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UN-HABITAT FOR A BETTER URBAN FUTURE

CITY OF TSHWANE

Contents

Acronyms & Abbreviations Used....3
Other Terms....3
Foreword....4
City of Tshwane Administrative Organigram....5

1 EXECUTIVE SUMMARY....6
1.1. Background (summary)....6
1.2. Sustainable Mobility Strategies Charette (summary)....7
1.3. Open Street & Placemaking Event (summary)....7
1.4. Policy & ToR Reviews (summary)....8
1.5. Online Survey & Expert Interviews (summary)....11
1.6. Reflections & Recommendations (summary)....13

2 BACKGROUND....17
2.1. General Background....17
2.2. Methodology....19
2.3. Project Team & Key Dates....20
2.4. Responding to COVID-19....21

3 SUSTAINABLE MOBILITY STRATEGIES CHARETTE....23
3.1. Charette Purpose & Implementation....23
3.2. Charette Structure, Agenda & Attendees....24
3.3. Charette Proceedings....30
3.4. Conclusions & Reporting from the Charette....37

4 OPEN STREET & PLACEMAKING EVENT....38
4.1. Event Concept & Objectives....38
4.2. Content & Programme....39
4.3. Event 'Toolkit'....45

5 POLICY & ToR REVIEWS....46
5.1. Key Policy Summaries & Commentary....46
5.2. Policy Gap Analysis....57
5.3. Proposed Action Items....58
5.4. Review of Public Transport & NMT Development Guidelines ToR....59
5.5. Review of Parking Policy ToR....61

6 ONLINE SURVEY & EXPERT INTERVIEWS....64
6.1. Survey Purpose & Structure....64
6.2. Survey Topics & Questions....65
6.3. Survey Analysis....66
6.4. Experts Interviewed....69
6.5. Interview Summaries....71

7 REFLECTIONS & RECOMMENDATIONS....79
7.1. Issues Identified....79
7.2. Overall Recommendations to the City of Tshwane....82
7.3. Opportunities for Further Collaboration....87
7.4. Concluding Prioritisation....88

8 APPENDICES....92
8.1. Open Street Event Advertising....93
8.2. Open Street Event Accessories....95
8.3. Open Street Parklet Design....97
8.4. Open Street Event Exhibit....98
8.5. Online Survey Results in Full....113

Acronyms & Abbreviations Used

APTMS	Advanced Public Transport Management System
BEPP	Built Environment Performance Plan
BRT	Bus Rapid Transit
CBD	Central Business District
CITP	Comprehensive Integrated Transport Plan
CoJ	City of Johannesburg
CoT	City of Tshwane
CSIR	Council for Scientific & Industrial Research
DPW	Department of Public Works
GFCP	Global Future Cities Programme
GHG	Greenhouse Gas(es)
GTS	Green Transport Strategy
IRPTN	Integrated Rapid Public Transport Network
ITS	Intelligent Transport System
M&E	Monitoring & Evaluation
NMT	Non-Motorised Transport
NUA	New Urban Agenda
OST	Open Space Technology
PRASA	Passenger Rail Agency of South Africa
PTA	Public Transport Assessment
PWDs	Persons with Disabilities
TDM	Transport Demand Management
TOD	Transit-Oriented Development
ToR	Terms of Reference
TRP	Trip Reduction Plan
SDGs	Sustainable Development Goals
UK FCO	United Kingdom Foreign & Commonwealth Office
UN-H	UN-Habitat
UNISA	University of South Africa
UP	University of Pretoria

Other Terms

A Re Yeng: Tshwane's BRT system
C40: A network of the world's megacities committed to addressing climate change.
Gautrain: high-speed rail system operated by Gauteng Province
Metrorail: commuter rail system operated by PRASA
Taxi: privately operated minibus running regular routes
Tshwane Bus Service: city bus system operated by the City of Tshwane

Foreword

As part of the Global Future Cities Programme (GFCP) under the UK Foreign and Commonwealth Office's (UK FCO's) Prosperity Fund, UN-Habitat, the UK FCO, and City of Tshwane have partnered to better prepare guidelines for the improvement of the mobility system in Tshwane / Pretoria, with a particular emphasis on public transport and non-motorised transport (NMT).

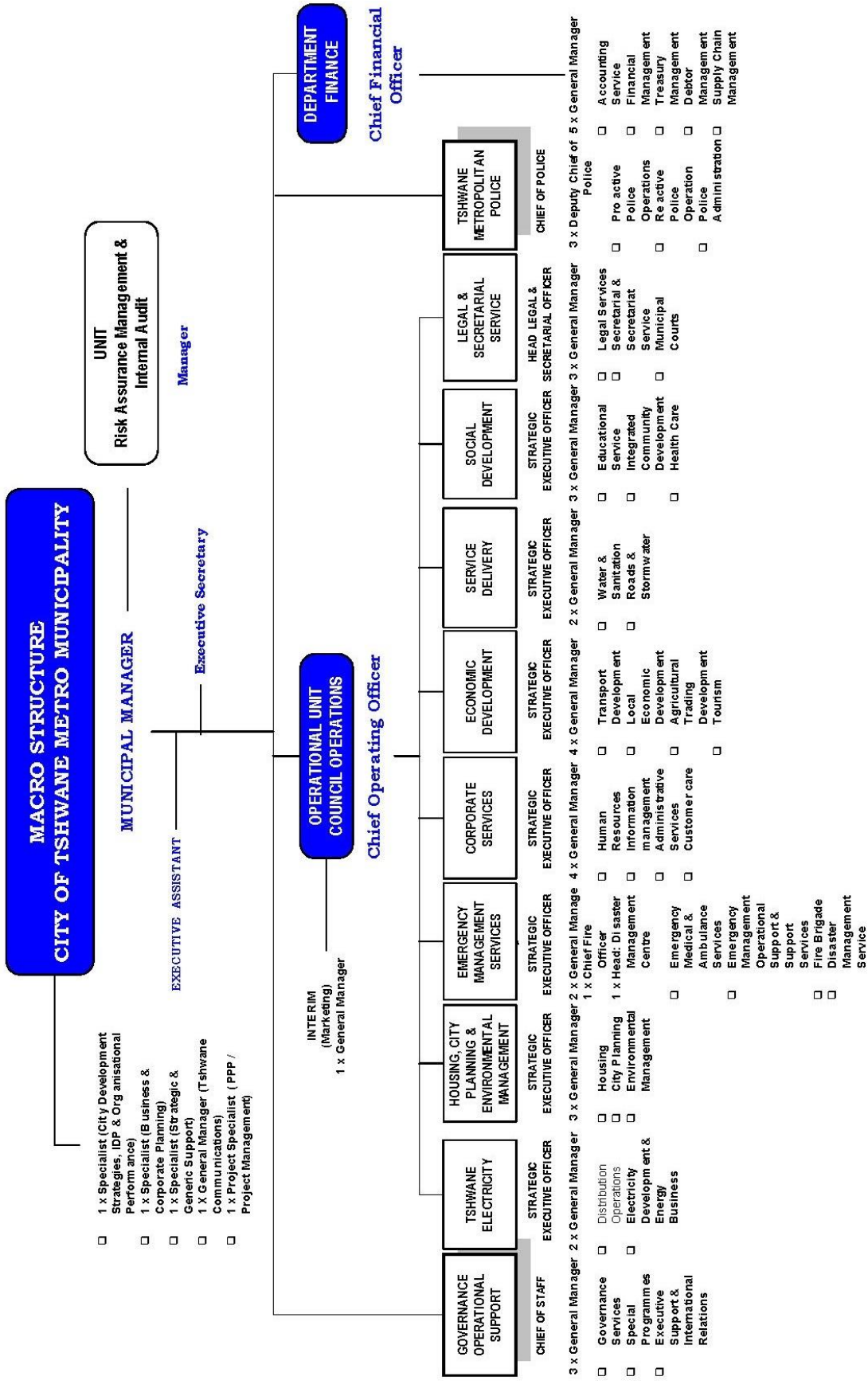
The City of Tshwane has engaged in various initiatives to promote smart and sustainable cities, as well as improvement of the transport sector, by exploring opportunities to move towards a sustainable mobility approach including a more efficient and effective public transport system. However, the City has not been following a coordinated approach between transport and urban planning, urban plans (on different urban scales) and the issuing of building permits. The lack of coordination hampers economic growth, increases negative health and environmental impacts, and increases urban sprawl. In this regard, the City of Tshwane is currently exploring modalities to transform the current mobility hierarchy in the city, where the following would be the desirable order of priority:

- NMT (walking, cycling)
- Public Transport systems (various modalities e.g. train, bus, taxi etc.);
- Private vehicles

Beginning in November 2019 and concluding in March 2020, UN-Habitat provided technical assistance for this partnership.

This report tracks the activities, outcomes, and recommendations resulting from this project. Additional documentation (previewed in the Appendix included here) is also supplied in digital, non-text form as a supplement to this report.

City of Tshwane Administrative Organigram



1 EXECUTIVE SUMMARY

1.1. Background (summary)

General Background

The overall objective of the project was to further build capacity within the City of Tshwane, raise awareness and to promote a coherent approach to promote sustainable urban development, and urban mobility in particular. The sub-objectives of the project included:

- to identify the main capacity needs, as well as barriers and enablers related to pursuing a more coherent approach to sustainable urban mobility in the City of Tshwane;
- to improve coordination and discuss complementary actions among different stakeholders that have a role to further enhance NMT and public transport provisions in the city from an integrated approach (i.e. linkages and synergies between urban mobility and other urban development sectors); and
- to share international best practices and further identify appropriate actions and potential partnerships to support the City of Tshwane in its efforts to create a more sustainable and connected urban environment.

Methodology

The basic principle informing the methodology is the activation of a multi-stakeholder participatory process to inform data-gathering, problem finding and problem solving. The tools selected for this purpose were a mix of interactive, participatory sessions, diversified in terms of both the kind of public addressed and the nature of the interactions, responding to a series of parallel goals, including:

- A **Participatory Charette**, entitled 'Sustainable Mobility Strategies,' involving participants from various government entities, academic institutions, and the private sector;
- An **Open Street & Placemaking Event** including various streets activation and public space activities (ultimately cancelled due to COVID-19);
- **Expert Meetings** with CoT officials and other partners in public transport and NMT improvement, following the Open Street Event (cancelled due to COVID-19);
- A **Conference Cal**l between CoT officials and UN-Habitat (though planned, this did not take place);
- An **Online Survey**, developed as a substitute means of gaining input from a wider audience;
- **Online Group Interviews,** in small groups, involving technical staff CoT, representatives from academia, development partners, and UN-Habitat experts;
- **Policy Review,** focused on finding gaps between related policies that can be addressed in upcoming revisions;
- **Terms of Reference (ToR) Review** on two ToRs being launched by the City.

Project Team & Key Dates

The project team and dates are listed in full in section 2.3.

Responding to COVID-19

The COVID-19 outbreak, subsequent social distancing guidelines and eventual full lock-down that ensued resulted in the cancellation of the planned Open Street and Placemaking events at Church Square (see section 4). However, across the world several lessons are emerging on operations of public transport and the importance of NMT in preventing the transmission of infectious diseases. Over the coming weeks, UN-Habitat plans to review and share these lessons with cities including City of Tshwane.

1.2. Sustainable Mobility Strategies Charette (summary)

Charette Purpose & Implementation

A participatory charette, entitled 'Sustainable Mobility Strategies,' was held on 30 January 2020 with participants invited from various government entities, academic institutions, and the private sector. The scope of the charette was to capture informed stakeholder input on the needs and issues (both real and perceived) in the City of Tshwane with regards to sustainable mobility and implementation of NMT strategies. A key goal of the charette was to begin defining thematic areas of input and/or intervention to enhance such strategies. Outcomes included informed input-gathering from the municipal actors who grapple with mobility and NMT issues, identification of main areas for potential interventions within the city, and the beginning of a broader capacity development dialogue with the City of Tshwane.

Charette Structure, Agenda & Attendees

The charette was structured using a participatory methodology suitable for broad discussions and directed toward the collective elaboration of a general strategy and its operational axes. In order to prompt discussion, an initial question was posed: *What are the main topics and issues we need to address in order to support a holistic sustainable mobility strategy for Tshwane?* A full agenda can be found on page 26, and a list of attendees on page 29.

Charette Proceedings & Conclusions

UN-Habitat has compiled a full Charette Report (including the content in the subsections above, with some additional detail) separate to this document. Similar information to that report is presented in this document in section 3, with proceedings detailed in section 3.3. The conclusions drawn from this report are integrated into the Reflections & Recommendations (section 7) of this final report.

1.3. Open Street & Placemaking Event (summary)

Event Concept & Objectives

As the City of Tshwane intends to move into the next horizon of producing a 'smart city' by 2030, a placemaking weekend public event can be used to celebrate its public spaces and community-led activities which can lead to a transformation in how the city at large and public space is experienced.

There are a number of core objectives to undertaking a placemaking event:

- Activate public spaces through a variety of low-cost high-impact interventions including coordinated pop-up activities;
- Celebrate the city's public spaces, raise their profile and create awareness about their importance while also boosting their potential for domestic tourism, cultural and environmental uniqueness;
- Promote cross-sector dialogues about quality of life in the city, and foster partnerships and collaborations for public spaces;

- Advocate for a healthier, safer, more inclusive and vibrant city through safe, walkable and pedestrian-oriented streets, particularly in the central business district;
- Substantially promote widespread NMT (walking and cycling) networks along high-demand routes, in connection to public spaces.

Content & Programme

The event was planned to embed various activities based on the holistic approach to streets as public spaces that embrace the concept of liveability and completeness of a city, fostering social interaction and bringing people together to use the city differently. This can also focus on demonstration of sustainable urban mobility/NMT initiatives (temporary bicycle paths, critical mass events, urban walks, etc.) in line with better management of streets as public spaces The full planned programme can be seen in section 4.2.

Event 'Toolkit'

A complete set of graphic advertising, accessories to be displayed/used on the day of the event, and the street exhibit was produced by the UN-Habitat team in preparation for the event, and can be found with additional detail in sections 8.1, 8.2, and 8.3, respectively.

1.4. Policy & ToR Reviews (summary)

Key Policy Summaries & Commentary

In an effort to strengthen the alignment of policies and identify both positive and negative issues with regards to an integrated delivery and management of sustainable mobility and NMT systems in Tshwane, a number of policy documents were reviewed and analysed. These included:

- The Comprehensive Integrated Transport Plan (CITP): City of Tshwane, 2015-2020;
- Streetscape Design Guidelines, City of Tshwane, 2007;
- Built Environment Performance Plan (BEPP), City of Tshwane, 2017-2018;
- Department of Transport Strategic Plan, National Department of Transport, 2015-2020.
- Metropolitan Spatial Development Framework, City of Tshwane, 2012.

Policy Gap Analysis

Overall, policy documents on sustainable mobility are quite comprehensive, with elaborate plans for public transport improvement in both Tshwane and in South Africa as a whole. The documents reviewed are very clear on the intention to improve public transport, and on the need for improved NMT system.

The alignment between provincial-level and municipal-level transport planning could be strengthened. While this issue is not unique to Tshwane, and may often be challenging politically, it is worth redoubling efforts to strengthen this vertical alignment to overall support an integrated transport planning framework.

While the CITP is the lead document in developing sustainable mobility and NMT systems, it tends to focus only on initiatives, policies and projects through the lends of traffic engineering and transportation planning, with little reference to the spatial planning which supports a sustainable mobility network. Because these issues are interdependent and mutually influential, it is difficult to tackle one without the others.

Some of the major challenges were identified from this analysis. First, that the private car is not sufficiently disincentivised. Second, that political champions for the causes of sustainable

mobility, and especially NMT, have yet to be identified. Third, that innovative funding and financing for sustainable urban mobility is yet to be explored.

Proposed Action Items

Some of the proposed actions aimed at strengthening the city's implementation capacity of sustainable mobility plans, policies and strategies include the following:

1. Capacity development of officials on city and regional level including skills on regional transport network planning, inter-modality and NMT.
2. Harmonisation of plans, policies and guidelines particularly between different levels of government is proposed.
3. As most policies and strategies focus on the "hard" measures, it is proposed that the city invests more resources to address the soft side, i.e. engagement with transport users to better understand their transport preferences, public mobility dialogues, or participatory policy review processes.
4. As the city implements the Tshwane master plan and develops pilot projects on NMT, it is proposed to strengthen the focus on the required elements of "network" and "inter-modality".
5. City of Tshwane should elaborate further on appropriate mechanism for innovative funding for sustainable urban mobility in existing policies and plans.

Review of Public Transport & NMT Development Guidelines ToR

Full analysis is given in section 5.4. In summary, a series of points are offered as feedback and suggestions on this ToR:

- Strengthen the emphasis on integration of the Guidelines with existing frameworks, plans and strategies.
- Specify that the Guidelines should require Public Transport Assessments (PTAs) to explicitly outline NMT and public transport strategies.
- Emphasise the importance of behavioural change being addressed in the PTAs.
- Add a requirement for Monitoring and Evaluation (M&E) and contingency measures to be part of PTAs.
- Request that the appointed team/consultant has experience in NMT, public transport and sustainable travel planning.
- Increased awareness within the City of Tshwane Municipality about the CITP main vision, goals and strategies, and especially regarding NMT and public transport, can contribute to improved application of the Guidelines, as well as enhancing NMT infrastructure and public transport provision in the city.

Review of Parking Policy ToR

Full analysis is given in section 5.5. In summary, UN-Habitat offers the following recommendations on this ToR:

- Specify the qualifications of the consultant.
- Add to the scope of work of the consultant: co-development of a common vision of the parking policy with CoT officials.
- Specify in task 2 "Data Collection:" on- and off-street occupancy surveys.
- Add to the scope of work of the consultant: development of an organizational structure for the implementation of the parking policy.
- Add to the scope of work of the consultant: development of a Parking Revenue Management plan.
- Emphasize more in the scope of work of the consultant: parking pricing aspect.
- Add to the scope of work of the consultant: exploration of IT based support systems.

- Add to the scope of the work of the consultant: Exploration of multi-purpose use of parking spaces.

1.5. Online Survey & Expert Interviews (summary)

Survey Purpose & Structure

Since the Open Street & Placemaking Event could not take place, an online survey was developed as a substitute means of gaining input from a wider audience. The survey was distributed using contacts from the Participatory Charette, the City of Tshwane, and other relevant stakeholders. The complete set of questions and results can be seen in the Appendix (section 8.5), and an analysis in section 6.3.

Survey Topics & Questions

Various questions related to coordination were listed as significant hindrances for experts in the field, but less so by other government employees. The coordination issues, particularly those which are design related, is nominally addressed in the 2007 Streetscape Design Policy and Guidelines, but the fact that this policy is not universally known and is considerably outdated renders it somewhat incapable in solving this issue. It is recommended that the City of Tshwane consider updating and replacing this policy, gearing it more towards the integration and intermodality of transportation which now features prominently in the City's agenda.

Survey Analysis

When asked about reasons preventing them from walking or cycling more, a few trends emerge. Not surprisingly, most participants said walking would take too long due to distances to and from their regular destinations. However, this was not true of cycling – suggesting that common distances travelled (by survey participants) are in the medium-small range, not a long- or medium-long range. Rather, inadequate provision or maintenance of sidewalks and/or cycle lanes was cited a major impediment, second only to the fear of doing so after dark.

A majority of participant responses suggest that the added capital expense of constructing a proper transit station (e.g. a BRT station as opposed to a curb-side bus stop) has some additional value, in that it increases the perception of safety amongst users. Even if not implementable for all modes, this finding – at the very least – emphasises the importance of proper design and physical accessibility of the physical environment surrounding transport access points.

When given a list of interventions that would encourage walking in the city, all participant groups cited better street lighting as a factor that would make them much more likely to walk more frequently. The same pattern of responses holds when asked about the use of public spaces. A large majority of all participants, especially amongst ordinary citizens, said that more accessible information about routes would make them much more likely to use public transport. With some attention, providing clearer and more accessible information ought to be a relatively simple problem to fix, and it is recommended that attempts to do so are undertaken. This is further elaborated in section 7.4.

Experts Interviewed & Interview Summaries

The expert interviewees (listed in section 6.4) revealed several issues, detailed in section 6.5 and resulting in the following recommendations under each topic:

Policies, Plans & Fiscal Support

- Setting up a dedicated NMT unit could facilitate inter-departmental and inter-agency coordination, review of policies, strategies and standards for NMT, assess impacts and monitor progress on NMT projects. The NMT unit could also be involved in the

provision of regular trainings to engineers and planners involved in the design and planning of NMT facilities.

- Simultaneous to promoting NMT and public transport, it will be important to develop measures to reduce the use of personal motor vehicles. Among the options could be that on-street parking spaces could be managed through an IT-based parking system that can generate revenues for re-investment in sustainable transport, or speed reductions and slow zones.
- For continued NMT infrastructure development, a ring-fenced budget exclusively for NMT projects is necessary

Data

- Access to information about the status of the NMT infrastructure and services should be facilitated by CoT. This could be done through regular assessments of the walking and cycling environment as well as qualitative surveys – including:
    - Infrastructure data: Data on footpath and cycle path presence, footpath quality height and width, availability of ramps to enable wheel-chair access; road width, pedestrian crossing design and availability, presence of shade, lighting, landscaping, active building frontages, etc.;
    - User data: Counts of pedestrians, cyclists, and motor vehicles; observation of pedestrian behaviour; and user perception surveys.;
    - Traffic accident data: Records on vehicle accidents involving pedestrians and cyclists, including the location, time of day.
- City of Tshwane to pilot a multi-use information platform which tracks different data indicators.

Governance & Institutions

- A dedicated NMT unit within CoT could facilitate inter-departmental coordination within CoT but also inter-agency collaboration i.e. with Provincial Government.
- Engagement of NMT staff of CoT in Steering Committees of Provincial Government essential on a regular basis, where all projects that are planned within CoT boundaries need to have undergone technical review by CoT staff.
- In the medium term, Provincial and National government encouraged to also create NMT units to strengthen their in-house capacity to design, plan, maintain and manage NMT project.
- Inter-governmental NMT focus groups for purposes of budgeting and implementation monitoring.

Land Use & Public Transport Integration

- Review of building control and planning regulation, with strong involvement of the staff of the NMT unit, to promote compactness and NMT access to public transport (500 m walking access), safe NMT crossings, land use policies that encourage equitable transit-oriented development (ToD), active building frontages, minimum block sizes for redevelopment projects, fine-grained street networks.
- Need to ensure integration and inter-modality of transport modes to enhance attractiveness, i.e. through smart ticketing between various public transport modes, or physical integration of public transport with NMT.

Street Design Guidelines

- Review of all design standards and manuals recommended to ensure that the manuals reflect best practices in design for pedestrians and cyclists as well as align to standards across government levels (city and province).
- Possibility of setting up a design review committee which ensures projects related to sustainable mobility (in particular NMT) align to high-quality standards and guidelines during design and implementation phase. This could be spearheaded by the NMT unit.

Projects & Programmes

- In areas where the demand for pedestrian and cycling activity is the greatest, CoT can develop pedestrian priority precincts with improved footpaths, pedestrian crossings, attractive public space and safe bicycle lanes. Designs must ensure compliance with disability access guidelines)
- Key to making cycling safer and attractive is the development of a safe, efficient, continuous and convenient network of cycle tracks. The network should cover key urban corridors, including arterial roads and expressways. A phased network implementation plan can also prioritise streets in the coverage area near public transport stations to ease the access while adequate cycle parking needs to be provided.
- Bollards should be installed on all footpaths at high risk of parking encroachment.
- Develop a policy to guide public private developments that will support the enforcement of high-quality standards for NMT.

Promotion & Culture

- Regular open street events offer safe space for walking, cycling, and other forms of recreation in a public space.
- Active marketing campaigns transform the image of NMT and drive growing usage of the cycling.
- Regularly engage media and ensure that city residents have open access to information regarding ongoing transport projects and participate actively in the planning process.
- Strongly link NMT projects to improvements of road safety / saving lives.
- Develop a communication and advocacy plan for NMT and Sustainable Mobility.

1.6. Reflections & Recommendations (summary)

Issues Identified

From the various forms of research and engagement, there is broad consensus around a number of key points related to sustainable mobility strategies. The major, general issues are fully described in section 7.1, and are identified as:

- **Fragmented urban form:** the legacy of apartheid-era, segregationist planning and mono-functional zoning exacerbates the mobility challenges and promotes private vehicle ownership. This issue tends to be approached as a socio-economic issue only, overlooking some critical environmental considerations which are part of the same problem.
- **Cultural paradigms:** a cultural shift to drive behaviour change. One can interpret this not just as a movement to reduce the desirability of private vehicular transport, but also as the ease of use for public transportation and non-motorised transport.
- **Standards and design**: the necessity for stronger standards of design and implementation of NMT systems and intermodal exchanges.
- **Real and perceived safety**: the perceived safety of NMT and public transport remains a significant challenge. Larger crime-related issues generally become easier to address through the same forms of urban planning and development that promote NMT and public transport.
- **Municipal capacity**. Specifically, the lack of an "NMT champion" appears to be an issue. More generally, capacity-building is not merely the training of employees, which does not appear to be a major problem in Tshwane, but the creation of some breathing room to launch innovative or experimental solutions without undue repercussions should such experiments fail to achieve the desired outcome.

- **Data synthesis**. Significant amounts of data related to sustainable mobility are already collected by government and academic entities, but are not always made available beyond the department which conducted the study. Furthermore, publicly accessible information for transit users is extremely limited, a fact that does little to encourage use of public transport.
- **Intermodality & ticketing**: transportation management is fractured between national, provincial, municipal, and private entities, making integration hugely problematic. Network integration sometimes happens organically, but duplication of routes between multiple systems is common. The difficulty in splitting fare revenues between private entities and government, as well as between various levels of government receiving their budgetary allowances from differing authorities, would be a complex undertaking. However, there is space for exploring innovations that are inclusive of informal transport modes. If a technological solution to the single-ticketing problem can be developed, it may significantly reduce the political roadblocks.

Overall Recommendations to the City of Tshwane

The recommendations given are compiled based on a synthesis of information from the various sources and using the various techniques outlined in this report. They are meant to be complementary to suggestions made throughout the report. A full description of each recommendation can be found in section 7.2. In summary, they include:

- **Setting Up a Dedicated NMT Unit Within CoT.** This could facilitate inter-departmental and inter-agency coordination, review of policies, strategies and standards for NMT; assess impacts and monitor progress on NMT projects.
- **Rollout of Small Physical Pilot Projects.** Implementing a series of pilot projects related to design for intermodality and NMT could, in the long run, be an effective testing ground for the development of urban design guidelines to be rolled out at a larger, city-wide scale.
- **Diversifying Sources of Funding for Public Transport and NMT.** Effective ways of applying the limited financial resources need to be monitored, with more resources applied to similar projects. Success stories should be compiled to inform future Indaba events with stakeholders. The budgeting system needs to provide for ring-fenced funds for NMT implementation, this will stir up progress over time.
- **Strengthening Inter-governmental Coordination between CoT and Province.** All projects that are being planned by the Province within CoT boundaries should undergo technical review by CoT staff. In the medium term, Provincial and National government encouraged to also create NMT units to strengthen their in-house capacity to design, plan, maintain and manage NMT projects.
- **Institutional Restructuring of Public Transport.** It is recommended to carry out a feasibility study and due diligence exercise in order to guide the restructuring of the public transport functions is a move in the right direction. One proposal is the establishment of a Public Transport Network Authority; with proposals articulating the functions of transport operations and transport planning divisions.
- **Work Towards Integrated Ticketing Across Modes**. There are ongoing attempts to address an integrated ticketing system in Tshwane, and the ITS which will provide a public transport and advanced public management system (APTMS) over 10 years. However, true intermodality will never be achieved unless all modes of public transport are included. Specifically, Metrorail (managed nationally by PRASA) and Gautrain (managed provincially) will likely be difficult to include if efforts for integrated ticketing remain at the municipal level.

- **Disincentivise the Car.** Introduce a mix of strategies, including: raising parking fees; time-based street management; premium parking and reducing the overall supply of on-street parking to progressively incentivise a shift from car-dominance to walking, cycling and using public transport. Additionally, introducing traffic calming measures, such as speed reducing, can demotivate car-use. Car use and parking policies play a fundamental role in achieving successful people-friendly, safe and inviting streets, which double as public spaces, and at a larger scale, form a transit-oriented way of development.
- **Institutionalise Street Design Review Before and During Project Implementation.** The City may explore the possibility of setting up a Design and Review Committee, run by the newly created NMT unit, responsible for ensuring compliance with newly revamped standards and guidelines, evaluating progress, and supporting enforcement.
- **Innovate Delivery of NMT Projects Based on Demand Studies**. Innovative models yet to be exploited include developing NMT first- and last-mile connectivity to the BRT system, and increased intermodality with cycling. The focus is to get people connected to the system using bicycles alongside pedestrian walkways. Private sector young entrepreneurs could assist with this solution where they run the bikeshare schemes on behalf of the city. The City can develop a framework for this and start in an area where the densities exist and interconnectivity is feasible.
- **Activate Streets as Public Spaces and as Keystones for Transit-Oriented Development.** It is recommended to review the building control and planning regulations, with strong involvement by the staff of the future NMT unit, to promote compactness and NMT access to public transport (500 m walking access), safe NMT crossings, land use policies that encourage equitable transit-oriented development (ToD): active frontages, minimum block sizes for redevelopment projects, and fine-grained street networks. This calls for planning for an urban form with mixed use buildings, small, permeable blocks and dense and interconnected network of a mix of street typologies including boulevards, transit streets, pedestrian-priority streets, pedestrian-only streets, service streets and pedestrian alleys/paths.
- **Strengthen Stakeholder Participation and Engagement.** In order to increase ridership in the public transport and use of NMT facilities, issues of security, reliability, network integration, and affordability need to be investigated. Technical plans and guidelines are in abundance, but with little consultation with potential users, the infrastructure will be underutilized and abused by taxis and private cars. Indaba and open street events bring about a diverse stakeholder groups whose opinion and feedback will result in more targeted and relevant projects as the City shares its plans and receives feedback. The Transport Development Division, along with the City Planning Division, should expand the stakeholder list to include cycling enthusiasts, environmental groups, youth, persons with disabilities (PWDs) to jointly chart out ways of reducing vehicular emissions and have more equitable and sustainable mobility outcomes

Opportunities for Further Collaboration

In addition to the recommendations above, there may be a number of opportunities which may only peripherally involve the City of Tshwane as a governing entity, but could be assisted by it through engagement with the private sector. These opportunities are described in full in section 7.3 and include opportunities for business development around both data enhancement and around integrated modalities of transportation.

Further collaboration with C40 is also recommended. In collaboration with the City of Tshwane, C40 is planning a conference and two-day workshop for South African municipalities on walking and cycling this year in October 2020, with the aim of leveraging the lessons learnt from the ongoing project in Tshwane, activating support, and influencing the

development of walking and cycling projects in other cities. C40 is also supporting the City of Tshwane in preparing for the Africa Mobility Month and Open Street Event planned in October 2020. UN-Habitat and C40 have agreed to continuously update each other on ongoing activities, and to further explore collaboration.

Concluding Prioritisation

The recommendations given above will, of course, only be feasible over a long term. On the basis of the strategic recommendations and opportunities presented above, a series of short-term, quick-win items which are relatively simple to implement are given here, and fully described in section 7.4. They may be thought of as means to pave the way for longer-term implementation of the recommendations, and include:

- **A Sustainable Mobility Information Campaign.** Creating a consistent and visible campaign to point out the benefits of NMT and sustainable mobility is the first step in steering the cultural shift. Efforts in this campaign need to be strong and numerous, but budgets need not be large. It is recommended that the City appoint a coordinator of such a campaign and take immediate steps to roll it out.
- **Hold Open Street and Placemaking Events.** The Open Street and Placemaking Event (see section 4) may be used as a "launch party" for the above-mentioned sustainable mobility information campaign. Since the concept, planned activities, and base files for much of the advertising have already been produced, much of the movement forward on this is logistical in nature, and well within the reach of the City.
- **"Maps and Apps:" Better Information Platforms.** Accessible information is critical to increasing usership. Currently, informational platforms – and in some cases something as simple as a system map – are either difficult to find, difficult to read, or non-existent. These is relatively simple things to fix with an investment in better communication and information design. But websites are only the beginning; since most users do not have laptops, or do not carry them around with them, most users would be better served through smartphone apps which allow the appropriate functionality across *all modes of transport*.
- **Streetscaping Pilot Projects.** As with the information campaign mentioned above, visibility is key to changing cultural attitudes towards NMT and public transport. This visibility cannot be relegated to information alone; specific and targeted implementation, if successfully implemented according to robust sustainable mobility design guidelines (described above), may become flagship representations of what a transformed mobility system could look like. Target pilot projects should be in locations that are either highly visible, or address very dire needs, or both. They need not be overly complicated; in some cases, a simple 'tactical urbanism' style project on a shoestring budget may suffice, while in others more substantial and more permanent interventions may be needed. As pilot projects, the first iterations of this initiative should be objects of study. Pilot projects which do not have the desired effects can be reverted back to a base condition.
- **Creation of Stronger Sustainable Mobility Design Guidelines**. Although not a goal in and of itself, over the long term a clear, comprehensive, and stringent set of physical design and implementation guidelines which prioritises NMT, intermodality and access to public transportation has the potential to have a transformative influence. On one hand, a better set of guidelines will make implementation and oversight easier, as there is a defined set of rules to benchmark progress against. On the other hand, updating the (sometimes outdated) policies which contribute to the design and implementation of sustainable mobility systems can become a way of facilitating inter-departmental dialogue and unifying towards common goals.

2 BACKGROUND

2.1. General Background

The Global Future Cities Programme

The Global Future Cities Programme (GFCP) under the UK Foreign and Commonwealth Office's (UK FCO's) Prosperity Fund aims to deliver targeted interventions in 19 cities across 10 countries to encourage sustainable development and increase prosperity whilst alleviating high levels of urban poverty. The programme also aims to create significant short and long-term business opportunities in growing markets forecast to be regional growth hubs. In addition, the programme will make a significant contribution to achieving the Sustainable Development Goals (SDGs) and implementation of the New Urban Agenda (NUA). The Global Future Cities Programme includes cities in Brazil, South Africa, Nigeria, Turkey, Burma/Myanmar, Indonesia, the Philippines, Malaysia, Thailand and Vietnam.

The programme builds upon three integrated pillars which collectively address key barriers to prosperity in selected cities:

- Urban planning – technical assistance for spatial restructuring (city strategies, urban renewal, regeneration, master planning and planning frameworks)
- Transportation – technical assistance to support cities to develop integrated multi-modal public transport systems
- Resilience – technical assistance to develop strategies to address the impact of climate change (e.g. flooding) and ensure development is sustainable

UN-Habitat Urban Planning and Design Lab

It is within this context that UN-Habitat was engaged in an advisory role exploring opportunities to strengthen the City of Tshwane's approach to urban sustainable mobility. Through its Urban Planning and Design Lab, UN-Habitat (UN-H) has been providing strategic advice and technical assistance to the UK FCO under the Prosperity Fund's Global Future Cities Programme (GFCP) since April 2018. The Strategic Development Phase was completed in March 2019, capturing urban development initiatives in 19 cities across 10 countries, including three cities in South Africa (Johannesburg, eThekwini and Cape Town). The Implementation Phase (2019-2022) has now been launched, within which UN-Habitat is providing strategic and technical advice as well as a capacity building component. From this perspective, UN-Habitat supports the cities in taking steward- and ownership of the identified projects, but also in enhancing their ability to sustain the projects beyond the Programme's timeframe. Particular emphasis is therefore also put on aligning the projects to the Sustainable Development Goals (SDGs) and the New Urban Agenda (NUA).

Objectives within South Africa

Within the context outlined above, the UK FCO, through its mission in South Africa, has in collaboration with UN-Habitat, undertaken additional scoping activities in the Gauteng and Western Cape Provinces, including the City of Tshwane. The scoping was agreed upon on September 20, 2019 and the findings and way forward agreed upon in November 2019.

The objective of the scoping activities was to explore additional initiatives where the UK FCO could provide support, primarily to Provincial and Local Governments in South Africa, and that are aligned to the overall objectives of the Fund and Programme. In a sense, the objective was to identify and capture potential projects that can be considered low-hanging fruit - i.e. projects that can be implemented within a short time frame while having a catalytic and/or synergetic effect - hence projects which in the immediate perspective can help either trigger

and/or support other already ongoing discussions and initiatives, or be considered an opportunity for other initiatives in a longer-term perspective. The entire initiative of delivering additional activities was completed in March, 2020.

Objectives for Tshwane

The City of Tshwane (CoT) has identified and articulated a need to further address and improve its approach to sustainable mobility. Although strategies and policies are in place (i.e. the City of Tshwane Comprehensive Integrated Transport Plan [CITP] 2015-2020; the City of Tshwane's Non-Motorized Transport [NMT] Framework 2013), the enforcement of the same lacks clear guidance and coordination hampering sustainable urbanization.

The City of Tshwane has engaged in various initiatives to promote smart and sustainable cities, as well as improvement of the transport sector, by exploring opportunities to move towards a sustainable mobility approach including a more efficient and effective public transport system. However, the City experiences an uncoordinated approach between the current urban transport system in relation, for example, the preparation of urban plans (on different urban scales) and the issuing of building permits. The lack of coordination hampers economic growth, increases negative health and environmental impacts, and increases urban sprawl. In this regard, the City of Tshwane currently explores modalities to change/invert the current mobility hierarchy in the city, where the following would be desirable:

- NMT (walking, cycling)
- Public Transport systems (various modalities e.g. train, bus, taxi etc.);
- Private vehicles

To address these issues, the City of Tshwane procured technical assistance to prepare guidelines for improving the mobility system in Pretoria, with a particular focus on public transport and NMT. This and other initiatives are undertaken in collaboration with the Danish Government (the Embassy), where various initiatives aim to enhance the provision of public space, promote green integrated transport, provision of water infrastructure and finally, mixed-use densification. Would the above outlined approaches and hierarchy be established, this could potentially positively contribute to:

- A healthier, environmentally friendly, climate responsive and walkable urban built environment;
- A sound economic and prosperous development;
- Impact on investment climate for developers and property owners.

Coordination with C40

C40 is a network of the world's megacities committed to addressing climate change by supporting cities in collaborating effectively, sharing knowledge and driving meaningful, measurable and sustainable action on climate change. C40 and the City of Tshwane are working together to strengthen municipal capacities and to leverage finance with future potential for upscaling, including the design of a 7 km bicycle spine along the corridor of Solomon Mahlangu Drive, while supporting efforts to harmonise municipal standards and the provincial road building code on Non-Motorised Transportation (NMT) infrastructure.

As part of South Africa's national October Transport Month, C40 and the City of Tshwane co-organised a 'Walking and Cycling Indaba' on 17 October 2019. The purpose of the event was to build on and increase the commitment and support for walking and cycling from provincial and local government authorities. It was also an occasion for the City of Tshwane to showcase its current efforts, including a planned upgrade of the Solomon Mahlangu Road, measures to address road safety, car-free day activities and a bike-sharing system.

As part of the UK FCO supported project, C40 shared with UN-Habitat the insights derived from the Indaba, as well as a literature review on "Urban Modal Shift" in Tshwane, which helped UN-Habitat to shape and sharpen the content of the Planning charrette as well as the

planned Open Street Day. Through regular online meetings with colleagues from C40 and GIZ, activities were strongly aligned to ongoing efforts of C40 on walking and cycling in Tshwane in order to complement inputs as well as to avoid duplication.

The Approach

The approach in exploring opportunities to further develop and enhance the mobility sector, and especially NMT and public transport promotion, is well founded and justified, as it may lead to outcomes and impacts that could benefit sustainable development from a broader perspective, including how SDGs are implemented on local government level.

In view of the above, the overall objective of the project was to further build capacity within the City of Tshwane, raise awareness and to promote a coherent approach to promote sustainable urban development, and urban mobility in particular. The sub-objectives of the project included:

- to identify the main capacity needs, as well as barriers and enablers related to pursuing a more coherent approach to sustainable urban mobility in the City of Tshwane;
- to improve coordination and discuss complementary actions among different stakeholders that have a role to further enhance NMT and public transport provisions in the city from an integrated approach (i.e. linkages and synergies between urban mobility and other urban development sectors); and;
- to share international best practices and further identify appropriate actions and potential partnerships to support the City of Tshwane in its efforts to create a more sustainable and connected urban environment.

The overall objective was planned to be achieved by implementing two, main inter-linked and participatory activities (detailed in sections 3 and 4), and the provision of strategic advice to the City and the UK FCO, collectively to be used as mechanisms to promote a more coherent approach to sustainable urban development, and urban mobility in particular. The work conducted is described in greater detail in sections 3, 4, 5, and 6.

2.2. Methodology

In order to support the City of Tshwane in identifying strategic policy gaps, structural issues and possible solutions to improve sustainable mobility and NMT in the City, the UN-Habitat team of experts developed an articulated methodology. The basic principle informing the methodology is the activation of a participatory, multi-stakeholder process to inform data-gathering, problem finding and problem solving. Alongside with these primary goals, the team also wanted to capture the opportunity of engaging with a broader public, thereby supporting the city in engaging its citizens in activities triggering cultural and behavioural change.

The tools selected for this purpose were a mix of interactive and participatory sessions, diversified both in terms of the kind of public addressed and the nature of the interactions, responding to a series of parallel goals (data collection, gap analysis and brainstorming, cultural & behavioural change, etc.). As such, the selected tools were:

- A **Participatory Charette**, entitled 'Sustainable Mobility Strategies,' involving participants from various government entities, academic institutions, and the private sector, consulted as informed stakeholders over a one-day structured interaction in the form of a Open Space Technology (see section 3.2 for a more detailed account of the charette and the definition of Open Space Technology participatory tool).

- An **Open Street & Placemaking Event.** Ultimately cancelled due to COVID-19, the event was to include various streets activation and public space activities in Tshwane's Church Square and connecting streets. Two Urban Dialogues, bringing together UN-Habitat experts, partners and general public to openly discuss some major issues, were also planned, one focusing on Streets as Public Spaces, one on Integrating walking and cycling with public transport.

- **Expert Meetings**: a one-day event (ultimately cancelled due to COVID-19), rolling out a series of structured Expert Meetings with CoT officials and other partners involved in public transport improvement, NMT promotion projects or other aligned activities (e.g. C40) were also planned for the Monday following the roll out of the Open Street & Placemaking event.

With the emergence and intensification of the COVID-19 global pandemic in March, the team was forced to recalibrate the approach, re-shape the planned activities and use different tools to complete the consultation process. For this reason, a new set of activities were identified, partially replacing the planned Open Street & Placemaking Event and the Expert Meetings. As such, the substitute activities were:

- An **Online Survey:** developed as a substitute means of gaining input from a wider audience. The survey's structure was organized in order to capture a range of responses from people with differing relationships to the issues, following the articulation in three participant groups: Experts in Urban Planning, Urban Design, Transportation or Related Fields, Non-expert Government Employees, Ordinary Citizens (for more details on the survey, see sections 6.1, 6.2, and 6.3).
- A **Conference Cal**l between CoT officials and UN-Habitat to establish the extent to which the development of public transport and NMT facilities and infrastructure have facilitated mobility/ accessibility, safety/security for the city of Tshwane residents. (Though planned, this did not take place).
- **Online Group Interviews:** in place of the planned face-to-face expert meetings, a series of online expert interviews was organized remotely. The interviews were conducted in small groups, involving technical staff from CoT, representatives from academia, development partners, and UN-Habitat experts. Discussions were about challenges, opportunities and experiences in implementing NMT and sustainable urban mobility (more details about the interviews can be found in sections 6.4 and 6.5).
- **Policy Review:** in an effort to evaluate and discover both deficiencies and synergies in existing mobility and NMT-related policies, a number of governmental policies were reviewed and commented on. The review focused on finding gaps between related policies that can be addressed in upcoming revisions. The summaries and commentary can be found in section 5.1, while the gap analysis and proposed action items are in sections 5.2 and 5.3, respectively.
- **Terms of Reference (ToR) Review**: in addition to the policy documents, two Terms of Reference (ToRs) related to NMT and mobility policy, which are being launched by the City in the near future, were reviewed by UN-Habitat's team of experts, with some recommendations being made. These two reviews can be found in sections 5.4 and 5.5

2.3. Project Team & Key Dates

The Project Team

The project team included:

- The City of Tshwane, primarily represented by:
    - Imelda Tshenye, currently the Divisional Head of the Integrated Regional Public Transport Network (formerly the Director of Integrated Transport Planning)
    - Lerato Seakamela, the Transportation Superintendent, supporting the UN-H/UK FCO team with logistics and managerial support for the various activities (e.g. the Participatory Charette, Open Street event) and liaising across the pertinent municipal departments.
- The UN-Habitat Urban Planning & Design Lab, represented by:
    - Klas Groth, Programme Manager for the Global Future Cities Programme;
    - Pinar Caglin, urban planner and focal point for the additional development work to the Future Cities Programme in South Africa;
    - Costanza La Mantia, contributing to the organisation of activities with the City of Tshwane and advising on the promotion of NMT and sustainable mobility strategies;
    - Stefanie Holzwarth of the UN-Habitat Urban Mobility Unit, elaborating technical input in relation to sustainable mobility and NMT;
    - Rabab Mundara, of the UN-Habitat Urban Mobility Unit, elaborating technical input in relation to sustainable mobility and NMT;
    - Garret Gantner, as an Urban Advisor consultant, coordinating with the project stakeholders and producing the project deliverables;
- The UK FCO Prosperity Fund, represented by Shabari Shaily-Gerber as the programme manager for the Future Cities Programme (South Africa).

Further support was offered by the Danish Embassy, represented by Kristoffer Rønde Møller, undertaking various initiatives that aim to enhance the provision of public space, promote green integrated transport, provision of water infrastructure and mixed-use densification, including supporting the development of guidelines for improved mobility systems in Tshwane.

Key Dates

Preliminary organisational meetings and planning for the Participatory Charette was conducted from 6 December, 2019 to 20 January, 2020. A final preparatory meeting for the Charette was conducted on 28 January, 2020.

The Participatory Charette itself was run on 30 January, 2020.

An Open Street & Placemaking Event was initially scheduled for 14-15 March, 2020, and was later pushed back to 21-22 March, 2020, with a planned Expert Group Meeting to follow immediately after. Unfortunately, due to the COVID-19 outbreak and social distancing advice issued to all South Africans in mid-March, and an eventual full lockdown starting on 26 March, this event did not take place. More details of this planned event are given in section 4.

Assistance to the City of Tshwane in the form of policy review, inputs on upcoming terms of reference (ToRs), and overall suggestions to further the implementation of sustainability and NMT strategies were conducted in lieu of the planned Open Street & Placemaking Event, and are submitted with this report.

2.4. Responding to COVID-19

Due to the outbreak of COVID-19 in South Africa, some of the planned activities had to be reconsidered. On 15 March, South African President Cyril Ramaphosa addressed the nation after declaring a national disaster, banning gatherings of more than 100 people and advising strict social distancing. By 26 March, South Africa was under complete lockdown as an effort to contain the pandemic, a situation which continues at the time of reporting.

Specifically, the Open Street and Placemaking event (see section 4) was initially planned for 14-15 March, with a Group Expert Meeting to follow, and then pushed back to 21-22 March for procedural reasons. As is true in most of the world at the time of reporting, it is unclear when events of this nature will be permitted to safely and responsibly be held. Tentatively, the City of Tshwane has discussed launching holding the Open Street & Placemaking Event in October 2020, without assistance from UN-Habitat.

From the several weeks that the pandemic has spread across the world, several lessons appear to be emerging; for example:

- Better facilities for non-motorised transport can make walking and cycling easier; particularly adequate facilities for safe cycling could provide access and mobility for city residents while maintaining social distancing;
- Poorly operated and crowded public transport can be a weak link that can contribute to the spread of infectious disease;
- occupancy restrictions imposed by some jurisdictions across the world impose financial burdens on operators who then pass it on to passengers; this makes public transport unviable and impose financial burdens on people who are already poor;

With the broad objective of "Building Back Better" over the coming weeks, UN-Habitat plans to review these and other lessons emerging from the crisis and share them with cities, including the City of Tshwane.

3 SUSTAINABLE MOBILITY STRATEGIES CHARETTE

3.1. Charette Purpose & Implementation

Purpose

Within the scope of UN-Habitat/UK FCO Prosperity Fund's Global Future Cities Programme, and in cooperation with a parallel bilateral programme supported by the Danish Government, the City of Tshwane has identified and articulated the need to further address and improve its approach to sustainable mobility and non-motorised transport strategies.

While an initial assessment recognized that good strategies and policies are already in place, it also highlighted how the enforcement of the same lacks clear guidance and coordination across a diversity of actors and stakeholders, hampering sustainable urbanization processes and hindering the effective implementation of such policies and strategies.

As a response to this scenario, both programmes identified how cooperation around holistic, integrated approaches to urban development is key, by focusing on integrated and sustainable transport as a support mechanism to trigger mixed-use densification, boost social inclusion, promote green/blue infrastructure and increase the overall provision of public space. All of this must also be targeted by parallel focusing on how to move from planning to implementation, with effective and target-oriented results.

Against this background, a collective, structured discussion around these topics in the form of a one-day workshop was organised by UN-Habitat (UN-H), the City of Tshwane (CoT), and the UK Foreign & Commonwealth Office (UK FCO).

Implementation

The participatory charette, entitled 'Sustainable Mobility Strategies,' was held with invited participants from various government entities, academic institutions, and the private sector on 30 January, 2020. Representatives were invited from, *inter alia*:

- the City of Tshwane (CoT), including two who are assisting in coordinating the charette;
- UN-Habitat, as the organising team (UN-H);
- the UK FCO, also as part of the organising team;
- private sector practices in urban planning, urban design and/or transportation;
- academic programmes at the University of Pretoria (UP) and the University of South Africa (UNISA);
- provincial government, including the Gauteng Department of Transportation;
- national government, including the Department of Public Works (DPW) and Council for Scientific and Industrial Research (CSIR)

The scope of the charette was to capture informed stakeholder input on the needs and issues (both real and perceived) in the City of Tshwane with regards to sustainable mobility and implementation of NMT strategies. A key goal of the charette was to begin defining thematic areas of input and/or intervention to enhance such strategies. With all the various stakeholders together in one place, coalescing around the same issues, it was also intended to help break down institutional barriers between levels of government and departmental entities.

A venue for the charette (012Central) was chosen within the Pretoria City Centre, as it embodies a kind of redevelopment which may enhance and contribute to NMT and sustainable mobility strategies. A former industrial warehouse site, the spaces have been converted into

a mixed-use programme with exterior public spaces, linking to a main arterial road in the city centre which has numerous public transportation options around it.

Outcomes included informed input-gathering from the municipal actors who grapple with mobility and NMT issues, identification of main areas for potential interventions within the city, and the beginning of a broader capacity development dialogue with the City of Tshwane. Further details are outlined in the subsections below.

3.2. Charette Structure, Agenda & Attendees

Participation Technique

The charette employed a technique often described as 'Visioning:' a process by which a set of stakeholders envisions the future it wants. Through structured public involvement, the invitees identify their purpose, core values, and vision of the future, which are then transformed into a manageable and feasible set of goals and followed by an action plan.

The methodology selected for this task is a variation of the one known as *Open Space Technology* (OST): an open meeting meant to create time and space for people to engage deeply and creatively around issues of concern to them, where the agenda is set by people with the power and desire to see it through.

Typically, Open Space meetings result in transformative experiences for the individuals and groups involved. This is a tested approach to the enhancement of group effectiveness. It can be used with groups of 5 to 500. It is particularly effective when a number of people must address complex and/or conflicted issues in a short period of time, with high levels of innovation, ownership, and synergy.

It is a simple and powerful way to catalyse effective working conversations and to truly invite organisations to thrive in times of swirling change. The Open Space Technology, organized as a one-day public meeting, is particularly useful for strategic direction-setting and visioning the future, but also conflict resolution, morale building, broad consultation with stakeholders, community planning, collaboration and deep learning about specific issues and perspectives.

Gathering Structure

The gathering was structured using a participatory methodology suitable for broad discussions and directed toward the collective elaboration of a general strategy and its operational axes.

An introductory was session led by one of the moderators, followed by a series of debate sessions facilitated by – but not influenced by – the moderators. Results were collectively consolidated, becoming the framework and the strategic axis for a new 'Vision.'

The OST happens through iterative sessions, alternating plenary and smaller subgroup discussions. It is preceded by an introductory session with the purpose of creating a common ground as a starting point for discussion. The introductory session is generally made up of thematic presentations given by the moderators, with the purpose of setting the scene, soliciting imagination and preparing the public for an active discussion.

The iterative debate sessions begin with a very general question which opens the floor to discussion and ideas in the plenary. These ideas are recorded and organised into a maximum of 4 'themes.' The themes are a way of organising what is offered by the stakeholders and therefore are not possible (or advisable) to determine beforehand. Each subgroup requires two members of the organising team: one moderator to guide discussion towards productive thematic outcomes, and one transcriber to take notes and record results.

Roles of the Moderators

This type of meeting runs on two primary principles: passion and responsibility. Without passion, nobody is interested. Without responsibility, nothing will get done.

Obviously, different people feel passionately about different things and it is also obvious that people will not take responsibility for something they are not passionate about. In this form, people come together around topics they care about and the voluntary self-selection is the absolute sine qua non for participation in the event.

The main moderator(s) explains to the participants that they will be asked to voluntarily identify some issue or opportunity related to a specific (although broad) question or theme. Participants propose/respond to that question with the aim of getting them to take real responsibility for discussing their proposal with others.

The recording of critical and important ideas raised during the meeting, both in the plenary and subgroup settings, is critical for the advancement of the ideas beyond the charette. Therefore, the moderators and transcribers in each of the four thematic subgroups play a critical role.

General Principles of Conduct

Before launching the question, the main moderators introduce some basic principles of conduct for the meeting.

First, it must be recognised that not every potential stakeholder is represented in the meeting. While participants are be encouraged to consider the needs of other stakeholders, it is important that they do not project their understanding of the issues onto other, unrepresented stakeholders. This is important to keep an honest dialogue open.

Second, although some stakeholders may not be present – sometimes even important ones – this cannot hinder the group that *is* present from moving forward with a valuable and productive engagement and problem-solving process. There is unlikely to ever be a scenario in which all possible stakeholders are represented at every meeting, so the absence of any single one cannot be allowed to derail the process.

One of many goals is to keep participants feeling empowered and productive. If, after being in part of a session, a participant is no longer interested, he/she has permission to leave. Furthermore, during the group thematic discussion sessions, participants may freely change groups if they discover they are not able to contribute well to the group they initial chose. This places responsibility upon participants for their own actions.

Agenda

The following agenda was initially planned for the charette. However, due to the robust discussion of the first (main) plenary, and participants' deep engagement during the thematic discussions, these sessions extended well beyond the allotted time. As a result, the planned second plenary and second thematic discussions did not take place, and the structure of the meeting was somewhat improvised to include only a main plenary, thematic discussions, and a final plenary. For this reason, the reporting in section 3.3 below is outlined according to the revised meeting structure, rather than as indicated in the initially planned agenda below.

Despite the abridged meeting structure, the single round of thematic groups was extensive enough to tackle some of the issues and discussion points that might have otherwise been raised in the planned second plenary.

1. OPENING. 8:30-8:45

   1.1. Welcoming & Introduction (~10 minutes): City of Tshwane representative
   - Welcoming of guests
   - Outline purpose of the meeting, review meeting agenda

   1.2. UN-Habitat / UK FCO Global Future Cities Programme overview (~10 minutes): Klas Groth (UN-Habitat); Shabari Shaily-Gerber (UK FCO)

2. INTRODUCTORY SESSION. 9:00-10:00: Rahab Mundara (UN-Habitat)

   2.1. Orientation (~5 minutes)
   - Brief explanation of the process

   2.2. Interactive exercise and discussion (~30 minutes)
   - Visual cards exercise on mobility systems: what might good mobility look like?
   - Guided interpretation of the contributing factors in each image; what was the motivation for the choice?
   - Group discussion around aspects of sustainable, integrated mobility

   2.3. Presentation (~25 minutes)
   - Presentation on sustainable mobility and NMT principles & strategies to set the tone for the 1st Plenary Session

3. TEA/COFFEE BREAK. 10:00-10:15

4. 1ST PLENARY SESSION. 10:15-12:00: Costanza La Mantia (UN-Habitat)

   4.1. Charette structure and "rules" (~5 minutes)
   - Brief explanation of the structure of the participatory charette

   4.2. Opening of the 1st Debate Session (~5 minutes). The session explores how stakeholders can think holistically and act in an integrated manner to shape and support sustainable mobility for Tshwane's prosperity.
   - Starting question to be asked collectively: What are the main topics and issues we need to address in order to support a holistic sustainable mobility strategy for Tshwane?

   4.3. Open floor for responses in plenary group (~45 minutes or until all ideas are heard)
   - As stakeholders are responding, ideas will be recorded (including item and name of respondent) on large sticky notes and posted on a board/wall by plenary transcribers [Pinar Caglin, Rahab Mundara (UN-Habitat),and Imelda Tshenye (CoT)],

   4.4. Division into subgroups (~20 minutes)
   - Moderators and transcribers assemble responses into a maximum of 4 common 'categories' that will become the themes for the discussion tables

5. LUNCH BREAK. 12:00-1:00 (room to be re-arranged from plenary to Thematic Tables)

6. 1ST THEMATIC DISCUSSION. 1:00-2:00: C. La Mantia, P. Caglin, K. Groth. R. Mundara (UN-Habitat), plus transcribers from CoT, and I. Tshenye (CoT; floating observer).

   6.1. Subgroup discussions (~60 minutes)
   - Each subgroup will be assigned one of the 'Thematic Tables' to elaborate on and come up with ideas as to what is important to consider and how this could be practically implemented, and the implications of each.
   - Each table will have one moderator to guide discussion and one transcriber to take notes.

   6.2. Response compilation (~15 minutes)
   - As participants are taking a break, the moderators/transcribers are compiling responses and organising them to be presented back to the plenary.

7. TEA/COFFEE BREAK. 2:00 – 2:30

8. 2ND PLENARY SESSION. 2:30 – 3:30: Costanza La Mantia (UN-Habitat)

   8.1. Summary of responses from thematic tables (~5 minutes/group = 20 minutes total)
   - Each table moderator will provide a summary of the discussions and outcomes from the subgroups.

   8.2. Opening of the 2nd Debate Session (~5 minutes). This second session explores how to turn strategic outcomes of the first Debate Session into implementable actions, increasing vertical and horizontal integration around a collective strategy and across various stakeholders.
   - Second question to be asked collectively: What are the implementation mechanisms (governance / planning systems) that need to be put in place to achieve the desired outcomes?

   8.3. Open floor for responses in plenary group (~25 minutes or until all ideas are heard)
   - As in the first plenary, stakeholders will be ask to respond, ideas will be recorded (including item and name of respondent) on large sticky notes and posted on a board/wall by plenary transcribers [Pinar Caglin, Rahab Mundara (UN-Habitat), Imelda Tshenye (CoT)]

   8.4. Division into subgroups (~10 minutes)
   - Moderators and transcribers assemble responses into a maximum of 4 common 'categories' that will become the themes for the discussion tables

9. 2ND THEMATIC DISCUSSION. 3:30-4:15: C. La Mantia, P. Caglin, K. Groth. R. Mundara (UN-Habitat), plus transcribers; I. Tshenye (CoT; floating observer).

   9.1. Subgroup discussions (~40 minutes)
   - Each subgroup will be assigned one of the 'categories' to elaborate on and come up with ideas as to how they could be practically implemented, and the implications of each. Each subgroup will have one moderator to guide discussion and one transcriber to take notes.

   9.2. Response compilation (~5 minutes)
   - Moderators/transcribers consolidate responses to be presented back to the plenary.

10. FINAL PLENARY. 4:15-4:40

    10.1. Summary of responses from Thematic Tables (~5 minutes/group = 20 minutes total)
    - Each subgroup moderator will provide a summary of the discussions and outcomes from the subgroups.

    10.2. Closing (~5 minutes): Imelda Tshenye (CoT)
    - The moderators will close the proceedings and distribute a small document/record of the meeting in .pdf format by the end of the day.

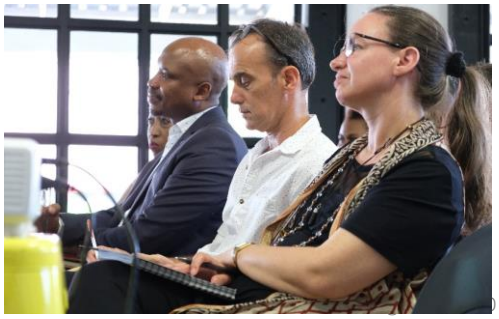
Attendees

Participants

Goke Akiunsi (Gauteng Transport)
Umut Duyar (SUM Consult)
Yolisa Kani (Uber)
Patience Khoza (CoT)
Frank Lambert (CoT)
Karina Landman (UP)
Frandah Lourens (DPW)
Rashela Mabitsi (CoT)
Dolly Mafa (CoT)
Maijane Mashamaite (UNISA)
Samke Mbuthu (EVS Planning)
ZInhle Moerani (CoT)
Benedict Mohlala (CoT)
Portia Mokwana (CoT)
Madumetja Moselakgomo (CSIR)
Cecilia Moumake (CoT)
Thabang Moraka (CoT)
Sello Mphaga (CoT)
Proula Mthimkhulu (CoT)
Mmakanga Shai (CoT)
Themba Skosana (CoT)
Lourens Swanepoel (CoT)
Stefan van Niekerk (CoJ)
Christo Venter (UP)
Ntokozo Zuma (CoT)

Organising Team

Costanza La Mantia (UN-Habitat)
Pinar Caglin (UN-Habitat)
Klas Groth (UN-Habitat)
Garret Gantner (UN-Habitat)
Rahab Mundara (UN-Habitat)
Imelda Tshenye (CoT)
Lerato Seakamela (CoT)
Shabari Shaily-Gerber (UK FCO)



3.3. Charette Proceedings

Opening of the Charette

Following introductory remarks were given by Sello Mphaga (CoT), members of the organising team gave brief overviews. Costanza La Mantia (UN-Habitat) explained the goals and structure of the charette; Shabari Shaily-Gerber (UK FCO) gave an overview of the UK FCO Global Future Cities Programme, and Klas Groth (UN-Habitat) introduced UN-Habitat's work and methods.

Good Mobility / Bad Mobility Exercise

As a way to introduce the substance of the charette, Rahab Mundara (UN-Habitat) led an exercise in which a variety of cards showing a broad spectrum of mobility issues – both positive and negative – were scattered on a table, and participants were asked to choose what they though most represented good mobility and what most represented bad mobility. From this, some discussion was generated about the relation of these issues to Tshwane, and what aspects might need to become a focus of the day's proceedings.

Main Plenary Prompting Question

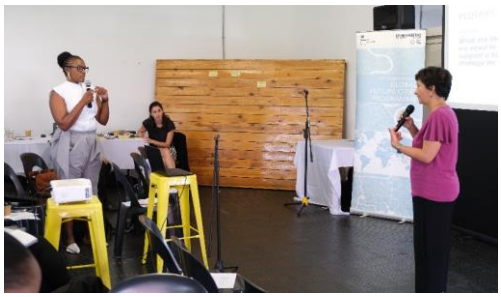
In order to prompt discussion, an initial question was posed:

What are the main topics and issues we need to address in order to support a holistic sustainable mobility strategy for Tshwane?

The question was left intentionally broad so as not to steer participants in any particular direction and avoid getting bogged down in technical details of implementation at this early, ideation stage. In responding to the question, participants were given an opportunity to freely offer issues, aspects to be considered, and potential topics for further elaboration.

Ultimately, the goal of the main plenary is to form thematic subgroups in which more detailed discussions and brainstorming can take place. To this end, the UN-Habitat team summarised and recorded each comment, posting them on a board visible to participants whilst being discussed. As a means to guide sub-division of participants following the plenary, and as a reference point for all participants, the names of the commenter were included on the notes.

After about 45 minutes of open-floor discussion in response to the prompting question, UN-Habitat staff organised the comments into four major themes which emerged out of the plenary discussion: Built Environment, Economic & Cultural Systems, Enablers, Institutions & Governance. Each of these, which are explained in greater detail below, became the focus for one of the four thematic tables in the next session.



Theme 1: Built Environment

Items in this theme were ones whose primary approach to the issue of mobility was around the environment experienced by the user, rather than the technical or managerial aspects of a transit system. Their focus was largely on the users' perception of transport options as a means to create positive cultural shifts towards sustainable mobility options. The key points from the main plenary which landed in this theme were:

- Safety, reliability and accountability.
- Multi-modal infrastructure.
- Incentivising mixed land use.
- Spatial configuration (land use, nodes, distances).
- Site-specific solutions.
- The importance of good design.

Theme 2: Economic & Cultural Systems

Items clustered into this theme are largely intangible ones which may affect an overall embrace or rejection of different types of mobility systems. The key points from the main plenary which landed in this theme were:

- Working within existing needs/systems.
- Conflicting principles & policies.
- Affordability of access.
- Changing the transport culture.
- Having integrated indicators.

Theme 3: Enablers

The theme loosely titled 'enablers' looks towards inventive solutions which deal directly with the problems identified through discussion. This theme was intended to focus on unpacking the broader issues and move towards specific recommendations that might be implementable given enough study, refinement and institutional support. The key points from the main plenary which landed in this theme were:

- Lack of integration/common vision.
- Access to data.
- Appropriate economic models to drive sustainable urbanisation.
- Changing the process / culture.
- Creating an enabling environment for institutions.
- Appropriate policies / principles / design for intermodal mobility.
- Incentivising the private sector.

Theme 4: Institutions & Governance

This final theme looks at issues of management, both specifically within the operations of the City of Tshwane as well as more generally. It is intended to identify the impediments to the rollout of ideas and policies, and propose ways of removing structural barriers. Key points from the main plenary which landed in this theme were:

- Cohesion between stakeholders.
- Capacitating governments.
- A lack of tools for integration and coordination.
- City partnerships.
- Platforms for interaction.
- Institutional gaps between planning and implementation.
- A need for innovative approaches.

With the four themes identified, participants were free to choose one of the four tables in different areas of the room for more in-depth discussions. This session went on significantly longer than initially planned, and thus became the major output of the charette.

Thematic Discussion 1: Built Environment

Moderator: Pinar Caglin (UN-Habitat)

Participants: Umut Duyar (SUM Consult)
Karina Landman (UP)
Patience Khoza (CoT)
Samke Mbuthu (EVS Planning)
Madumetja Moselakgomo (CSIR)
Lourens Swanepoel (CoT)

Starting points for discussion:

- Safety, reliability and accountability.
- Multi-modal infrastructure.
- Incentivising mixed land use.
- Spatial configuration (land use, nodes, distances).
- Site-specific solutions.
- The importance of good design.

Conclusions:

- Influence, control or encourage land-use which reduces traffic needs.
- Bring together housing, distributed services and infrastructural systems.
- Use regional spatial development framework to influence built environment.
- Solutions must be adequately diverse for a culturally diverse society.
- Insist on design at a human scale and upkeep to encourage use of transport systems.
- Structural inequalities exacerbate safety issues; design is only one part of a solution.
- Design multi-modal infrastructure in accordance to scale/distance.
- Departments must meet regularly to work together.

Thematic Discussion 2: Economic & Cultural Systems

Moderator: Klas Groth (UN-Habitat)

Participants: Rashela Mabitsi (CoT)
Benedict Mohlala (CoT)
Shabari Shaily-Gerber (UK FCO)
Themba Skosana (CoT)

Starting points for discussion:

- Generating a common vision and shared implementation.
- Working within existing needs/systems.
- Conflicting principles & policies.
- Affordability of access.
- Changing the transport culture.
- Having integrated indicators.

Conclusions:

- Single ticketing system can be a backbone of affordability and accessibility - but it requires a managing entity.
- Continuity of public transport is critical; integrated ticketing but also physically/spatially easy to move between modes.
- Emphasise transport options, not forcing any one mode.
- Make it more inconvenient for private cars to travel in certain areas, perhaps through petrol/congestion taxes.
- The current frameworks provide good indicators, but allowance for localisation and awareness need to be increased.
- Clear messaging with end users is needed.
- Pick 'low-hanging fruit' for pilot / demonstration projects.

Thematic Discussion 3: Enablers

Moderator: Costanza La Mantia (UN-Habitat)

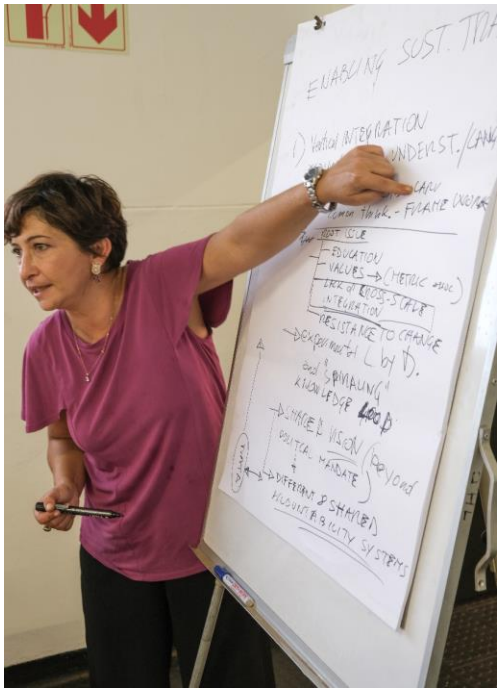
Participants: Frank Lambert (CoT)
Dolly Mafa (CoT)
Stefan van Niekerk (CoJ)

Starting points for discussion:

- Lack of integration / common vision.
- Access to data.
- Appropriate economic models to drive sustainable urbanisation.
- Changing the process / culture.
- Creating an enabling environment for institutions.
- Appropriate policies / principles / design for intermodal mobility.
- Incentivising the private sector.

Conclusions:

- Education needs to address integrated thinking.
- Need to agree on common metrics to allow interdepartmental tracking of common goals.
- Mobility programmes needs to be structured in a way that cuts across political lines/agenda.
- Allow for experimental learn-by-doing within institutions.
- Develop a strategic plan with shared accountability system which goes beyond a political mandate.
- Pilot a multi-use information platform which can be a data system which tracks shared indicators, a bottom-up monitoring system (used by the public), and an information system combined in one app.



Thematic Discussion 4: Institutions & Governance

Moderator: Rahab Mundara (UN-Habitat)

Participants: Frandah Lourens (DPW)
Cecilia Moumake (CoT)
Portia Mokwana (CoT)
Sello Mphaga (CoT)
Proula Mthimkhulu (CoT)
Imelda Tshenye (CoT)

Starting points for discussion:

- Cohesion between stakeholders.
- Capacitating governments.
- A lack of tools for integration and coordination.
- City partnerships.
- Platforms for interaction.
- Institutional gaps between planning and implementation.
- A need for innovative approaches.

Conclusions:

- Lead by example and create awareness within communities.
- Develop closer links with politicians.
- Improve communication and curiosity with workplaces that deal with mobility issues.
- Find ways to uplift motivated & enthusiastic people.
- Built Environment Performance Plan is the only tool which can enforce cross-disciplinary coordination.
- Employ technologies to improve mobilities.

Final Plenary

Despite the differing subject areas of each table, some ideas proved to be cross-cutting, emerging from most or all of the thematic tables. They included:

- Finding a better way to utilise information technology & data for multiple purposes (departmental integration, monitoring of shared objectives, and better public information systems)
- The need to comprehensively structure all systems for intermodality and accessibility, in terms of access to information, reliability, ease of transfer and convenience of use - both in terms of affordability and physical access.
- The need to improve vertical integration across levels of governments and scales of planning.
- The need to generate accountability mechanisms to ensure that well-aligned strategic plans and projects are implemented.
- The need to progressively change value systems and cultural reference models away from vehicular-centric ones through collective place-specific experimentation.

3.4. Conclusions & Reporting from the Charette

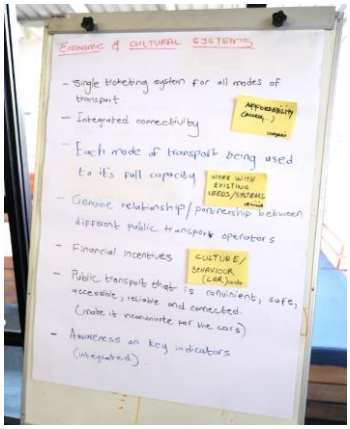
Instant Report

An 'instant report' was compiled as the charette progressed and emailed to participants the following day. The intent of the 'instant report' is twofold. First, it ensures transparency of the process, allowing all participants to access a record of what was discussed, thereby disallowing any one participant or group to co-opt the results towards their own personal agenda or initiatives. Second, it allows participants to disseminate a reference document to their colleagues while the charette is still fresh in their minds, potentially increasing the lifespan of the topics and ideas generated at the charette.

The instant report was not intended to be comprehensive; this report serves as a more detailed account of the activities by including and expanding on the information contained in the instant report.

Full Charette Report

A full Charette Report was compiled (including the content in the subsections above, with some additional detail) and submitted to UN-Habitat on 17 February, 2020. The conclusions drawn from this report are integrated into the Reflections & Recommendations (section 7) of this final report.



4 OPEN STREET & PLACEMAKING EVENT

4.1. Event Concept & Objectives

Placemaking as a Concept

Placemaking as a multi-faceted approach to the planning, design and management of public spaces capitalizes on a local community's assets, inspiration, and potential, with the intention of creating public spaces that promote people's health, happiness, and well-being.

In our cities, we have parks, monuments, murals, sculptures and other symbolic places that hold meaning for urban residents – all in their way providing for the enhancement of our living spaces and elucidating our stories of place. Placemaking returns to the origins of these endeavours, enabling individuals to be active agents in their physical surroundings. It begins with citizens working together to improve their local environment; placemaking is committed to strengthening the connection between people and the places they share.

Placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value. More than just promoting better urban design, place making facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution. This inclusive process emphasizes the collaborative 'making' that builds local capacity and leadership to empower communities.

As the City of Tshwane intends to move into the next horizon of producing a 'smart city' by 2030, a placemaking weekend public event can be used to celebrate its public spaces and community- led activities which can lead to a revolution of experiencing the public spaces and the city at large in a different way.

Such an event would leverage the expertise, experience and interest of the various government institutions, bi-lateral and multilateral agencies, non-governmental organizations, civil society organizations, academia, youth organizations, the business community, and the general public to raise the status of public spaces and generate awareness of their value, thereby galvanizing efforts towards the corresponding related interventions.

As stated in section 2.4, this event has been postponed, tentatively to October 2020, due to the COVID-19 pandemic.

Objectives of the Open Street & Placemaking Weekend

A placemaking event has a number of core objectives:

- Activate public spaces through a variety of low-cost high-impact interventions including coordinated pop-up activities;
- Celebrate the city's public spaces, raise their profile and create awareness about their importance while also boosting their potential for domestic tourism, cultural and environmental uniqueness;
- Promote cross-sector dialogues about quality of life in the city, and foster partnerships and collaborations for public spaces;
- Advocate for a healthier, safer, more inclusive and vibrant city through safe, walkable and pedestrian-oriented streets, particularly in the central business district;
- Substantially promote widespread NMT (walking and cycling) networks along high-demand routes, in connection to public spaces.

Rationale for the Open Street & Placemaking Weekend

High-quality and pleasant public spaces are central to the realization of a world class working, living and business environment. They provide a higher quality of life for urban residents and visitors alike, attracting investments and highly skilled personnel. By all standards, they are an excellent entry point to improve the standards of urban life for all citizens.

The liveliness and continuous use of public space as a public good lead to an urban environment that is well-maintained and safe, making the city an attractive place to live in, work and play.

In this light, there are myriad reasons to undertake a placemaking event:

- Public space enhances transportation efficiency: One of the fundamental functions of public space is that it easily facilitates connectivity by foot, bicycle, car, motorbike or public transport. This also helps in improving the general road safety situation.
- Public space enhances safety: Well-designed and maintained streets and public spaces can help to reduce fear of crime and violence hence contributing to the general safety of the city residents.
- Public space improves public health: a good network of public spaces can help to improve physical and mental health by encouraging walking and playing, making walking more attractive, reducing stress and providing a calming environment.
- Public space improves the environment: Green and open public space brings many important environmental benefits such as, the cooling of air and the absorption of atmospheric pollutants.
- Public space improves social interaction: a well-designed and well-used public space is versatile and addresses the needs of different groups of people, attracting them for different reasons and facilitating interactions amongst diverse groups of citizens.
- Public space supports economic development: Better streets as public spaces can also be drivers of urban prosperity. Public space can stimulate the small scale, local and informal economy, while generating tax revenue for local governments.

To be fully productive and effective, the space needs to be physically flexible in function over the day and seasons and adaptable over the years. Creating safe, inclusive and accessible public spaces for all through public action, participation and partnerships is a key lever for transforming our cities and ensuring universal access to streets and public space.

4.2. Content & Programme

Open Street & Placemaking Weekend Activities

The event was planned to accommodate various activities based on the holistic approach to streets as public spaces that embrace the concept of liveability and completeness of a city, fostering social interaction and bringing people together to use the city differently. This can also focus on demonstration of sustainable urban mobility/NMT initiatives (temporary bicycle paths, critical mass events, urban walks, etc.) in line with better management of streets as public spaces.

Church Square (pictured on page 40), a well-known, historical public space in central Pretoria, was chosen as the site for the Placemaking event due to its high potential for greater use, it's significance as the 'centre' of Pretoria/Tshwane, and the ongoing efforts by the City of Tshwane to pedestrianize streets leading into the square.

Church Square, Pretoria CBD, Tshwane.

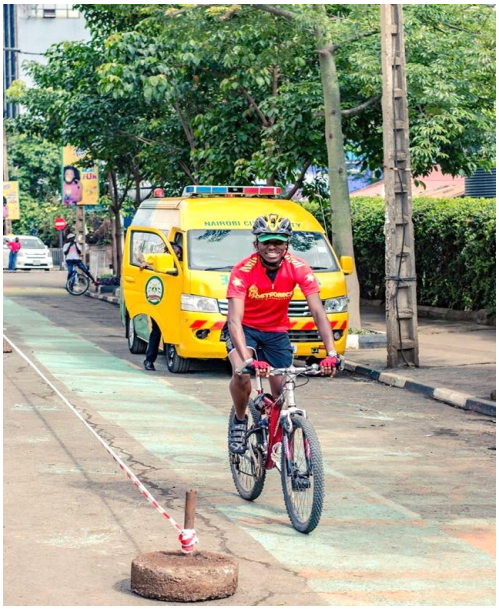
The planned events were as follows:

1. Open Street Event

One important element of the Placemaking event would be the pedestrianisation of the adjoining/adjacent streets around the selected venue for the event. This initiative would require the full approval of the city authorities and Traffic Police.

This would be followed and supported by street painting activities to create awareness of NMT as well as road safety.

Following observations around the desired lines of pedestrian movements, a zebra crossing would be painted to link this area with the adjacent streets. In addition, painting a bicycle lane for cyclists could also be demonstrated as way of reclaiming space for pedestrians. Various other painting activities, including street games for kids, could also be put in place. It is important to have the buy-in of businesses and residents surrounding the interested areas. The images below are examples of similar interventions.



2. Tshwane Streetscape Exhibition & Drawing Competition

A graphic exhibition demonstrating good and bad streets and public spaces in Tshwane was organized to raise awareness of public space and NMT, to initiate a dialogue as to how the city could better cater for them. This also aims to solicit the Urban Dialogue day 1 public discussion. The public could be further sensitized on the on-going plans by the city government towards improving the urban environment and the interaction between public space and sustainable transport.

In addition, a public drawing competition titled *Your Ideal Street/Public Space* could be organized in the square. The use of creative arts such as drawings, painting, imagination, and photo shoots would generate ideas from the public and also create an understanding of what cities should look like. This exhibit was fully produced, with each theme to be exhibited on two A0-sized panels. The complete exhibit is included in the Appendix, in section 8.3.

The images below are examples a of a street photo-exhibition where experts on NMT engage with the public explaining the photos to raise awareness.

3. Critical Mass Event on Bicycles

The Placemaking Event could provide a great opportunity for facilitating links between the city authorities and the cyclists' community/organizations in the city. A Critical Mass Event on bicycles to create awareness of cycling, including the challenges faced by cyclists in Tshwane, could be organized, and later a guided a discussion on appropriate possible interventions that can be undertaken by the city authority. A collaboration with local biking associations coordinated by the City of Tshwane is necessary for this. In addition, a demonstration on the use of the bicycles could be beneficial alongside this event, further enhancing awareness of cycling as a sustainable and efficient mode of transport.

The image below shows a Critical Mass cycling event in Johannesburg.

4. **Urban Dialogues Event**
   Small talks addressing the wider public would be organized during the two-day event. This could also be organized with the goal of facilitating dialogue amongst all the key stakeholders on the role of public spaces in enhancing the liveability of a city, as well as the understanding of streets as public spaces in the urban context. This should be an event with invitees but also open to the daily public, happening at the selected event location.

5. **Other Scheduled Activities**

   The more activities that can be included, the more likely the Placemaking Event is to succeed. In Tshwane, the following activities were planned:
   - Zumba fitness classes (60-minute sessions)
   - Group yoga (60-minute sessions)
   - Silent Disco, to be run by City Property
   - City Walks (tours of central Pretoria), to be run by City Property

Placemaking Activators

To support the activities, a number of 'activators' – amenities which attract participants – were planned for the Placemaking Weekend, to be inserted into Church Square or surrounding areas. These included:

1. **Urban Craft Market**

   As a means of activating the space and forming a hub of activity, an Urban Craft Market would be set up within the square, likely populated by vendors who ordinarily take part in other, more internalized markets withing the city, such as the weekend markets run by 012Central. Aside from gaining greater exposure for the vendors, the Urban Craft Market invites activity and contributes generally to a festive atmosphere.

2. **Urban Food Market**

   Food is often the lifeblood of any market, and an attraction that makes people more likely to linger for longer periods of time and take part in other activities. Thus the inclusion of food vendors is a fairly obvious value-add.

   The image below is of the Market at the Sheds, run by 012Central in the Pretoria CBD.

3. Live Music

It is important that the Placemaking Weekend have a festive atmosphere so as to encourage attendance. The presence of live music can create curiosity from passers-by and encourage attendees to stay for longer periods of time.

4. Picnic Area

Coming hand-in-hand with the food market and live music, a picnic area with temporary furniture would be set up to encourage longer stay times amongst participants.

5. Play Area

Currently, Church Square gets minimal use by families with children. Creating an environment suitable for all ages is an important placemaking tool, and thus a temporary play area would be set up in the square.

6. Parklet

As a means of turning streets typically used only for movement into places to stop, relax, and congregate, a small parklet would be installed. The intention here is not necessarily to radically alter the space in which it would be placed, but to provide an example of how a simple, inexpensive solution could be multiplied and applied to re-activate city streets.

The images below are examples of a parklets.

Parklets. (top: Washington, DC, USA; bottom: São Paulo, Brazil).

Programme

The images below – designed as an A5 flyer – contain the complete programme of the originally planned event. (Note: the disparity in the dates between the front and back of the flyer are due to the logistical change in the event dates; this is explained further in section 2.4).

4.3. Event 'Toolkit'

A complete set of graphic advertising, accessories to be displayed/used on the day of the event, a preliminary parklet design, and the street exhibit was produced by the UN-Habitat team in preparation for the event, and can be found with additional detail in sections 8.1, 8.2, 8.3, and 8.4 respectively. Featured below are smaller scaled previews of some of these items.

Although the dates will change for the future event, these items remain available for use, and the source files will be delivered to the City of Tshwane and UN-Habitat alongside this report. This can be thought of as a 'toolkit' to prepare for the future event.

5 POLICY & ToR REVIEWS

5.1. Key Policy Summaries & Commentary

In an effort to strengthen the alignment of policies and identify both positive and negative issues with regards to an integrated delivery and management of sustainable mobility and NMT systems in Tshwane, a number of policy documents were reviewed and analysed. While the scope of this exercise was not exhaustive, the review did allow for some key issues to emerge.

Commentary on each specific document is given below following a brief synopsis of the policy's scope. Analysis of the issues and gaps between them is given in sections 5.2 and 5.3 More general recommendations stemming from this analysis can be found in section 7.2

Comprehensive Integrated Transport Plan, 2015-2020

Authoring entity: City of Tshwane

Scope: The policy outlines the current conditions, main strategies, priority projects and legal/funding mechanisms for implementation, and attempts to integrate various influencing policies at national, provincial and municipal level into a single policy.

Prioritization of projects includes (in order listed): public transport; NMT; freight; roads infrastructure; intelligent transport systems; parking; transport demand management; airports.

Various traffic demand strategies are outlined, public transport and NMT being listed as first priorities. The public transport aspect is not detailed in this document. NMT strategies are listed in greater detail, and include: bicycle lanes; bicycle parking & storage; bicycle rental facilities; bicycle priority; bicycle-transit integration; address safety/security concerns.

The document attempts to strategize the rollout of NMT infrastructure, rather than allowing it to develop haphazardly.

Key NMT themes include: providing accessibility & ensuring equity; promoting development through green economy measures; public transport integration; improving the safety of NMT users in Tshwane; creating sustainability by investing in greener modes; raising awareness through the promotion of NMT; enhancing institutional capacity for NMT implementation.

An NMT demand analysis is conducted, resulting in classifications of NMT routes. Parking policy is also mentioned in conjunction with pedestrianizing (or prioritising pedestrianism on) inner-city-streets. Studies done show very few bicycle paths in Pretoria, a discontinuity of existing cycle paths, lack of storage or parking facilities for bicycles, and high bicycle thefts, all of which limit the use of bicycles as a mode of transport.

A comprehensive Intelligent Transport System (ITS) covers a broad spectrum of uses is well articulated in the document. Components include the public transport and advanced public management system (APTMS), communication, traffic signals, accident data reporting and so on.

Commentary: The findings indicate that a large majority of residents are within a 15-minute walk of public transportation service; this suggests that a focus on the first mile / last mile NMT might be able to make a big contribution to overall transportation use. While the first mile / last mile issue is mentioned, it is not explicitly prioritised in the policy. The findings also indicate that a focus on the reliability of transport options is needed to encourage wider use.

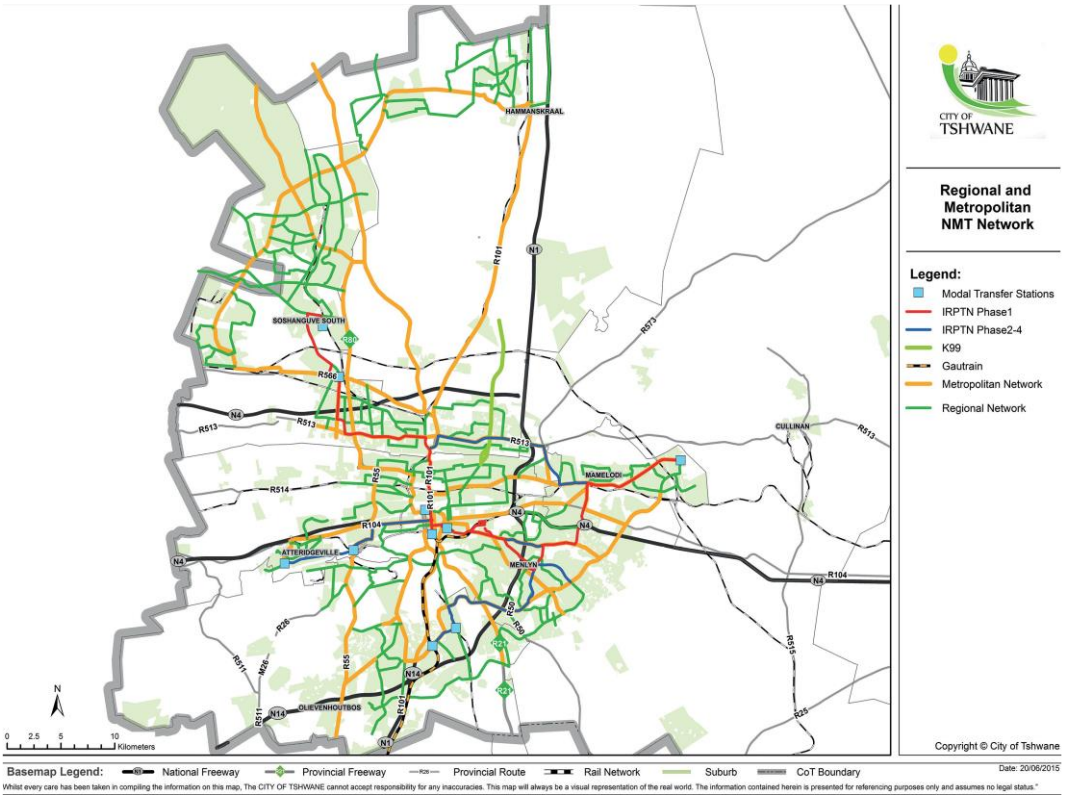
Some criteria used to score projects for prioritisation (e.g. "extent to which the project serves the needs of the City community...") are somewhat vague and difficult to measure. A clearer definition of priority goals may be in order.

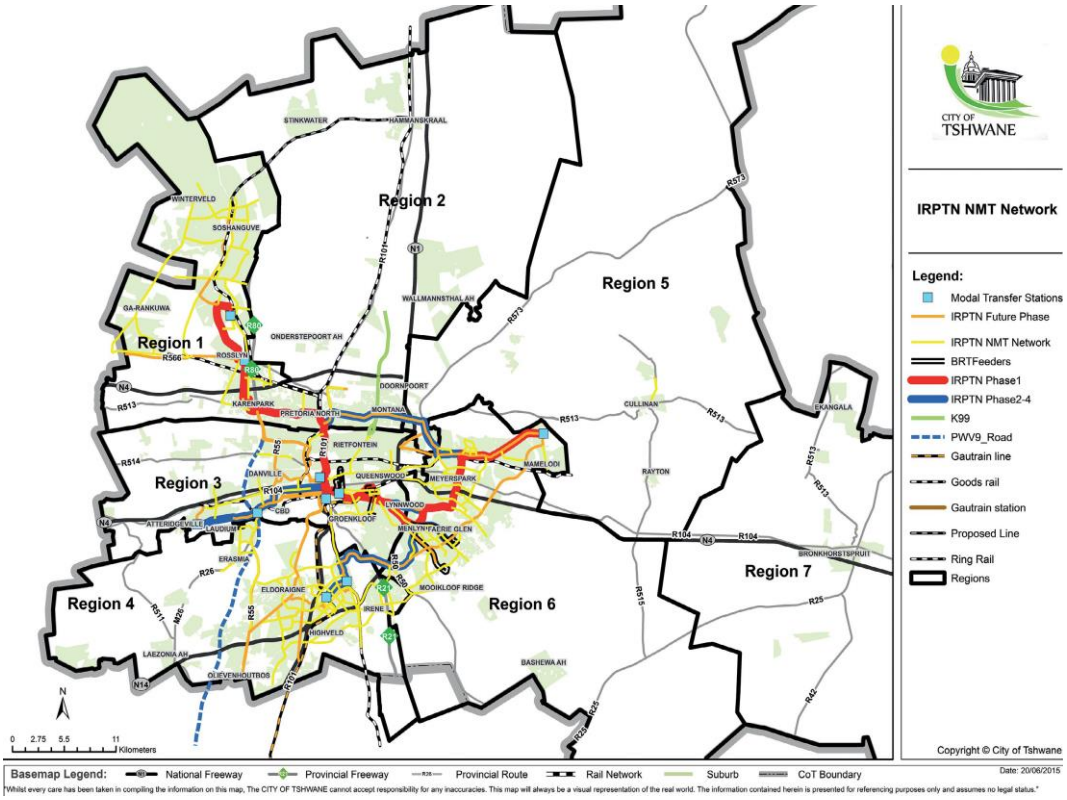
The NMT demand analysis is excellent, but the proposed projects appear to indicate a large number of long-distance NMT routes (see top map on page 48) and relatively few small feeder routes to existing or proposed public transport hubs/stations, thus creating a potential mismatch between distance and mode of travel. This is particularly true in the IRTPN NMT network (see bottom map on page 48) It may be recommendable to prioritise smaller, class 5 NMT routes as feeders into a transportation system, then over the medium- and long-term phase in class 4 and class 3 NMT routes creating a wider network over longer distances.

The design and streetscaping guidelines presented are generally simplistic, cover a narrow range of scenarios, and do not always follow best practices. There is no mention in the document of the 2007 Streetscape Design Guidelines, which themselves give almost no attention at all to NMT-public transport interfaces. There is significant room for improvement for a stronger, more enforceable set of design and implementation guidelines.

The pedestrianisation strategy in the Tshwane CBD would, by the policy's own conclusion, result in a loss of 76% of on-street parking in the CBD. Though well-considered as a parking strategy, without full separation of cyclists and vehicular streets, motorists will likely end up parking in the cycle lanes (as is commonly done in Johannesburg). The simplistic design guidelines within the CITP (mentioned above, with examples on page 49)

indicate street parking aside cycle lanes, with no physical separation, requiring a crossing of vehicles across the cycle lanes





Top: Regional and Metropolitan NMT Network map, from the CITP. Bottom: IRPTN NMT Network map, from the CITP.

Above: streetscape design images in the CITP, lacking separation between vehicles and cycle lanes.

and inviting the cycle lanes to be seen only as standing space to access the parking. Thus there is a mismatch between the design guidelines and a realistic, effective implementation strategy.

The document captures Transport Demand Management (TDM) principles very well, based on best practices: improving mobility options, economic measures and land use management. The current TDM strategy is to improve the public transport system with integration to NMT provision beginning with the CBD. The document has moved away from measures that will not gain public acceptance, such as the congestion pricing, fuel taxes, etc. The city is therefore pursuing bylaws to support the implementation of a Large Employer Trip Reduction Plan, or shorter version Trip Reduction Plan (TRP). This entails a policy change, whereby the City passes a bylaw requiring all large employers, typically above 300 or 500 employees, to submit a plan to reduce the private travel to and from their place of work.

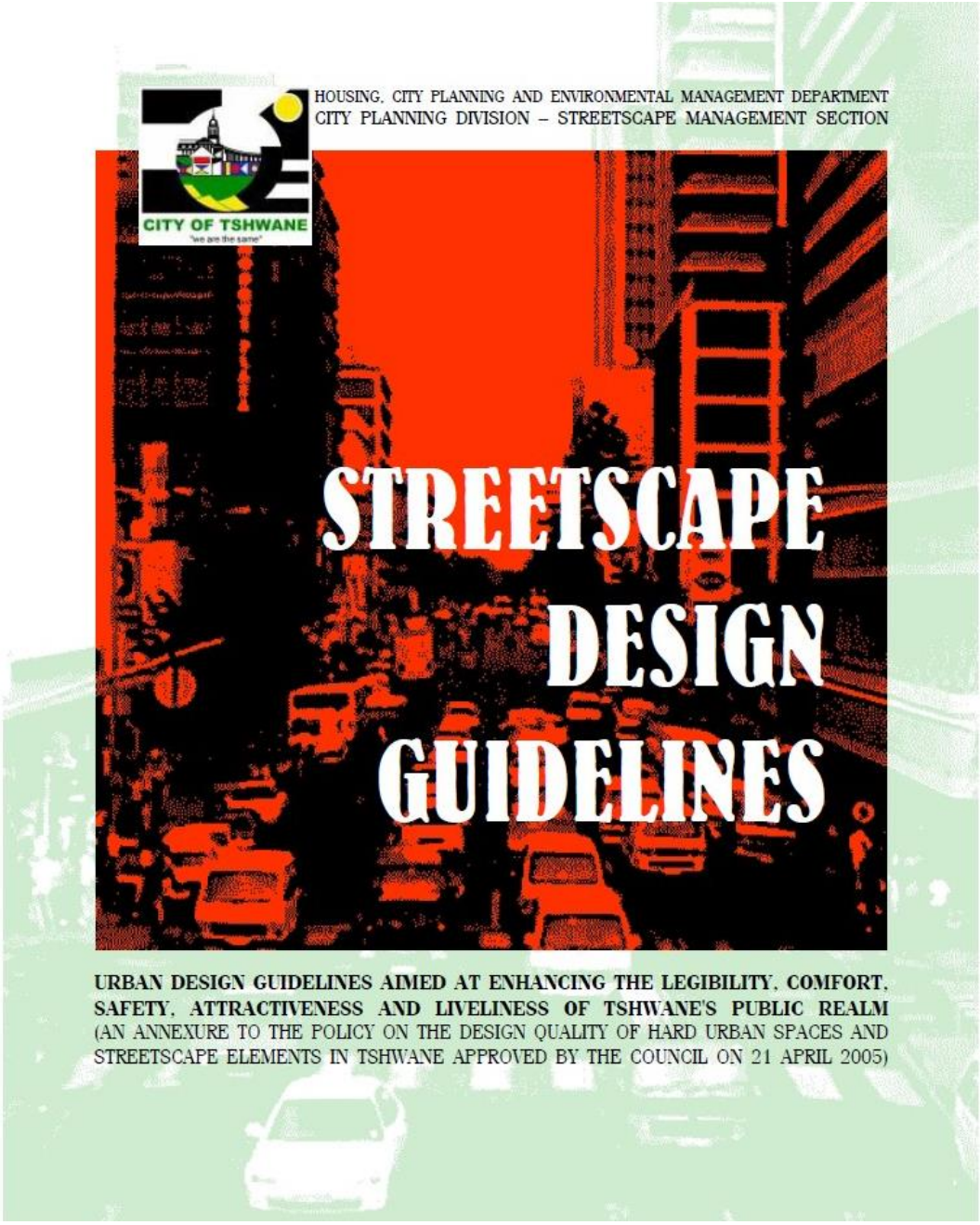
The implementation of Gautrain, BRT in the CBD and private taxis have realized 50% of a captive market using public transport. These improvements will not result to significant changes in carbon emission or congestion; the behaviour pattern is for the public transport users to shift to private cars as soon as their economic situation changes. This is the opposite of what needs to be achieved with TDM.

Cycling is only marginally supported by policy and would require behaviour change by some car owners and taxi operators. One recommendation is for the city to invest more resources to address the soft side, i.e., how best to incentivize private car owners to choose public transport and encourage walking and cycling. Infrastructure provision is one side of the solution, but more engagement with the users to better understand how to reduce the preference for private car use is another part of improving TDM.

The document acknowledges that the CoT does not have a position responsible for developing and implementing ITS in the City. Multiple departments are looking into characteristics of 'Smart Cities;' the A Re Yeng BRT system has an ITS function; and there is a Traffic Signal and Urban Traffic Control function. UN-Habitat recommends that an ITS manager position be created which can become the champion for ITS in the City. This position must have a budget, managements skills to pull

together diverse experts, and be able to share the data generated from the system with other users in and out of the transportation domain.

Streetscape Design Policy & Guidelines, 2007



Authoring entity: Tshwane Department of Housing, City Planning & Environmental Management

Scope: The policy mandates coordination between various municipal departments, and requires departments uncertain about design quality of items under their purview to liaise with the Department of Housing, City Planning & Environmental Management (Streetscape Management Division) for assistance.

The guidelines for 'hard' urban spaces (the policy specifically excludes parks) are broken down into ten categories: boulevards & city squares; markets; roads & traffic circles; parking streets & areas; public transport routes & termini; promenades, walks & pedestrian spaces; play streets &

playgrounds; general activity streets & squares; specialised activity streets & squares; residential streets & neighbourhood squares. The guidelines offer provisions and requirements for each category of urban space under the following headings: layout; surfacing; landscaping; lighting; public furniture; service infrastructure; signage; and advertising.

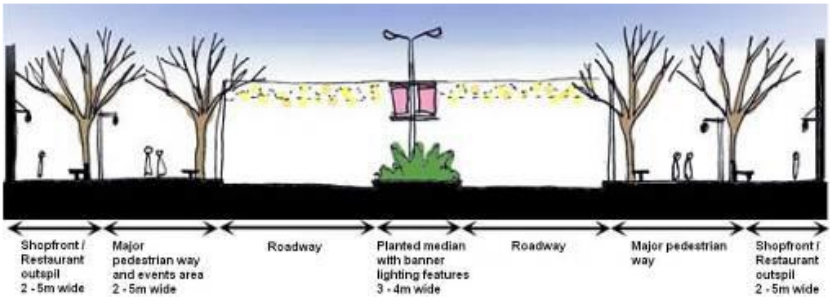
A second section of the guidelines deals with elements: surface materials & patterns; benches; litter receptacles; bus & taxi shelters; ablution facilities; street sign names; suburb sign names; and outdoor advertising structures. Some of the repeatable elements are detailed to a high level, and all are given a series of requirements and considerations.

Commentary: The document begins by emphasising aesthetic appearance as a policy goal; while this is welcome, it should not be isolated from the functional goal of increasing utilisation of NMT, promoting public transportation, and reducing vehicle dependence. The policy mandates municipal departments to follow the design guidelines and requires them to contact the City Planning Division for assistance. However, it is doubtful that all departments are aware of this requirement, and thus the policy is not likely to be implemented as written (with negative results).

While providing a good starting point for a possible update, the design guidelines are outdated in various ways. First, they do not include any guidelines for the current transportation strategies, such as emphasising cycling, the A Re Yeng (Tshwane's BRT) system, or dealing with intermodality in the streetscape. The only mention of cycling in the guidelines assumes that it is a recreational activity only, requiring provisions for cycling leading from residential areas to open spaces rather than as feeders for public transport or into more densely developed areas. The guidelines also place some antiquated requirements on some spaces, such as requiring public phones. Furthermore, at least two of the guidelines are self-contradictory, specifically with regards to walkway width. A requirement for closely-spaced bus stops in dense areas reflects outdated thinking about transport systems and is would only contribute to traffic congestion if followed. The guidelines also list costs per square meter of many types of spaces; clearly these costs will no longer be accurate 15 years later.

Many of the requirements of the guidelines, though well-intentioned, are quite dogmatic, offering very little flexibility to adjust for site-specific circumstances. Specific elements are detailed with a high level of specificity, and even guideline sketches typically only illustrate one possible condition, something that is likely to sometimes result in either inappropriate design solutions if they are followed, or in being completely ignored (which seems to be commonplace in reality).

It is recommended that a thorough review and updating of this policy be undertaken, creating stronger but more flexible guidelines and requirements that meet the current and future needs.

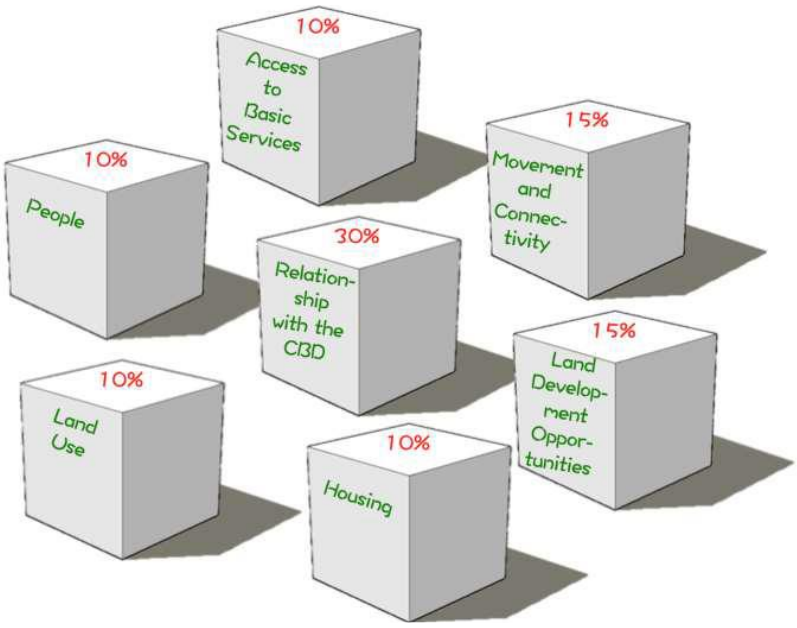


A sample guideline for streetscaping, offering only one option and no provision for cycle lanes.

Built Environment Performance Plan, 2017-18

Authoring entity: City of Tshwane

Scope: The Built Environment Performance Plan (BEPP) provides information on key issues to help shape policy decision-making, and provides a point of departure for the development of the next BEPP. It recognises a "clear spatial disjoint between places of living and places of working – typically representing a city facing urban sprawl with economic centres in the middle of the spatial configuration and high household volumes on the outskirts of the urban spatial structure." It identifies areas of expected economic growth, and of growth potential, in order to guide resource allocation. In the previous year, resource allocation did not well align with BEPP prioritisation zones, as 52% of the City's projects did not intersect with these priority zones. To aid in decision-making, project prioritisation criteria are outlined according to the topics and weighting illustrated below:



Various proposals are suggested in the BEPP, including feeder services to existing (and proposed expansion of) rail service, and the rollout of a "BRT light" system to further expand the A Re Yeng (Tshwane's BRT) service without large infrastructure costs that cannot be recouped due to relatively low ridership.

Commentary: The prioritisation criteria place highest emphasis on "relationship to CBD," and comparatively less on "movement & connectivity." A higher emphasis on movement & connectivity may be warranted given that: (a) job growth is currently fastest not in the Pretoria CBD but in Centurion, Mamelodi, Menlyn and Soshanguve; and (b) emphasising movement & connectivity inherently implies a strong relationship to the CBD, since the CBD is already well-served by public transportation. Furthermore, it is (or at least ought to be) difficult to separate "movement & connectivity" and "land development opportunities" as separate criteria, since the land development prioritised by transit-oriented development would inherently be along planned transit corridors. Thus, a more integrated approach to planning, development and mobility is needed.

The BEPP strongly recommends that the City provide and prioritise feeder services to the rail system in prioritised areas. Feeder services, however, need not be large-scale developments such as BRT expansion – which could potentially serve as an alternative to rail in areas rail cannot reach s – but may imply organisation with taxis or NMT systems.

The proposal for a "BRT light" system without designated right of way should be reconsidered. Such a service would be akin to a normal bus service, and would suffer from the same deficiencies (e.g. being at the mercy of traffic congestion). While the proposal to use smaller buses and simpler stations holds merit, the right of way issue should be re-examined.

Department of Transport Revised Strategic Plan 2015 – 2020

transport
Department:
Transport
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF TRANSPORT
REVISED STRATEGIC PLAN

for the fiscal years 2015/16 – 2019/20

Authoring entity: South Africa Department of Transport

Scope: This national strategy covers broad-based issues affecting the transport sector. One project proposed by the department focuses on the contribution of transport to environmental protection, namely the Green Transport Strategy (GTS). The GTS project is one of the Department's initiatives to implement the White Paper on National Climate Change Response Policy, aiming to emphasize green transportation policy statements, whilst minimising the adverse impact of transport on the environment and addressing current and future transport demands based on sustainable development principles. Upon its completion, the Strategy intends to produce targeted mitigation factors across all modes of transport, contributing to the reduction of Green House Gas (GHG) emissions and assisting in promoting transport energy efficiency. It will also limit the negative environmental impacts of the transport sector in South Africa, by providing a distinct portfolio of environmental policy directives and a road-map for the climate change initiatives for the sector. This will be achieved through joint ventures with other spheres of government and civil society.

As part of the framework, DoT will regulate greenhouse gas emissions, noise and general pollution generated by the transport sector and developing a sector-wide funding model for all infrastructure projects.

Commentary: Critical elements of the Green Transport Strategy are limitedly incorporated in the City's CITP, such as: the link to low carbon vehicle technologies; electric mobility; low emission zones; fuel standard; green freight and air pollution reduction measures. It is suggested to strengthen these links by ensuring that the revised version of the CITP frequently and cohesively refers to the Green Transport Strategy and the recommendations it makes. The discussions ought to link to an environmental policy for the sector, by providing appropriate sector-specific climate policy tools and corresponding mitigation and adaptations measures for the transport sector.

Reducing dependence on private vehicles requires not just the provision of attractive and user-friendly alternative modes of transport and transit-friendly approaches to spatial planning, but also that resources are allocated to environmental goals. Informational campaigns around the negative environmental aspects of private vehicle use may offer a relatively simple means to gradually shift perceptions over the long term, though it should be noted that these are unlikely to have a noticeable short-term effect.

The COVID-19 crisis also highlights the importance of a financially resilient public transport system integrated with NMT. Increased fiscal

support at a national level for public transport operations is important; i.e. through increased road tolls, parking prices, or carbon taxes.

Metropolitan Spatial Development Framework, 2012.

CITY OF TSHWANE

METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK

JUNE 2012

Authoring entity: City of Tshwane

Scope: The document looks at the metropolitan region with the goal to map out the spatial realities and gaps and map out strategic spatial interventions, towards making Tshwane an African Capital City of Excellence. The city's boundary (a 6,200km perimeter) is not a result of planned growth but of the extension of boundaries using political and other discretion over time. This has resulted to a sprawled city form, vast and complex in nature: Tshwane covers approximately 39% of the entire Gauteng Province.

The document focuses on demographics, income status and quality of the built environment in the City's seven diverse regions, with each one having differing spatial opportunities and challenges. Some of the regions have large undeveloped land which offer growth potential but at the same time a sprawling urban form which makes provision for negatively impacts effective provision of infrastructure services expensive. .

Region 3, which includes the Pretoria CBD, is a densely populated area, with mixed infrastructure servicing pockets of poor neighbourhoods. The inner city, which is the seat of government with monumental and historical buildings, draws resources to support continuing urban growth for expansion. The city has large tracts of land owned by the Ministry of Defence which acts as a buffer between the built-up city and other areas, thus curtailing spatial integration. The framework illustrates that much of this land is underutilized, and would be strategically located for infill development. Releasing this land for development could significantly contribute to the spatial restructuring of the City.

Commentary: The spatial pattern consists of radial road networks with satellite nodes along major arterials and at intersections, with a number of decentralized urban nodes and separated functions. Over time, these radial links have encouraged low-density urban sprawl, and thus private vehicle ownership, which poses a huge challenge in terms of infrastructure, connectivity, and optimal land use. This historical development of the city, as well as the decentralization patterns, render the planning inefficient, and resource allocation tends to be skewed to those in the southern part of the City. Poorer neighbourhoods have denser populations, are marginalized, and have longer travel times exacerbated by private investments in the decentralization nodes.

The spatial mutuality between Tshwane and the City of Johannesburg tends to benefit the higher income groups. The City will have to contend

with issues of equality in terms of balancing the socio-economic benefits of those who live in the inner city and those in the outskirts by looking at ways to reducing income disparities through an efficient integrated transportation network. Such a network must critically look towards creating both physical and opportunity connections between higher densities of job-seekers and areas of employment through the proposed inner-city regeneration programmes. Metropolitan planning should pursue the benefits of regional connectivity, but at the same time provide low-income areas in the 'transitional zones.' TOD development studies must take care of both the urbanized high-income areas and the low-income neighbourhoods towards more mixed development. Key to this is building capacity to establish effective stakeholder forums that are inclusive and promote the ideals of a non-racial, gender-equal, democratic, compassionate and prosperous society.

Because of Tshwane's position within the Johannesburg-Midrand-Tshwane metropole, coordination of transport planning needs to occur not only within the City or between the City and higher levels of government, but also with the other major municipalities. Each municipality is a component of a regional transport network, and each link is critical to the overall system's success. This raises governance issues which will likely be politically difficult to deal with, but are ultimately essential for a successful sustainable mobility network that operates and multiple scales.

5.2. Policy Gap Analysis

Overall, policy documents on sustainable mobility are quite comprehensive, with elaborate plans for public transport improvement in both Tshwane and in South Africa as a whole. The documents reviewed are very clear on the intention to improve public transport, and on the need for improved NMT systems. Some of these documents also make reference to substantial budget provisions for public transport, walking and cycling. However, in order to accelerate a modal shift towards sustainable modes of transport, recommendations in these policies and strategies need to be activated and followed up. A few reflections are made below:

Vertical Alignment

The alignment between provincial-level and municipal-level transport planning could be strengthened. While this issue is not unique to Tshwane, and may often be challenging politically, it is worth redoubling efforts to strengthen this vertical alignment to overall support an integrated transport planning framework.

The global practice is to have cities work with other levels of government to ensure an integrated approach on sustainable mobility at national, regional and local level, aligning policies, plans and budgets accordingly. In Tshwane, both the municipality and the province are involved in planning and implementation of sustainable urban mobility; however, coordination could be strengthened. For instance, some urban roads within CoT boundaries fall under the mandate of the Provincial Government such as the K69/ Solomon Mahlangu Drive – a project where the initial plans of the province did not include lanes for walking and cycling. Only after strong advocacy by CoT officials, the province agreed to integrate NMT lanes into their street designs.

Currently, the City works with the Provincial government through Provincial Steering Committees – however, coordination through these committees happens mostly on the basis of projects and not at regular intervals (which would be needed). It is recommended to

activate these Steering Committees and ensure that sustainable urban mobility (with a particular focus on NMT) is put high on the agenda in regular Steering Committee meetings.

Horizontal Alignment

While the CITP is the lead document in developing sustainable mobility and NMT systems, it tends to focus only on initiatives, policies and projects through the lends of traffic engineering and transportation planning, with little reference to the spatial planning which supports a sustainable mobility network. Because these issues are interdependent and mutually influential, it is difficult to tackle one without the others.

Cooperation between the departments of the city such as the Housing, City Planning & Environmental Management Department with the Economic Development Department, under which Transport Development falls, but also with Service Delivery appears to only occur on specific projects. A strengthening of inter-departmental cooperation is needed, not only during projects, but also on policy-making, planning, and budgetary decision-making. The expert interviews revealed that the CITP process has strongly engaged transport-related stakeholders in the consultation, but the review of other departments and stakeholders outside the transport sphere could have been strengthened.

Major Challenges

1. *The private car is not sufficiently disincentivised*

   Besides the great efforts to promote public transport, walking and cycling, the city needs to more strongly embark on measures to discourage private vehicle use. Some of the reviewed policies and strategies do not sufficiently explain the city's plan to discourage unnecessary private vehicle use. A positive development is the planned parking policy that can lead to efficient operation of parking management while encouraging the use of sustainable modes of transport.

   In order to achieve a modal shift in the City of Tshwane towards sustainable mobility – as recommended in the various plans, policies and strategies, more needs to be done to reduce dependency on private transport. The city needs to give high priority to introduce measures which encourage a shift away from the use of personal modes of travel, to public transport, walking or cycling; and to traffic management programmes, which reduce accidents, congestion, pollution and dependency on personal modes of transportation. Traffic Management, speed regulations or improved parking management need to be taken more strongly into consideration and would go a long way in encouraging the use of sustainable transport systems.

2. *Political champions yet to be identified*

   In order to accelerate the implementation of more sustainable mobility projects, particularly more walking and cycling projects, it will be important to have dedicated teams working on the issues of public transport and NMT. It will be important to identify political champions that are capacitated to bring forward visionary policies and strategies backed by strong political leadership. So far, particularly in the case of NMT, more staff and resources need to be allocated on the local level, for CoT officials to champion the agenda and efficiently deliver projects.

3. *Innovative funding and financing for sustainable urban mobility yet to be explored.*

   There is limited reference in the reviewed policies and plans on tapping into innovative funding and financing options and to develop business models to further attract private sector investments into the development of sustainable urban mobility. The institutional capacity ought to be strengthened in CoT to identify diverse financial sources for the development and renewal of the city's mobility system.

5.3. Proposed Action Items

Some of the proposed actions aimed at strengthening the city's implementation capacity of sustainable mobility plans, policies and strategies include the following:

1. Capacity development of officials on city and regional level including skills on regional transport network planning, inter-modality and NMT. The CoT team currently working on transport deals with wider traffic operations and multiple topics – therefore has limited time and capacity to interact with different stakeholders for instance on matters of NMT. A dedicated NMT unit with a clear mandate, allocated staff and adequate budget will be required to upscale efforts.
2. Harmonisation of plans, policies and guidelines particularly between different levels of government is proposed. For instance, street design guidelines need to be aligned between city and provincial level to ensure consistency of design features and adequate quality standards on all road designs. In addition, the review of the Streetscape Design Guideline for instance illustrated self-contradictory design features with regards to walkway width. It is therefore proposed to continuously update the documents following global best practices, to cross-check internal consistency and ensure alignment and integration with other relevant policies and plans.
3. As most policies and strategies focus on the "hard" measures, it is proposed that the city invests more resources to address the soft side, i.e. engagement with transport users to better understand their transport preferences, public mobility dialogues, or participatory policy review processes. Infrastructure provision is one side of the solution, but more engagement with the users to better understand how to reduce their preference for private car use and incentive them to use public transport, walking and cycling is equally important.
4. As the city implements the Tshwane master plan and develops pilot projects on NMT, it is proposed to strengthen the focus on the required elements of "network" and "inter-modality". NMT pilots need to be interlinked to incrementally ensure connectivity between good NMT infrastructure and services to ensure safety and convenience of the user. Also, the role of NMT to facilitate feeder services to public transport needs to be emphasized more in existing policies and plans.
5. CoT should elaborate further on appropriate mechanism for innovative funding for sustainable urban mobility in existing policies and plans. Revenues from car-oriented developments (i.e. through parking fees) should be channelled back to a fund that promotes walking, cycling and public transport. Other instruments that can help the city to exploit local sources include the introduction of road user charges, the lease of advertising space in buses, fuel taxes or the use of value capture mechanisms.

5.4. Review of Public Transport & NMT Development Guidelines ToR

Initial Review of the Terms of Reference

An initial review of this Terms of Reference was requested at the onset of the collaboration between the City of Tshwane / UK FCO and UN-Habitat, and was an entry point into a longer engagement, resulting in the activities and documentation reported on here. The overall approach and proposed objective of the Guidelines "to support the improvement of the public transport and NMT infrastructure provision in the City of Tshwane" is deemed highly relevant both in addressing current gaps in the institutional, legal and policy frameworks of Tshwane, but also in terms of encouraging various stakeholders to pursue efforts towards improving the mobility system to be more sustainable. In this view, the proposed project also aligns with the Global Future City Programme's ambitions to promote alternative and healthier mobility modes and safer public space.

A conscious and thoughtful development and application of the Guidelines can contribute to the implementation of strategic and detailed urban plans (as well as the approval of building permissions), improve transport and mobility planning and associated infrastructure provision, and finally, enhance positive effects of investments and developments in the city, by private as well as public actors.

However, to ensure impact is achieved, it is imperative to ensure the Guidelines effective integration in the day-to-day activities of the City of Tshwane in the short, medium, and long term, as well as their alignment and coherence with existing plans, strategies and city goals.

Feedback and Suggestions

UN-Habitat offered the following feedback and suggestions on this ToR:

- Strengthen the emphasis on integration of the Guidelines with existing frameworks, plans and strategies. Enhanced coordination and synergies with other city initiatives can reinforce the effectiveness of the Guidelines, as well as their long-term impact on NMT and public transport improvements. In order to achieve the referred objectives, the necessity for aligning the Guidelines with key existing frameworks, plans and strategies should be stressed further. At a minimum, the following should be considered: Comprehensive Integrated Transport Plan (CITP), Gauteng Integrated Transport Master Plan (ITMP), City of Tshwane's NMT Framework (2013), City of Tshwane's NMT Masterplan (2010).
- Specify that the Guidelines should require Public Transport Assessments (PTAs) to explicitly outline NMT and public transport strategies. PTAs should link in with the city's NMT and public transport improvement goals and therefore explicitly highlight commitments to promoting NMT and public transport. Such commitments could include infrastructure components such as contributions to an integrated NMT network, safe design standards and street lighting.
- Emphasise the importance of behavioural change being addressed in the PTAs. Strategies and mechanisms to encourage behavioural change are crucial to promoting a modal shift towards NMT and public transport. The Guidelines could stress this by requiring PTAs to outline initiatives (such as travel planning, incentives for sustainable travel and parking management) that can trigger behavioural change in line with the modal split assumptions required in section 4.5.4 of the ToR.
- Add a requirement for Monitoring and Evaluation (M&E) and contingency measures to be part of PTAs. Requirements for M&E after the approval of a PTA should be included as part of the specifications, for example in the form of year-on-year transport assessments. By requiring M&E, as well as contingency measures to be part of PTAs, the Guidelines will be able to better ensure long-term commitment and impact on NMT and public transport. M&E can hold developers accountable and ensure that contingency measures are rolled out, if, for example, modal split assumptions prove incorrect. M&E and requirements for contingency measures can also improve the city's capacity to plan long-term and react to changes when necessary.
- Request that the appointed team/consultant has experience in NMT, public transport and sustainable travel planning. The ToR currently only requires the appointed team/consultant to have a background in transport engineering. Greater focus should be laid on experience in sustainable travel planning, in line with the main objective of the PTA Guidelines to encourage NMT and public transport.
- Lastly, increased awareness within the City of Tshwane Municipality about the CITP main vision, goals and strategies, and especially regarding NMT and public transport, can contribute to improved application of the Guidelines, as well as enhancing NMT infrastructure and public transport provision in the city.

5.5. Review of Parking Policy ToR

Initial Review of the Terms of Reference

The proposed ToR are highly relevant for Tshwane where current parking requirements seem to encourage private vehicle use and detract from the potential to create the threshold required to support an efficient public transport system and promotion of active mobility.

The ToR recognizes parking as an essential part of the overall transportation and land development system, representing a means to help realize other community development objectives, such as land use efficiency, good urban design, and economic vitality. The ToR also make reference to the influence parking can have on travel behaviour of residents and their choice of transport mode.

In the problem statement, the ToR illustrates the need of CoT to develop a Parking Policy to justify parking reductions in nodal areas where BRT and Gautrain stations exist, or where mixed use developments as transport and urban growth has emerged during recent years. The document elaborates well on the intent of the Parking Policy, which is to manage parking supply and demand in high parking demand areas efficiently and to reduce private car dependency by means of including Travel Demand Management (TDM) measures.

The ToR also make reference to the Comprehensive Integrated Transport Plan, and the goal of the City to move towards managing parking in a responsible manner that promotes sustainable forms of development and provides an emphasis on travel demand management. It is positive that the ToRs put strong emphasis on integration of the to-be-developed parking policy with existing frameworks, plans and strategies.

A conscious development of the policy will be important to ensure sustainable city development. The policy document will have to be based on sufficient data evidence on the current situation and occupancy of on-street and off-street parking. It will be important that the policy is well aligned to the city's vision and should lead to an efficient operation of parking management, while encouraging the use of public transport and NMT and discouraging the use of private vehicles.

General Commentary

UN-Habitat offers the following commentary on this ToR:

- Cars sit idle for 95 per cent of the time — consuming precious street space that could be put to more efficient and equitable use.
- Public agencies often push for more parking in buildings, confident that this will fix the problem. But more parking invites more car use, contributing to traffic jams, air pollution, road safety concerns and impacts on urban life. While large sums of public funds are spent creating multi-level parking, facilities for walking, cycling, and public transport continue to deteriorate.
- Parking is a commodity and not a public right – it comes with a price. If parking is provided for free, there will be an unending demand for parking. Governments should charge high user fees for available parking spaces to dissuade excessive motor vehicle usage.
- Governments should spend the substantial revenue generated by parking to improve public transport and walking/cycling facilities for all citizens.
- Simultaneous to developing a parking policy, it is important to modify building regulations to remove minimum parking requirements. This will be important particularly where private developers are implementing projects; they should be tasked to assess parking demand before creating parking.
- Try to avoid park-and-ride facilities in urban centres. Instead, improve transit access by creating a dense network of walking, cycling, and feeder service routes.

Specific Recommendations for the ToR:

UN-Habitat offers the following recommendations on this ToR:

- Specify the qualifications of the consultant. The ToR states that the "Parking Utilization Study should be undertaken by a qualified consultant with experience in conducting this type of study." It is recommended to specify further that the consultant should have experience in Sustainable Urban Mobility and Travel Demand Management. This would ensure that the consultant shares the vision of developing a policy that leads to efficient operation of parking management while encouraging the use of sustainable modes of transport, including public transport and NMT.
- Add to the scope of work of the consultant: co-development of a common vision of the parking policy with CoT officials. It is recommended that through an initial workshop, the consultant will discuss with the CoT officials a vision for the parking policy. This would ensure a common understanding of developing a policy document that spells out operations for efficient parking management in in a responsible manner that promotes sustainable forms of development and mobility.
- Specify in task 2 "Data Collection:" on- and off-street occupancy surveys. It will be important to separately conduct on- and off-street occupancy surveys, as the requirements for improvement are very different in nature. Accurate parking data is essential to inform policy and management plans. The current ToR does not provide much detail on the type of surveys to be conducted.
- Add to the scope of work of the consultant: development of an organizational structure for the implementation of the parking policy. Successful implementation of the future parking management system will involve cooperation between multiple stakeholders (such as urban local bodies, traffic police, planning agencies, operators and others) at different stages of implementation. The future policy must identify an "owner" in CoT who is empowered to take up the implementation. So far, the tasks in the ToR do not go into detail on this. Additionally, the consultant should explore a possible private-public partnership structure to support parking operations, i.e. government paying a fixed monthly fee to private operator who invests, implements and runs the parking system.
- Add to the scope of work of the consultant: development of a Parking Revenue Management plan. The ToR should propose an appropriate mechanism to ensure that all parking revenue is deposited directly back to CoT. The surplus revenue should be channelled back to a fund that promotes walking, cycling and public transport. This mechanism should be referenced in the future policy document.
- Emphasize more in the scope of work of the consultant: parking pricing aspect. The consultant should analyse adequate pricing structures. It is recommended that the parking rates should be based on vehicle size, parking demand (high demand = higher charge), and duration and time of the day.
- Add to the scope of work of the consultant: exploration of IT based support systems. The consultant could also explore and integrated an analysis of IT based support systems for parking management, such as cashless payment systems or real time parking availability systems.
- Add to the scope of the work of the consultant: Exploration of multi-purpose use of parking spaces. The consultant could also explore the opportunity of multi-functionality of parking spaces at different times of the day, i.e. using on-street parking space for bicycle parking of a school during the day while it is being utilized for car parking by adjacent residents during the night.

6 ONLINE SURVEY & EXPERT INTERVIEWS

6.1. Survey Purpose & Structure

Rationale and Participation

Since the Open Street & Placemaking Event could not take place, an online survey was developed as a substitute means of gaining input from a wider audience. The survey was distributed using contacts from the Participatory Charette, the City of Tshwane, and other stakeholders and academics identified by the City of Tshwane.

The complete set of questions and results can be seen in the Appendix (section 8.5). This section will summarize the survey without going into a high level of detail. It should be noted that the sample size is not large enough to present any level of statistical certainty, given that only 25 participants responded to the survey. Nevertheless, some inferences can be made, and will be discussed in section 6.3.

To start, participants agree to take the survey and answer some introductory questions about their age and gender. There were 25 respondents, of which 13 were male, 11 female, and 1 identifying as "non-binary." None of the respondents were under the age of 20; five were between 20 and 29; ten were between 30 and 39; 9 were between 40 and 54; one was between 55 and 65; and none were over 65.

In order to capture a range of responses from people with differing relationships to the issues, three participant groups were formed, listed below. Participants self-identify which group they should be in immediately after the introductory questions, and are put on different pathways through the survey depending on how they placed themselves within a participant group. There are three possible participant groups (listed below), and each group receives between two and for question categories (see 6.2 below), which make differing assumptions about the participants' level of expertise.

Experts in Urban Planning, Urban Design, Transportation or Related Fields

This participant group includes those with within the relevant disciplines with substantial knowledge of the issues faced by Tshwane. Eleven participants self-identified as belonging in this group. Because they are more knowledgeable, this group receives the questions from all four question categories (see 6.2 below), taking advantage of their greater level of policy and technical expertise to gain insight. The intention of creating this pathway within the survey is to understand the differences (should there be any) between the way ordinary citizens and experts in the field respond to the questions.

Non-expert Government Employees

This participant group includes anyone who works for municipal, provincial or national government but is not an expert in urban planning, urban design, transportation or related fields. Four participants self-identified as belonging in this group. It was anticipated that this group would have some insight into the workings of public departments, and some familiarity with relevant policymaking, but who use and experience the urban environment similarly to ordinary citizens. This participant group receives three questions categories in the survey, including all except the 'planning and design for sustainable mobility & NMT' category (see 6.2 below).

Ordinary Citizens

Anyone taking the survey who does not identify with either of the two groups mentioned above would fall into this participant group. Ten participants self-identified as belonging in this group. The aim of surveying this group is to understand the baseline perceptions and attitudes towards public transport, NMT and public spaces, without the 'bias' of expertise. This participant group receives only two question categories (see 6.2 below).

6.2. Survey Topics & Questions

Survey Topic Structure

It was intended that topics which needed to be addressed are: perceptions of public transport, NMT and public spaces (even if such perceptions are not informed by actual conditions); technical challenges (known only to the experts); governance and coordination issues (known only to those within government spheres or experts in the field; and propositional questions about how these systems might be improved.

In light of this, four question categories, outlined below, were created. Participant groups (see section 6.1) would receive between two and four of the question categories, depending on how they self-identified. The full set of question and results can be found in section 8.5; what is outlined here is a breakdown of the structure of the survey.

How You Get Around

This is the 'perceptual' section featuring questions related to the participants' modes of mobility, and perceptions about public transport, NMT, and public spaces in Tshwane. This is the only category which is received by all three participant groups, as it does not require any specific expertise to be able to answer, and is thus applicable to everyone. The questions ask about how frequently the participant uses modes of transport and public spaces. They also get at the reasons participants may have for not using public transport, NMT and public spaces, given that they are relatively underutilised as a whole.

Planning & Design for Sustainable Mobility

Dealing with technical issues that people outside the realm of urban planning, urban design, transportation or related fields would be unlikely to know, only the first participant group (experts in the field) receive this category. The questions ask of the relative importance of various measures in encouraging use of NMT, public transport, and public spaces in Tshwane, and follows up by asking about what ideal conditions would look like versus how plausible those measures currently are.

Governance & Coordination

Targeted at the experts in the field and the governmental employees ('ordinary citizens' do not receive this question category), this category attempts to assess whether horizontal and/or vertical coordination within public entities – or the lack thereof – may be hindering a smooth implementation of NMT and sustainable mobility strategies. It continues by asking about all manner of possible hindrances, with degrees of influence, to come to some kind of understanding of whether governance of the issues is indeed a major roadblock, or is only a peripheral concern.

What Would You Change?

This is a propositional category which attempts to measure the interest, enthusiasm, and expected outcomes of various possible approaches to improving NMT and sustainable mobility options in Tshwane. All participant groups receive this question category, and some short-answer (e.g. not multiple choice) questions are available, asking participants to identify what they believe are the single most important factors to rollout NMT, improve public transport, or encourage the use of public spaces.

6.3. Survey Analysis

In this section, a summary of results will be given, with some recommendations interspersed with the analysis. The analysis is organised according to the four question categories presented in the online survey.

Planning & Design for Sustainable Mobility

As a somewhat surprising outcome, when given a list of strategies to encourage the use of NMT, public transport and public spaces, experts in the field (by a narrow margin) selected investment in designing user-friendly and attractive streetscapes or public spaces as the most important (90.9% called it "very important," 9.1% called it "moderately important"). This is further emphasised in responses to promoting intermodality of transport systems, for which two related design and streetscaping strategies were seen as being high priority (with between 81.8% and 100% calling them "very important"), these being:

- Improve pedestrian infrastructure within a 1km walk from stops/stations
- Improve the design and streetscape around stops/stations

While both were seen as being very important, critique of the plausibility of the first was mixed, whereas the plausibility of the latter was seen to be high. By contrast, creating designated lanes for taxis was seen as neither a high priority not particularly realistic.

Governance & Coordination

Experts in the field were more likely than other government employees to say they regularly work with municipal officials in other departments (54.5% vs 25%), and with officials at other levels of government (45.5% vs 25%), but were also considerably less likely to say that government policies, plans and priorities related to NMT are well integrated across all entities involved (only 27.2% responded "yes" or "sometimes" vs 75% of other government employees). Experts in the field were also far more likely to say that better coordination of budgets is most important to improve integration on policies, plans and projects related to NMT and public transport.

Access to data does not appear to be a major problem, with both participant groups rating as not being a significant hindrance to the implementation of NMT sand public transport strategies. Not surprisingly, given the responses in the paragraph above, various questions related to coordination were listed as significant hindrances for experts in the field, but less so by other government employees. The coordination issues, particularly those which are design related, is nominally addressed in the 2007 Streetscape Design Policy and Guidelines, but the fact that this policy is not universally known and is considerably outdated renders it somewhat impotent in solving this issue. It is recommended that the City of Tshwane consider updating and replacing this policy, gearing it more towards the integration and intermodality of transportation which now features prominently in the City's agenda.

What the two participant groups agreed on (and was especially strong amongst the experts), was that "political will" significantly hinders the both implementation of NMT and public transport strategies. To attain substantial change, there is a need for an understanding of the issues at all levels, and that the relevant people involved have the mandate to make decisions to move things in the desired direction.

How Survey Participants Get Around

Most of the survey participants (across all groups) use a personal vehicle as the most frequent form of transport. Interestingly, the participant group of government non-experts was more likely to say they used multiple forms of public transport than the experts in urban planning, urban design or transportation, who presumably are more educated about the issues. The reason for this disparity is not clear.

When asked about reasons preventing them from walking or cycling more, a few trends emerge. Not surprisingly, most participants said walking would take too long due to distances to and from their regular destinations. However, this was not true of cycling – suggesting that common distances travelled (by survey participants) are in the medium-small range, not a long- or medium-long range. Rather, inadequate provision or maintenance of sidewalks and/or cycle lanes was cited a major impediment, second only to the fear of doing so after dark.

Reasons preventing participants from using public transport more frequently are more varied. A small plurality say that, aside from taxis (which are most frequently seen as unsafe to use), there is no route near their home or regular destinations. This suggests that access is still a major issue, even amongst experts and government employees whose economic status is likely to afford some degree of flexibility in where they choose to live. A strong majority of participants cite Gautrain as being too expensive for regular use. A majority of participants – at least to some degree – say that it is uncomfortable/unpleasant and unsafe to wait at Metrorail and Tshwane Bus Service stops/stations, while few participants felt this way about A Re Yeng or Gautrain, which have distinct stations rather than roadside stops. This suggests that, despite the added expense, having a designated station does increase the perception of safety amongst users and, even if not implementable for all modes, at the very least returns to the emphasis on proper design and improvements of the environment surrounding transport access points.

There appears to be an enormous gap in perception about available information of transport routes between non-expert government employees and everyone else. Amongst government non-experts, only 22.2% said it is difficult to find information about routes for A Re Yeng and Tshwane Bus Service, and only 11.1% said the same for taxis, Metrorail and Gautrain. By contrast, amongst experts in the field and ordinary citizens, 65% said it is difficult to find information about taxi routes, 50% said the same for Metrorail, 35% for Tshwane Bus Service, and 30% for A Re Yeng. Perhaps employees of government are better aware of where such information can be found, but it is clear that the general public – even including experts in the field – are either unaware or have difficulty finding even basic information about transport options. This issue is emphasised again in the next question category.

What Participants Would Change

When given a list of interventions that would encourage walking in the city, all participant groups (and 87% of all participants) cited better street lighting as an item that would make them much more likely to walk more frequently. The same pattern of responses holds when asked about the use of public spaces; however, this pattern is not seen in responses about encouraging cycling. The second-most cited item was better separation between pedestrians and vehicles; in this case, the corresponding item for cycling is also one of the top choices. Both experts and ordinary citizens also cite the availability of bicycle parking facilities and the ability to bring a bicycle on public transport as making their use of cycling much more likely. Clearly, there is a latent demand for easy intermodality, something that is emphasised by the

fact that an integrated ticketing system would be the item most likely to increase use of public transportation amongst all participants.

Returning to the issue about publicly available information, a large majority of all participants, especially amongst ordinary citizens, said that more accessible information about routes would make them much more likely to use public transport. With some attention, providing clearer and more accessible information ought to be a relatively simple problem to fix, and it is recommended that attempts to do so are undertaken. This is further elaborated in section 7.4.

6.4. Experts Interviewed

As a substitute for the planned face-to-face expert meeting with technical staff from the city government, academia and development partners, UN-Habitat – in collaboration with the City of Tshwane – opted to conduct online expert interviews instead. The purpose was to gain a deeper understanding of the challenges, opportunities and experiences in implementing NMT and sustainable urban mobility. City officials compiled a list of key experts working on sustainable mobility and provided the same to UN-Habitat, whose staff reached out to the respective individuals with the request for an interview.

Complementary to the online surveys (see sections 6.1 and 6.2 above), the aim of conducting key expert interviews was to gain a qualitative, in-depth understanding from the expert's opinion. The selected experts have particularly informed perspectives on the aspects of NMT and sustainable mobility, as they are either involved as decision-makers or implementers in mobility programmes and projects, or they are supporters through research or technical assistance.

The following table illustrates a list of the interviewed experts:

No.	Participants	Date/ Time (SA)
1	**Bavusile Ramekane – CoT** Acting Director: Intelligent Transport Systems & Traffic Engineering and Operations **Frank Lambert – CoT** Functional Head: Intelligent Transport Systems & Traffic Engineering and Operations **Walter Bruhns - CoT** Engineering Consultant Department of Roads and Transport, Division Transport Infrastructure Design, Construction and Maintenance	Friday, 2 April 9:00-10:30
2	**Nkhensani Shivambu – CoT** Acting Director: Integrated Transport Planning	Thursday, 2 April 10:00-11:00
3	**Michael Kihato – C40** Technical Specialist to the City of Tshwane	Monday, 6 April 15:00-16:00
4	**Jessy Appavoo – C40** Regional Engagement Manager, Africa, C40 Cities Finance Facility **Esther Wegner – GIZ/ C40** Advisor, Global Programme C40 Cities Finance Facility (CFF) Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)	Thursday, 2 April 12.45-13:45
5	**Professor Christo Venter** University of Pretoria Transportation Engineering Department of Civil Engineering/Centre for Transport Development	Monday, 6 April 9:00-10:00

Additionally, UN-Habitat reached out to the Gauteng Department of Roads and Transport and the National Department of Transport. However, the short time frame of the request did not allow for the interviews to take place.

6.5. Interview Summaries

The team of interviewers from UN-Habitat developed a list of questions that helped to provide a guidance during the interviews with the key experts. The following topics give the set of questions that were adapted in each interview to allow for a free-flowing discussion. While some responses are to specific questions, others are more general to the topic, and thus they are the responses are presented independently from the topic as aggregated summaries to ensure anonymity of the respondents. Recommendations also are given within each topic.

Topic: Policies, Plans, and Fiscal Support

Questions:

1. The City has developed various policies, strategies and plans for NMT (i.e. NMT Strategic Framework/ NMT Network Master Plans) – how far are these in terms of implementation?
2. What challenges do you face in terms of translating these "plans and policies" into "action"?
3. What windows of opportunity are there for implementing walking and cycling projects in Tshwane right now?
4. How is funding allocated to NMT? Do NMT policies and plans contain budgeted NMT Action Plans that set out clear responsibilities and financial requirements?
5. Does NMT implementation go hand in hand with disincentives for the private car such as increase in parking fees, speed reduction?
6. Are there any innovative funding mechanisms for NMT in place, i.e. private sector involvement etc.?
7. In the development of the NMT plans and policies, how was participation of stakeholders ensured?

Summary of Responses:

- There was no provision of NMT in previous CITP or other plans; the revision of the CITP was urgently required as well as the development of the NMT Strategic Framework.
- NMT infrastructure is being implemented by the city based on a yearly budget of approximately 10 million ZAR ($555,000 USD) at the municipal level.
- Retrofitting designs is presenting an additional challenge due to existing immovable obstructions (e.g. utilities such as electric poles) and lack of sufficient space.
- There's a careful selection of NMT projects and specifications. Locations need to be identified through demand studies.
- CoT has resources, but may not be spending them effectively for implementation.
- Budgetary constraints are one of the key challenges and limitation for the development of NMT infrastructure. There's a need for improved coordination and advocacy for NMT funding in annual budgetary discussions with National Treasury.
- Civil society involvement in policy-making has been weak and has been limited to transport sector stakeholders. Tools and approaches for broader engagement, particularly in promoting cycling, is important.

Recommendations:

- Setting up a dedicated NMT unit could facilitate inter-departmental and inter-agency coordination, review of policies, strategies and standards for NMT, assess impacts and monitor progress on NMT projects. The NMT unit could also be involved in the provision of regular trainings to engineers and planners involved in the design and planning of NMT facilities.
- Simultaneous to promoting NMT and public transport, it will be important to develop measures to reduce the use of personal motor vehicles. Among the options could be that on-street parking spaces could be managed through an IT-based parking system

that can generate revenues for re-investment in sustainable transport, or speed reductions and slow zones.

- For continued NMT infrastructure development, a ring-fenced budget exclusively for NMT projects is necessary

Topic: Data

Questions:

1. Do you think the city has sufficient data on NMT to inform and provide evidence for policies? What might be missing?
2. What additional datasets should be developed and who would be best placed to host and maintain them?

Summary of Responses:

- There's a lack of qualitative data on peoples' experience, needs, desires, and a lack of good quality data for NMT and mobility in general; available data is mainly derived from traffic counts or household travel surveys.
- More innovation on mobility research and data is needed in Tshwane. There's a need for an MoU on collection of transport data between CoT and universities.
- A compilation of good practices of NMT interventions from Tshwane is needed. Monitoring of projects through impact assessments is needed.

Recommendations:

- Access to information about the status of the NMT infrastructure and services should be facilitated by CoT. This could be done through regular assessments of the walking and cycling environment as well as qualitative surveys – including:
    - Infrastructure data: Data on footpath and cycle path presence, footpath height, road width, crossing availability, presence of shade, lighting, landscaping, active building frontages, etc.;
    - User data: Counts of pedestrians, cyclists, and motor vehicles; observation of pedestrian behaviour; and user perception surveys.;
    - Traffic accident data: Records on vehicle accidents involving pedestrians and cyclists, including the location, time of day.
- CoT to pilot a multi-use information platform which tracks different data indicators.

Topic: Governance & Institutions

Questions:

1. Do you regularly work with municipal officials in departments other than yours?
2. Do you regularly work with government officials at a level of government different than yours (e.g. municipal, provincial, national)?
3. How can NMT efforts be embedded in a shared accountability system which goes beyond a political mandate? Is there a dedicated team (such as an NMT unit) working on NMT in your institution?
4. What tools/approaches does the city need to enhance integration, cross-disciplinary coordination and to close the institutional gaps?

Summary of Responses:

- The city government has an integrated transport planning unit (combining vehicular, public, NMT transport), but no separate NTM cell/unit with dedicated staff working on walking and cycling.

- Each planning unit within the city government (i.e. energy, water transport, sanitation, housing etc.) is providing planning in silos, and often there is a lack of communication amongst different units; a lack of an integrated development.
- There's limited collaboration with Steering Committees of Provincial government. There is a need to activate committees with a specific focus on NMT, and to identify the "right" people to participate in these committees.
- There's a lack of an NMT champion in city government due to understaffing and limited resources allocated to NMT.
- Review and development of CITP is mostly involving transport related stakeholders >> lack of inter-sectorial coordination i.e. with urban planning, housing, energy
- Collaboration with Provincial Government essential as many urban roads in Tshwane fall under the mandate of the provincial government (i.e.K69/ Solomon Mahlangu Drive where the Province added NMT considerations after CoT has successfully advocated for it).
- Coordination happens on the basis of projects and not at regular intervals (which would be needed).
- Intergovernmental coordination and alignment of policies and budgets is needed between CoT and Provincial government.

Recommendations:

- A dedicated NMT unit within CoT could facilitate inter-departmental coordination and address NMT capacity-building within CoT, as well as inter-agency collaboration (i.e. with Provincial Government).
- Engagement of NMT staff of CoT in Steering Committees of Provincial Government essential on a regular basis, where all projects that are planned within CoT boundaries need to have undergone technical review by CoT staff.
- In the medium term, Provincial and National government encouraged to also create NMT units to strengthen their in-house capacity to design, plan, maintain and manage NMT project.
- Inter-governmental NMT focus groups for purposes of budgeting and implementation monitoring.

Topic: Land Use & Public Transport Integration

Questions:

1. Do you think that government policies, plans and projects related to NMT are well integrated with land use planning? What might be missing??
2. What is the institutional framework to ensure integration of PT, NMT and land use? How are actors, departments and institutions collaborating?
3. Many efforts are targeting the implementation of NMT infrastructure and facilities integrated with Public Transport (i.e. through IRPTN -Trunk and Feeder Routes) – what exactly has been done so far?

Summary of Responses:

- Integration between urban planning and transport departments in the City happens on a project basis but not on regular basis; there's a need for regular coordination meetings that are not prompted by specific projects.
- Planning of different modes of transport happens without sufficient integration between these modes; e.g. buses and minibus taxis are competing on the same routes which leads to inefficiencies on both sides.
- Improvements (safety, cleanliness, reliability) to current public transport system is essential to facilitate modal shift away from the private car; current public transport and NMT users have no alternative.
- The issue of inter-connectivity between modes and physical integration is needed.

- A one-ticket system has been implemented in the City; however, there are 4 bus companies in the city in total, and so far only two are integrated. A fully integrated ticketing system is needed.
- TOD is implemented only in certain areas, leaving out the disadvantaged communities. As property prices rise as part of TOD developments, the provision of affordable housing becomes essential. The concept of TOD is often criticised; it has at times led to gentrification and exclusion. There's a need to consider social inclusion.

Recommendations:

- Review of building control and planning regulation, with strong involvement of the staff of the NMT unit, to promote compactness and NMT access to public transport (500 m walking access), safe NMT crossings, land use policies that encourage equitable transit-oriented development (ToD), active frontages (buildings with activity connected to and visible from the street), minimum block sizes for redevelopment projects, fine-grained street networks.
- Need to ensure integration and inter-modality of transport modes to enhance attractiveness, i.e. through smart ticketing between various public transport modes, or physical integration of public transport with NMT.

Topic: Street Design Guidelines

Questions:

1. What design guidelines are applied and is there coherence between the city urban road guidelines with the provincial level guidelines? Are there any gaps?
2. Tshwane already integrates NMT infrastructure during new and existing developments – how do you ensure that designs are following the recommendations as per the design guide? Is there a design review committee?

Summary of Responses:

- The City is using "Standard Design for Construction" for the development of street designs.
- The inclusion of NMT and universal access design features in BRT plans and specifications.
- Guides are available on different levels: Provincial guide; City Transport (NMT design guidelines); City Urban Planning (Streetscape design guidelines), etc. Manuals exist, however, they often lack alignment to standards during implementation.

Recommendations:

- Review of all design standards and manuals recommended to ensure that the manuals reflect best practices in design for pedestrians and cyclists as well as align to standards across government levels (city and province).
- Possibility of setting up a design review committee which ensures projects related to sustainable mobility (in particular NMT) align to high-quality standards and guidelines during design and implementation phase. This could be spearheaded by the NMT unit.

Topic: Projects & Programmes

Questions:

1. What pilot projects are currently being planned in Tshwane on walking and cycling?

2. Do you feel that the NMT infrastructure you have built so far is utilized well by pedestrians and cyclists?
3. Do you have a network plan that allows for future continuity of NMT infrastructure across the city (particularly for cycling) in the future?
4. Have you done impact assessments for the pilot projects?

Summary of Responses:

- There are plans to roll out bicycle docks throughout the city and at the public transport stations.
- The Shova Kalula bicycle programme: as NMT was encouraged amongst students, NMT infrastructure had to be developed in line with providing bicycles for the students.
- The K69/ Solomon Mahlangu Drive is a great example of bicycle infrastructure in a high demand location (linking a low income settlement with central area).
- A past project in Pretoria included testing a pilot bike-sharing scheme with 20 bikes (incl. 10 electric bikes). The system was implemented and running on the student campus; bikes were handed over to CoT after piloting. There's a proposal for joint development of bike sharing between the University and CoT for phase 2.
- NMT infrastructure is being developed alongside BRT routes. National level funding available for this, however it is not along the highest demand corridors, and is therefore often empty.
- There's need for careful assessment of suitable locations for NMT infrastructure. Where should bike lanes be placed? Where is existing demand?
- Pilot projects need to be understood from a network perspective and need to be inter-linked. Identification of "pockets" and "precincts" for pilot projects is important in locations that show community readiness.
- Tshwane is 80km in diameter; a dispersed city. Planning and limited density needs to be considered when planning for NMT.
- Private developers are keen to implement cycling facilities around shopping malls, residential developments, hotels, casinos, etc.; however, these developments are not based on an NMT network and linkages (which is particularly important for cycling lanes).
- Internal policies withing CoT to guide private developers are lacking. CoT at times fails to enforce high quality standards.
- There are opportunities for young entrepreneurs in the field of sustainable mobility (economic stimulus), however, the City needs to develop enabling regulatory frameworks.
- Among the possible solutions to enhance public transport and NMT integration are bike share programmes at BRT stations, facilitating bike carriage on buses and micro-mobility options.
- Theft of bicycles if a common security concern of cyclists. There's a need for traffic officers to ensure safety of parked bicycles.
- There's a need for enforcement to keep cycle lanes free of motor vehicles (i.e. physical barriers) in some locations.

Recommendations:

- In areas where the demand for pedestrian and cycling activity is the greatest, CoT can develop pedestrian priority precincts with improved footpaths, pedestrian crossings, attractive public space and safe bicycle lanes. Designs must ensure compliance with disability access guidelines
- Key to making cycling safer and attractive is the development of a safe, efficient, and convenient network of cycle tracks. The network should cover key urban corridors, as well as feeder roads to existing and planned rapid transit stations. A phased network implementation plan can also prioritise streets in the coverage area near

public transport stations to ease the access while adequate cycle parking needs to be provided.

- Bollards should be installed on all footpaths at high risk of parking encroachment.
- Develop a policy to guide public and private development that will support the enforcement of high-quality standards for NMT.

Topic: Promotion & Culture

Questions:

1. Strong focus seems to be given to infrastructure projects – but what else is needed to encourage people to walk and cycle more in order to establish a culture for active mobility?
2. How active is the civil society in promoting walking and cycling? Who are the players?
3. How is media involved in your projects? Do they report "positive" or are they rather hostile towards NMT projects?

Summary of Responses:

- Tshwane remains car-centric; i.e. companies provide travel allowances for people that commute in vehicles, but not on bicycles. They should start providing incentives for cyclists.
- There's a need to disincentivise car use; this is essential to achieve modal shift to public transport and NMT.
- A mindset shift of the general public and vehicle drivers is needed. NMT is considered unsafe. Also, a mindset shift of professionals including engineers, designers, and urban planners is also needed. NMT is a new field.
- In a car-focused culture, incentives for cars prevail. Large infrastructure investments go to building of roads; vehicle manufacturers are given incentives while civil servants enjoy vehicle purchase subsidies.
- Promotion of NMT usage through annual Open Street event in Hatfield, which actively involved street vendors, does happen.
- There's a limited understanding of NMT issues among city government departments. There are negative comments towards cycling by colleagues.
- The strong involvement of community during the Open Street Event in Hatfield ensures buy-in of businesses, residents, media.
- There aren't many community groups/leaders/ organizations pushing forward for the implementation and encouragement of NMT.
- There's a need for more bottom-up initiatives, community-led movements, forums and events where public has the opportunity to express needs and desires in terms of the future of mobility. Participation is key.
- Ensuring safety and security for NMT users essential in South African context.

Recommendations:

- Regular Open Street events offer safe space for walking, cycling, and other forms of recreation in a public space.
- Active marketing campaigns transform the image of NMT and drive growing usage of the cycling.
- Regularly engage media and ensure that city residents have open access to information regarding ongoing transport projects and participate actively in the planning process.
- Strongly link NMT projects to improvements of road safety / saving lives.
- Develop a communication and advocacy plan for NMT and Sustainable Mobility.

Topic: Future Vision & Support

Questions:

1. If you had a free wish and you could do one thing to encourage walking and cycling in Tshwane, what would it be? How active is the civil society in promoting walking and cycling? Who are the players?
2. What are the most urgent areas in which the city needs further support?

Summary of Responses:

- Support in developing clear and coherent technical standards for NMT designs.
- Enhanced capacity of CoT staff providing support to setting up an NMT unit.
- There's a need for knowledge and capacity development: how to assist wide metropolitan areas with technical advice on better planning? How can NMT be successfully promoted and implemented in specific contexts like South Africa (disperse settlements, wide roads etc.)?
- Support in the development of building up political leadership, inter-departmental coordination and vertical integration with other levels of government is needed.

Recommendations:

- Engage in advocacy and capacity building to raise awareness on matters related to NMT.

7 REFLECTIONS & RECOMMENDATIONS

7.1. Issues Identified

From the participatory charette, survey, expert interviews and research conducted during UN-Habitat's technical assistance, there is broad consensus around a number of key issues related to sustainable mobility in the City of Tshwane. These are discussed generally below, with recommendations to follow in sections 7.2 and 7.3 below.

Fragmented Urban Form

Although the City of Tshwane has made efforts to address the stubborn legacy of apartheid-era, segregationist planning and mono-functional zoning – all of which exacerbates the mobility challenges and promotes private vehicle ownership – these issues appear to largely be tracked only by socio-economic indicators. Looking at these issues through that lens alone tends to produce outsized emphasis on economic indicators (i.e. access to jobs; household income) with less regard for the likely, secondary consequences (i.e. what mode of transport one uses to access jobs; private vehicle purchase). To paint a complete picture, the full spectrum of social, economic and environmental issues needs to be considered, something which would likely lead to heavier promotion of ToD and NMT.

Currently, many urban South African residents idealise low-density, suburban residential zones as a desirable form of development. Contrary to this idealisation, moving towards a more sustainable city will require promoting compact urban form, supported by mixed-use, self-sufficient neighbourhoods based on proximity of public services and facilities, woven together with NMT networks, served by and connected through public transport to the wider urban system. Shifting the perceived desirability towards this more sustainable urban form will be needed to affect systemic change, part of the paradigm shift described below.

Cultural Paradigms

Most people in the urban planning and mobility fields recognise the need for a cultural shift to drive behaviour change. One can interpret this not just as a movement to reduce the desirability of private vehicular transport, but also as the ease of use for public transportation and non-motorised transport. Ease of use results from a multi-faceted approach emphasising, among other things:

- reliability of systems (timing, frequency, and capacity);
- accessibility (distance to service and ease of access to the facility itself);
- affordability, easy access to information (something currently lacking in Tshwane's various transport systems); and
- design considerations, which may be loosely described as the 'pleasantness' of both the transportation and the surrounding environment.

To date, incentives for users of private means of motorisation prevail. Simultaneous to promoting NMT and public transport, it will be important to develop measures to discourage the use of personal motor vehicles in order to avoid the costly and flawed path of car culture and domination. Currently, cycling is seen largely as a recreational activity, something that is emphasised in the City's Streetscape Design Guidelines by only explicitly making provisions for it in residential neighbourhoods, to and from open spaces and parks. Embedded in this approach are two major components of cultural paradigms that hinder the rollout of sustainable mobility: the assumption that large areas of the city are made up of single-use residential zones, as opposed to mixed use neighbourhoods; and the assumption that cycling

is not a mode of transport to be used for ordinary, everyday commuting, including in denser areas of the city.

Standards and Design

Strongly related to the need to shift cultural paradigms is the necessity for stronger standards of design and implementation of NMT systems and intermodal exchanges. A physical environment design with prioritisation for pedestrians, cyclists, and public transport users – as opposed to haphazard development of each system independently – has the potential to reduce the stigmata sometimes associated with public transportation.

Perhaps even more important to ordinary NMT and transport users, proper design and careful implementation (as well as long-term maintenance and security planning) may be able to create safer spaces for users and reduce risk perceptions. The limited physical integration between public transport and non-motorised transit, i.e. the lack of safe crossings for pedestrians to bus stops/stations, or the lack of bicycle parking facilities at public transport stops, is a significant hindrance to improved intermodality. Even for casual users, the mere presence of these improved facilities helps to create an implied messaging that NMT and public transport are priorities, are safe, and are comfortable to use.

Currently, design standards are dispersed between different entities and not particularly cohesive. The Tshwane Streetscape Design Guidelines – which are considerably outdated – are mostly silent about NMT opportunities (aside from some guidance on the width of walkways) and contain no standards at all in terms of designing for intermodality. Road design standards tend to focus on vehicular movement, although some provision for safe pedestrian crossing generally exists.

Real and Perceived Safety

The perceived safety of NMT and public transport remains a significant challenge. While some of the perceived safety issues can be addressed through design standards and thoughtful implementation, other safety issues – specifically the risk of street crime – will be more difficult to tackle. Nevertheless, these larger crime-related issues generally become easier to address through the same forms of urban planning and development that promote NMT and public transport: active frontages, mixed building programme to promote longer time periods of continuous use, cycles, and a critical mass of public space users able to provide informal oversight of spaces.

Municipal Capacity

Capacity building within the sustainable mobility sector is seen as important. While a possible lack of expertise and capacity to address the sustainable mobility challenges faced not only in Tshwane but in most, if not all, South African cities does come up, this lack of capacity was not on display in the participatory charette. Participants were informed and knowledgeable; there was broad consensus of a common vision, even around points which might be seen as contentious in many major municipalities.

Capacity-building in this sense is not merely the training of employees, which does not appear to be a major problem in Tshwane, especially when compared to many other metropolises around the globe. Rather, capacity-building around sustainable mobility in Tshwane likely means the creating of some breathing room to launch innovative or experimental solutions without undue repercussions should such experiments fail to achieve the desired outcome. Issues of mobility will not be solved all in one go, and a method to adapt solutions as problems arise is needed.

Most government entities lack capacities of some kind, but the ability to generate ideas and coalesce around possible solutions does not appear to be a major impediment in Tshwane. The problems that do exist tend to be those of a technical nature or resource limitations, not of the ability to envision alternative scenarios. South African cities, including Tshwane, have

tried many of the international, so-called "best practices" for public transportation, and many have failed to optimise the mobility environment. The differences between the physical nature of South African cities and South American cities, where many of the "best practices" were developed, are simply too great for an off-the-shelf solution to be effective.

Within this problem's framing, there may lie some opportunities. The active players in the City of Tshwane do have a demonstrable technical capacity which can be leveraged to consider options outside the realm of what may be considered normal or typical in other global metropolises and develop innovative solutions.

In the field of NMT, however, the interviewed experts mentioned that there is lack of an "NMT champion" due to understaffing and limited resources allocated to NMT in CoT, and there is no team dedicated specifically to working on it. NMT is still seen as a relatively new form of transportation (and urban) planning, an attitude that reflects just how entrenched previous, car-centred approaches of planning are. It will be important to remove the novelty factor from both public transport and NMT in order to gain traction within the City.

Data Synthesis

Significant amounts of data related to sustainable mobility are already collected by government and academic entities, but are not always made available beyond the department which conducted the study. Complicating this is that the data behind NMT specifically is somewhat spotty, a reflection of its relatively low priority in transport planning until recently. Thus, the ability to synthesise relevant data and develop multi-faceted solutions addressing more than one aspect of a broader mobility problem are somewhat limited.

Furthermore, publicly accessible information for transit users is extremely limited, a fact that does little to encourage use of public transport. Devising new methods to collect, bring together, and communicate relevant data or information, both to policymakers and users, may have transformative potential.

Intermodality & Ticketing

Intermodality and matching transport options to scales of volume and distance are important. Tshwane already has various viable modes of transport: high-speed rail (Gautrain), commuter rail (Metrorail), bus rapid transit (A Re Yeng), ordinary buses (Tshwane Bus Service) and minibus taxis, in addition to simple pedestrianism. Opportunities for other modes of non-motorised transit, such as bicycle infrastructure, have yet to really take off in Tshwane, and there is likely some reluctance to invest in such infrastructure given the lack of use following similar investments in Johannesburg.

Though backed in principle by most, if not all, stakeholders engaged with in this study, the political and structural barriers to implementation are immense, due largely to the ownership and oversight of the various forms of transportation in Tshwane and in Gauteng Province as a whole. An integrated ticketing system cannot be approached simply as a technological challenge awaiting a clever, high-tech solution. Consider the differing structures of the current public transportation options:

- Managed nationally as an implementing arm of the Department of Transportation, the Passenger Rail Agency of South Africa (PRASA) manages commuter rail networks (Metrorail) in four provinces feeding into six major metro areas, including Johannesburg / Tshwane corridors.
- The high-speed Gautrain services various stations in Johannesburg, central Pretoria, and two large municipalities (Midrand and Centurion) in between. Gautrain is managed provincially by the Gautrain Management Authority, under the oversight of the Gauteng Provincial Government.

- The City of Tshwane has already rolled the A Re Yeng BRT system. As with most BRT systems in South Africa, the municipality contacts out some of the services; in Tshwane's case, the fare collection system is one of these outsourced, private contracts.
- A few stations in Pretoria receive long-distance commuter buses (Metrobus), operated by the City of Johannesburg.
- The minibus taxi industry is also fragmented. The many taxi associations (over 1,000 in all of South Africa) operate somewhat informally and often with conflicting interests. The different taxi associations set their own routes and their own fares. It is important to note that there is an extra governance level in the taxi industry which is the relationship between the taxi driver the operator. These relationships are not regulated and work on a one-to-one basis. Municipalities, including Tshwane often support taxi networks by providing baseline infrastructure such as shelters at common stops and ranks at major interchanges, but the taxis are, aside from licensing of drivers and vehicles, otherwise independent from governmental influence.

Transportation management, then, is fractured between national, provincial, municipal, and private entities, making integration hugely problematic. Network integration sometimes happens organically, with the taxis serving as feeders to the *A Re Yeng* or Metrorail systems by default rather than by design, but duplication of routes between multiple systems is common. The result of this is a series of parallel governance structures which were never designed to work together, creating an unintegrated and unreliable mobility service. All of this makes the Integration of ticketing extraordinarily difficult, and potentially prone to conflict.

Although some discussion of creating a single, provincial transport authority to manage Gautrain, Metrobus, and the A Re Yeng and Rea Vaya (Johannesburg's BRT) systems has been ongoing, the likelihood of its successful formation in the near future is low. The difficulty in splitting fare revenues between private entities and government, as well as between various levels of government receiving their budgetary allowances from differing authorities, would be a complex undertaking.

7.2. Overall Recommendations to the City of Tshwane

The recommendations given in this section are compiled based on a synthesis of information from the various sources and using the various techniques outlined in this report. They are meant to be complementary to suggestions made earlier in the analytical sections of this report, but are not necessarily repetitive of those suggestions. Therefore, the entire report can be used as a way to 'shop' for possible solutions; it is not intended that this section alone be a panacea for all of the issues.

Nevertheless, it is useful to list a number of recommendations quite explicitly. They are given under the headings below, with some elaborated explanation.

Recommendations which are considered to be more easily implemented, 'quick wins' are included in section 7.4 below.

Recommendation: Setting Up a Dedicated NMT Unit Within CoT

Issue(s) responded to: municipal capacity.

Technical support requirements include support to metropolitan planning with a focus on NMT. A dedicated NMT Unit and its clear mandate would be advantageous. Currently, the team deals with wider traffic operations and will require skills to interact with different stakeholders on matters of NMT, something which is too often seen as an afterthought. In the interim, support to the team in terms of education and training of divisional heads, the

Transport Development Division, urban planners, as well as an internal budget allocation to implement joint pilot projects would be needed.

The administrative structure of this NMT Unit would need to be carefully considered. UN-Habitat recommends it is positioned under the Transport Development Division of the Economic Development Department, but one of the goals of its creation is to facilitate inter-departmental collaboration. For this reason, it is recommended that it be composed of representatives from both the City Planning Division (under the Department of Housing, City Planning & Environmental Management) and the Transport Development Unit.

Specific responsibilities would include: facilitating inter-departmental and inter-agency coordination; review of NMT policies, strategies and standards; impact assessment and monitoring of NMT projects.

Furthermore, part of the needed cultural shift is the framing of professional education, which needs to be innovated to expand beyond current, tested methods. Innovation should point to multidisciplinary and integrative approaches to the built environment, thereby facilitating holistic solutions and increasing the likelihood of inter-departmental collaboration in city government. While the City of Tshwane's role in the educational sector is undoubtedly limited, efforts by this NMT Unit to proactively engage with academic programmes (particularly in urban planning, architecture, civil engineering and governance) may prove fruitful over the long-term in developing new, innovative approaches to promote and deliver sustainable mobility and NMT.

Recommendation: Rollout of Small Physical Pilot Projects

Issue(s) responded to: cultural paradigms; standards & design; real & perceived safety; municipal capacity; intermodality & ticketing.

At the city level, it is possible to enhance existing transport systems (including NMT) through small innovations. These would likely be small, ad-hoc projects, targeting the promotion of uses beyond simply moving passengers from point A to point B.

Although Tshwane faces many mobility challenges, one issue it is largely unencumbered by is the availability of space withing public rights of way/road reserves to rebalance the territory devoted to different modes of transport. Improvement of cyclability, both by the provision of safe space to do so, and by the integration of related parking/storage facilities at BRT stations (and ways to ride with one's bike on the bus), has some potential. Improvements in the streetscaping surrounding stations and minibus taxis may also provide some benefit.

The upgrading of public amenities tied to transport stops/stations, and the inclusion of intermodal support at a greater number of places where users access their chosen modes of transport, may have the potential to gradually change perceptions. In short, transport stops/stations need to be seen as more than just functional points; they need to become valued facilities supporting users' ways of life. Implementing a series of these pilot projects could, in the long run, be an effective testing ground for the development of urban design guidelines to be rolled out at a larger, city-wide scale, and a testing ground for inter-departmental collaboration and capacity building.

Recommendation: Diversifying Sources of Funding for Public Transport and NMT

Issue(s) responded to: municipal capacity; data synthesis.

Given the budget shortfalls, the City proposes to set up a task team dedicated to procuring additional funding that is appropriate to the type of projects that are pursued, including the A Re Yeng. The City will review its A Re Yeng development plan to ensure its full completion by 2020, as well as the financial sustainability of the maintenance and operations. Various scenarios must be evaluated, including formulation of mitigation plans, as well as investigation of additional funding sources.

As is the case in many cities, funding for transport projects and especially financing maintenance remains a challenge. The National Land Trust Act has mandated the city to establish a Municipal Land Transport Fund which could also be used to leverage additional funding from the Minister and other sources. However, the city needs to introduce public transport user charges which is again subject to the transfer of authority to contract bus services currently managed from the province.

Effective ways of applying the limited financial resources need to be monitored, with more resources applied to similar projects. Monitoring of the institutional coordination between the city and the province is another aspect for strengthening the institutional framework for public transport and NMT. Success stories should be compiled to inform future Indaba events with stakeholders. The potential to attract additional private investment, which the City may leverage by setting up land value capture mechanisms at important nodes or along development corridors, may be explored.

The budgeting system needs to provide for ring-fenced funds for NMT implementation, this will stir up progress over time. Implementation of big BRT projects with NMT integration is good but should be done in parallel with smaller projects at neighbourhood level and at busy industrial areas.

Recommendation: Strengthening Inter-governmental Coordination between CoT and Province

Issue(s) responded to: fragmented urban form; municipal capacity; data synthesis.

The City works with the provincial government through Provincial Steering Committees and especially through the special projects sub-committee. The recommendation is to have an integrated committee that looks into all aspects of NMT development that would meet on a regular basis – and not on a project basis. All projects that are being planned by the Province within CoT boundaries should undergo technical review by CoT staff. In the medium term, Provincial and National government encouraged to also create NMT units to strengthen their in-house capacity to design, plan, maintain and manage NMT projects.

Recommendation: Institutional Restructuring of Public Transport

Issue(s) responded to: municipal capacity; data synthesis.

The planning and legislative regimes from the national government presuppose a more developed public transport system with connectivity networks whose implementation is undertaken by the province and cities. This has resulted in duplications; therefore the recommendation to carry out a feasibility study and due diligence exercise in order to guide the restructuring of the public transport functions is a move in the right direction. One proposal is the establishment of a Public Transport Network Authority; with proposals articulating the functions of transport operations and transport planning divisions. The shift will require integrated funding streams which will impact on the planning for bus routes an schedules, single fare and ticketing and a more financially viable BRT system.

A “perfect” implementation of this principle, in which all modes of public transport are under the same management umbrella, will be politically challenging given that three levels of government – with different elected officials – have a transport portfolio to manage. Nevertheless, it should remain a long-term goal, as it would also make it easier to unlock the integrated ticketing system described below.

Recommendation: Work Towards Integrated Ticketing Across Modes

Issue(s) responded to: data synthesis; intermodality & ticketing.

There are ongoing attempts to address an integrated ticketing system in Tshwane, and the ITS which will provide a public transport and advanced public management system (APTMS) over 10 years. This should enhance components of bus schedules passenger information in a phased out manner. This system provides opportunity to engage a wide spectrum of stakeholders – from users of the public transport to others who deal with road safety, routing and operations.

However, true intermodality will never be achieved unless all modes of public transport are included. Specifically, Metrorail (managed nationally by PRASA) and Gautrain (managed provincially) will likely be difficult to include if efforts for integrated ticketing remain at the municipal level. Furthermore, a true metropolitan transport network would require getting other municipally managed entities – such as Johannesburg's Rea Vaya and Metrobus systems – on board as well. If done through an app/e-ticketing service (see section 7.3 below) this may also have the potential to improve data gathering.

At present, this goal remains an idealised vision of transportation in Tshwane – but there is additional space for exploring innovations that are inclusive of informal transport mode, and it will never be achieved without persistent advocacy by the municipalities. Tshwane's groundwork on this issue puts the City in a position of strength for this advocacy. If a technological solution to the single-ticketing problem can be developed, it may significantly reduce the political roadblocks.

Recommendation: Disincentivise the Car

Issue(s) responded to: fragmented urban form; cultural paradigms; standards & design.

CoT has brought forward various efforts of improving public transport and NMT. However, simultaneous to promoting NMT and public transport, it will be important to develop measures to reduce the use of personal motor vehicles. Introduce a mix of strategies, including: raising parking fees; time-based street management; premium parking and reducing the overall supply of on-street parking to progressively incentivise a shift from car-dominance to walking, cycling and using public transport. Additionally, introducing traffic calming measures, such as speed reducing, can demotivate car-use. Car use and parking policies play a fundamental role in achieving successful people-friendly, safe and inviting streets, which double as public spaces, and at a larger scale, form a transit-oriented way of development.

Along these lines, it would be logical for the City to eliminate the vehicle subsidy given to some employees, and in its pace, ramp up a public transportation or NMT subsidy to individuals who use those modes. Furthermore, design quality of NMT spaces – and activation of them through organised events – may help accelerate the a disincentivising of the car.

Recommendation: Institutionalise Street Design Review Before and During Project Implementation

Issue(s) responded to: cultural paradigms; standards & design; real & perceived safety; municipal capacity.

Review of design standards and manuals is recommended (see *Creation of Stronger Sustainable Mobility Design Guidelines* in section 7.4).

In addition, the City may explore the possibility of setting up a Design and Review Committee, run by the newly created NMT unit, responsible for:

- ensuring compliance to the revamped design guidelines and overall quality of proposed implementation;
- monitoring and evaluating the lessons learnt from implemented projects, evaluating what worked well, what did not (particularly in the *Streetscaping Pilot Projects* in

section 7.4), and applying this knowledge to periodic updates to the mobility design guidelines also mentioned in section 7.4; and
- supporting the enforcement of high-quality standards for NMT in projects undertaken by private developers.

Recommendation: Innovate Delivery of NMT Projects Based on Demand Studies

Issue(s) responded to: fragmented urban form; cultural paradigms; municipal capacity; data synthesis; intermodality & ticketing.

Many of the existing NMT projects have implemented without a basis in demand studies, resulting in empty cycle lanes after implementation. The notion that the appropriate infrastructure will create a demand is only true where some latent demand exists which can spark the initial use. Thus, as a starting point, rather than pairing NMT infrastructure with alongside BRT routes, where they often remain unutilised, the City should consider more innovative ways of delivering NMT infrastructure. Innovative models yet to be exploited include developing NMT first- and last-mile connectivity to the BRT system, and increased intermodality with cycling. The focus is to get people connected to the system using bicycles alongside pedestrian walkways. Private sector young entrepreneurs could assist with this solution where they run the bikeshare schemes on behalf of the city. The City can develop a framework for this and start in an area where the densities exist and interconnectivity is feasible.

Pilot projects, such as the one by the University of Pretoria focused on mobility around Hatfield, should be used to collect quantitative and qualitative data on bikeshare schemes and learn from the travel demand patterns of such a dense area. Linking data collection and modelling with research being done at the University would be the responsibility of the newly formed NMT unit. Such projects also require dedicated budgetary resources and strategies for reaching out to the local neighbourhood and business communities.

Recommendation: Activate Streets as Public Spaces and as Keystones for Transit-Oriented Development

Issue(s) responded to: fragmented urban form; cultural paradigms; standards & design; real & perceived safety; municipal capacity; intermodality & ticketing.

It is recommended to review the building control and planning regulations, with strong involvement by the staff of the future NMT unit, to promote compactness and NMT access to public transport (500 m walking access), safe NMT crossings, land use policies that encourage equitable transit-oriented development (ToD), active frontages, minimum block sizes for redevelopment projects, and fine-grained street networks. Successful streets are an outcome of many small details which involve active building frontage, streetscape elements, landscaping, and street layout itself. In order to encourage active travel, routes should be short, direct, safe and inviting. This calls for planning for an urban form with mixed-use buildings, small, permeable blocks and dense and interconnected network of a mix of street typologies including boulevards, transit streets, pedestrian-priority streets, pedestrian-only streets, service streets and pedestrian alleys/paths.

The timeline for a transformation of urban form will inevitably be decades or more, but the process needs to begin as soon as possible.

Recommendation: Strengthen Stakeholder Participation and Engagement

Issue(s) responded to: cultural paradigms; municipal capacity; data synthesis.

The process of preparing the CITP restricted the feedback and participatory consultations to transport stakeholders. Based on interviews with experts, the city lacks community

groups/leaders/organizations who aggressively push forward for the implementation and encouragement of active transport usage.

In order to increase ridership in the public transport and use of NMT facilities, issues of security, reliability, network integration, and affordability need to be investigated. Technical plans and guidelines are in abundance, but with little consultation with potential users, the infrastructure will be underutilized and abused by taxis and private cars. Indaba and open street events bring about a diverse stakeholder groups whose opinion and feedback will result in more targeted and relevant projects as the City shares its plans and receives feedback.

Regarding integrated public transport, commendable work on providing BRT has been done, but integration across all modes is lacking. A wide commitment from both the citizenry of Tshwane and public officials in other, non-transport departments, as well as across multiple levels of government, remains a concern. People are generally apprehensive of embracing change when they do not see interconnectivity.

This apprehension will not be overcome without engagement. The Transport Development Division, along with the City Planning Division, should expand the stakeholder list to include cycling enthusiasts, environmental groups, youth, persons with disabilities (PWDs) to jointly chart out ways of reducing vehicular emissions and have more equitable and sustainable mobility outcomes.

7.3. Opportunities for Further Collaboration

In addition to the recommendations in section 7.2 above, there may be a number of opportunities which may only peripherally involve the City of Tshwane as a governing entity, but could be assisted by it through engagement with the private sector. These opportunities are reflected on below.

Opportunities for Business Development Around Data Enhancement

Some of the main blockages for the development of more sustainable cities could be addressed with the creation of digital platforms, financing models, and data collection and analysis, which would aid in overall urban planning schemes and would likely be coordinated by planning entities. Currently, data is collected by various entities, but rarely actively shared between them. Furthermore, the data collection is laborious, as it relies on public officials or academics to discover and collect. There may be potential for ordinary citizens to also contribute to such a platform, by logging faults, listing demands and creating a sort of real-time, digital suggestion box.

Ultimately, the goal here would be to consolidate the information which is already available and can be readily collected into a single platform which allows different users levels of access appropriate to them. City officials might use it to determine needs, adjust policies, and structure implementation priorities. The general public might use it to contribute to ongoing maintenance needs by alerting city officials, accessing information about mobility options, and utilising it to reinforce the reliability of the system.

A digital platform of this nature would be intended to foster co-management between public authorities and citizens, as well as promote cooperation and collaboration both across them and within the city governance structures. Using the same platform to allow users, through the simple downloading and use of an app, access to a wealth of information that makes utilising public transport easier, would be a welcome addition to the mobility sector in Tshwane. The more such a platform can be linked to ordinary interactions with public entities (such as payment of pre-paid electricity, water bills, etc., in addition to transport methods), the larger the potential market of users becomes, and the more likely it will be to passively promote sustainable mobility.

Opportunities for Business Development Around Integrated Modalities

Despite the structural challenges listed above, movement towards a platform that allows integrated ticketing possibilities between various modes of sustainable mobility could go a long way in increasing the efficaciousness of what is currently a largely disaggregated network of transport options. Such an innovative system would need to come not only with the technical know-how, but also the logical structuring of financial mechanisms and transparency of payment allocation to alleviate potential political tensions.

A lack of reliable and easily accessible data is a common challenge for the promotion of public transport, and for the enticement of investors to invest in Transit-Oriented Development (TOD) nodes. This could, in turn, support BRT systems to become more efficacious and financially viable, while opening also new opportunities for innovative sustainable transport initiatives for start-ups and small to medium businesses willing to fill the gaps in this sector (e.g. intelligent bike-sharing, electric moto taxi, etc).

Collaboration with C40

It is proposed that the recommendations and project outcomes will be shared with all partners, including C40, in order identify collaboration opportunities and synergies in the future. C40, in collaboration with the City, is planning a conference and two-day workshop for South African municipalities on walking and cycling this year in October 2020, with the aim of leveraging the lessons learnt from the ongoing project in Tshwane, activating support, and influencing the development of walking and cycling projects in other cities. This final project report, including the recommendations as well as policy review, can support C40 in shaping the agenda and themes for their conference and workshop. Additionally, C40 is supporting the City of Tshwane in preparing for the Africa Mobility Month and Open Street Event planned in October 2020. The report, particularly the toolkit on Open Streets, will be of much help in planning for these events.

UN-Habitat and C40 have agreed to continuously update each other on ongoing activities, and to further explore collaboration, i.e. in reaching out to potential financiers of projects that promote sustainable mobility, including walking and cycling, or in linking City of Tshwane officials to ongoing capacity building opportunities.

7.4. Concluding Prioritisation

The recommendations given in section 7.2 and 7.3 above will, of course, only be feasible over a long term. On the basis of the strategic recommendations and opportunities presented above, a series of short-term, quick-win items which are relatively simple to implement are given here. They may be thought of as means to pave the way for longer-term implementation of the recommendations.

How these get prioritised in terms of resource allocation and strategic development will be a matter for the City to determine. However, it is useful to think in terms of the 'low hanging fruit:' initiatives that might be able to score some quick wins towards a more sustainable mobility system. To qualify as a 'quick-win,' a few criteria must be met:

- It should be something that is implementable without a large resource allocation over the long term, potentially allowing adjustment and reworking if needed without a waste of resources.
- It should be something that creates visibility and awareness
- It should be something which has the potential to have impact beyond the scale of the project itself.

Listed below are the items that UN-Habitat has identified which may meet these criteria.

A Sustainable Mobility Information Campaign

Contrary to common cynicism, most citizens take efforts to act responsibly and become part of collective solutions if they are able to understand the issues and understand the benefits, even if such benefits are inherently unobservable in the near term. The extent to which the current COVID-19 lockdown is being embraced – despite much hardship – by a large majority of South Africans is evidence of this.

It would be naïve to assume that the average citizen of Tshwane is aware of the challenges of creating a viable sustainable mobility network. The average citizen is also likely unaware of how he/she can take part in the cultural shift described numerous times in this document.

Creating a consistent and visible campaign to point out the benefits of NMT and sustainable mobility (coupled with the rollout of the "maps and apps" and streetscaping pilot projects mentioned below) is the first step in steering the cultural shift. Efforts in this campaign need to be strong and numerous, but budgets need not be large. Between the organisation of events (once the COVID-19 lockdown is over) and a persistent presence on media outlines – in particular social media, which is free to use and reaches wide audiences – Tshwane may be able to give the acceptance of NMT and sustainable mobility systems a push. It is recommended that the City appoint a coordinator of such a campaign and take immediate steps to roll it out.

Hold Open Street and Placemaking Events

The Open Street and Placemaking Event (see section 4) may be used as a "launch party" for the above-mentioned sustainable mobility information campaign. Since the concept, planned activities, and base files for much of the advertising have already been produced, much of the movement forward on this is logistical in nature, and well within the reach of the City.

This can also expand into more regular Open Street Events that promote safe spaces for walking, cycling, and other forms of recreation in public spaces, in different areas of the city. As part of the information campaign, the goal is to transform the image of NMT and accelerate adoption of cycling. Regular engagement with "friendly" media is recommended in order to issue regular updates and project stories. City residents should have open access to information regarding ongoing transport projects and participate actively in the planning process.

"Maps and Apps:" Better Information Platforms

Users of NMT and public transport are typically guided by five key questions:

1. Where can I go?
2. How do I get there from here?
3. How long will it take?
4. How much will it cost?
5. How do I do it?

Accessible information which answers these questions is critical to increasing usership. The first two are easily solved by providing maps of the systems. Note that "systems" is plural, since the intermodality of the network is also important. Point 3 is solved by having timetables in legible formats (not enormous tables with hundreds of times). Point 4 is solved by having basic fare information in legible form (again, not enormous tables with hundreds of fares). Point 5 is solved by describing how one obtains a ticket and uses it. All of the above ought to be very clear and simple, yet consider the following present realities:

- The Metrorail home page contains links to only one of the five points above (the fares), and even that is in the form of a downloadable .pdf, something which is not easily read on a smartphone.
- The Gautrain website does a reasonably good job of these, with all five points covered as links from the home page. However, the timetable portion is cumbersome,

displaying only the next trains arriving/departing, and not allowing the user to search based on a specific time without downloading a .pdf timetable elsewhere on the website. Furthermore, the maps contain very little context, so unless one is familiar with the exact location of every station, it is difficult to understand exactly where it is.

- The Tshwane Bus Service website contains none of this information on its home page. It has a link to another website, which itself links to other URLs, which provide downloadable .pdfs of brochures which contain so much information that it is difficult to find what the user is actually looking for. Route maps appear to be non-existent.
- The A Re Yeng website has a good map available (also as a .pdf), but no information about intermodality. It also has a simple, legible timetable, but this also requires a .pdf download for something that could easily be on the website itself. The interactive route planner does not work, as it does not allow a user to enter a travel date after January 2019, and then registers an error.
- The standard A Re Yeng stations do not have a system map outside the stations. One can only view the route map after one has paid to enter the station. Expecting users to use the system without knowing where the routes go is irrational.
- The City of Tshwane does not appear to have any publicly available information about NMT (specifically cycling) networks.

All of the above are relatively simple things to fix with an investment in better communication and information design. But websites are only the beginning; since most users do not have laptops, or do not carry them around with them, most users would be better served through smartphone apps which allow the appropriate functionality across *all modes of transport*. In the initial rollout, this may be as simple as displaying system maps and fares, and gradually over time be improved to include interactive route planning, and possibly to the kinds of data collection and dissemination described in the 'Opportunities for Business Development Around Data Enhancement' heading in section 7.3 above.

Streetscaping Pilot Projects

As with the information campaign mentioned above, visibility is key to changing cultural attitudes towards NMT and public transport. This visibility cannot be relegated to information alone; specific and targeted implementation, if successfully implemented according to robust sustainable mobility design guidelines (described above), may become flagship representations of what a transformed mobility system could look like. Target pilot projects should be in locations that are either highly visible, or address very dire needs, or both. They need not be overly complicated; in some cases, a simple 'tactical urbanism' style project on a shoestring budget may suffice, while in others more substantial and more permanent interventions may be needed.

Whatever the setting, it is recommended that the pilot projects address – at minimum – the streetscaping around points of interest (specifically around transport stops/stations), and the safety concerns associated with both NMT and public transport. Safety concerns fall into a number of categories, including (but not limited to): improved lighting along NMT networks and especially at stops/stations; improved taxi stop facilities (at minimum, an attractive shelter and information boards); improved pedestrian and cyclist safety (likely through physical separation by design); more accessible information at specific points; improved ease of intermodal transfers; and improved security. The A Re Yeng system already shows attention to many of these issues, but the interventions need not be limited to the BRT system, and need not always incur the same capital cost as the BRT stations do.

To generate a flurry of ideas and possibilities, it may be possible for some of the pilot projects to be run as design competitions, with the City setting the brief and design professionals submitting their entries.

As pilot projects, the first iterations of this initiative should be objects of study. Not everything will work well the first time a project is implemented; these lessons need to be learned and applied to the next projects. Pilot projects which do not have the desired effects can be reverted back to a base condition. A simple 'tick-box' mentality of having implemented the project without continuing M&E on it would be a hollow victory.

Creation of Stronger Sustainable Mobility Design Guidelines

Although not a goal in and of itself, over the long term a clear, comprehensive, and stringent set of physical design and implementation guidelines which prioritises NMT, intermodality and access to public transportation has the potential to have a transformative influence. On one hand, a better set of guidelines will make implementation and oversight easier, as there is a defined set of rules to benchmark progress against. On the other hand, updating the (sometimes outdated) policies which contribute to the design and implementation of sustainable mobility systems can become a way of facilitating inter-departmental dialogue and unifying towards common goals.

The City of Tshwane will need to spearhead an effort to harmonise the various design standards, and likely consolidate them into a single, comprehensive guide that can be used by multiple departments, thereby casually facilitating inter-departmental integration. This effort needs to be done in a way which builds the internal capacity to understand what kind of places the City of Tshwane wants to deliver for its citizens, and as a consequence, needs to be able to put demands on both the City entities themselves (as a client and as a "delivery partner"), but also on their collaborating partners whether they come from the private or public sector.

To be properly coordinated across municipal departments, and to meet the needs of all stakeholders, the timeline on an upgrade to existing standards would likely be a year or more, so it is not an immediately attainable item. However, the payoff for a well-considered set of standards is potentially immense, and the budget for the creation of the standards would be minor in comparison to the budget for implementation of the myriad projects which would use it as a reference.

8 APPENDICES

8.1. Open Street Event Advertising

A5 Flyer

Size: A5 (210mm x 297mm)
Medium: Semi-gloss, 100gsm or higher
Notes: Print full colour, front and back; crop to bleed

Street Banner

Size: 1300mm x 5000mm
Medium: PVC/vinyl
Notes: Printed on PVC/vinyl, full colour, with webbing, seam weld, and eyelets

A2 Poster

Size: A2 (420mm x 594mm)
Medium: Semi-gloss paper, 150gsm or higher
Notes: Print full colour, single sided; crop to bleed

8.2. Open Street Event Accessories

Standing (Pull-up) Banner

Size: 850mm x 2000mm
Medium: Vinyl roll-up banner
Notes: Printed full colour; include stand

T-shirt Options

Size: Various (S, M, L, XL)
Medium: Cotton t-shirt
Notes: Can order one, two, or all three options

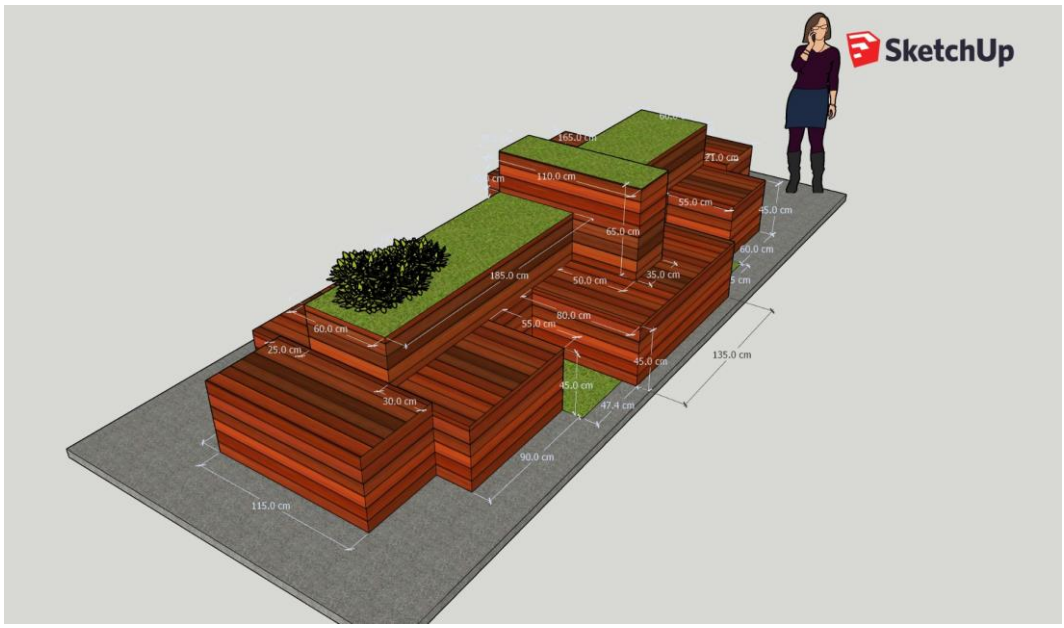
The source files for all content displayed in sections 8.1 and 8.2 can be downloaded at:

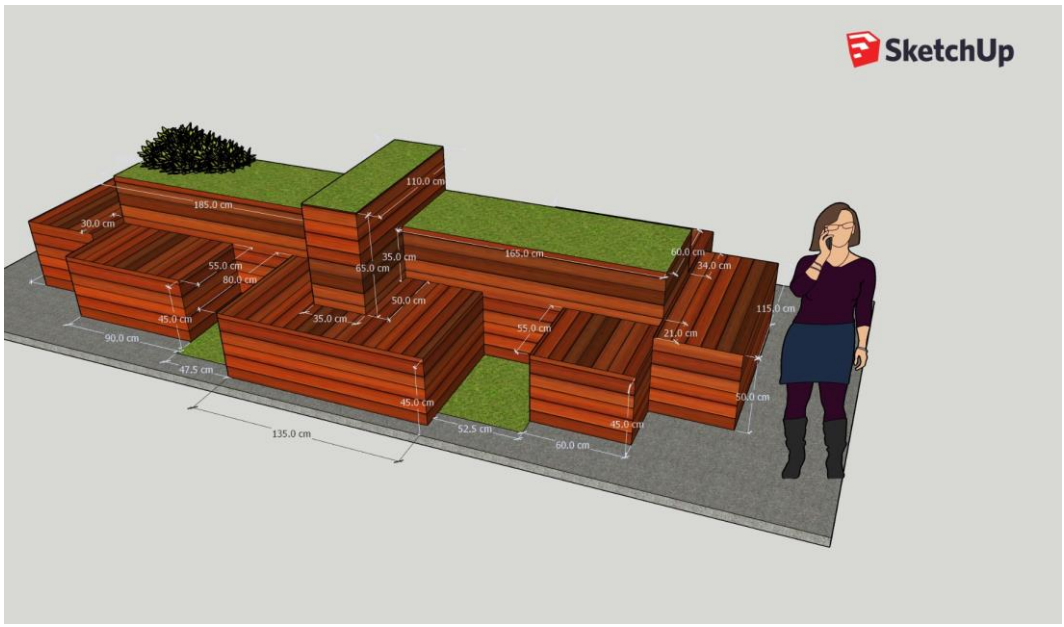
https://drive.google.com/open?id=1F5ce_ThRNVpBxjUwYMlL9wBUr9vG2Wv4

8.3. Open Street Parklet Design

A preliminary parklet design was created by UN-Habitat for a location on Church Street, Pretoria, but may be implemented in any place it fits. Approvals were still pending at the time of postponement of the event due to COVID-19. Images are included below. The source file can be downloaded at:

https://drive.google.com/open?id=1en4VTlTMt9jvDJEn0L6DK1xh8y_TKLW0





8.4. Open Street Event Exhibit

Exhibit Boards

The Open Street Exhibit is intended to be displayed outdoors in a highly visible place during the Open Street & Placemaking Event. Attention should be paid to the care of the display boards in case of inclement weather, and the security and storage of them during the night between event days. The display boards do not have a specific sequence or order; they can be arranged as preferred at the site of the event.

It is intended that the exhibit can travel to different urban placemaking events as they arise. Additional boards may be added at any time, or specific ones chosen for display at certain events. The exhibit is therefore a flexible tool for the City of Tshwane to utilise.

The following pages contain the display boards at one quarter their original size. For the full-size version, use the specs below.

Size:	A0 (841mm x 1149mm), each panel
Medium:	Foam board or PVC sheet mounted to frame
Notes:	Printed full colour; crop to bleed; place on stands.

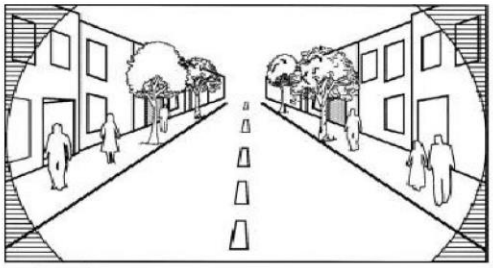
The source files for all content displayed in this section can be downloaded at:

https://drive.google.com/open?id=1oFTrF1UAP8nW21U6sdw5f1KUPXZQZ3AT

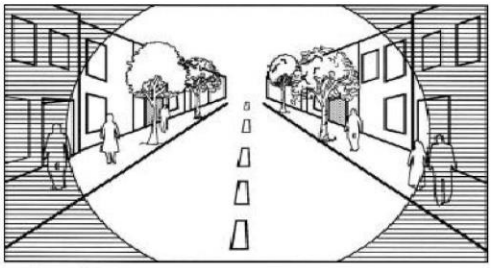
DESIGNING FOR SAFETY

Keeping vehicle speeds low is a crucial element of pedestrian safety. People hit by vehicles travelling at higher speeds have a much higher chance of death than those hit by vehicles travelling at lower speeds. At speeds below 30 km/h, it is much easier for drivers to see their surrounding and detect any potential conflicts with pedestrians, cyclists, or other motor vehicles.

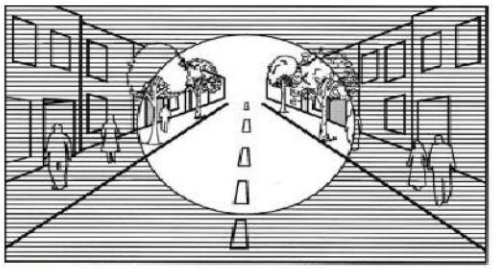
In addition to the risks associated with collisions, high speed also reduces the driver's field of view, thus affecting the driver's ability to respond to changing conditions in the roadway. Slower vehicles also create a feeling of safety for pedestrians. Lower vehicle speeds allow for pedestrians to relax as they journey to their destinations.



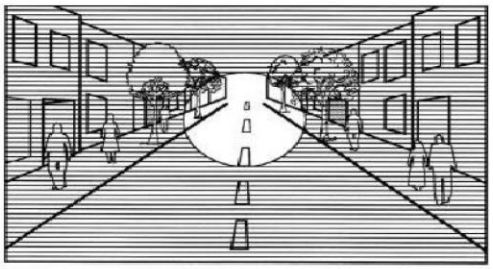
20 km/h



30 km/h

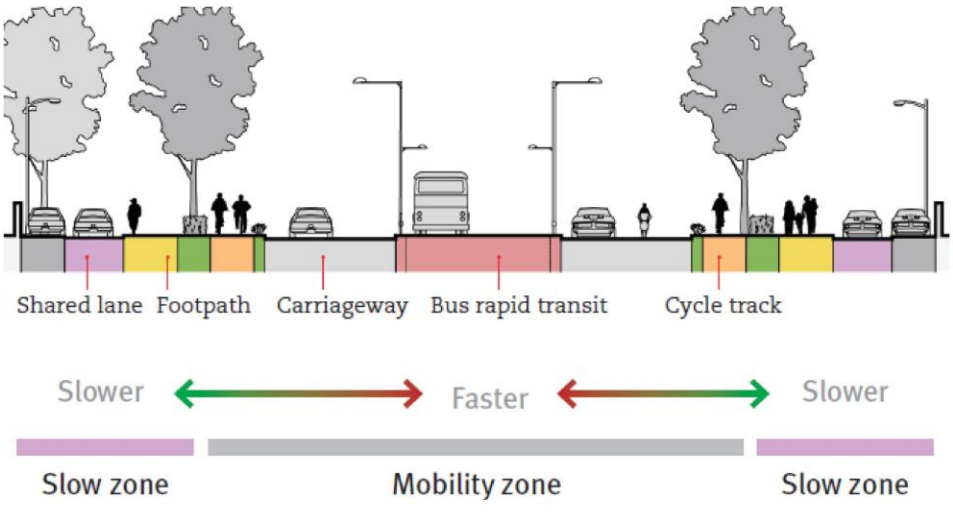


40 km/h



50 km/h

As the speed of a motor vehicle increases, the field of vision narrows, making it harder for the driver to respond to sudden incidents—such as a child running into the street.



Making non-motorised modes of transport viable and convenient requires rebalancing street space so that it caters to all modes of transport. Accommodating pedestrians and cyclists involves two basic techniques:

Systematic traffic calming on smaller streets to provide safe places for the mixing of pedestrians and other modes (e.g., shared lanes).

Pedestrian and cycle infrastructure that is physically separated from motor vehicle traffic on larger streets. Pedestrian footpaths should provide clear space for walking as well as dedicated cycle tracks, separate from the mixed traffic carriageway. Safe crossings should be provided at regular intervals.

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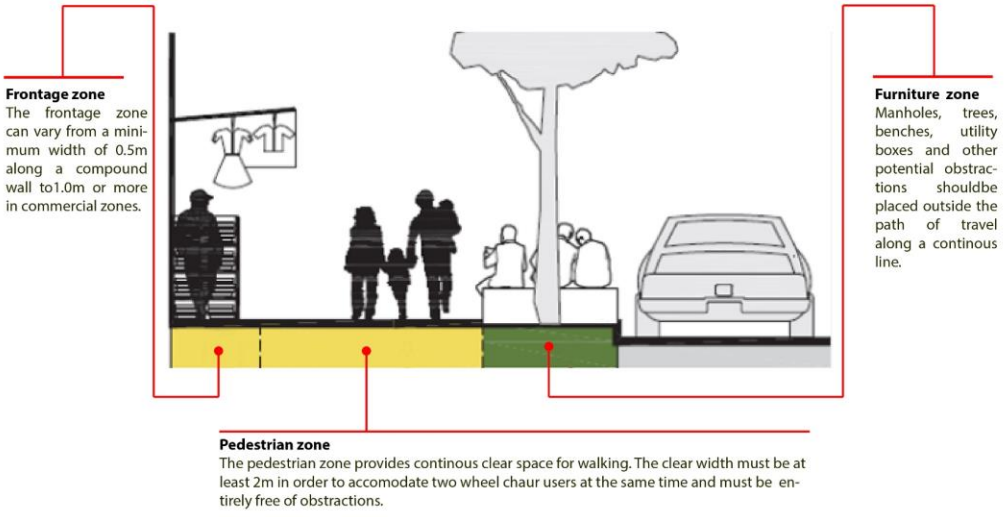
ZONING SYSTEM FOOTPATHS

Comfort, continuity, and safety are the governing criteria for the design and construction of pedestrian facilities. For this reason, the footpaths are divided into three main zones: the frontage zone, the pedestrian zone, and the furniture zone. Each of these zones plays an important role in a well-functioning footpath.

The absence of a pedestrian zone forces people to walk in the carriageway. Light poles, trees, and other elements should be placed in the furniture zone.

Footpaths designed per the zoning system provide uninterrupted walking space for pedestrians. The pedestrian zone should have at least 2 m of clear space.



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MID BLOCK PEDESTRIAN CROSSINGS

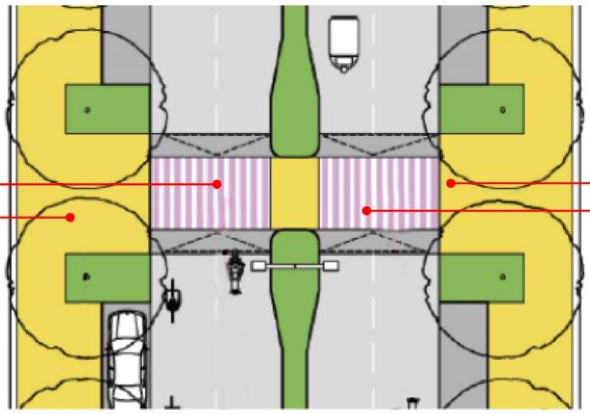
A formal pedestrian crossing should be located wherever there is a concentrated need for people to cross the street (e.g., at a bus stop, at an entrance to a shopping mall, or where a path intersects the street).

In dense areas, the crossings can be spaced at regular intervals (i.e., 50-100 m). To ensure safety, formal crossings should be signalised or should be constructed as tabletop crossings with ramps for vehicles.

The purpose of a tabletop crossing is to reduce vehicle speeds and also emphasise the presence of the pedestrian crossing.

Warning tiles should be laid wherever there is a pedestrian crossing. Raised crossings compel vehicles to reduce their speed, thereby increasing pedestrian safety.

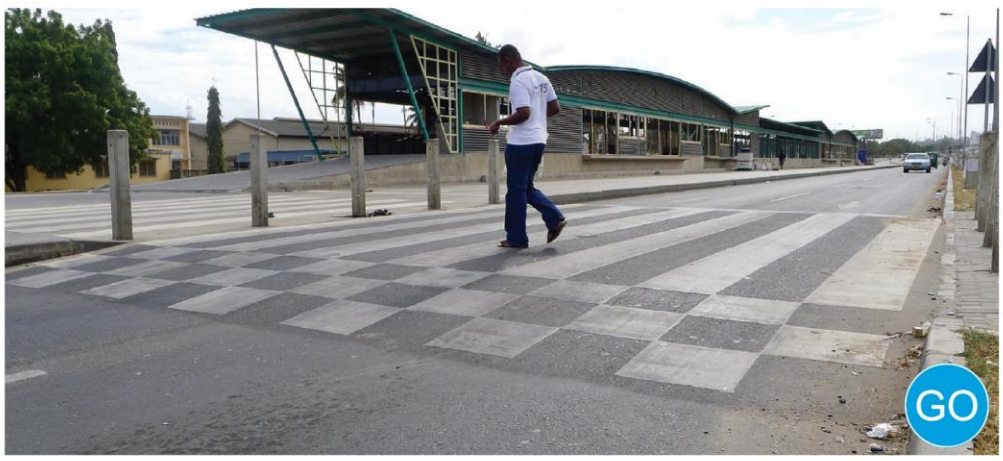
Width. Crossing should be as wide as the adjacent footpath and never narrower than 3m.



Accessibility. Warning tiles should be placed at the edge of the footpath to warn those with visual impairments about the carriageway.

Crossing Distance. Pedestrians must be given the shortest possible direct route to cross the street. The bulbout into the parking lane helps reduce the crossing distance.

Height. Crosswalks should be elevated to or just below the level of the adjacent footpath (at least 100 mm above the road surface) with ramps for motor vehicles with a slope of 1:10.



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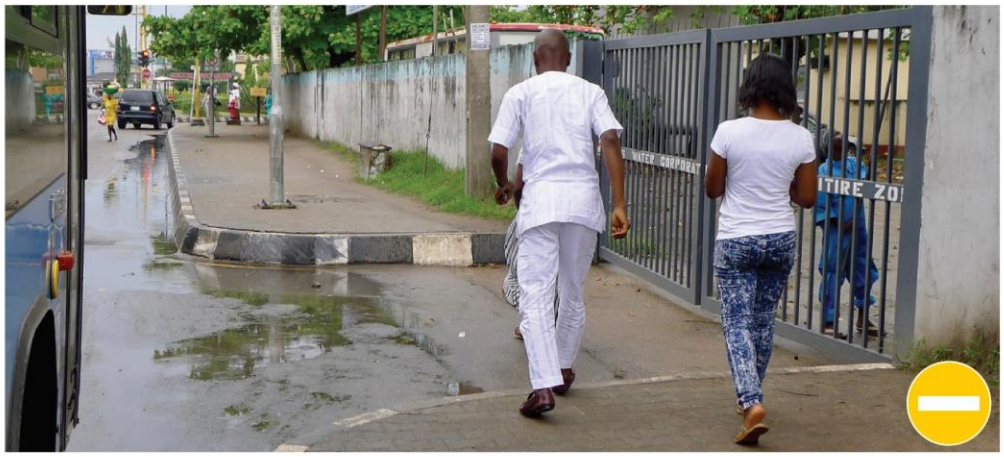
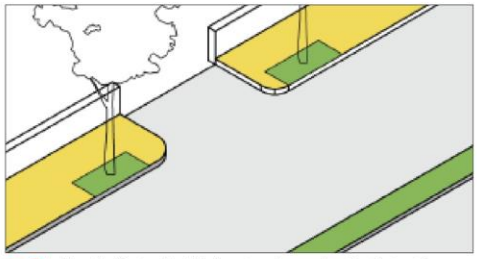
PROPERTY ENTRANCES

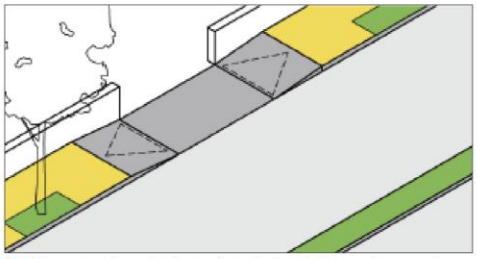
Steps or steep ramps at property entrances make footpaths difficult to use, and driveways that are not elevated to the level of the footpath become waterlogged.

Footpaths that maintain a constant level through property entrances are convenient for pedestrians to use. Vehicles use a ramp, helping to reduce speeds

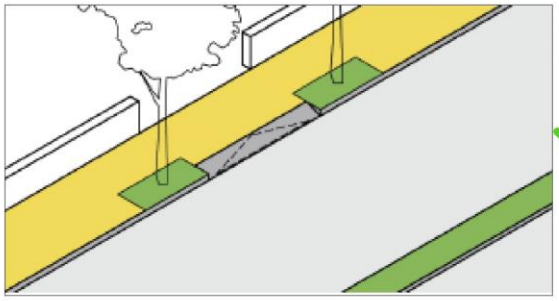




✗ Ending the footpath with abrupt curbs renders the footpath inaccessible for many pedestrians.



✗ Lowering the entire footpath to the level of the carriageway is unaccptable as property entrancesmay become waterlogged.



✓ Where required to provide the access to private properties, vehicle ramps should be provided in the furniture zone.

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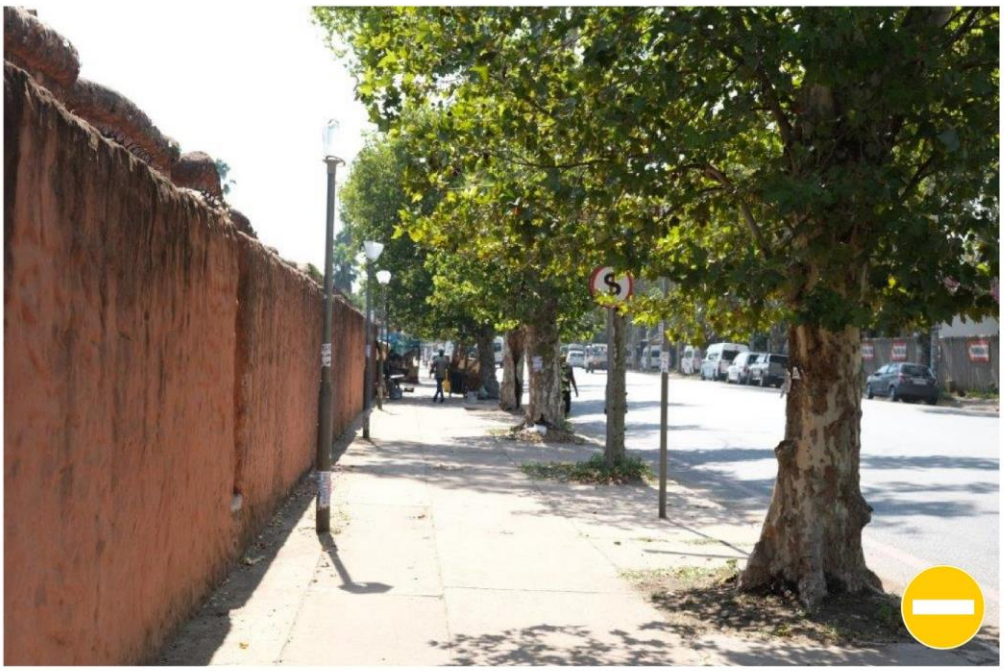
BUILDING DESIGNS ACTIVE FRONTAGES

Streets lined with compound walls, security gates, and large setbacks have little interaction between people inside buildings and people walking on the street.

Buildings with activities on the ground floor that directly face and engage people walking on the street contribute to a safe, vibrant walking environment.



Development control regulations should demand buildings with active frontages built out to the lot line

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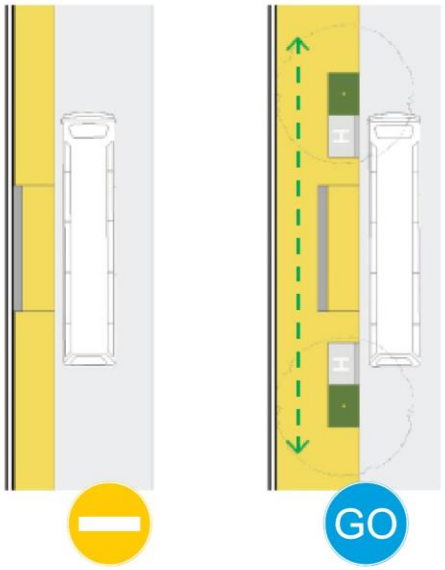
BUS STOPS

Lack of a dedicated bus stop can prevent people from conveniently using public transport. Well-designed bus stops offer a comfortable, weather-protected waiting area for public transport passengers while leaving clear space for pedestrian movement behind the shelter. Bus bays are only necessary where there is high-speed and high-volume traffic.

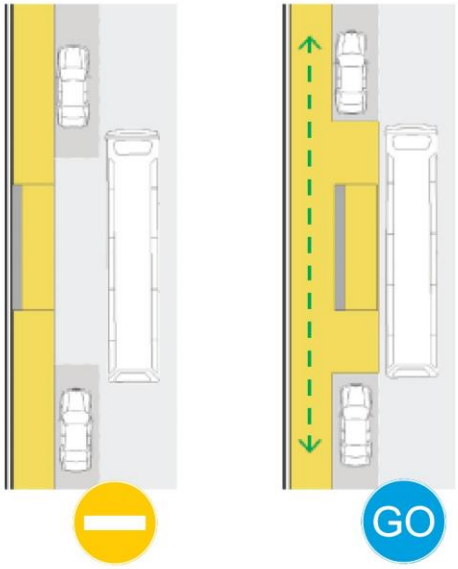
Streets without on-street parking



In places where the bus stop interferes with the movement of pedestrians, the footpath should be redesigned to avoid conflict.

Where a larger width is available, the bus stop should be placed in the furniture zone, leaving atleast 2.0 m of clear width on the footpath.

Streets with on-street parking



If there is a parking lane between the footpath and the carriageway, the bus stop must be placed on a bulbout in the parking lane, giving passangers direct access to the bus and pedestrians a clear width of at least 2.0 m on the footpath.

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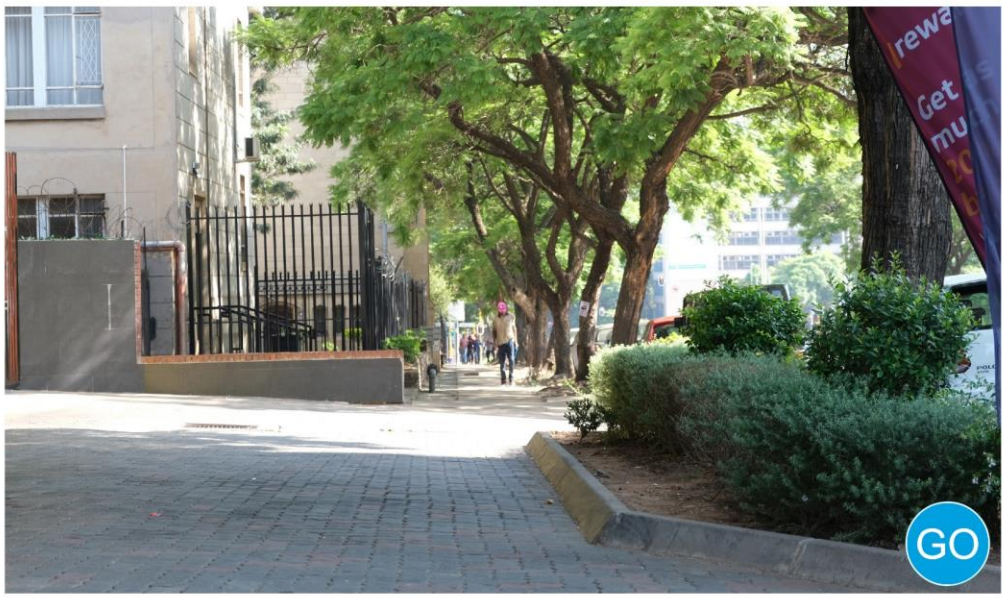
SHADE AND LANDSCAPING

Continuous shade from street trees reduces the street temperature, making it comfortable for people to walk, cycle, or gather for social activities, even during summer afternoons. This is especially important in cities with a humid climate or harsh daytime sun.

Landscaping improves the liveability of streets. It plays a functional role in providing shade to pedestrians, cyclists, vendors, and public transport passengers. It also enhances the aesthetic qualities of streets.



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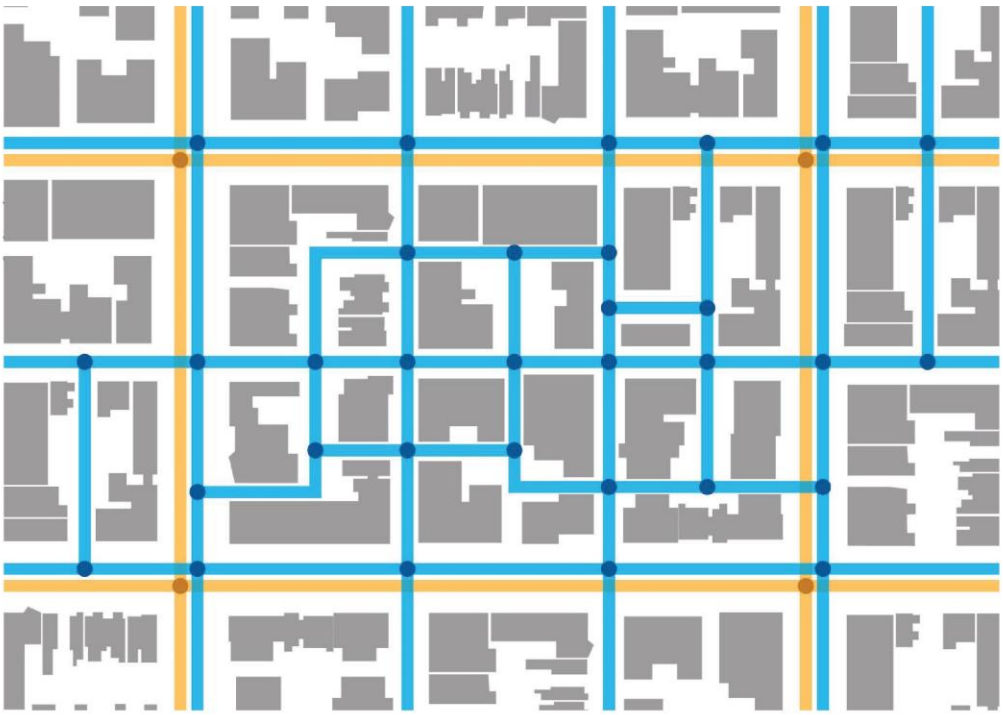
STREET NETWORK

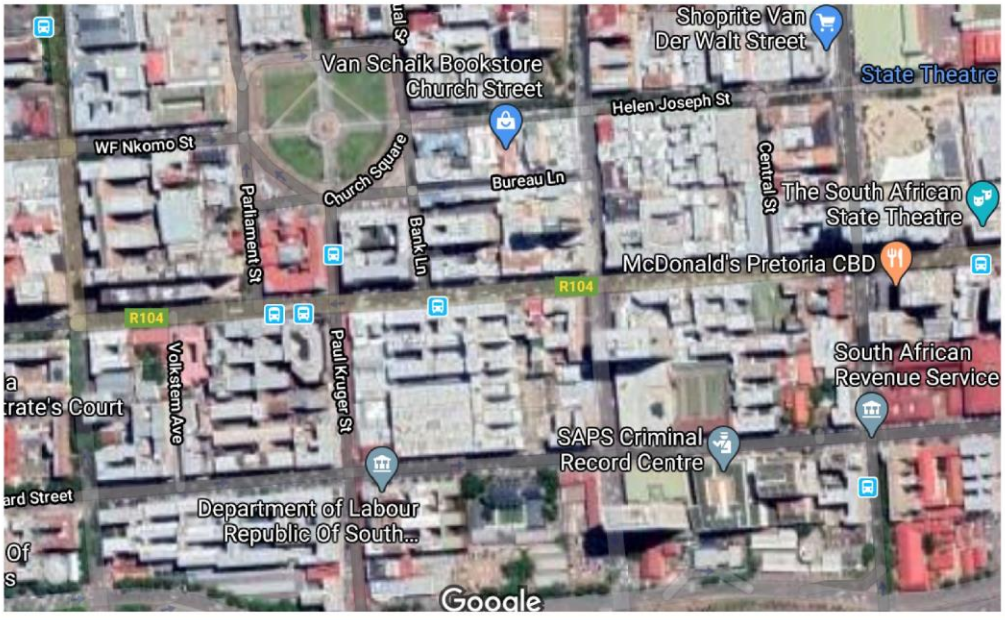
Interconnected walking and cycling networks with short block lengths allow for short and direct routes through neighbourhoods. In general, blocks should be no larger than 100 m on a side. Such networks offer multiple routes to various destinations and make it convenient to walk and cycle to complete one's daily commute and other errands. Frequent intersections contribute to slower vehicles speeds and greater pedestrian safety.

In areas where large blocks exist, redevelopment provides an opportunity to correct past mistakes. Large blocks can be broken up to create a finer grained pedestrian grid. Prioritised connectivity creates finer grained networks for walking, including pedestrian-only streets. A fine-grained network of streets improves access for pedestrians and cyclists.



The absence of a pedestrian zone forces people to walk in the carriageway. Light poles, trees, and other elements should be placed in the furniture zone.

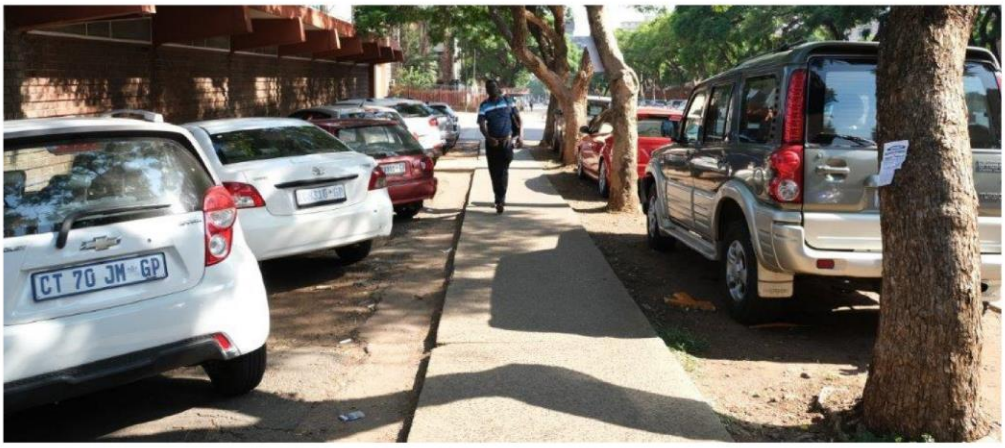
The orange lines indicate streets with vehicle access



ON-STREET PARKING

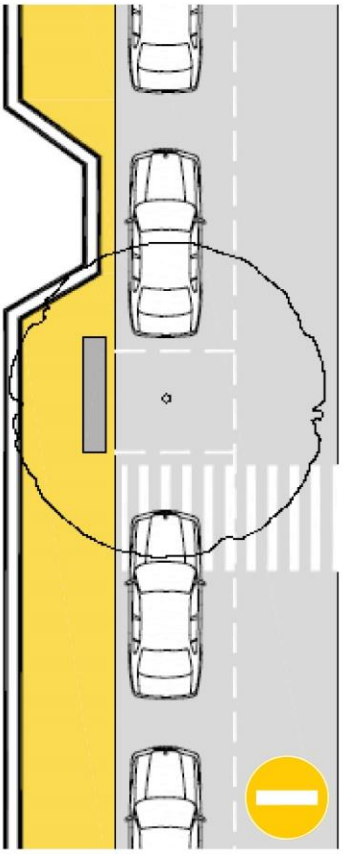
Valuable street space should be used for wider walkways, trees, cycle tracks, cycle parking, vending, and social gathering space rather than parking. On-street parking may be allowed on streets where all the other requirements for public transport and non-motorised travel have been met.

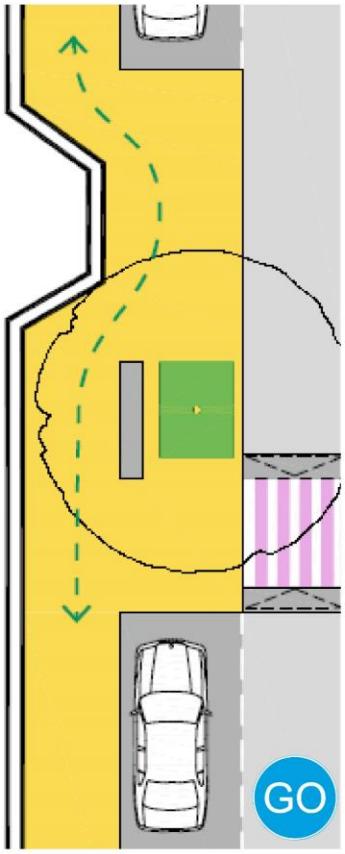
Angular and perpendicular parking occupy a large portion of the right-of-way. Exiting the parking bay can be dangerous because drivers have limited visibility.



Instead, Parallel parking for cars is preferred over angular or perpendicular parking because it saves space and is safer while exiting the parking bay. Parallel parking also doubles as perpendicular parking for cycles and two wheelers.

Parking bays should be avoided at intersections, bus stops, mid-block crossings, or locations with unavoidable changes in the right of way that would compromise the width of the footpath. At crossings, the footpath should be extended through a bulbout in the parking lane.





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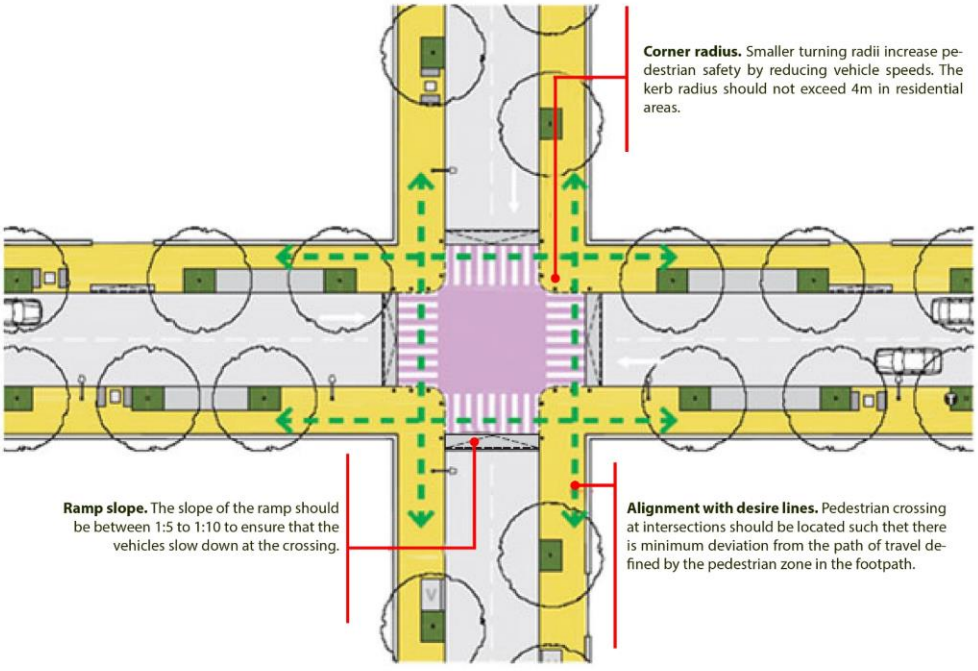
PEDESTRIAN CROSSING

Intersection design should manage conflict in a way that enhances safety for pedestrians. The preferred design is to raise the intersection to the level of the footpath. Vehicles slow down when crossing over the ramp, and a material difference emphasises that they are entering a shared space. Ramps should be provided at all intersections that are not signalised to ensure that pedestrians can cross safely. Where raised crossings are not provided (i.e., at intersections that are signalised), the footpath should be ramped down to the level of the carriageway. The ramp should not be steeper than 1:12.

Refuge islands offer a safe place for pedestrians to wait for a green signal and reduce the crossing distance. The placement of crossings should reflect pedestrian desire lines.

An intersection should be sized to minimize crossing distances for pedestrians and cyclists while accommodating left turns of a design vehicle (e.g., a 12 m bus).



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LAND USE

A mix of complementary land uses such as residences, workplaces, and shopsreduces trip distances, thereby making it possible to complete trips by foot or bicycle. Different uses have different peak hours so a variety of activities keeps local streets active at various times of the day. This is vital in ensuring personal safety.

Single-use developments limit pedestrian activity and increase the distances that people need to travel to reach shops and places of employment.

A mix of land uses contributes to an active walking and cycling environment at all times of the day.

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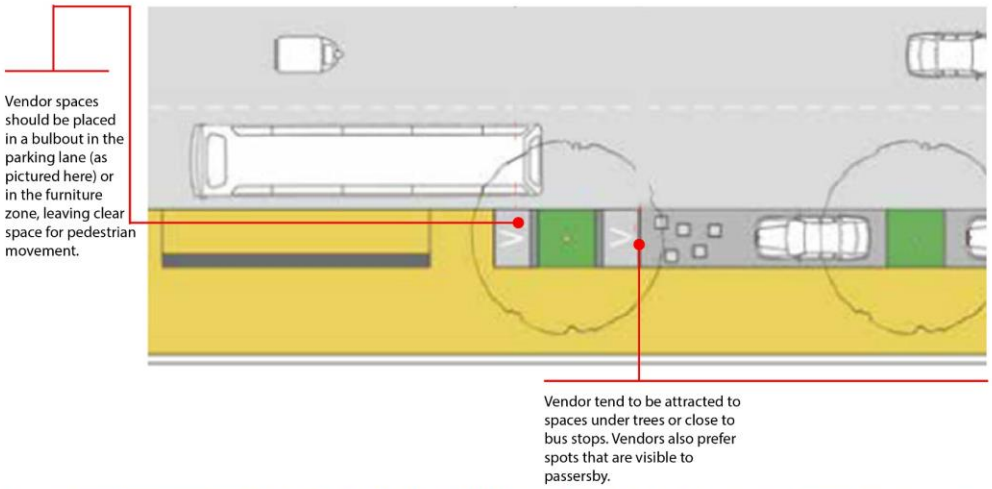
STREET VENDING

Street vending provides essential goods and services to a wide range of population groups. It also makes public space safer by contributing “eyes on the street,” particularly on streets lined with compound walls. If designed properly, vending can be accommodated in the streetscape without interfering with other uses.

If streets do not provide designated zones for vending, these activities can become obstructions, forcing pedestrians to walk in the carriageway.



Footpaths should be designed such that there is sufficient space for vending outside of the pedestrian zone.

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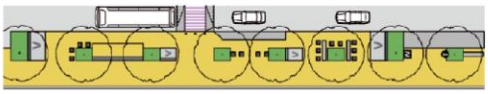
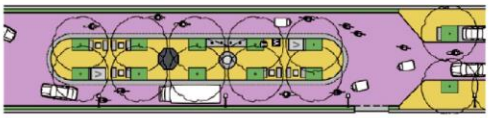
STREET FURNITURE

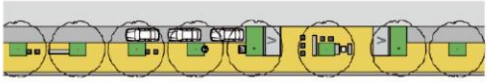
Street furniture provides people places to sit, rest, and interact with each other. Street furniture also includes services-related infrastructure, such as trash cans, street vending, toilets, and signage. Vending stands, tables, roofs, and water taps can support the formalization of street vending and promote better sanitary conditions. Finally, other street furniture, such as way-finding signs and bus stops, provides information.



A parking or service lane discontinued in the vicinity of a bus stop provides space for street vending and furniture.



On a shared street, furniture can be placed on island that double as traffic calming elements



Bulb-outs in a parking lane can accomodate street furniture and amenities without compromising pedestrian mobility

On narrower path, furniture and amenities should be provided sparingly and in the tree line to main

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PUBLIC TRANSPORT

Public transport can move large numbers of people quickly and efficiently in urban areas. An effective public transport network should offer dedicated right-of-way services such as bus rapid transit (BRT) on high-demand corridors combined with a widespread network of local routes providing service across the metropolitan area. It is essential that street designs incorporate provision for public transport in order to avoid the need for costly retrofits.

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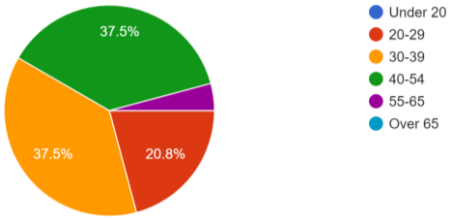
8.5. Online Survey Results in Full

The online survey received 25 responses; 11 self-identified as experts in urban planning, urban design, transportation or related fields; 9 self-identified as working for municipal, provincial or national government but not as experts in any of the fields mentioned above; 5 self-identified as neither of the above. The sample sizes are not large enough to draw reliable conclusions; nevertheless, the full results (and full stream of questions for each participant group) are given below. Comments are presented un-edited. All users agreed to participate in the survey. For interpretation of the results, see section 6.3.

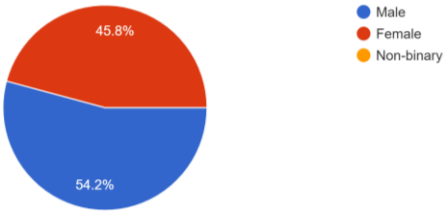
Intro Section (All Participants)

Tell us about yourself

How old are you?



You are:

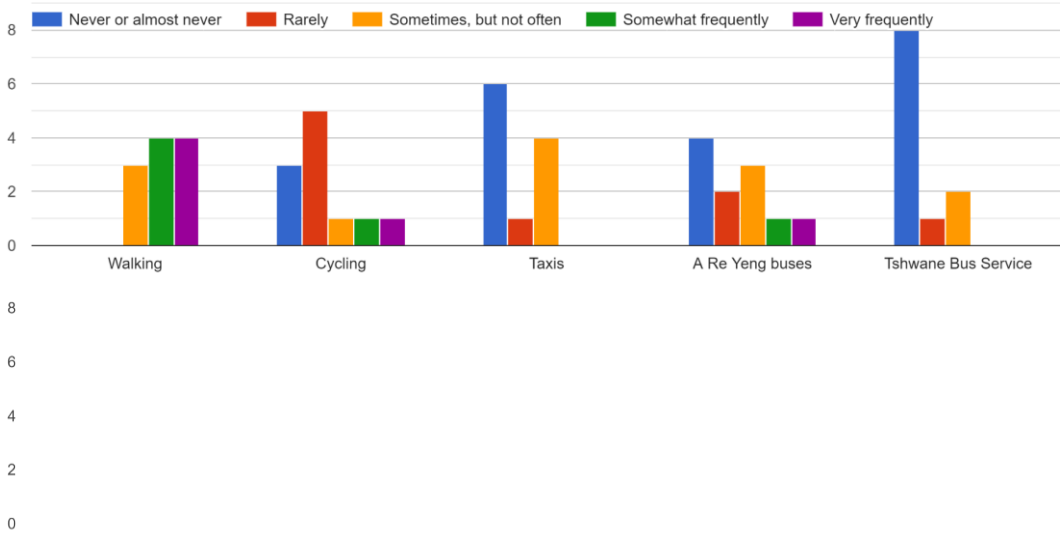


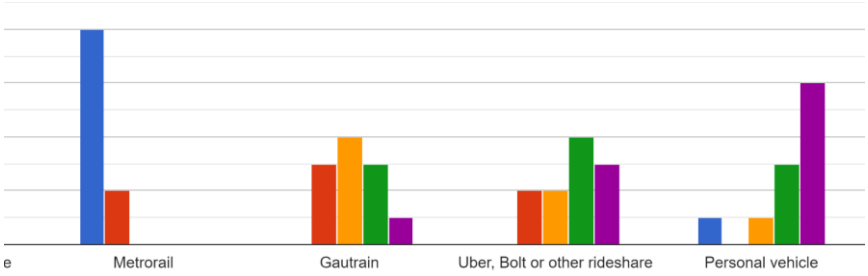
Which of the following best describes you?

Experts in Urban Planning, Urban Design, Transportation or Related Fields

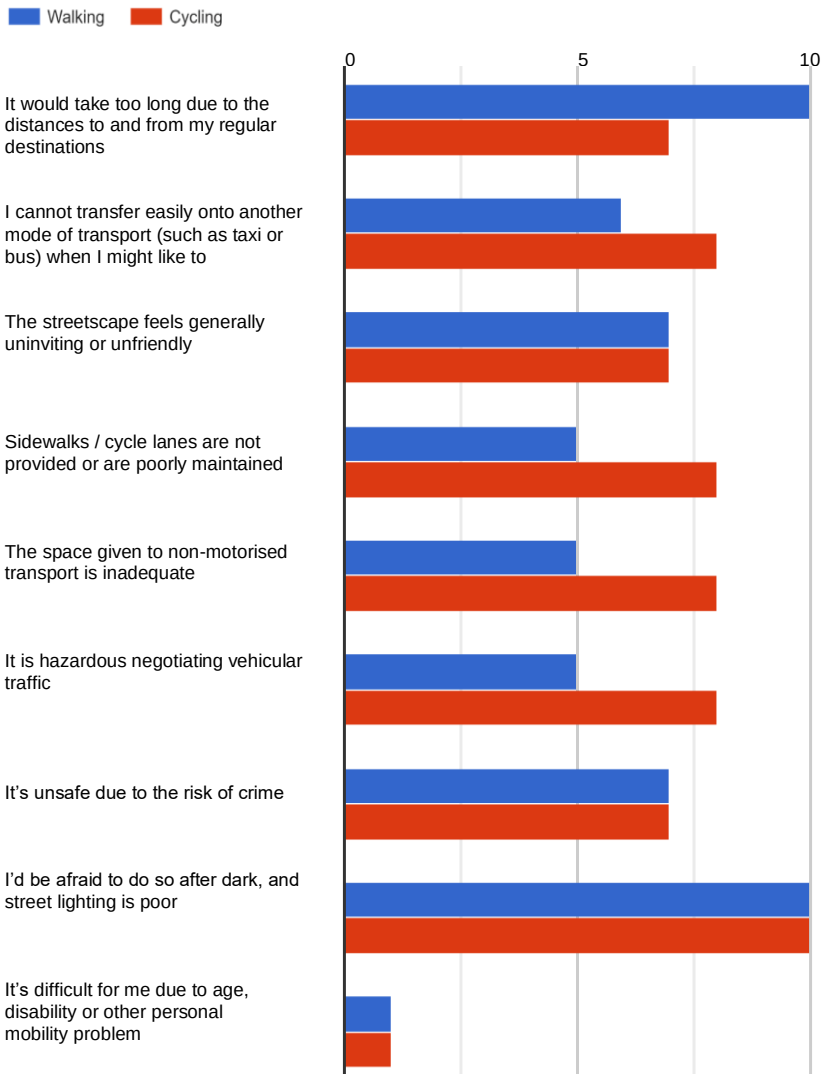
How you get around

How often do you use each form of transportation?

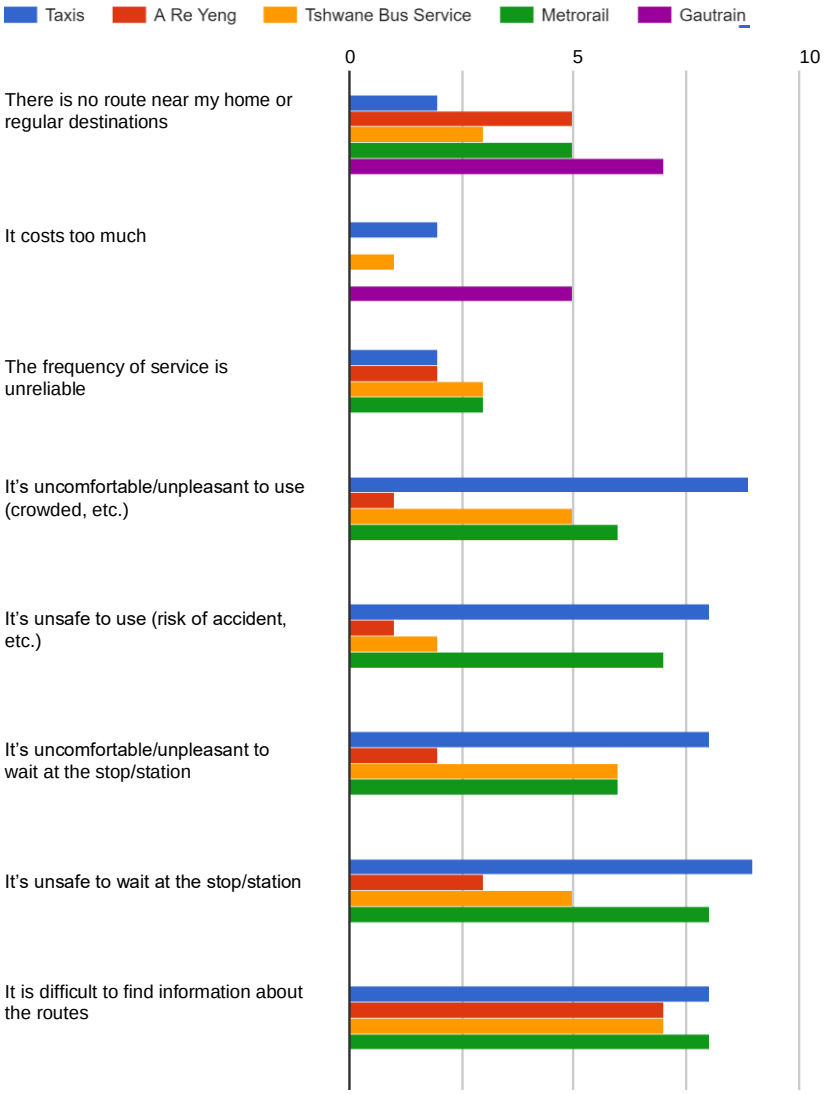




Regardless of how often you use non-motorised transport, what are the reasons preventing you from using each mode more frequently? Tick all that apply:

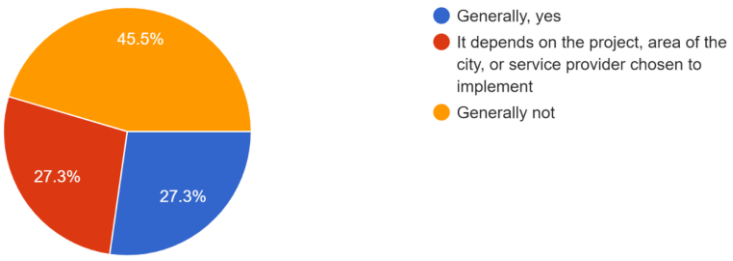


Regardless of how often you use public transport, what are the reasons preventing you from using each mode more frequently? Tick all that apply:

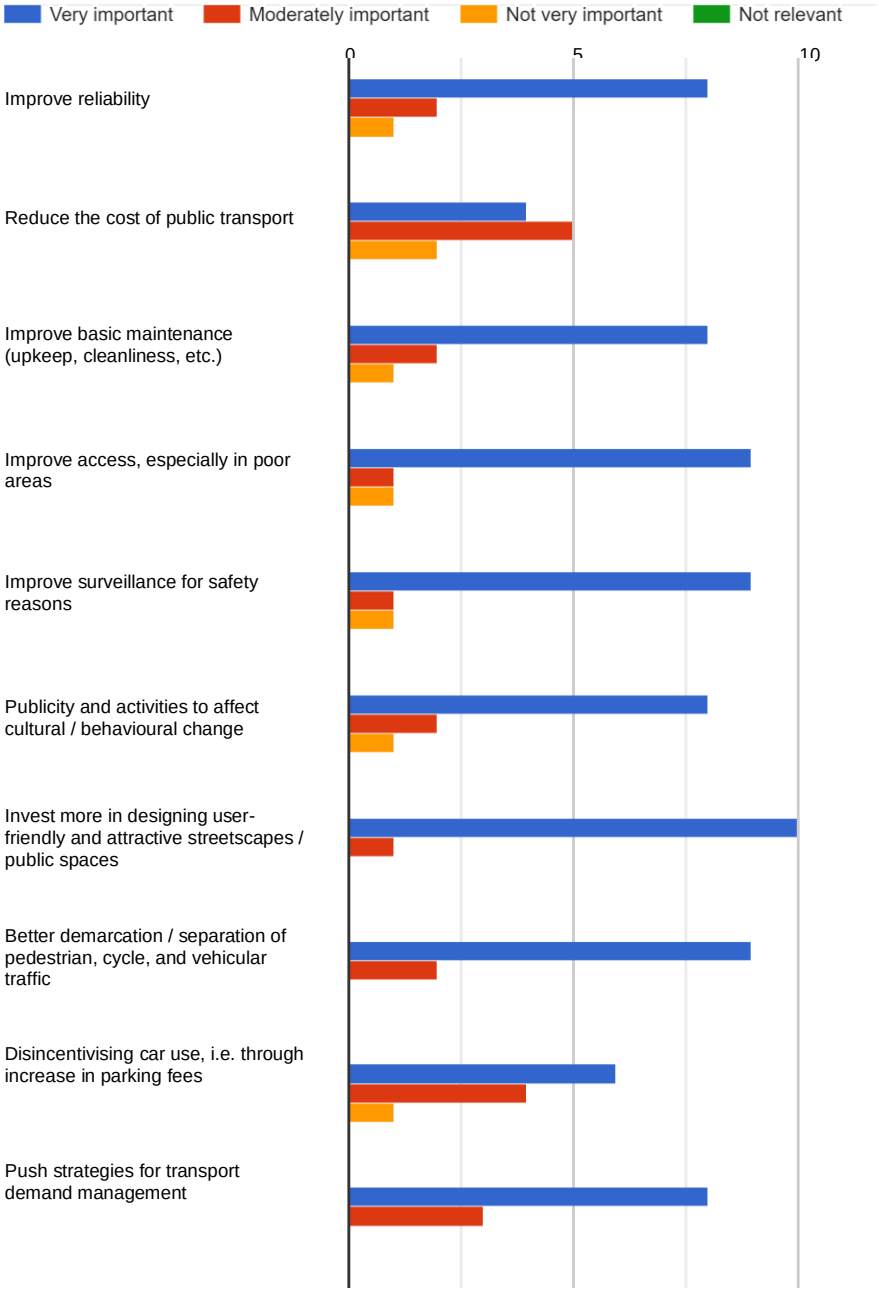


Planning & design for sustainable mobility & NMT

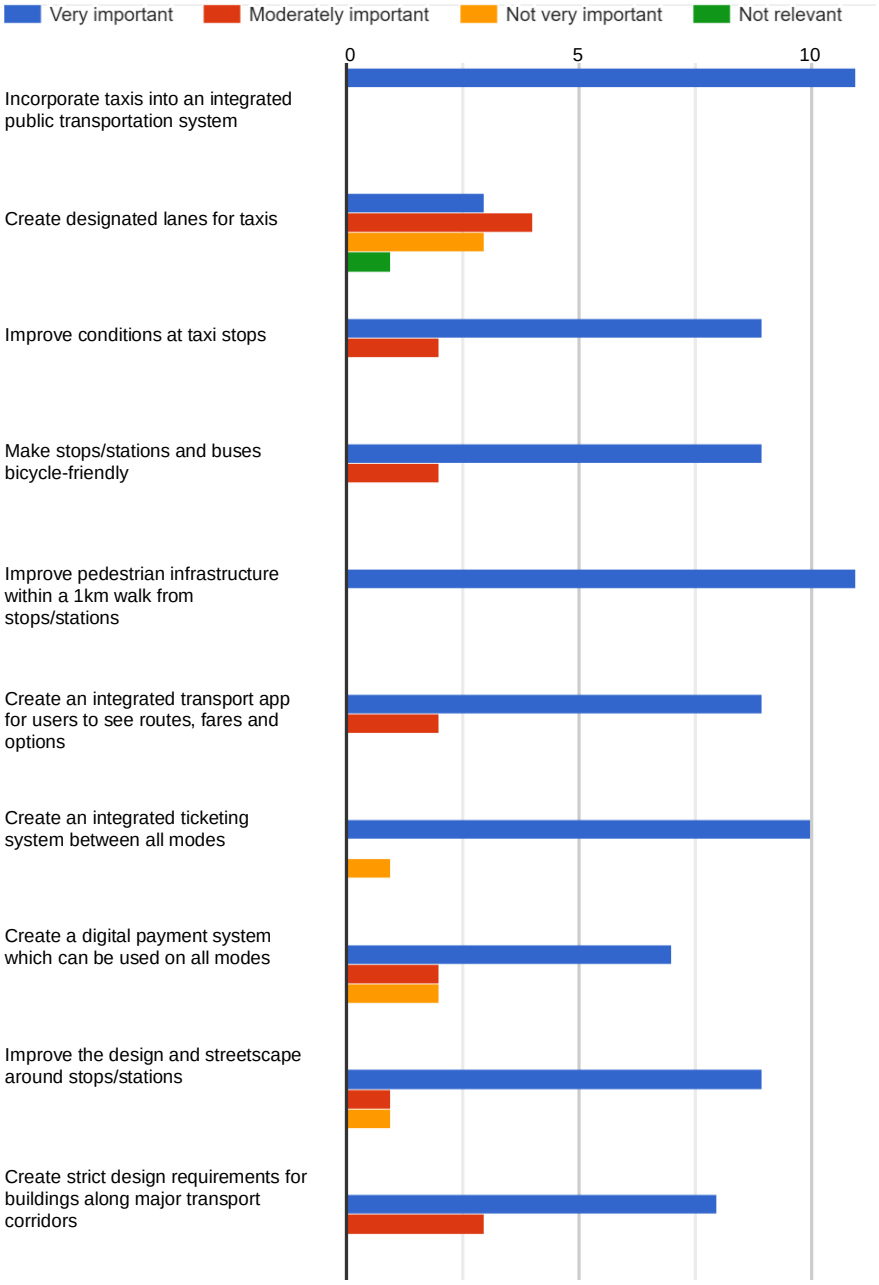
Do you feel adequate attention is paid to the design and implementation of facilities/amenities which promote NMT or public transport use?



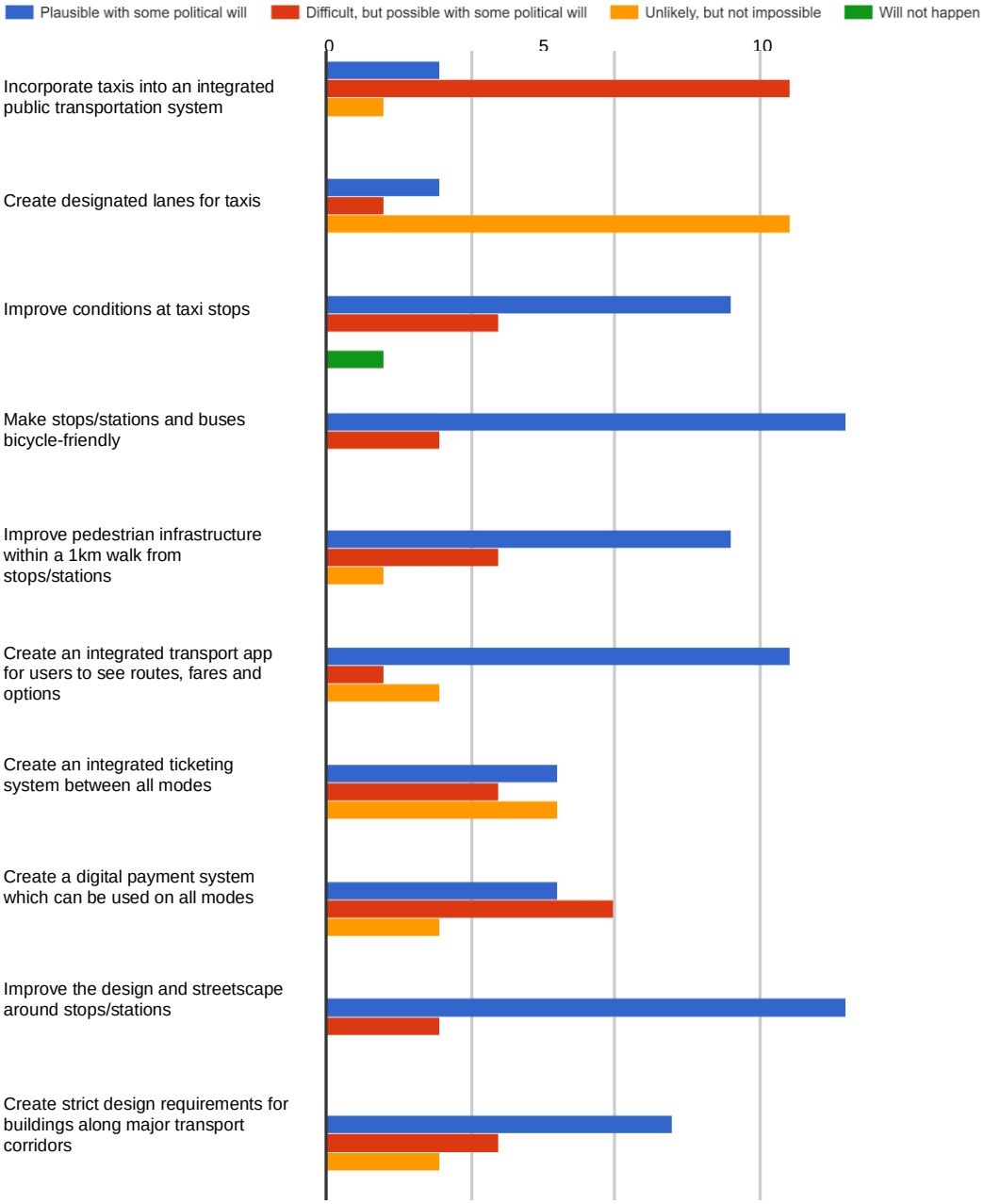
Below are some strategies to encourage use of NMT, public transport and public spaces. Please rank how important you think each one is for Tshwane



In an ideal scenario, how important would each of the strategies below be to promote intermodality of transport systems?

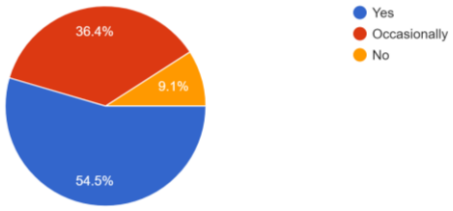


Realistically, how plausible is each of these strategies?

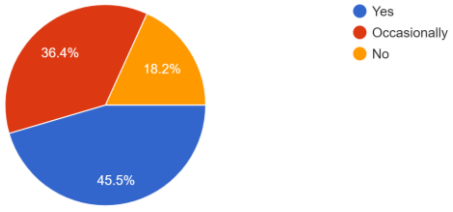


Governance & coordination

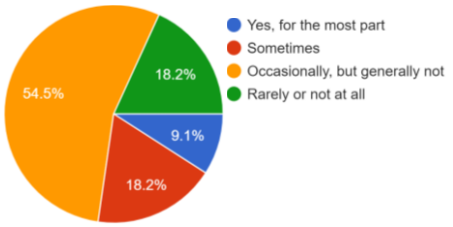
Do you regularly work with municipal officials in departments other than yours?



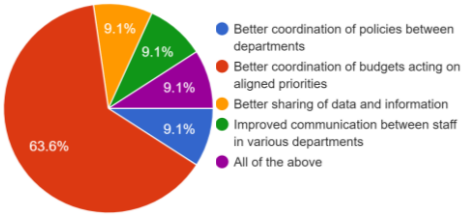
Do you regularly work with government officials at a level of government different than yours (e.g. municipal, provincial, national)



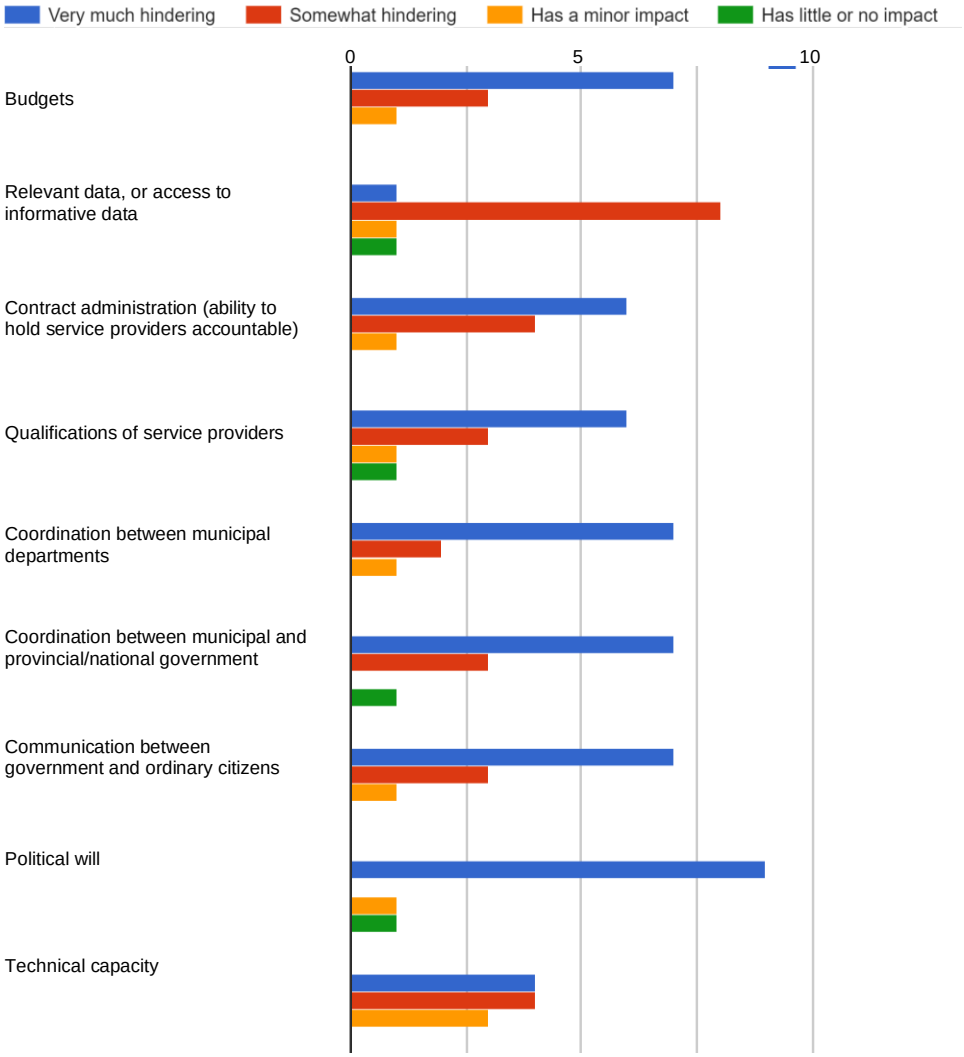
Do you think that government policies, plans and projects related to NMT and public transport are well integrated across all entities involved?



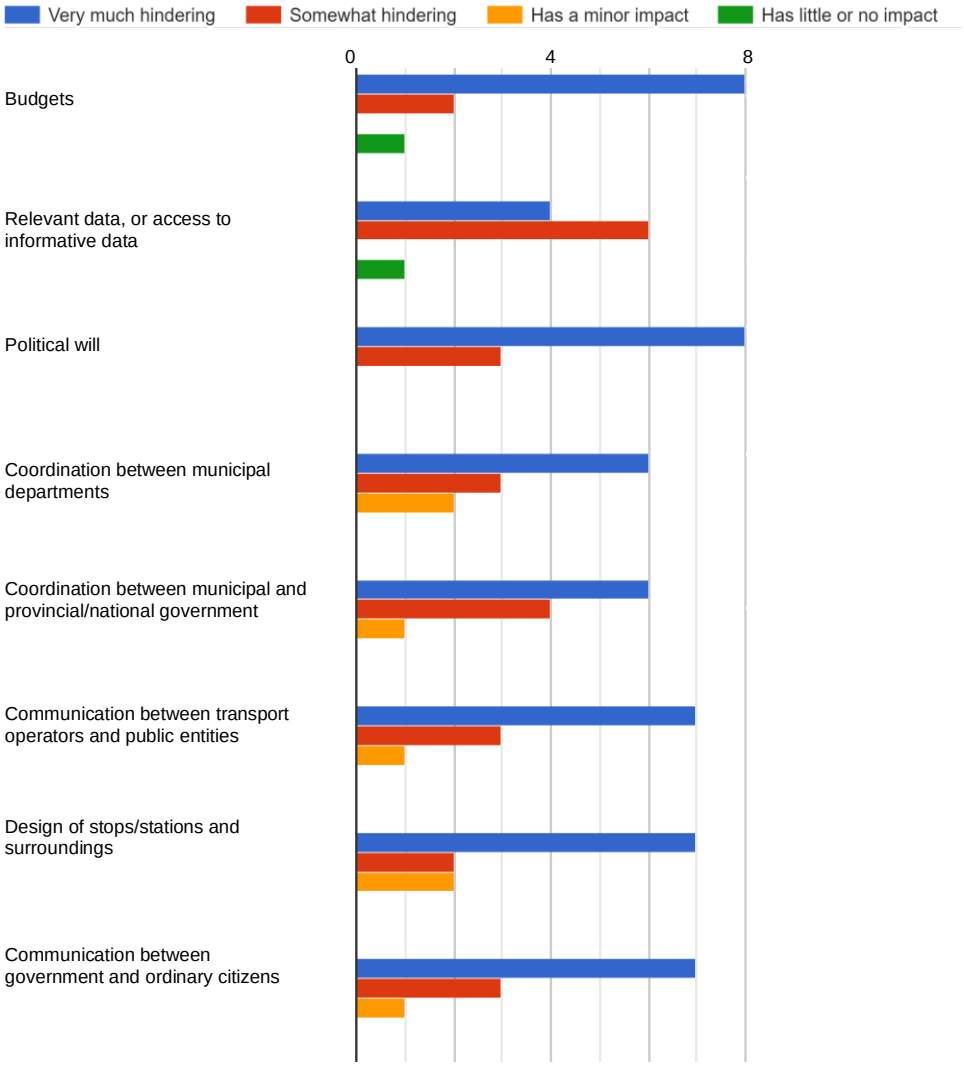
Which of the below would be the most important to improve integration between government entities on policies, plans and projects related to NMT and public transport? Choose one:



How much do you think each of the following is hindering the implementation of non-motorised transport strategies in Tshwane?

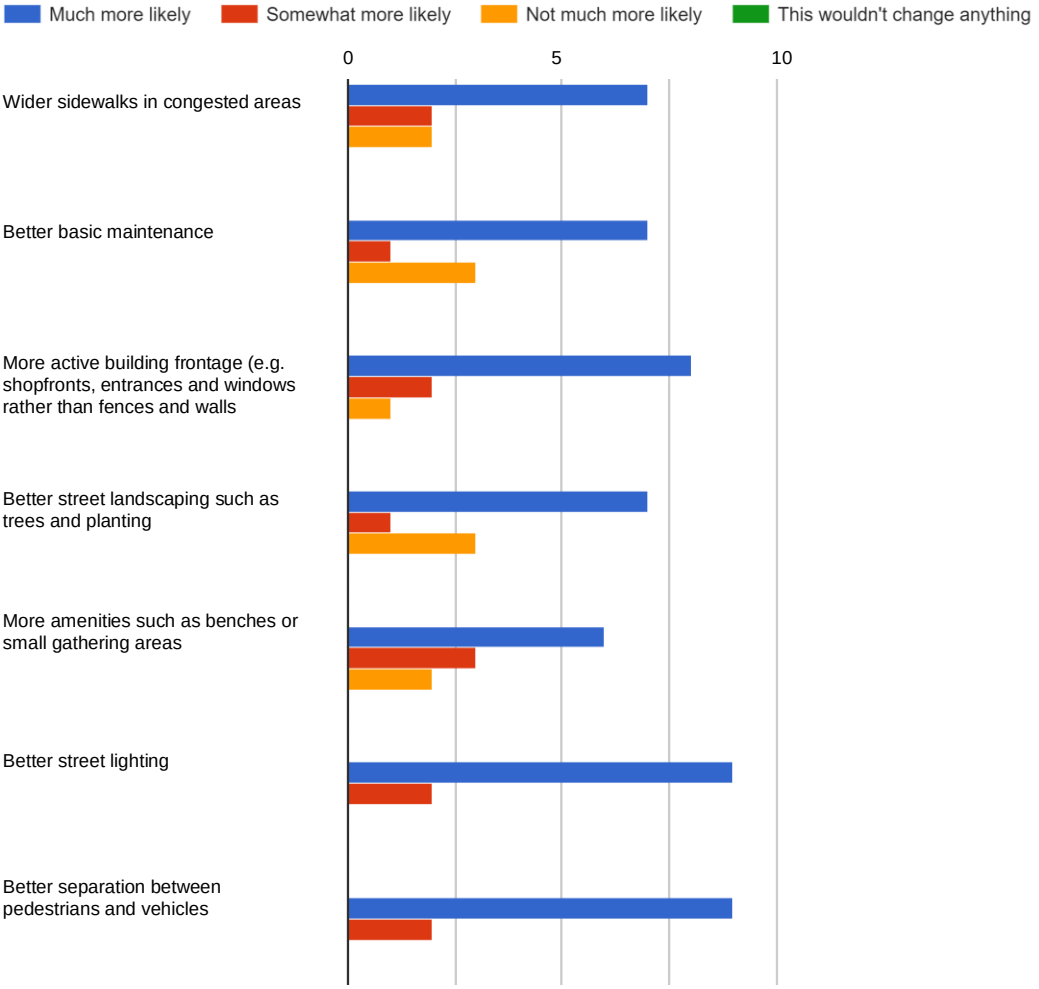


How much do you think each of the following is hindering the implementation of public transportation strategies in Tshwane?



What would you change?

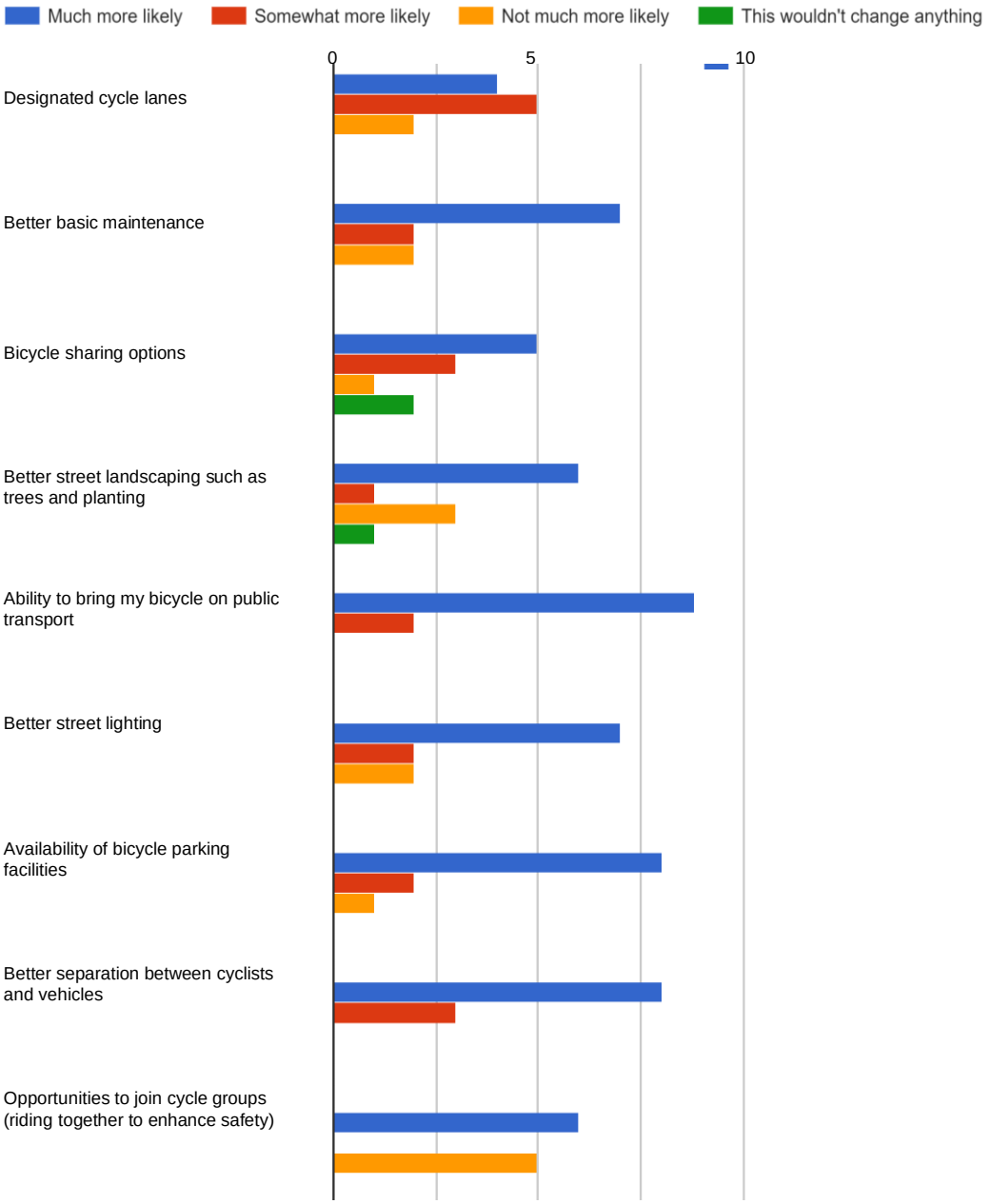
How much more likely would you be to walk more often in the city if each of the following were offered?



If you could do one thing to improve walkability in Tshwane, what would it be?

- Replace yellow light street bulbs with white light bulbs.
- Creation of 'safe-routes' where strategic routes are patrolled by safety ambassadors.
- wider NMT facilities with better street land scaping and more amenities
- Safe and shorter walking distance to public transport
- Safety
- Behavioural Change activities and Public Opinion Campaign
- Improve safety
- Stop designing polices, start implementing projects
- Widen and maintain the sidewalks

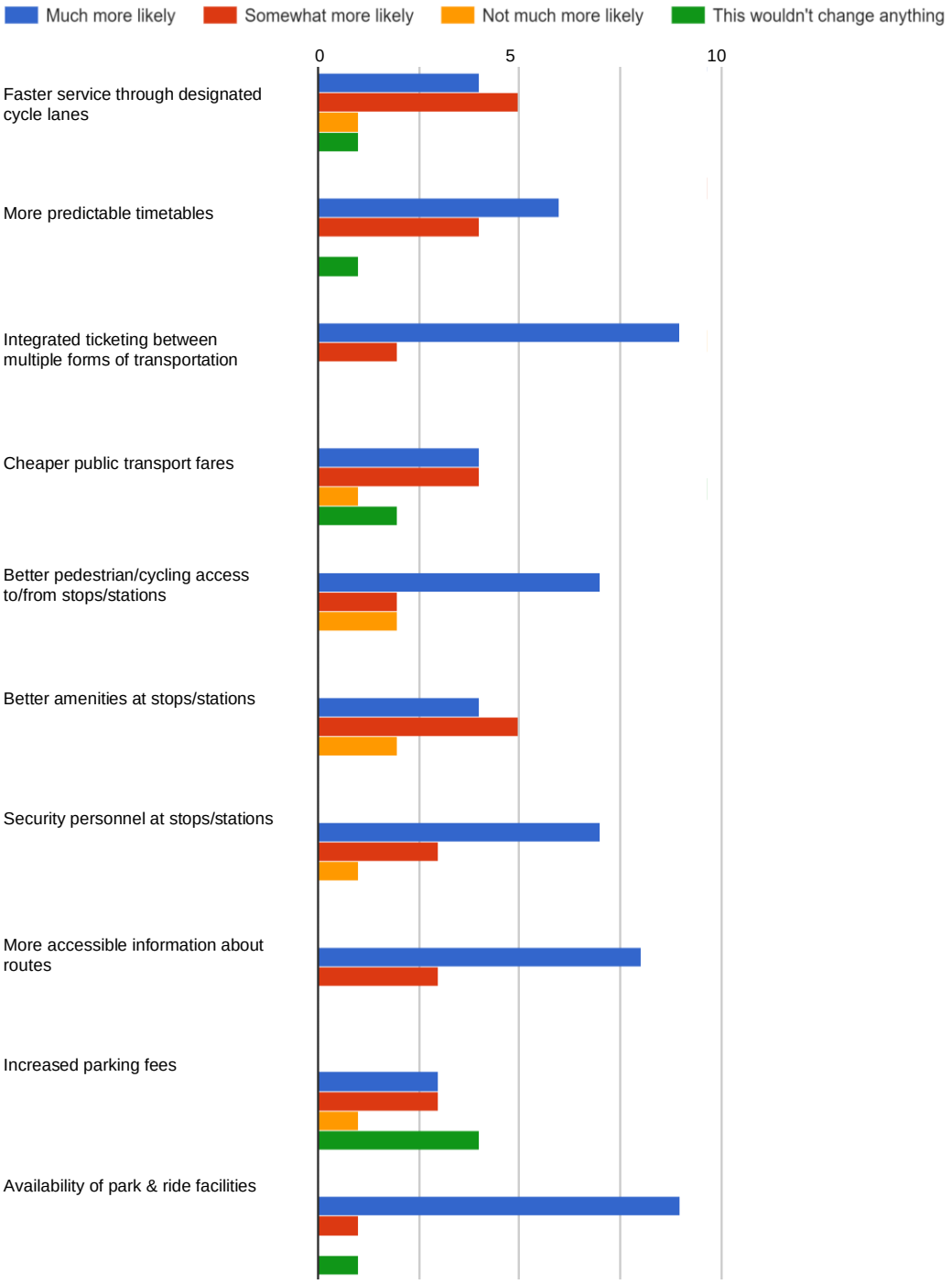
How much more likely would you be to cycle more often in the city if each of the following were offered?



If you could do one thing to promote cycling in Tshwane, what would it be?

- dedicated bicycle lanes which deviate from motor vehicle routes for more diverse travel experience.
- Wide, multi-use sidewalks with zones that are cleared from municipal services (meters, electrical boxes, OUTDOOR ADVERTISING etc) and a robust surface (to prevent substantial lifting and breaking). Integration of bicycles with BRT. Bicycle storage facilities.
- wider NMT facilities with more amenities and street land scaping
- A safe intergraded network from my house to the city centre. Approximately 20 km.
- Safety
- promote intermodality with bikes, by defining a well designed and efficient bike lanes network and giving the possibility to users to take their bike onto major public transport services (Gautrain, Ya Reng, Metrorail, etc)
- Properly separate bike lanes: COMPLETELY block cars but let bicycles escape in case of being attacked (intermittent tall barriers with gaps smaller than the width of a car)
- Safety and street design.
- Make public transport bike-friendly

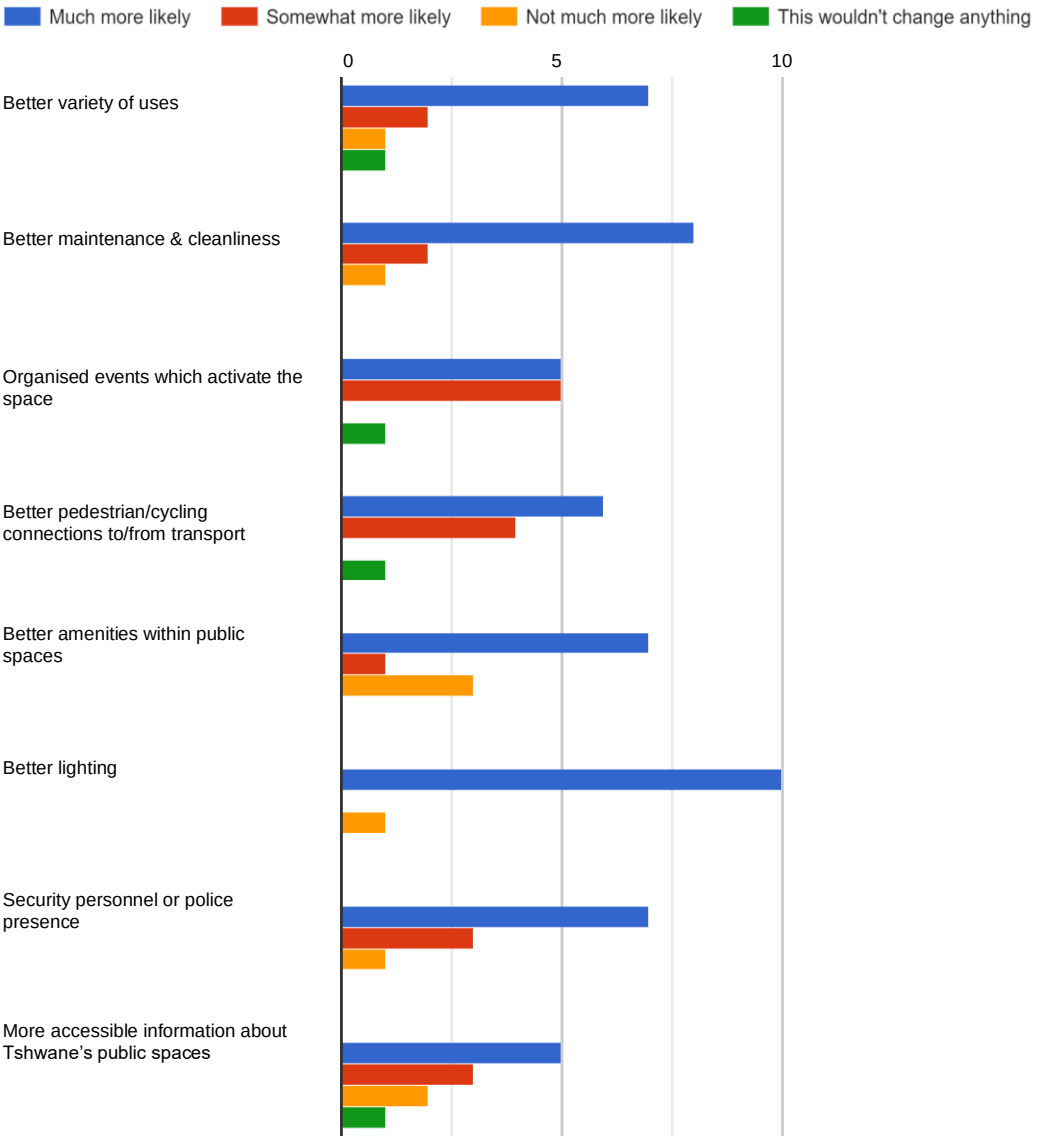
How much more likely would you be to use public transportation if each of the following were offered?



If you could do one thing to improve public transportation use in Tshwane, what would it be?

- Have taxi associations appealing to the entire community rather than select demographics.
- Integrated ticketing, online payment system and live-feed on bus schedules, delays etc.
- Integrated public and non motorised transport also ticketing
- Improve interconnectivity between walking / cycling and public transport.
- Greater network and linked services
- Promote intermodality and unified ticketing system
- Better integrate it (also with NMT)
- Informational material: coordinated route maps

How much more likely would you be to use public spaces such as parks, squares or pedestrian streets if each of the following were offered?



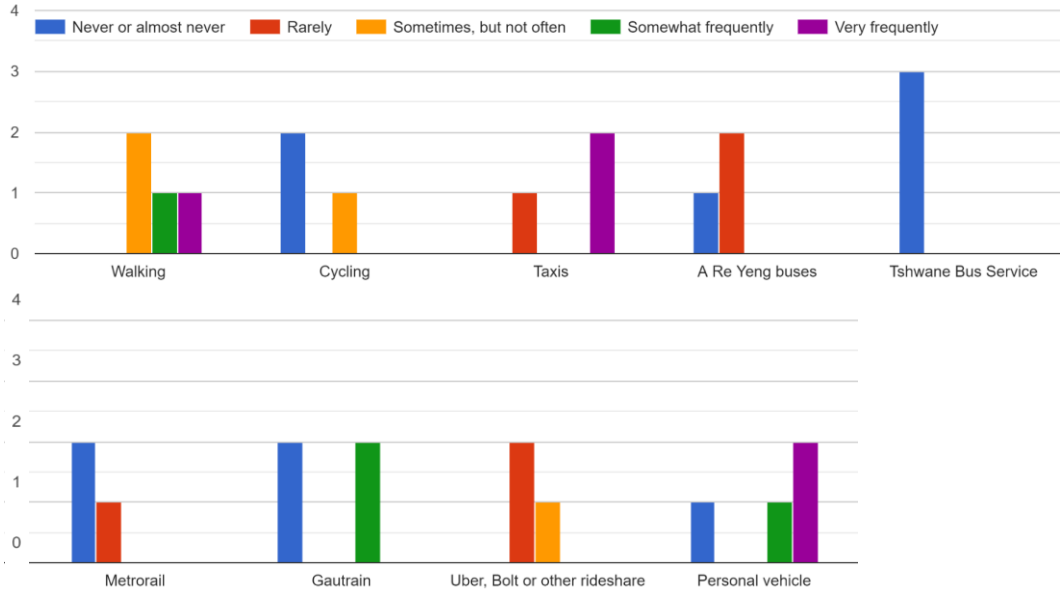
If you could do one thing to encourage the use of public spaces in Tshwane, what would it be?

- Incorporate music to draw in users.
- SAFE & CLEAN, the rest will follow.
- transform parking into public spaces also parks
- The public space should be visible and have a nice sense of belonging.
- Safety
- Regularly organize socio-cultural activities in various public spaces across the city centre
- Make it safe and easy to get there
- Safety and design
- Clean up the rubbish

Non-expert Government Employees

How you get around

How often do you use each form of transportation?



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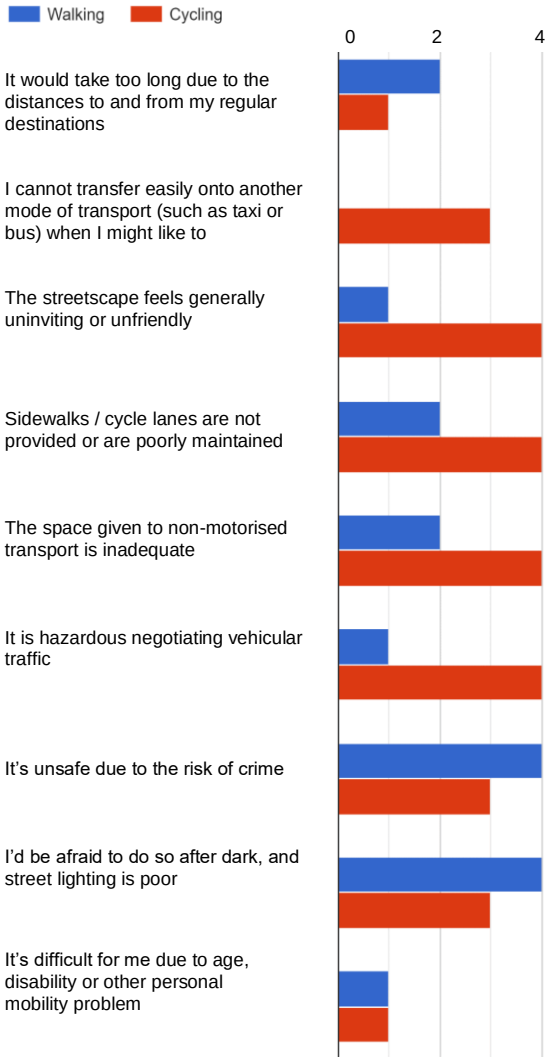

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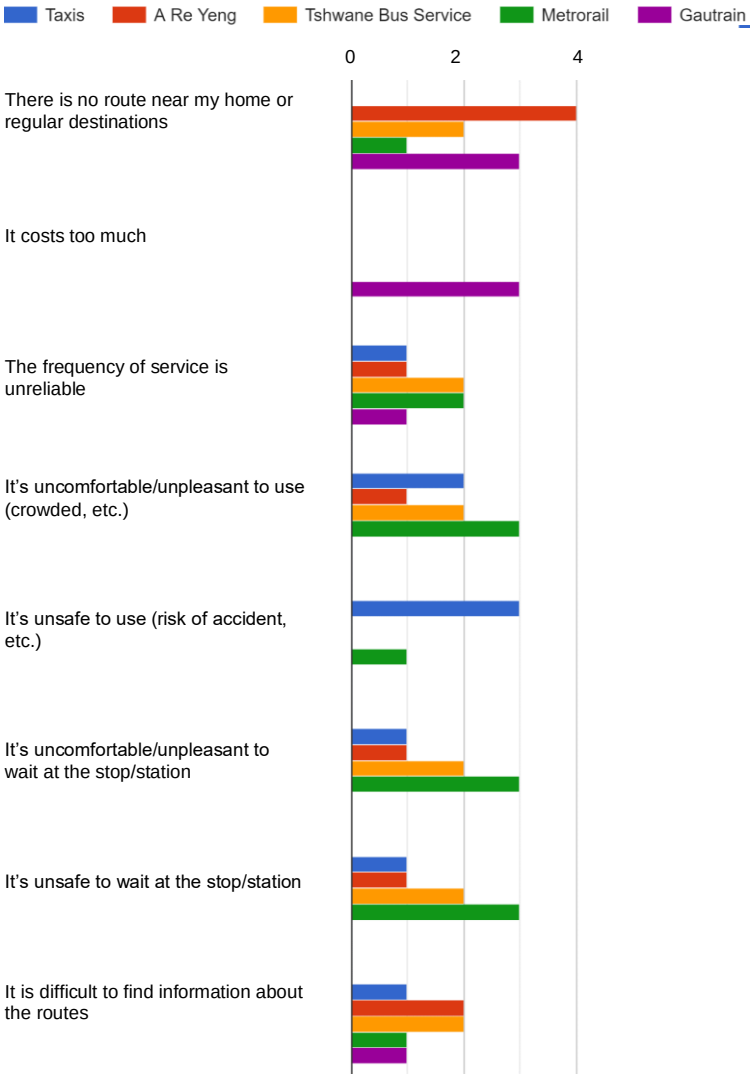

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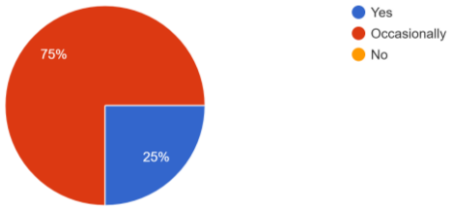

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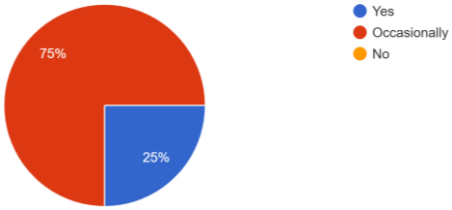

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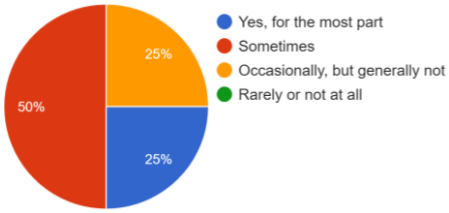

Which of the below would be the most important to improve integration between government entities on policies, plans and projects related to NMT and public transport? Choose one:

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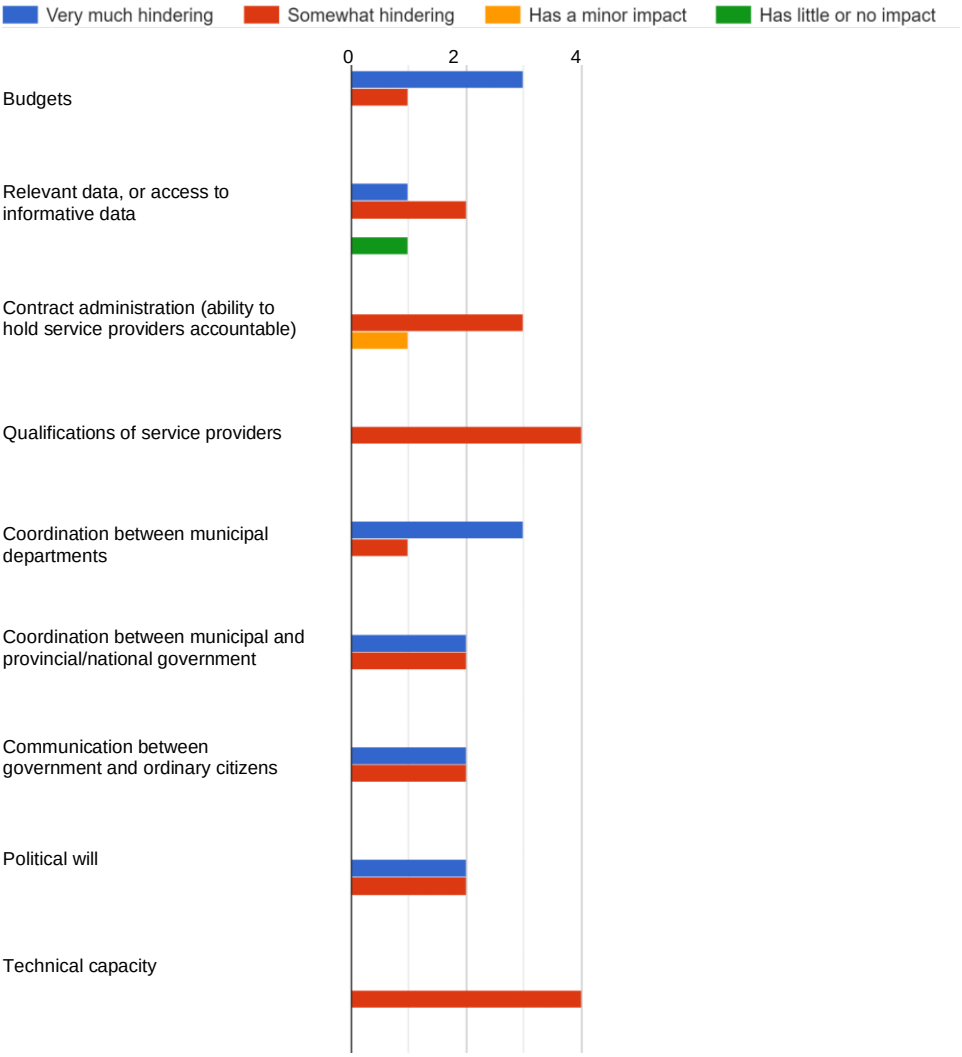

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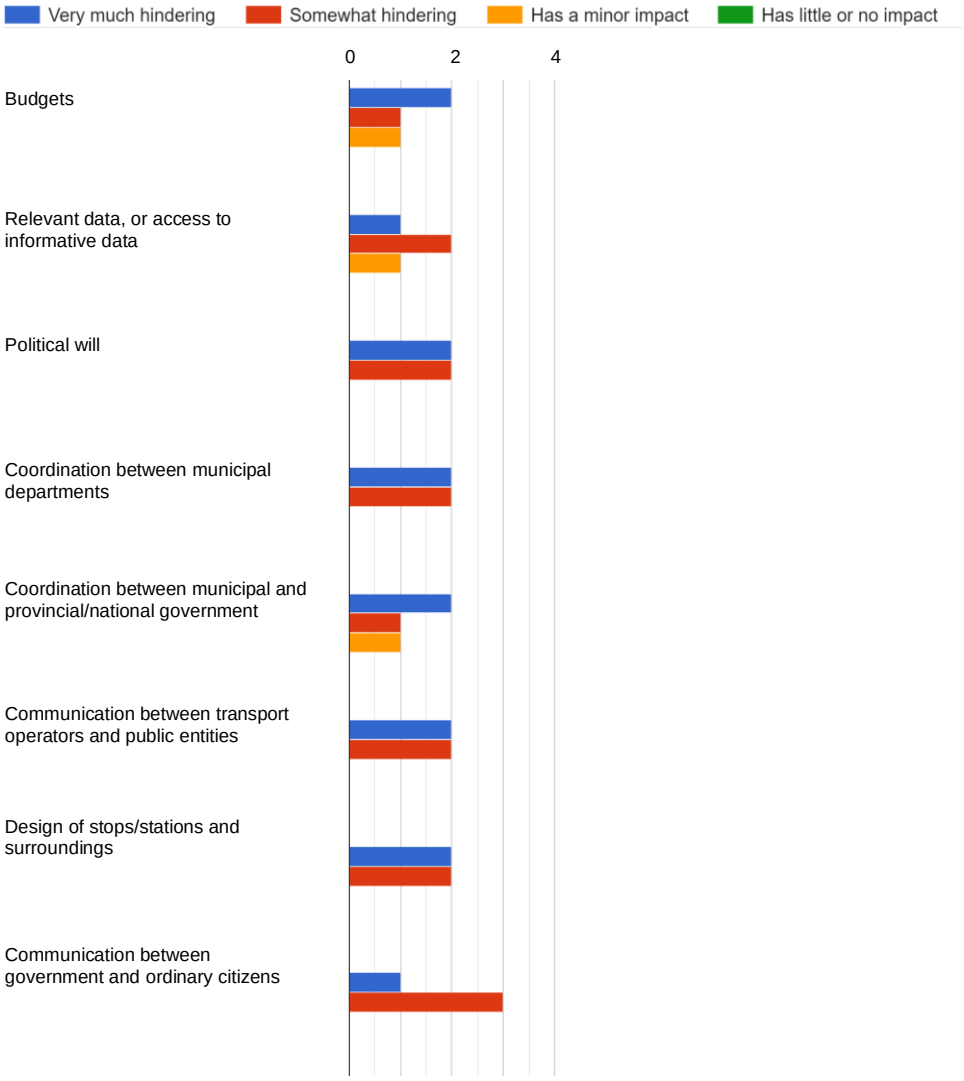
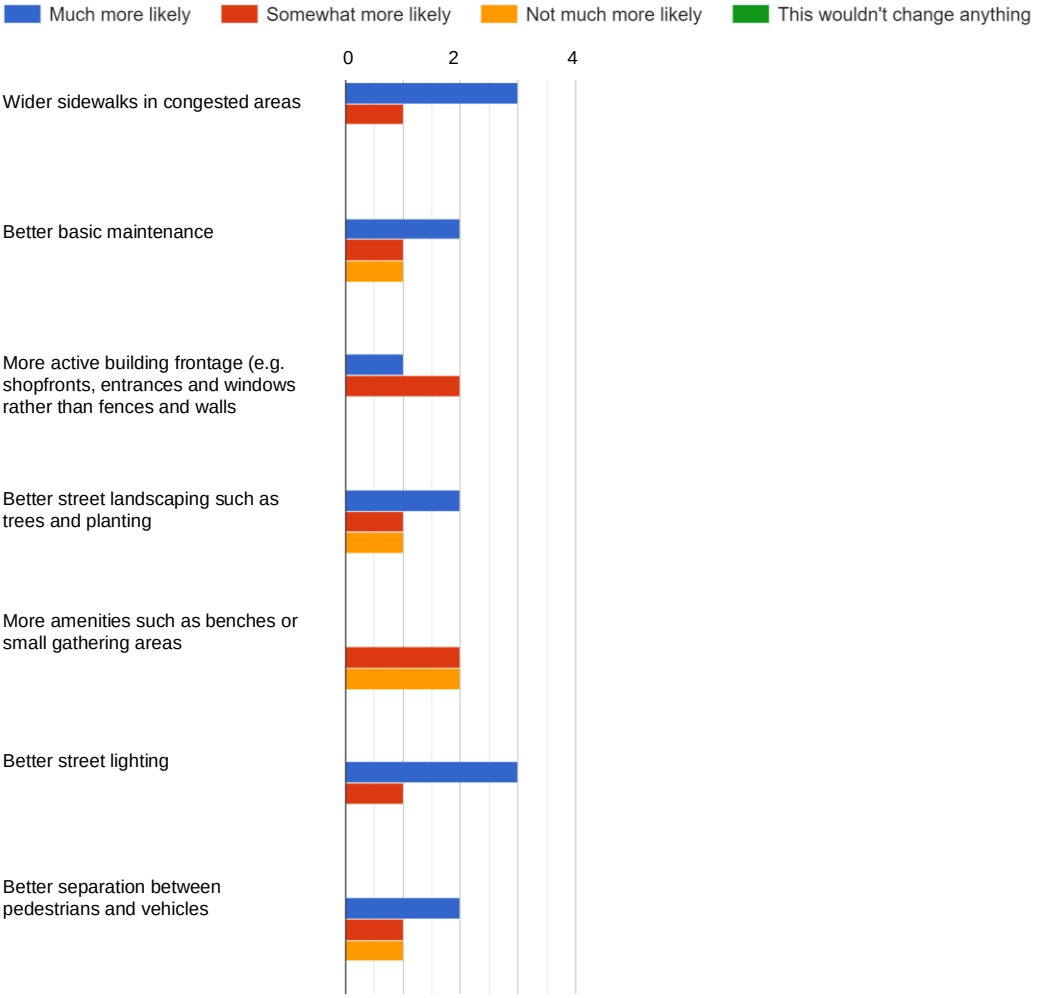


What would you change?

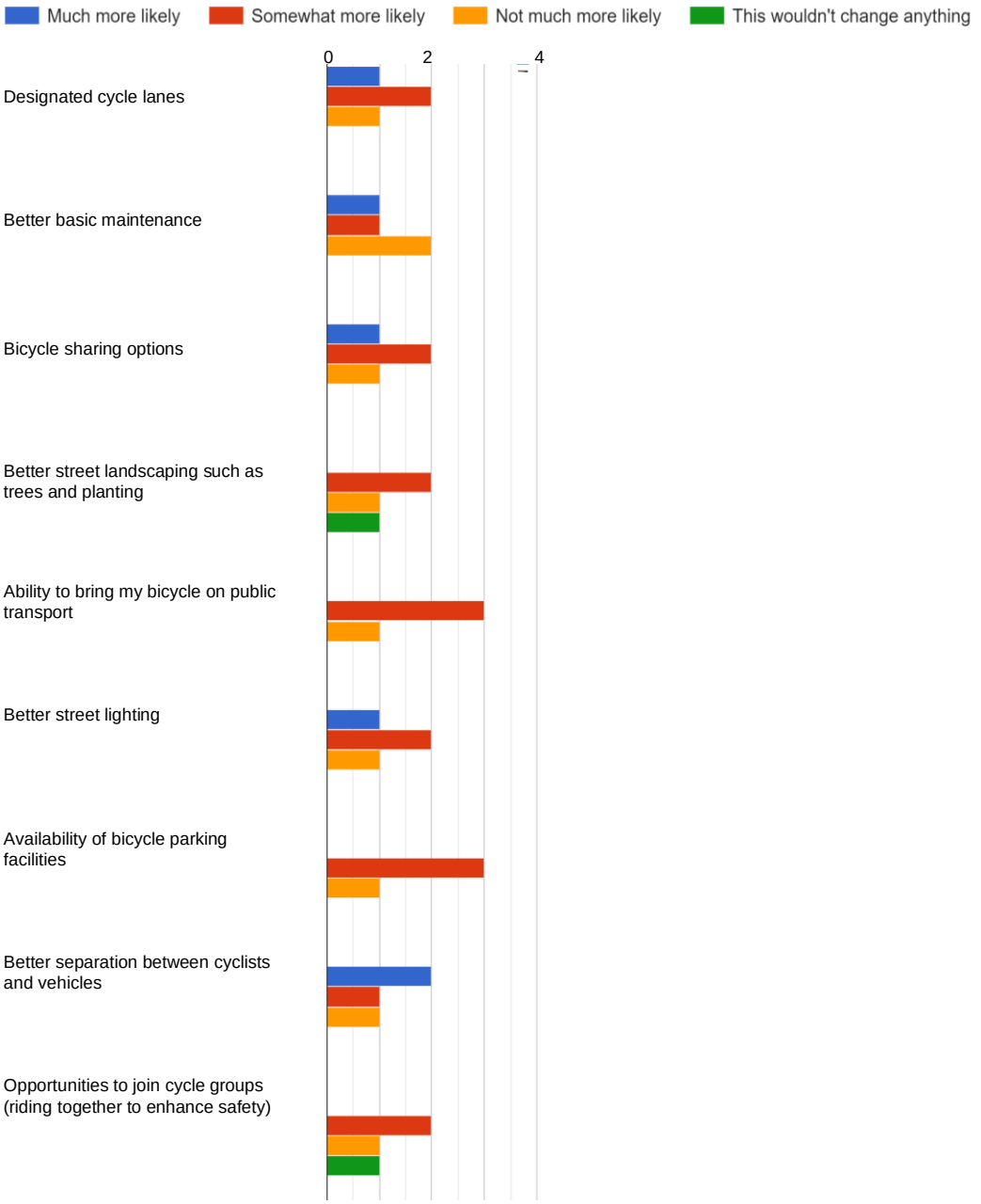
How much more likely would you be to walk more often in the city if each of the following were offered?



If you could do one thing to improve walkability in Tshwane, what would it be?

- Provide sidewalks
- wider street works and more visibility of police/traffic officers
- In the CBD allow for sufficient pedestrian crossings and promote better law enforcement on vehicle drivers to keep to traffic regulations and giving way to pedestrians
- Proper maintenance of walkways including cleaning and enforcement of bylaws against obstruction.

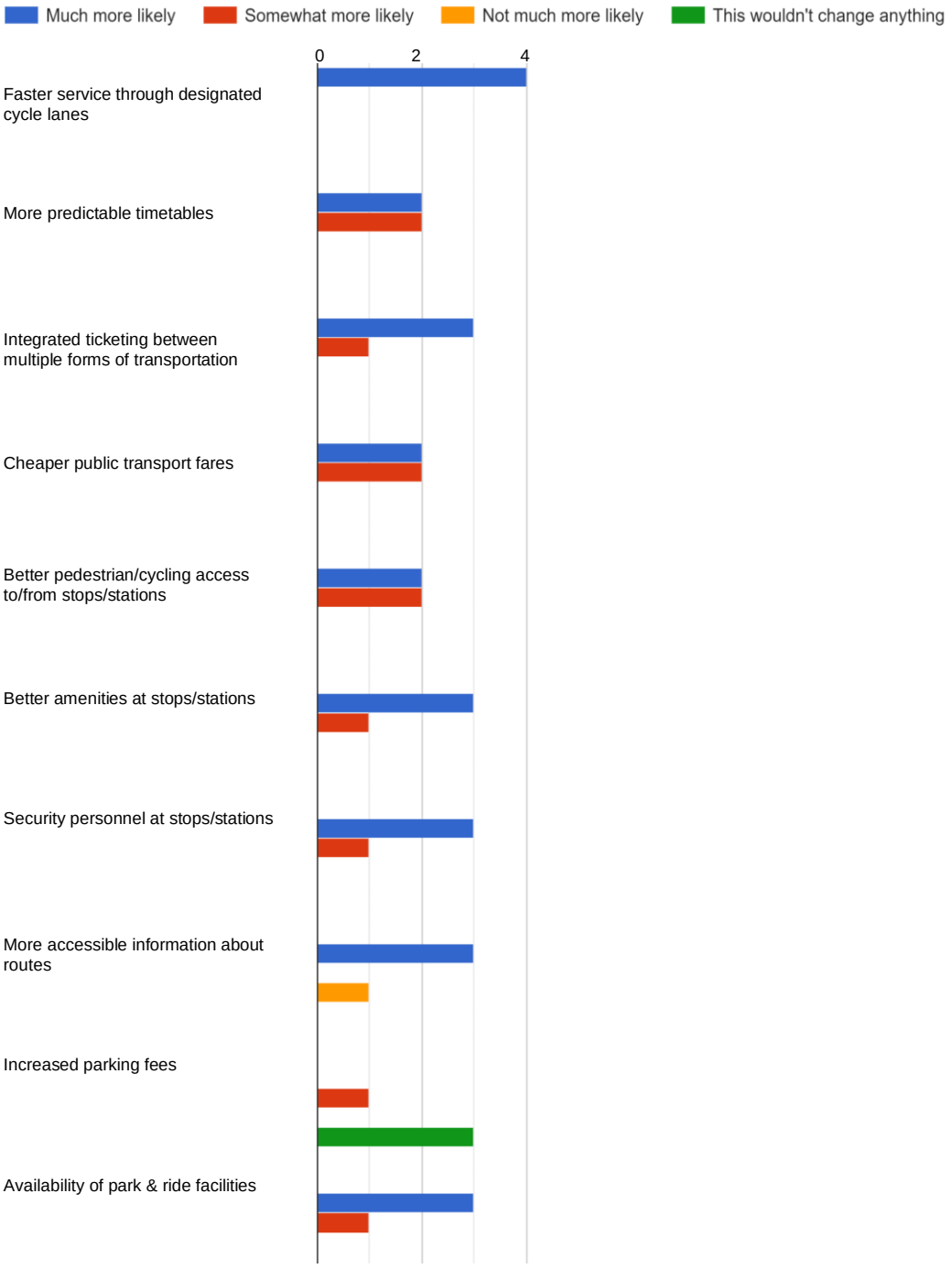
How much more likely would you be to cycle more often in the city if each of the following were offered?



If you could do one thing to promote cycling in Tshwane, what would it be?

- Provide cycle lanes
- campaigns to promote cycling & availability of safe parking facilities/improve/provide more parking lanes.
- Improve vehicle drivers behaviour and implement cycle lanes along all main routes.
- Create safe cycling spaces

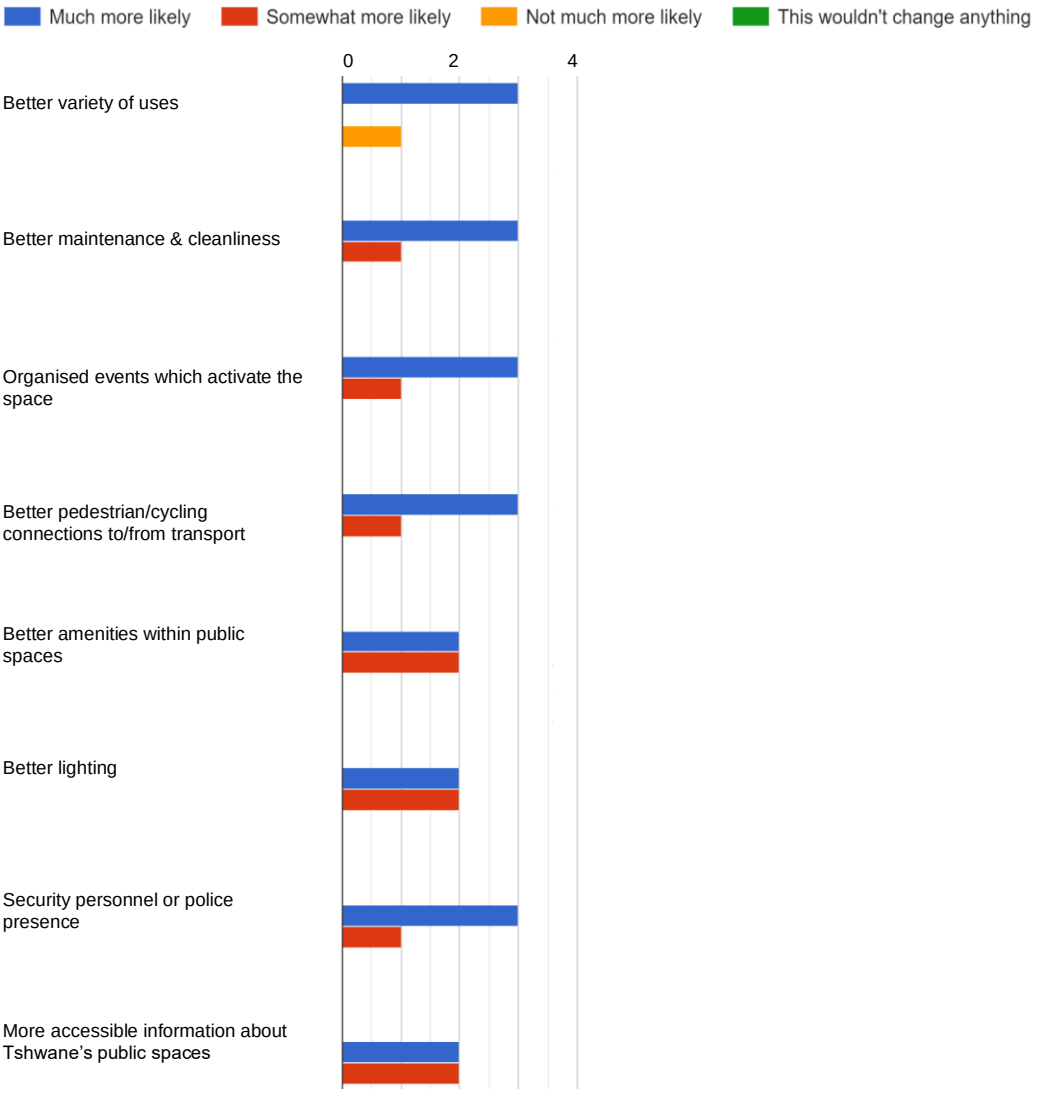
How much more likely would you be to use public transportation if each of the following were offered?



If you could do one thing to improve public transportation use in Tshwane, what would it be?

- Bring Are Yeng to areas such as Soshanguve
- create more routes and make public transport options wide eg. where I stay, its mainly taxis available on that route. I've never seen A Re Yeng/Tshwane Bus Service
- Predictable time schedule and good security
- Reliable timetables and safe transport facilities

How much more likely would you be to use public spaces such as parks, squares or pedestrian streets if each of the following were offered?



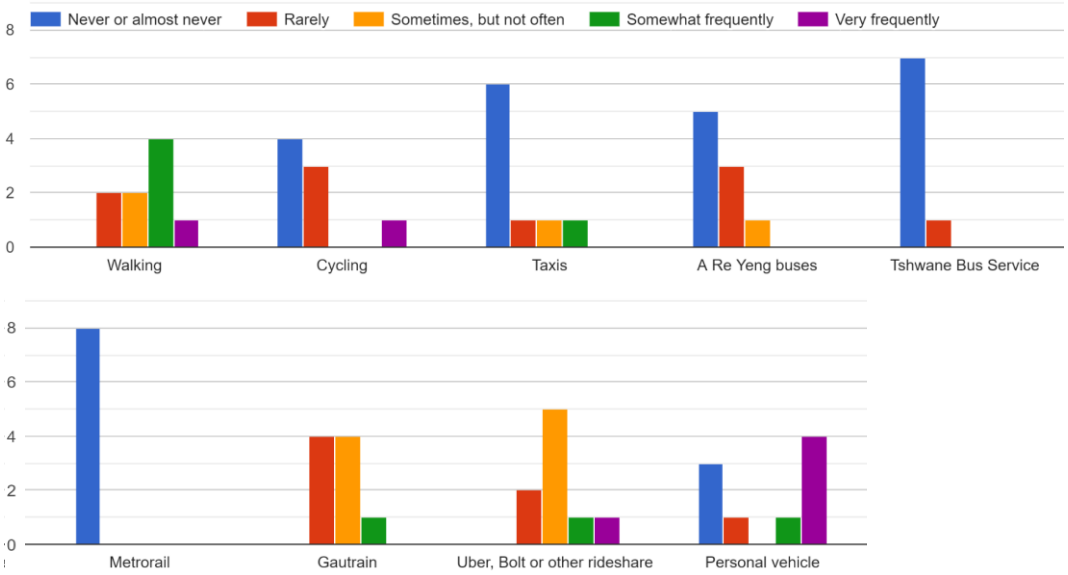
If you could do one thing to encourage the use of public spaces in Tshwane, what would it be?

- Remove illegal parking spots
- organise more police presence, cleanliness and events
- Provide security and provide clean and maintained facilities
- Initiate and offer activations at such spaces

Ordinary Citizens

How you get around

How often do you use each form of transportation?



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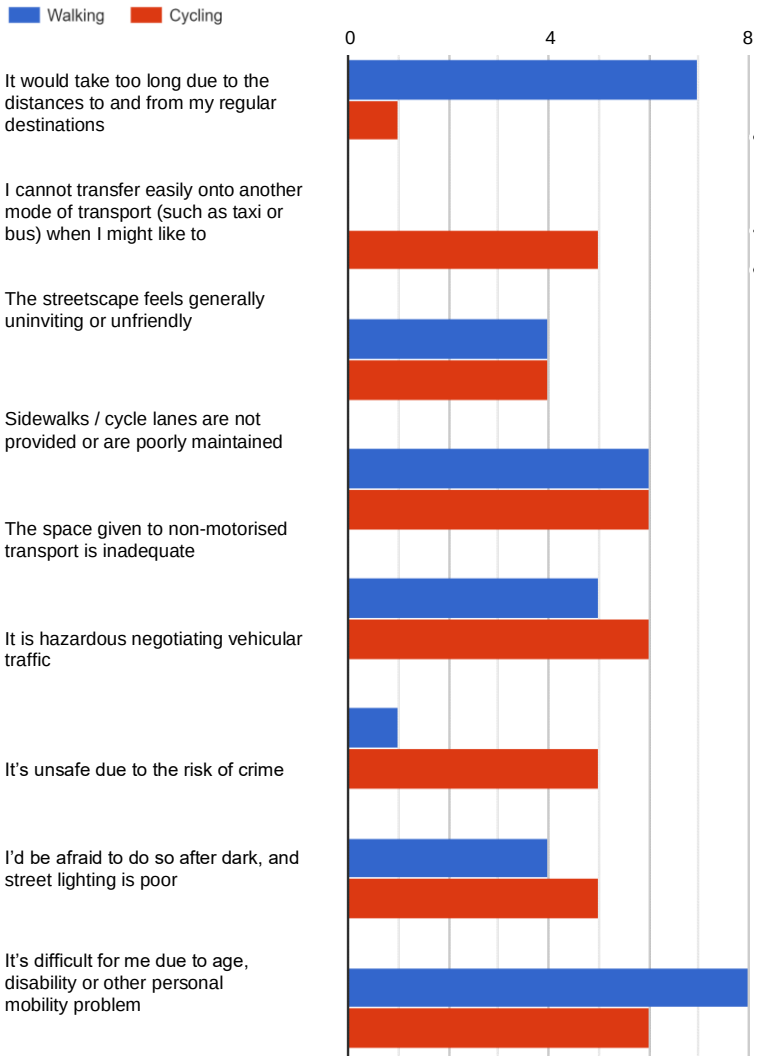

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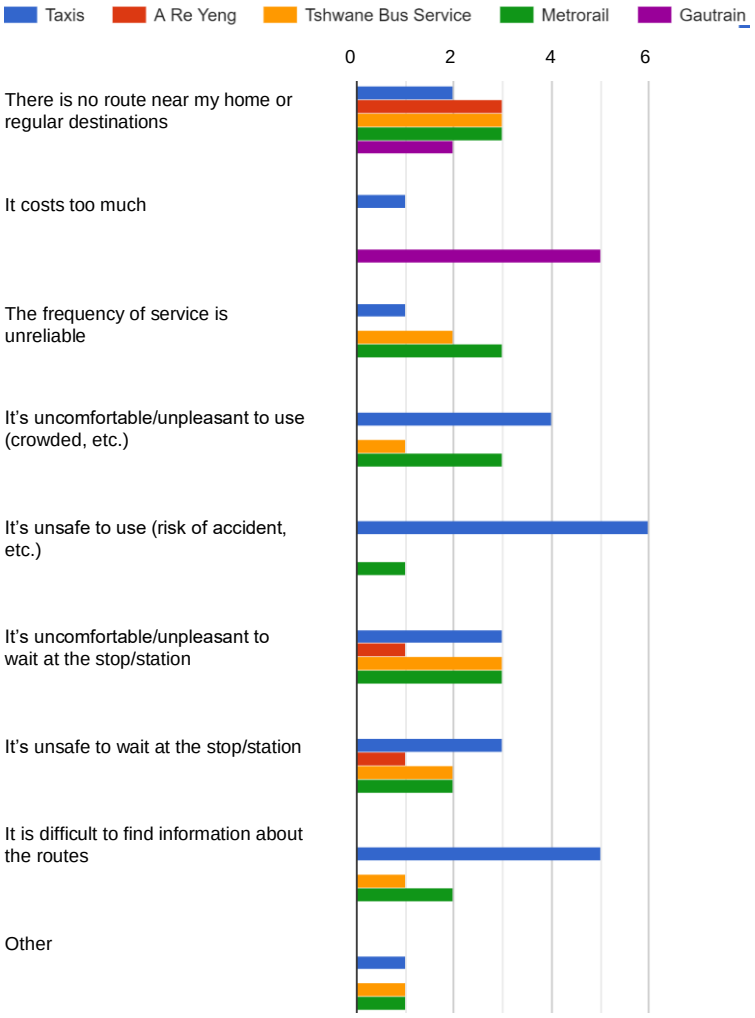
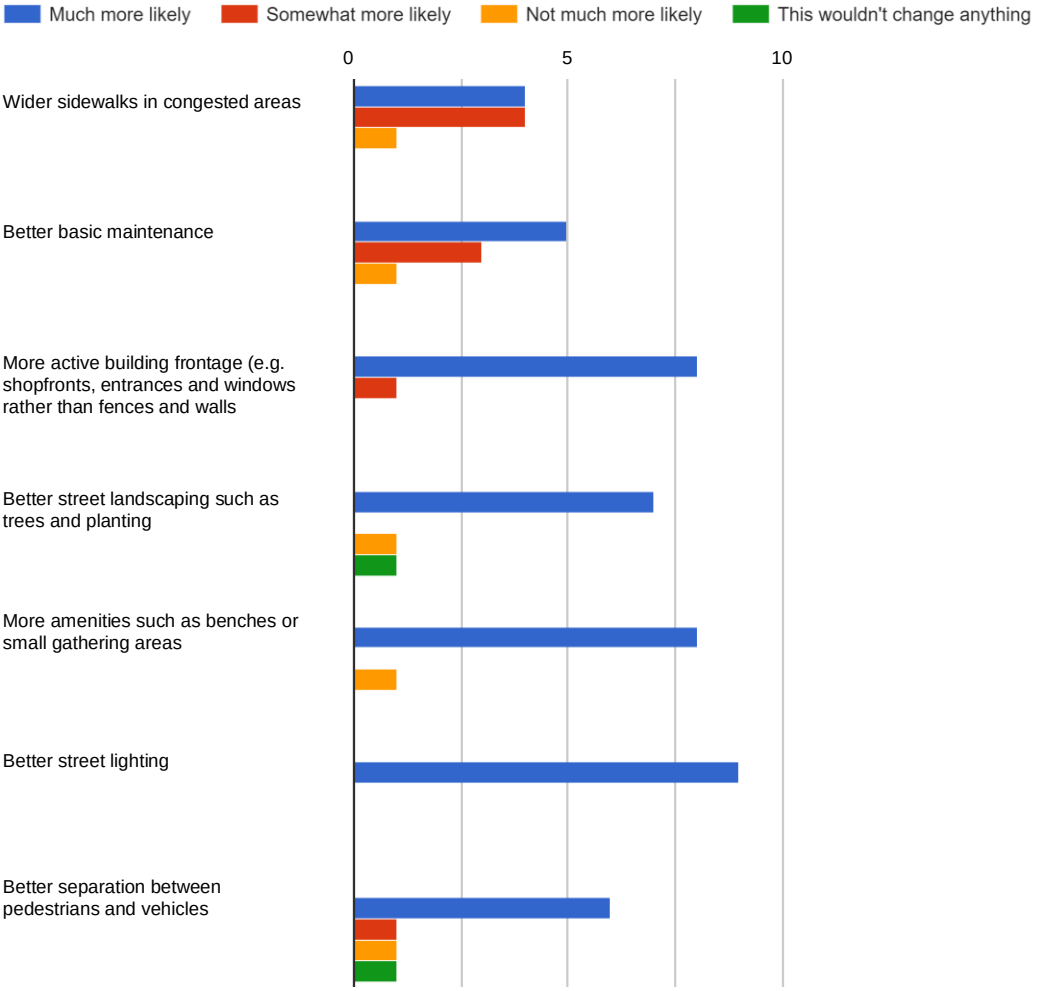


What would you change?

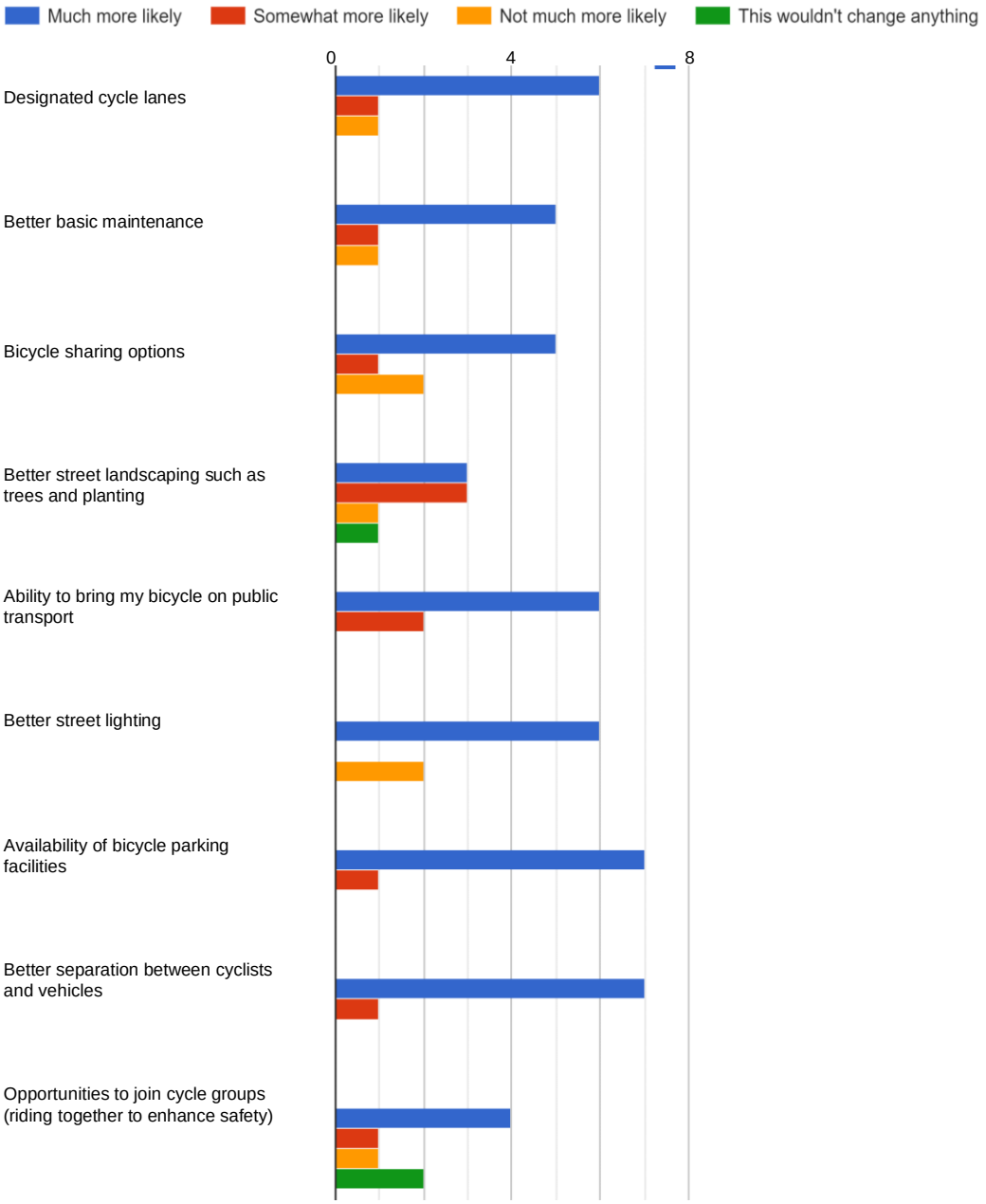
How much more likely would you be to walk more often in the city if each of the following were offered?



If you could do one thing to improve walkability in Tshwane, what would it be?

- Remove fenced of roads to prevent pedestrians walking through areas (Menlopark area). I hate hate hate it!!!
- More trees. Also, safety
- Better street lighting, wider walking space to allow for two people to actually talk to one another while allowing walking traffic in 2 directions, more benches and shading, improved maintenance.
- I would increase the human surveillance by making the street edges more friendly and less harsh.
- I think the only reason why I don't walk is fear of crime
- To have an integrated and comprehensive map of all the means of transportation and how they are related. Maybe a Tshwane mobility app?
- More sidewalks
- More shade trees
- Removal of fences and shortening of streets
- make urban walkways more beautiful, attractive, safe and lively, with lots of active public spaces

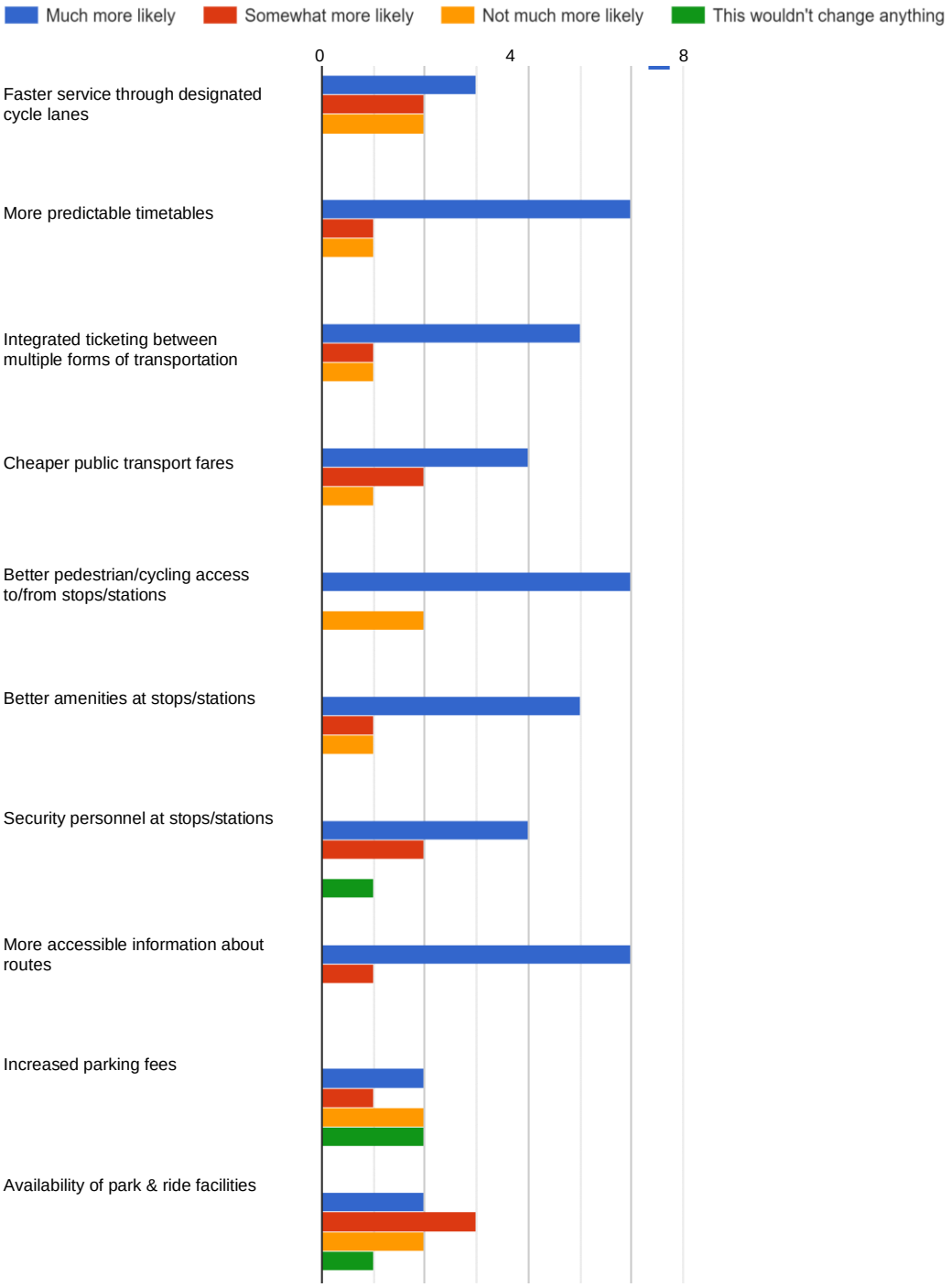
How much more likely would you be to cycle more often in the city if each of the following were offered?



If you could do one thing to promote cycling in Tshwane, what would it be?

- Put physical barriers between bicycle lanes and roads - the few b-lanes that exist are just used for parking.
- Designated cycle lanes
- I would change the mindsets of people towards making them adapt cycling and also make bicycles more accessible to the public through government funding.
- Design cycle lane
- Cycle lanes
- build extensive bike lanes networks well connected to PT

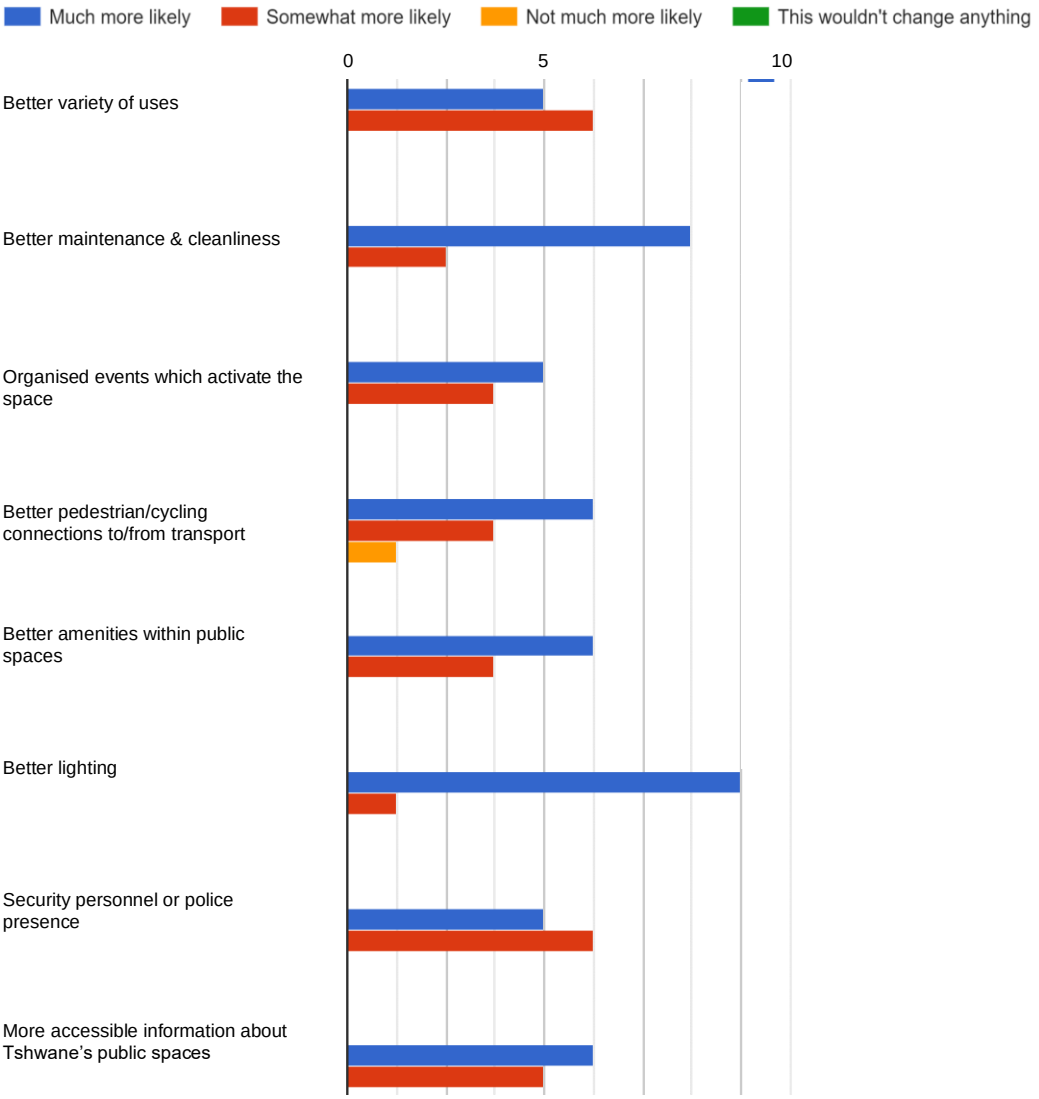
How much more likely would you be to use public transportation if each of the following were offered?



If you could do one thing to improve public transportation use in Tshwane, what would it be?

- Just have more routes available.
- I would increase the public knowledge on the importance of using public transport, especially on aspects to do with the environment.
- To disseminate precise info about the different opportunities and costs etc.
- Better networks
- Increase frequency and also increase accessibility to different areas
- Make using private vehicles expensive and difficult while bettering PT offer

How much more likely would you be to use public spaces such as parks, squares or pedestrian streets if each of the following were offered?



If you could do one thing to encourage the use of public spaces in Tshwane, what would it be?

- Better maintenance and cleanliness
- I would ensure that the security systems and personnel work well to ensure safety.
- Organize events to test the ground
- Improved quality
- Safety without the need of fences
- Campaign and organize lots of events

UN HABITAT
FOR A BETTER URBAN FUTURE