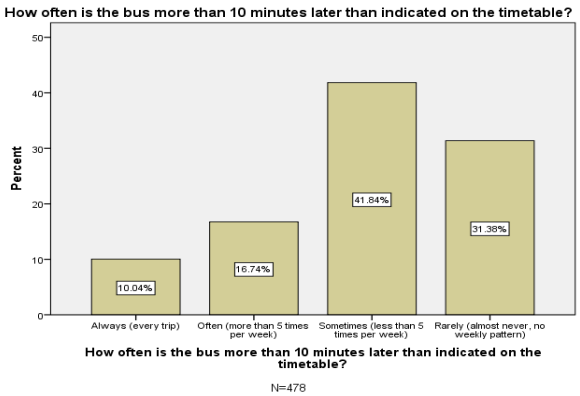
The evidence on ***accessibility*** is mostly positive, with more than 68% of respondents indicating that their nearest bus stop was 5 to 10 minutes from their homes. While it took longer for respondents to reach their end destination from the final bus stop, 55% of respondents reached their workplace within 15 minutes and 74% reached the final destination within 30 minutes of disembarking. While two thirds of the respondents indicated that they were satisfied with the availability of tickets, timetables and route information, one third said that they experienced problems.

Regarding the ***perceived safety*** of the bus service, the majority of respondents (60%) agreed that they feel safe from crashes while traveling on the bus, due to the safe driver behaviour. There was no particular trend across the routes covered in this report. The majority of respondents indicated that they do not feel safe at the bus stops.

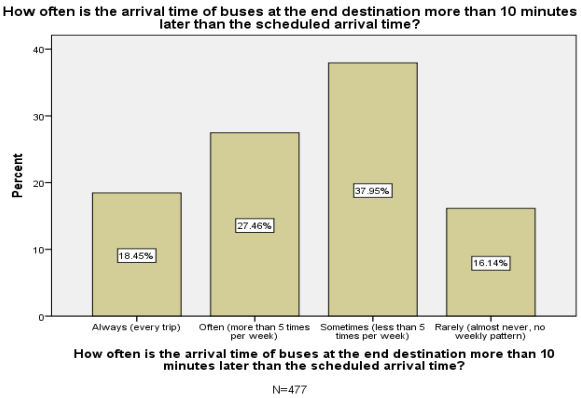
Assessment of the ***perceived comfort*** of the bus service was more negative in the online survey than the face-to-face survey. A total of 48% of respondents were either dissatisfied or very dissatisfied with the availability of seating on the buses, 39% or respondents indicated that they were dissatisfied or very dissatisfied with the cleanliness and visual appearance of the bus, and 68% indicated their dissatisfaction with oversubscribed or overcrowded buses. This seems to be equally true across all routes covered in this evaluation, though some deviations from the main trend are highlighted in the relevant sections.

In respect of the evaluation question, "*Are the services **reliable** for the majority of users due to the implementation of new and additional routes*", the evidence from the online survey is summarised below.

Perceived bus ***reliability*** was captured in two questions, namely the extent to which respondents agree that the bus service operates in accordance with the published schedule, and the perceived frequency of bus mechanical failures.

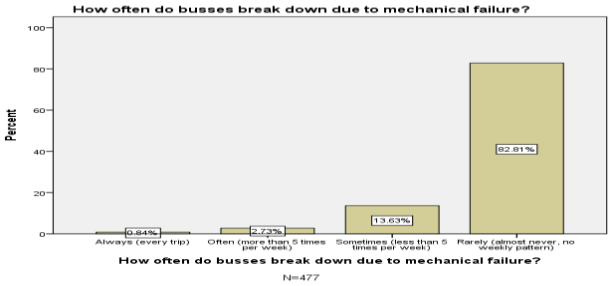


Of the 478 respondents, 42% indicated that the bus is sometimes 10 minutes later than indicated (less than 5 times per week); 31% specified that the bus is rarely (no specific pattern) more than 10 minutes later than the indicated time on the timetable; 17% said that it is often late (more than 5 times per week); and 10% indicated that it is always (every trip) more than 10 minute later than the time indicated on the timetable.



Reflecting on the arrival time of the buses, the respondents were asked how often the bus arrived at the point of destination 10 minutes later than scheduled. A total of 38% indicated that the bus was sometimes late and 16% indicated that the bus was rarely late. However, 27% indicated that the bus was often late (more than 5 times per week) and a further 18% indicated that the bus always arrived 10 minutes later than scheduled.

The majority of commuters (83%) responded that the bus rarely has a mechanical breakdown; 14% indicated that the buses sometimes break down (less than 5 times per week), and 3% indicated that buses often break down.



3.3 Stories of most significant change

In respect of the evaluation question, "What is the most significant change experienced through the implementation of new and additional routes for the 2016/17 financial year?", the analysis of the 2016/17 MSC stories showed that the last change dimension (socio-economic change) is too broad as it may encompass a wide variety of social and economic changes for the respondents. The analysis also revealed further change dimensions as identified by the respondents. The respondents on the targeted lines in the 2016/17 evaluation identified 9 change dimensions, presented in the table below. Three respondents identified no change as a result of using the bus service. All other respondents related to between one and four of the identified change dimensions. Table 1 shows the number of responses per identified dimension of change.

Table 1: Response count per dimension of change

Dimension of Change	**Response count**
Reliability (related to the bus service departing and arriving as scheduled)	37
Affordability (the perceived affordability of the bus service in comparison to other transportation modes, e.g. taxi service, own transport, multi-modal train and bus/taxi service, or multiple bus routes with connections)	32
Safety (related to feeling safe on board and at the bus stops, in comparison with other transport modes e.g. trains, taxi service, own transport)	21
Reduced travel time (less time spend travelling, freeing up time for other work and personal responsibilities)	17
Accessibility (the close-by location of the departure and destination bus stop)	13
Mobility (increased mobility as a result of alternative modes of transport, or the ability to access opportunities further away from place of residence	12
Convenience (less travel stress in comparison to other transport options, e.g. own transport, multi-modal transport and connections)	11
Comfortable (availability of seating on the bus and comfort of the ride)	10
Social networks (social interactions with other commuters on the bus, which contributes also to the perception of safety in addition to satisfying the need for social connection)	6

One weaker change dimension that emerged was related to less traffic congestion that may result in lower carbon dioxide emissions. As the evidence is very weak at this stage, it was not included this in the dimensions of change for the 2016/17 evaluation, but it may warrant further exploration in the future.

When comparing the responses between the selected four bus routes, some similarities and differences emerged. The first and second most commonly selected dimension of change per bus route is presented in table 2.

Table 2: Most commonly selected and second most common dimension of change per bus route

Bus route	Dimension of change identified most commonly by respondents	Dimension of change identified second most commonly by respondents
Chatsworth	Reliability	Comfortable
Durbanville	Reliability	Convenience (less travel stress)
Khayelitsha	Reliability	Safety
Malmesbury	Affordability	Reduced travel time

These differences between routes should be considered when analysing and selecting the final list of MSC stories, as these represent possible value differences among the bus users themselves.

Respondents related well to the question about improvement in their own lives as a result of the bus service. However, they were less confident in reflecting on the significance of this change and linking this to a particular change dimension. Most respondents were unable to report on the changes experienced by other bus users.

A total of 70 stories were collected from the interviews. The DTPW analysed the 70 stories based on the 9 domains of change, namely: affordability, safety, reliability, mobility, comfortable, accessibility, convenience, reduced travel time, and socio-economic change/social networks.

The stories were filtered to a list of 20 that represented the MSC stories. The stories were selected after an in-depth analysis of each story and discussion by the DTPW evaluation unit to identify the change dimensions in the story. Preference was given to those stories that reflected changes aligned to the outcome statement in the grant framework that specifically focuses on affordability and improving the affordability of the bus service to the user.

After thoroughly discussing the merits of each story, one or more domains within each story were identified. Stories were regarded as most significant when they represented a diverse list of domains of change, representing as such the more comprehensive socio-economic change that the department pursues through the PTOG programme.

Further selection criteria included the following:

a) Filtering the stories per route and selecting the most significant stories on the three routes namely, Khayelitsha, Malmesbury/Chatsworth and Durbanville. The differentiation between routes assisted in highlighting the different socio-economic conditions across the different routes.
b) The team paid particular attention to identifying the impact of the bus service on commuters from the Malmesbury/Chatsworth to Bellville routes as these routes were recently introduced.

One limitation of this approach was that it favoured the MSC story, rather that the significance of the change. The stories that best represented each change domain, with specific focus on affordability, reliability and convenience, were identified. These stories were presented to the programme managers for the second level of story selection.

The programme managers then selected six stories from the 20 presented to them based on the outcome of the programme value clarification exercise, namely reliability and affordability. Both of these values are captured in the National Development Plan (NDP), Outcome 6: "an efficient, competitive and responsive economic infrastructure network" as well as the DTPW Annual Performance Plan: "to

provide more reliable and affordable public transport with better coordination across municipalities and between different modes".

Story of Change 78 – Accessibility/ reliability/ affordability

Mrs Mteto travels from Khayelitsha to Cape Town every day. The most significant change in her life as a result of the bus service happened "when they produced the go-card as we are working for Chaz [domestic help]. We used to buy different tickets so now they provide go-cards for us which make life easier for us. And I get to work on time." For her, the most significant change in the quality of people's lives as a result of this service is "its reliability as compared to the train. Also, the bus is more affordable as compared to the taxi".

Story of Change 82 - Reliability

Mhlali is from Khayelitsha attending school in Cape Town. He has been using the bus for the past three years, and used the train before using the bus. He regards the most important change as this: "the bus is more reliable and faster than the train". He adds that "without the bus I do not think I would get to where I want to be". He finds that the buses are not delayed as often as the trains. To him this is important as he used to get into trouble for arriving late at school when using the train. He also finds it safer here at the bus stop than at the train station where you could get robbed.

Story of Change 93 – Reliability/ affordability/ safety

Miss Nokhwetu travels from Khayelitsha to Cape Town to attend university, after previously using the train for transport. She has been using the bus since January 2012. "I used the train first and it was usually late, it had little/no seats available and there were always problems with the trains. I feel that using the bus has made my life easier because it is faster and safer than other modes of transport''. This change is significant to Miss Nokhwetu as "the bus makes travelling very easy, convenient and there are no delays". She has also seen changes in the lives of other commuters because the bus "is safe, affordable and always on time. These are things that make and keep people happy and satisfied". This is significant because "customer satisfaction should always be the number one priority of any service provider".

Story of Change 21 – Affordability

Miss Soraya travels by bus to Bellville where she works. She previously took a bus to Cape Town and changed buses at Killarney or used a taxi from Koeberg. The introduction of the new bus which runs straight to Bellville has made her life easier. "To tell the truth the new bus has made it convenient and easy for me", she said. She also reported that an important change for people in her community is the cost saving, compared to travelling by car. "Travelling by bus is a huge change in my pocket!"

Story of Change 31 – Reliability/ safety

Since February 2017, Anonymous has been travelling from Chatsworth to Bellville by bus after previously using the train. The bus service resulted in a significant change as '' the bus comes at 6 am, whereas the train comes just before 8 am, which makes me late for work. A bus ticket is more expensive than a train ticket, but it is worth it. On the bus, there is always a seat guaranteed so this proves that the bus is reliable". The bus is perceived to be punctual. The service also benefits other commuters as "it is so much safer than other modes of transport like taxis or trains. There were a few instances where my friends were robbed and even stabbed on a train. The option of using a bus is now their first preference due to the decent safety experienced on the

bus". This is significant because "I see the safety of friends, family and colleagues as a major concern when travelling. I care about those closest to me, so that is why I keep on recommending the bus as a mode of transport to them".

Story of Change 37 – Reliability/ social impact/ affordability

Odwa Mvimbi travels from Malmesbury to Bellville from Mondays to Fridays. Since he has been travelling by bus he has been able to wake up later and still arrive at work early. The change was significant because Odwa said: "I have got time to do other things. I get to spend time with my family". Regarding other commuters from Malmesbury, he said: "We stay very far. We stay in Malmesbury. There is not a lot of public transport that goes from here to Malmesbury. So I think it is all the same for all of us, because we can wake up a little later and get home just in time. I can use the bus and save money and not settle in Bellville. I can use that money that I was going to pay for rent on something else".

3.4 Bus operational efficiency assessment

The following results were generated from an analysis of the bus operational information provided by GABS to the DTPW in terms of the contract for subsidised commuter services. The analysis used information for the financial year April to March 2016/17 as a typical operating year. These outputs are taken directly from the DORA Grant Framework and measured for the subsidised bus services only.

Table 3: Bus operational efficiency indicators

Ratio	2016/17
Subsidised kilometres per bus	3 090,11
Subsidised kilometres per trip	27,64
Subsidised kilometres per passenger	0,69
Subsidised passengers per bus	4 490
Subsidised passengers per trip	40,16
Subsidised passengers per kilometre	1,45
Subsidy per bus	R68 423,95
Subsidy per passenger	R15.24
Cents per passenger kilometre	55
Utilisation of bus trip	61,78%

The driver-to-bus ratio of 1,34 is extremely efficient. This favourable ratio is typically achieved by making use of a 6-day working week and rotating bus drivers between shifts, coupled with good discipline and strict adherence to labour legislation. Adequate provision is made for leave and sick leave. According to the Urban Bus Toolkit (https://ppiaf.org/ppiaf/sites/ppiaf.org) in an efficiently run urban operation in a developing country, the normal range is between 1,75 and 2,5 drivers per licensed vehicle.

The number of trips per bus per month of 112 indicates a good bus utilisation of 4 to 5 trips per bus per working day.

The number of subsidized kilometres per bus per month (3 090,11), and per bus trip (27,64), and per passenger (0,69), are measures of vehicle productivity. Optimal productivity of vehicles, provided these are used in response to to passenger demand, help to cover the costs of the operation. A high kilometre per vehicle utilisation indicates intensive use. This indicator is useful to measure whether vehicle utilisation shows improvement over time.

The number of subsidised passengers per bus per month (4 489,49), and per bus trip (40,16), and per kilometre (1,45), are measures of the extent to which passenger use the vehicles in service. This is influenced by total passenger demand as well as vehicle capacity, length of operating day, length of route, average distance travelled per passenger, the extent to which demand varies between peak and off-peak periods, and the kilometres operated per bus per day.

The subsidy per bus per month (R68 423.95), per bus trip (R612.08) and per passenger (R15.24) is extremely favourable.. It also indicates that there is reasonably good use of the buses in the contra-peak direction of travel.

The cents per passenger kilometre (cppk) fare income of 55 cents for the operation over all routes shows a significant increase compared to the previous evaluation.

The 61,78% utilisation per bus trip is an indication that the average bus is relatively full that the subsidy paid in support of the services can therefore be described as good value for money.

4 Lessons learned and study limitations

What worked very well in the 2016/17 evaluation was the use of the Golden Acre bus terminus as a central data collection point. Travellers from all routes were available there. The central bus terminus made it more convenient because there was no need to travel to other places. However, uncomfortably high noise levels made it difficult for interviewers and respondents to hear each other. Also, respondents seemed to lose interest as soon as their buses arrived and passenger queues moved forward to embark.

The commuter questionnaire was not difficult to administer. However, some of the questions asked were not applicable to the commuters.

1. Some respondents were unable to respond to questions about whether they felt secure at bus shelters and about lighting at these locations because there are no bus stops where they embark and alight.
2. Some commuters found it difficult to respond to questions about affordability and their household income brackets because they were not employed.
3. The question about monthly *household* income did not work well as many respondents spoke about their individual incomes. In future it would be better to ask about individual income rather than household income.
4. There was some respondent sensitivity about answering questions about household income because the data collection setting was not private. In future, it may be more appropriate to ask respondents to complete questions about income by marking the questionnaire themselves rather than asking for an audible response.
5. Using a Likert scale to enquire about levels of satisfaction did not work well because interviewers had to spend time explaining what it meant.

The online survey instrument only allowed for very limited analysis of the data. The automatically generated graphs are descriptive in nature and do not allow for cross comparisons, recoding of data or singling out specific interest groups (e.g. all commuters from Mitchells Plain). For this reason, the electronically captured data was recaptured in the SPSS statistical program to permit cross referencing and comparisons between lines.

MSC story collection was carried out at the Golden Acre and Bellville bus terminuses as well as on board the buses. Some of the questions were repetitive and did not yield valuable feedback. Many respondents struggled to differentiate between the "difference experienced" and *why* these changes were significant. In particular, most respondents struggled to respond to the "what is valued by others" question.

In spite of these limitations, the MSC story questionnaire data was very useful in constructing short narratives that reflect the actual end-impact of the bus service on the lives of its users.

The main limitation of the MSC method is that the stories of change take time to collect, which limits the number of respondents. However, face-to-face interviews work well because respondents and interviewers can ask questions of clarity. Interviewer can also ask for more information about interesting statements.

5 Findings

Perceptions of the ***affordability*** of the bus service were varied. A total of 42% of the 478 online survey respondents and 51% of the 521 face-to-face survey respondents regarded the bus service as either mostly or very affordable. In addition, 10% of online survey respondents and 13% of face-to-face survey respondents found the bus service to be very unaffordable. It should be noted that 6% of face-to-face survey respondents and 25 % of online survey respondents were neutral on this question.

An overwhelming majority of the face-to-face survey respondents for the Durbanville route (91%), found the bus service either very affordable or mostly affordable. By contrast, the online survey results show that for Bellville (49%), Mitchells Plain (42%) and Khayelitsha (34%), respondents regarded the service as either *very affordable or mostly affordable*.

The evidence on the ***reliability*** of the bus service for the face-to-face survey is mostly positive, with more than 70% of respondents on the four targeted routes agreeing that the bus arrives within 5 minutes of the scheduled time. However, 61% of face-to-face survey respondents said that the bus service is regularly late, more than five times per week. Though an overwhelming majority of respondents (82%) indicated that breakdowns happen rarely, the evidence suggests that breakdowns may be more common on the Malmesbury and Chatsworth routes. From the online survey, evidence on the reliability is mostly positive, with 73% of respondents saying that start-point departure delays were less than 10 minutes. However, positive feedback about reliability decreases to only 54% with respect to end-destination arrival time. The overwhelming majority of respondents indicated that breakdowns happen rarely.

Regarding the ***perceived safety*** of the bus service, respondents overwhelmingly agreed that they feel safe from accidents while traveling on the bus because of safe driver behaviour. Bus users on the Khayelitsha route seemed to feel less safe. The evidence of perceived safety while waiting at the bus stops is contradicting. While it is clear that a substantial proportion of the respondents feel unsafe at the bus stops, there is also a substantial proportion of respondents who indicate that they are either unsure or do feel safe. It must be noted that safety at bus stops is the responsibility of law enforcement, not the bus operator.

With respect to the perceived ***comfort*** of the bus service, online survey respondents expressed more negative sentiments than their face-to-face counterparts. A total of 48% of respondents were either dissatisfied or very dissatisfied with availability of seating on the buses, 39% of respondents indicated that they were dissatisfied or very dissatisfied with the cleanliness and visual appearance of the bus, and 68% indicated their dissatisfaction with oversubscribed or overcrowded buses.

With respect to ***accessibility*** of the bus service, the evidence from the face-to-face commuter survey presents a positive picture. The majority of commuters across all routes indicated that it takes an average of 5 to 10 minutes to reach the nearest bus stop at their departure point. Similarly, it takes an average of 5 to 10 minutes to reach their destination from their final bus stop. The evidence on the accessibility for the online survey is mostly positive, with more than 68% of respondents indicating that they reach the nearest bus stop to their home departure point within 5 to 10 minutes. While the duration from the final bus stop to the end destination is longer, 55% of respondents reach their workplace within 15 minutes and 74% reach their final destination within 30 minutes of disembarking.

During the analysis of the 2016/17 ***MSC stories***, it became evident that the last domain of change (socio-economic change) is too broad for an evaluation of a bus service.

The respondents on the targeted routes in the 2016/17 evaluation identified 9 change dimensions, namely, reliability, affordability, safety, reduced travel time, accessibility, mobility, convenience, social networks, and comfort. Three respondents said there was no change as a result of using the bus service. All other respondents identified changes in between one and four of the identified change dimensions.

It must be noted that the two top change dimensions identified in the 6 stories of the 20 presented to the programme managers reflect the outcome of their value clarification exercise in terms of the DTPW Annual Performance Plan and NDP, namely reliability and affordability.

The outputs for the ***operational efficiency assessment*** are taken directly from the DORA Grant Framework and measured for subsidised bus services only. The analysis confirms overall that the operations of GABS, calculated across the entire operation, are extremely efficient. The operator delivers a bus service that provides good value for money.

6 Recommendations

In future evaluations of the PTOG, it is recommended that the evaluation design is aligned with the outcomes of the grant framework as well as the programme theory of change. Specifically, the development of the programme theory of change must be undertaken in conjunction with a value clarification exercise to ensure that the evaluation concentrates on those change dimensions linked to the socio-economic outcomes of the grant. This will help to provide credible and useful information to answer specific questions to guide decision making by staff, managers and policy makers.

It is recommended that the evaluation methodology should improve its development of appropriate data collection instruments that will take account of the different languages spoken in the Western Cape. Data collection should be undertaken using a sampling strategy that will provide findings that allow for inferences to be made and generalised across the population.

In respect of the ***affordability*** of the bus service, an evaluation synthesis is recommended to assess whether the grant allocation, which is kilometre-based, is in fact affordable to the majority of the users. The proposed method is to investigate whether the cost of using this form of public transport is within the policy affordability ceiling of no more than 10% of household income. This should be investigated across a sample of routes to determine whether households from socio-economically disadvantaged areas are worse off than households from advantaged areas.

Reliability of the bus service should be subjected to a more thorough investigation as this affects most of the commuters in the core market areas. The real impact of reliability on commuters requires further investigation. Scheduled bus service operating times should be adhered to and any lack of adherence should be investigated. Electronic monitoring of the service can provide the necessary data to facilitate this process.

Evaluating the efficiency of the operator is currently best done through the in-year monitoring process employed by the programme. It is recommended that this monitoring process should continue in order to determine whether operational efficiencies are improving or declining over time to inform management interventions. Furthermore, it is recommended that valid explanations for the efficiency ratios be developed in order to explain the logic for the ratios.

7 References

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Annexure A

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PTOG SURVEY

Surveyor code			Day of the week					Time Started	Time Ended	Questionnaire No.			
Date			M	T	W	Th	F						

DEMOGRAPHICS OF BUS USERS

1. What is your sex?

1.Male		2. Female	

2. What is your population group?

1.Black African		2. Coloured		3. White		4. Indian		5. Other	

3. In which age category do you fall?

1. Below 16		2. 16-20		3. 21 - 30		4. 31 - 40		5. 41 - 50		6. 51-60		7. 61+	

4. What is your household size (you and any people permanently staying with you)?
   4.1 How many adults and children in the household make use of public transport on a daily basis?

4.HH size:		4.1 .Adults:		4.2. Children:	

5. Where do/did you travel from today (origin)? _____
6. Where do/did you travel to today (destination)? _____
7. Do you also travel on other routes?

1.Yes		2. No				
7.1Specify route(s):						

8. What is your purpose for travelling with the bus?

1. Work		2. School		3. Tertiary Study		4. Other		
						4.1 Please specify:		

   8.1 Before using this mode how did you use to travel to your destination?

1.Own car		2. Mini-bus taxi		3. Train		4. Lift club		5. Walked		6. Bicycle		7. Other	

9. What type of work do you do? _____
   9.1 Is your work:

1.Permanent		2 .A fixed period		3.Temporary		4. Casual		5.Seasonal		6. Don't'	

		contract								know	

10. What are your working hours (start and end time)? (use am & pm)

10.1.Start time		10.2. End time	

11.How many days per week do you work? _____

ACCESSIBILITY OF SERVICE

	Min/Hrs.
12.What is the travel time from your home to your nearest bus stop?	
13.What is the travel time you spend on the bus?	
14.What is the travel time from the final stop to your place of work/study/other?	

RELIABILITY OF SERVICE

Please rate the reliability of the service by answering the following questions:

	1. Always (every trip)	2. Often (more than 5 times per week	3. Sometimes (less than 5 times per week)	4. Rarely (almost never, no weekly pattern)
15. How often is the bus more than ten minutes later than indicated on the timetable?				
16. How often is the arrival time of buses at the end destination more than ten minutes later than the scheduled arrival time?				
17. How often do buses break down due to mechanical failure?				

SAFETY/SECURITY OF SERVICE

On a scale of 1-5, how safe/secure would you rate the bus service by looking at the following statements?

	1. Very safe/secure	2. Safe/secure	3. Unsure	4. Unsafe/ unsecure	5. Very unsafe/unsecure
18. I feel secure from crime because there are security guards, CCTV cameras at the bus stop(s)					
19. I feel secure due to the fact that there are shelters at the bus stop(s)					
20. I feel secure due to the fact that there are lighting at the bus stop(s)					
21. I feel safe because the driver exhibits safe driving behaviour					
22. I feel safe from accidents while on board the bus					

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CONVENIENCE/ COMFORTABILITY OF SERVICE

On a scale of 1- 5, how satisfied are you with the service in respect of convenience and comfort by considering the following aspects?

	1. Very satisfied	2. Satisfied	3. Neutral	4. Dissatisfied	5. Very Dissatisfied
23. Convenience of transfers					
24. Availability of seating					
25. Cleanliness and visual appearance of the bus					
26. Availability of tickets, timetable and route information					
27. Oversubscribed/overcrowded busses					

AFFORDABILITY OF SERVICE

28. What type of ticket do you usually purchase?

1. Single		2. Weekly		3. Monthly	

29. What is the fare/ cost of the ticket? _____

30. In which income bracket is your gross monthly household income?

1. < R2000		2. R2001 - R4000		3. R4001 - R9000		4. R9001 - R18000	
5. R18001 - R36000		6. R36001 - R72000		7. R72001 - R150000		8. R150001 – R300000	
9. > R300000		10. Do not want to say					

31. On a scale from 1-5, how would you rate the affordability of the service?

1. Very affordable		2. Mostly affordable		3. Unsure		4. Sometimes not affordable		5. Very unaffordable	

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MOST SIGNIFICANT CHANGE STORIES

Do you the storyteller:

want to have your name on the story (tick one) ***Explain anonymity to the storyteller***	Yes*		No	
consent to us using your story in our report, without proving your name (tick one) ***Explain confidentiality to the storyteller***	Yes		No	
Consent to us contacting you for further information if need be (tick one)	Yes*		No	

Contact Details:

Name of storyteller*:	
Contact number*:	
Project and location:	
Date of recording:	
When did it happen?	

Q1. "Since the start of the new bus route or since you started to travel by bus rather than (…how you travelled before)…, what do you think was the most significant (important/noteworthy/major) CHANGE IN YOUR LIFE as a result of this service?

Q2. Why is this change significant (important/key/ major) for you? What stands out about this change compared to other changes that happened?

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Q3. If you think about all of the bus users, what do you think is the most significant (important/noteworthy/major) change in the QUALITY OF PEOPLE'S LIVES as a result of this service? Does a specific event, thing, incident or story come to mind?

Q4. Why is this change significant (important/key/ major) for you?

To which domain(s) of change can we link this story?

Accessibility	
Affordability	
Mobility	
Reliability	
Socio-economic change	

Some question the story collectors can reflect on in collecting the stories:
For whom did a change occur?
When did the change happen?
What happened – description of the story?
Why is this change significant to the story teller?

THANK THE PARTICIPANT FOR HIS/HER TIME