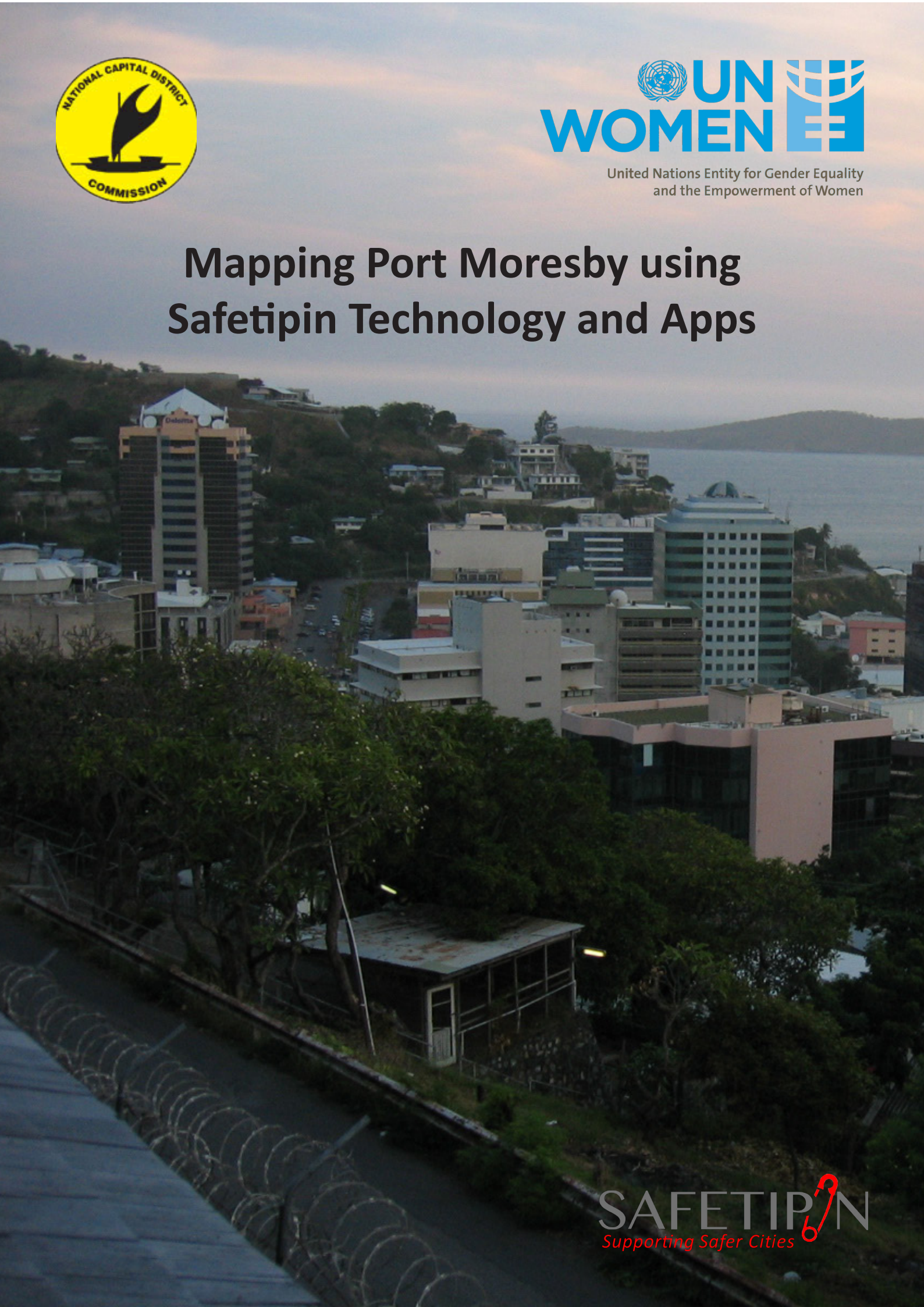
NATIONAL CAPITAL DISTRICT COMMISSION

UN WOMEN

United Nations Entity for Gender Equality and the Empowerment of Women

Mapping Port Moresby using Safetipin Technology and Apps



SAFETIPIN

Supporting Safer Cities

Mapping Port Moresby using Safetipin Technology and Apps

UN WOMEN

Port Moresby, June 2018

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1. Introduction

"Papua New Guinea is one of the most dangerous places in the world to be a woman, with a large number of women experiencing rape or assault in their lifetime and facing systemic discrimination." While these are criminal offences, domestic violence was specifically proscribed under the 2013 Family Protection Act (FPA), very few perpetrators are brought to justice.[1] In a 2011 scoping study conducted by UN Women show 55% of women and girls studied reported that they have experienced some form of violence in the market; and 22% have experienced more than one incident of sexual violence in the market.[2]

Women and girls in Papua New Guinea face formidable barriers to overcoming poverty and social in-justice. They are severely disadvantaged in all areas of human development including education, work, health care etc. and are largely absent from political participation, market engagement, collective action and educational achievement. PNG ranked 157th out of 197 countries in Gender Development Index.[3]

Public spaces like market area and public transportation i.e. the buses and taxis are the most unsafe for women in Port Moresby. These places are where most cases of physical violence and sexual harassment are reported. Young, unemployed males and men under the influence of drugs and alcohol are the most common perpetrators of physical violence and sexual harassment.

The Port Moresby Safe City Programme which was launched in 2011 partnered with National Capital District Commission (NCDC) and Royal PNG Police Constabulary (RPNGC) to make public spaces safe, especially for women and girls. The Programme aims to improve institutional support, capacity building, advocacy and the provision of gender-sensitive infrastructure to address women's and girl's mobility and safety in and around markets and public transport. It was found that women and girls experience a high degree of violence and harassment at bus stops, on PMVs and in taxis. They do not feel confident to report their experiences of violence or harassment to the police, and overall there is an inadequate response by police to reported incidents of violence and harassment. Notable results from the UN Women Safe Market and Safe Public Transport Programme include redevelopment of market infrastructure and provision of women-only bus service. This improved safety of women and girls in market place and on public transportation to some extent. The female respondents agreed that removal of betel nut and cigarette vendors from the market somewhat made them less likely to experience violence and harassment, compared to before but they also noted significant loss of income due to

1 Human Rights Watch 2017 World Report

2 UN Women, (2011) Making Port Moresby safer for women and girls.

3 The Gender Development Index (GDI) measures the same indicators as the Human Development Index (HDI) which are health, knowledge and living standards for women and men and makes a comparison.

a reduction of customers. Further cashless payments were introduced to prevent women vendors from being robbed. Amenities were also provided for women vendors such as bathrooms and showers, renovated market stalls and shaded areas, potable water as well as set-ting up a market vendor association and a referral system for survivors of family and sexual violence in the markets. The women only bus service also ensured safe public transport for more than 100000 women and girls of Port Moresby. However, women and girls' experiences of violence and harassment have not entirely disappeared; many vendors and buyers reported that they continue to experience inappropriate touching, whistling, sexual comments, and leering, by both young men hanging around inside the Gordons market and security guards.

The qualitative analysis report of Gordons, Koki and Gerehu market & transport service conducted by The Equality Institute, Australia has determined that in all the three marketplaces as well as the PMVs i.e. the buses and taxis, women and girls continue to experience a high degree of physical and sexual violence and sexual harassment. Women and girls most commonly experience pickpocketing; bag snatching; physical assault; extortion; verbal abuse; intimidation; inappropriate touching; and leering, whistling and teasing. Some horrifying responses were:

"Majority of female vendors face theft every day. Money or good are taken from them under threat. These perpetrators usually use (threats) to get what they want." (Young Female Vendor, FGD)[4]

"Sexual violence happens both in the bus and on the bus stop. As discussed, common practice noticeably sighted included touching of private bodily areas, giggling, whistling, applying bodily signs to attract opposite sex, on taxis as told it's not safe for both sex travelling alone both having the day as well in the night. We can be victimized by the drivers. In most cases related to rape of women. This as well applies to PMV buses." (Male KII Participant).[5]

To avoid such violence and harassment, some respondents suggested that women should dress modestly, and should avoid the markets at certain times of the day, or travel with a male relative. Such suggestions highlight the pervasiveness of victim-blaming attitudes and the considerable restraints placed on women's mobility. [6]

All this provides the context and framework to conduct a city-wide safety audit mapping to understand the nature and causes of vulnerability in the city in order to design programs and policies that will address these effectively and sustainably.

4 Safe Public Transport Report & Safe Markets Report, 2017, The Equality Institute, Australia.
5 Safe Public Transport Report & Safe Markets Report, 2017, The Equality Institute, Australia.
6 Safe Public Transport Report & Safe Markets Report, 2017, The Equality Institute, Australia.

1.1 Mapping Port Moresby using Safetipin technology

Under the Port Moresby Safe Cities and Safe Public Spaces Global Program, Safetipin has been engaged to build capacity of local authorities to use smart phone solutions in making Port Moresby safe for women and others. The study seeks to map key concerns of women's safety and security in the city of Port Moresby with focus on sexual violence in public space. This project will work towards fulfilling the aims and goals of the Safe Cities Program.

Safetipin is an app and technology platform developed in India in 2013 as a tool to measure safety and the lack of it for women and girls in public spaces in cities. It uses the methodology of the safety audit as a tool to assess public spaces (Refer to Annex 1). The Safetipin technology platform has two apps that has been used in the project – My Safetipin, a crowdsourced tech platform that will be used by volunteers to give data and Safetipin Nite, a tool to collect night time pictures of the city.

Safetipin apps has been used to map the Port Moresby to assess public spaces for safety, both on infrastructure as well as social usage. The data has delineated why certain spaces are vulnerable by assessing infrastructural parameters as well as social usage by measuring women's feelings of safety at different places around the city. The collected data has been analysed in this report and can used for actual on-ground responses and actions that will work towards improving safety for citizens on the streets and public spaces.

1.2 Engaging Local Partners

The local partners for this project are National Capital District Commission (NCDC) and Young Women's Christian Association (YWCA). YWCA is an organisation dedicated to developing the leadership of women and girls in Papua New Guinea. YWCA was subcontracted by Safetipin organization to administer the study, providing complete on-ground support for logistics, coordination and stakeholder communication. The role involved contributing and participating in all key meetings set up with NCDC and UN Women (multi-stakeholder meeting for identification of audit routes, conducting OSAM session), training workshops with the volunteers and the drivers.

NCDC, the municipal government of the City of Port Moresby, National Capital District has also been engaged through their partnership with UN Women. NCDC officials were trained on safety audit methodology, coding and analysis of data collected in the form of photographs. The involvement of the officials from NCDC at all stages of this project is crucial to ensuring that they take ownership of the process ahead.

1.3 Selection of local Safety Audit teams

For the manual data collection, young men and women volunteers for manual safety audits were mobilized by YWCA. About 40 volunteers were selected for the training session, of which most of them were part of UN Women's 'Sanap Wantaim' Campaign. This campaign laid the groundwork for creating awareness on Violence against Women and this study. For Safetipin Nite data collection, Kenny Trans Services were chosen owing to their partnership with UN Women for Sanap Wantaim Campaign.

Map 1 shows the administrative limits of NCDC (as provided by them). The city has been divided into 11 Local Planning Area (LPA) by NCDC planning department. Owing to geographical constraints, data collection has been conducted in 9 LPAs and Table 1 shows the number of audits. In this report, all the maps have been prepared as per these boundaries.

Local Planning Area (LPA)	No. of Audits		
	Day	Night	Total
8 Mile/ 9 Mile	248	311	559
Airport	318	314	632
Boroko	543	413	956
Gerehu	279	97	376
Kaevga/ Poreporena	15	28	43
Koki	225	101	326
University/ Tokarara	351	339	690
Waigani	893	597	1490
Port Moresby/ Konedobu	548	228	776

Table 1: No. of audits conducted in Port Moresby

Map 1: Local Planning Areas (LPA) with number of safety audits done

1.4 Safetipin Team Visit to Port Moresby

For the first mission, Safetipin team visited Port Moresby from February 12th to February 16th, 2018 to initiate the process of data collection. This visit included capacity building and training workshops with the stakeholders, volunteers and the partners. The workshop agenda was aimed towards conducting the following training sessions in Port Moresby:

1. Training the volunteers to conduct Safety Audit using My Safetipin App:
About 40 young men and women participated in this session. They were divided in 8 groups and were assigned separate areas for conducting audits, thus covering the whole city of Port Moresby.

2. Training taxi drivers to use Safetipin Nite App:
Six drivers from Kenny Trans services were trained to operate Safetipin Nite app. This app is used to collect night-time photographs of the city. Different routes were assigned to each driver.

3. Capacity Development Training for the local authorities:
A session on VAW and Women's safety in public spaces was conducted for the officials of local government. Additionally, training on Safety Audit methodology and Safetipin data coding were also conducted for them.

All these training workshops provided the skills and knowledge to conduct a city-wide safety audit mapping to understand the nature and causes of vulnerability in the city in order to design programs and policies that will address these effectively and sustainably. The details on the training workshops and the participants has been listed in Annexes. Key challenges faced during the data collection has been discussed in detail in the document.

1.5 Learnings from the Capacity Building Workshop

The Safetipin team faced few of these challenges during the training workshop.

1. Internet Connectivity:
The internet connectivity was poor resulting in many technical glitches. A MiFi device (cost USD 30) was purchased by YWCA to provide smooth internet connection (USD 77 for 15 GB data). Volunteers with the smartphones were given the access so that they could download the 'My Safetipin' app. Later, they used MiFi internet connection to upload the test audits. Volunteers were then asked to get data plan for their smartphone which would be reimbursed. Drivers were given sims with active internet plan.

Additionally, much time was invested in setting up Virtual Machine for accessing the Safetipin portal. Later, keeping low internet speed in mind, alternative links were created for the team in Port Moresby. These links allowed them to view all the data collected, images and audits generated on Safetipin portal. While several methods were used to try and do some of the coding in Port Moresby, it was not possible. One of the main problems was the internet speed. We will discuss in detail further in the report this problem and all the options that were attempted.

2. Security Issues:

Security of the auditors is a major issue in Port Moresby, as most of the people don't find it safe to walk alone in evening and avoid certain areas. A bus was provided by YWCA in coordination with UN Women to transport the volunteers to certain areas identified as unsafe by the volunteers.

3. Questioning by Police:

In case of questioning by any government official, police authorities or locals, the audit team were provided with photo IDs, T- Shirt and a letter by UN Women explaining the project to show. This was done to avoid harassment.

2. Methodology of Safety Audit

My Safetipin is a map-based mobile phone application, which works to make communities and cities safer by providing safety related information collected by users and by trained auditors. At the core of the app is the safety audit, that has been designed based on the Safety audits from around the world. A Safety Audit is a participatory tool for collecting and

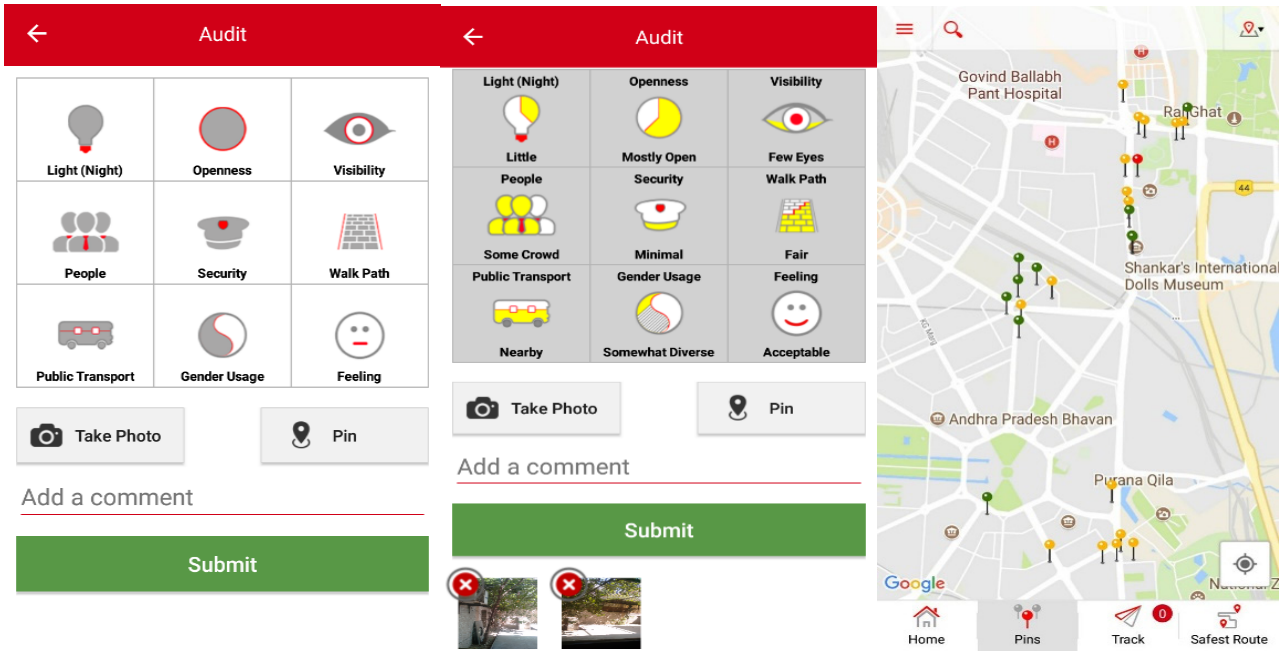


Figure 1: Step by Step process of conducting a safety audit

assessing information about perceptions of safety in public spaces. The audit is based on nine parameters – Lighting, Openness, Visibility, Crowd, Security, Walkpath, Availability of Public Transport, Gender Diversity and Feeling.

Figure 1 shows the audit screen on the app where all the 9 parameters are listed along with the option of taking photographs and adding comments about the place. After rating all the parameters and submitting the audit, it gets uploaded in the form of coloured pin. The step by step process of conducting Safety Audit using My Safetipin app is listed in Annex 3.

2.1 Manual Audits through My Safetipin App:

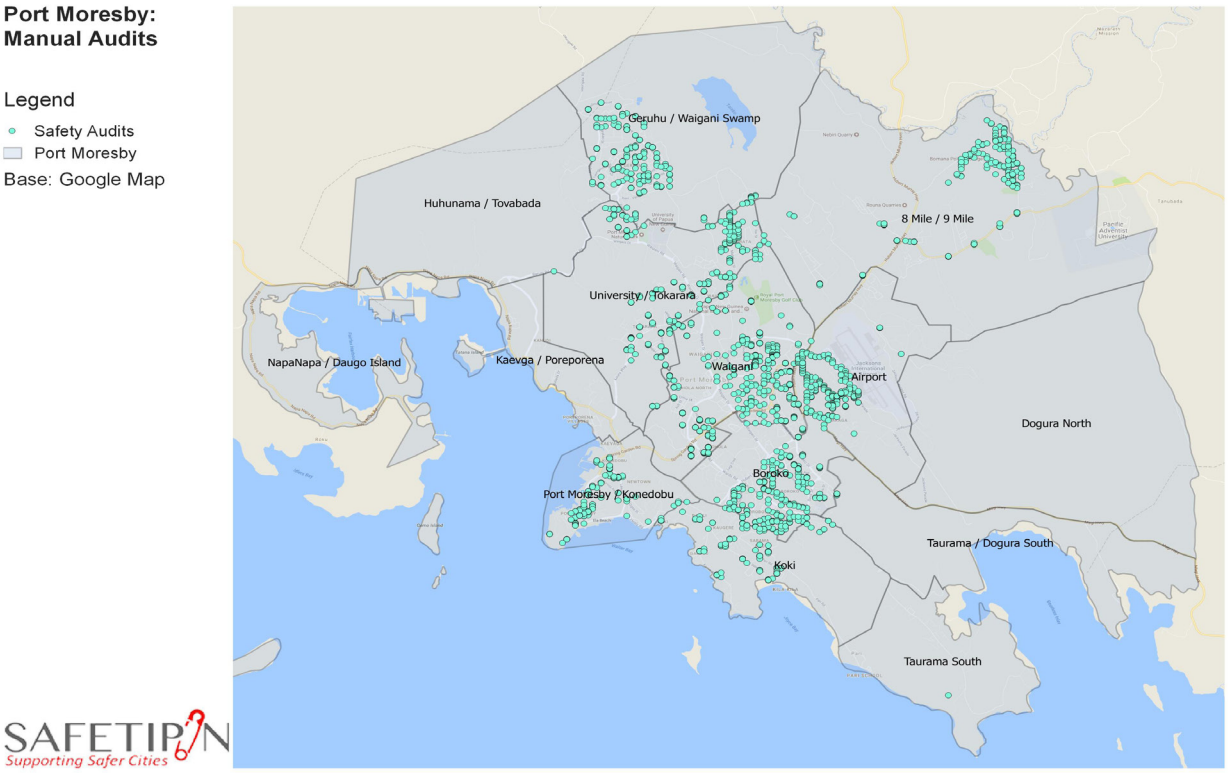
For the manual data collection, young men and women volunteers for manual safety audits were mobilized by YWCA. About 40 volunteers were selected for the training session and were trained on safety audit methodology. YWCA PNG was the partner responsible for the coordination and translations between Safetipin team and Safety Audit team. NCDC officials from Urban Planning and IT team were also part of Safety Audit team. Selection of areas/ routes for safety audits was done in consultation with NCDC team. The audits were conducted both in daytime and evening to assess the different activity patterns and usage of the place.

The volunteers were classified in 8 groups according to their home location, and each group was assigned roads within their sub-burbs to conduct audits. Due to security issues, the volunteers were asked to go in groups of 5-6 comprising of males and females for conducting safety audits. Since all the volunteers didn't own a smartphone, the groups were divided such that each group has atleast one or two people having their own smartphone. For the first week, they were asked to do audits around their homes, schools, colleges and market within their suburbs. For rest of the areas, they were provided transportation by YWCA.

Out of 40 volunteers trained, 25 volunteers (15 females, 10 males) conducted the audits during the month long safety audit drive. The complete list of the volunteers who did safety audits can be seen in Annex 4.

A total of 2,682 manual audits have been conducted in Port Moresby by the volunteers. Of these audits, 1531 are day audits done before 4 PM and 847 audits are night audits done after 4 PM. The areas covered by these volunteers can be seen in the Map 2. As seen in the map, maximum audits have been done in central part of the city covering Waigani, Koki and University of PNG region.

The following issues were addressed during this data collection:



Map 2: Areas where safety audits were conducted by trained volunteers

1. Availability of Smartphones:

It was found that only few volunteers own a smartphone, most of them were male volunteers. The volunteers were then divided such that every group has at least one person with smartphone. Additionally, female volunteers were asked to borrow phones from their friends/ family. This was done to ensure women's involvement in the audit process.

2. Internet Connectivity:

Since most of the volunteers didn't have active mobile internet plan at the time of the training, they were introduced to a feature of My Safetipin app through which one can do upto 10 audits without the internet connectivity. Once you are connected to the internet, the audits will be uploaded automatically to Safetipin's server.

A MiFi device purchased by YWCA was used to provide internet connection during the training session. Volunteers were given the access to download the 'My Safetipin' app and upload the test audits. Volunteers were then asked to get data plan for their smartphone which would be reimbursed.

3. Location / GPS setting:

Some volunteers found that their audit location was off by 10-15 metres. It was due to lack of internet that couldn't fetch their live location. They were asked to put their location settings on 'High Accuracy' mode.

2.2 Safetipin Nite

Safetipin Nite app generates data by clicking pictures across the city via a camera phone mounted on a moving vehicle (shown in Figure 2). Data in the form of photographs is collected to capture pedestrian's safety conditions at regular intervals. The conditions that are examined are based on the 9 parameters of the safety audit with greater detail on the existing status of the infrastructure (see the list in Annex 1). The pictures are then uploaded on to a server, codified and eventually translated into audits that appears as pins on the Safetipin's map.

For Safetipin Nite data collection, five drivers from Kenny Trans Services were chosen owing to their partnership with UN Women for Sanap Wantaim Campaign. This has been the first time where a group of taxi drivers were engaged to collecting data using technology in Port Moresby. While discussing the timings for the audits, the drivers had informed that there are few drivers who drive after 8PM in

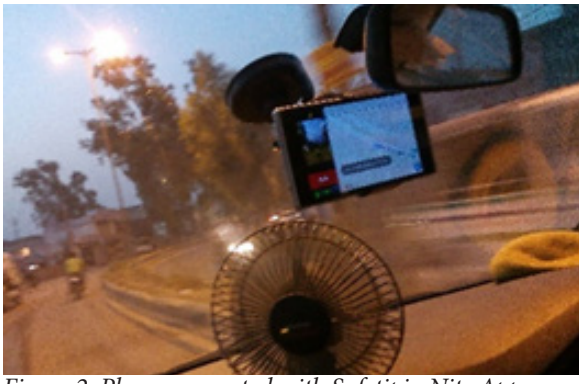
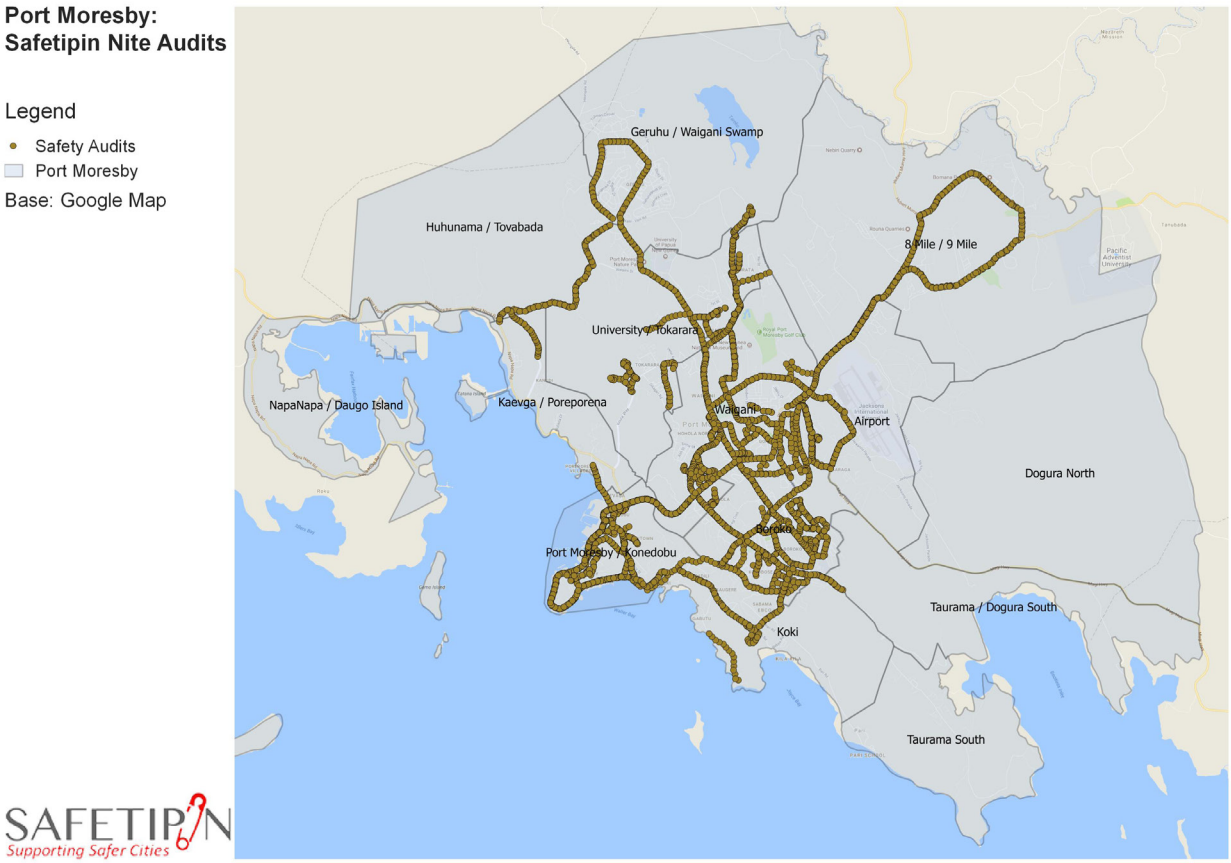


Figure 2: Phones mounted with Safetipin Nite App



Map 3: Area covered by audits generated from Safetipin Nite data collection

the city and avoid some areas altogether due to lack of safety. Thus, it was decided that data collection would take place from 4 PM – 8 PM.

All the major roads of Port Moresby city have been covered using Safetipin Nite app. The regions covered are shown in the Map 2. Due to geographical constraints, the areas of Dogura North, Dogura South, Tauram South and Daugo Island were not covered. About 35,017 photographs of Port Moresby streets were collected for the project.

In this data collection, following challenges were identified:

1. Language Barrier:
Most of the drivers were not fluent with the medium of instruction i.e. English. Representatives of UN Women and YWCA translated for them wherever required. However, the app was easy to understand and operate, drivers didn't face any issues during the data collection drive.

2. Internet Connectivity:
To ensure uninterrupted internet, drivers were provided local sim cards with active mobile internet plan for the project (Sim Cost USD 3 with mobile internet USD 13 for 2.5 GB). Wherever drivers faced internet connectivity issue, Mifi device was used to upload the data.

3. Inaccessible roads:
There were some areas that haven't been covered as some roads were blocked due to ongoing construction works and some were inaccessible by the 4-wheelers.

2.3 Safetipin Data Coding

The data i.e. photographs collected through Safetipin Nite were uploaded on our server. These were then accessed on our portal and analysed on a wide range of parameters linked to safety in public spaces. All the parameters as listed in manual audits are rated except for feeling. Additional data indicating the issue (absence of streetlights, non-functioning streetlights, broken or no pavement, type of public transport) is also recorded for the parameters of Lighting, Walkpath, Visibility and Public Transport. The complete list for the sub parameters is given in the annexes.

In order to test coding in Port Moresby, a Virtual Machine was set up to access Safetipin portal in Port Moresby. A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. Safetipin tech team developed a virtual machine that could run Linux OS and access Safetipin coding portal from remote location. NCDC IT team was consulted to understand the system requirements to run. The pre-requisites of running a virtual machine was having 1-2 GB

RAM with 50 GB of disk space and internet speed of more than 1 mbps.

A team consisting of NCDC officials was trained to access and use this portal on Safetipin visit to Port Moresby in February 2018. Subsequently, the Virtual Machine package containing the setup and instructions were shared with them. Instructions to set up Virtual Machine and access geocapture portal for coding has been listed in Annex 8. Team Viewer was also installed on these systems so to support the local team from India in case of any technical issues. Owing to internet connectivity issues, NCDC team couldn't access the portal using virtual machine. Safetipin tech team then set up another link for the coding team in Port Moresby to access Safetipin coding portal from their existing internet browser.

There are four components of the coding screen i.e. Map, Pics Selection Pane, Parameters Rating Scale and subsequent Sub-Parameters Options. The coding screen has all the parameters and sub – parameters listed as seen in the picture. Audit points were marked, coded using photographs and google maps, thus generating an audit. Once completed, the audit looks like green pin as seen in the Figure 3. For details on the portal, please see Annex 9.

Based on the routes covered by the drivers, routes were made for coding. The coders were given individual login credentials and assigned routes to code. Due to issues of internet speed, NCDC official couldn't take part in the coding process. Coding was done by Safetipin team in India. The audits were generated using both daytime and night-time photographs

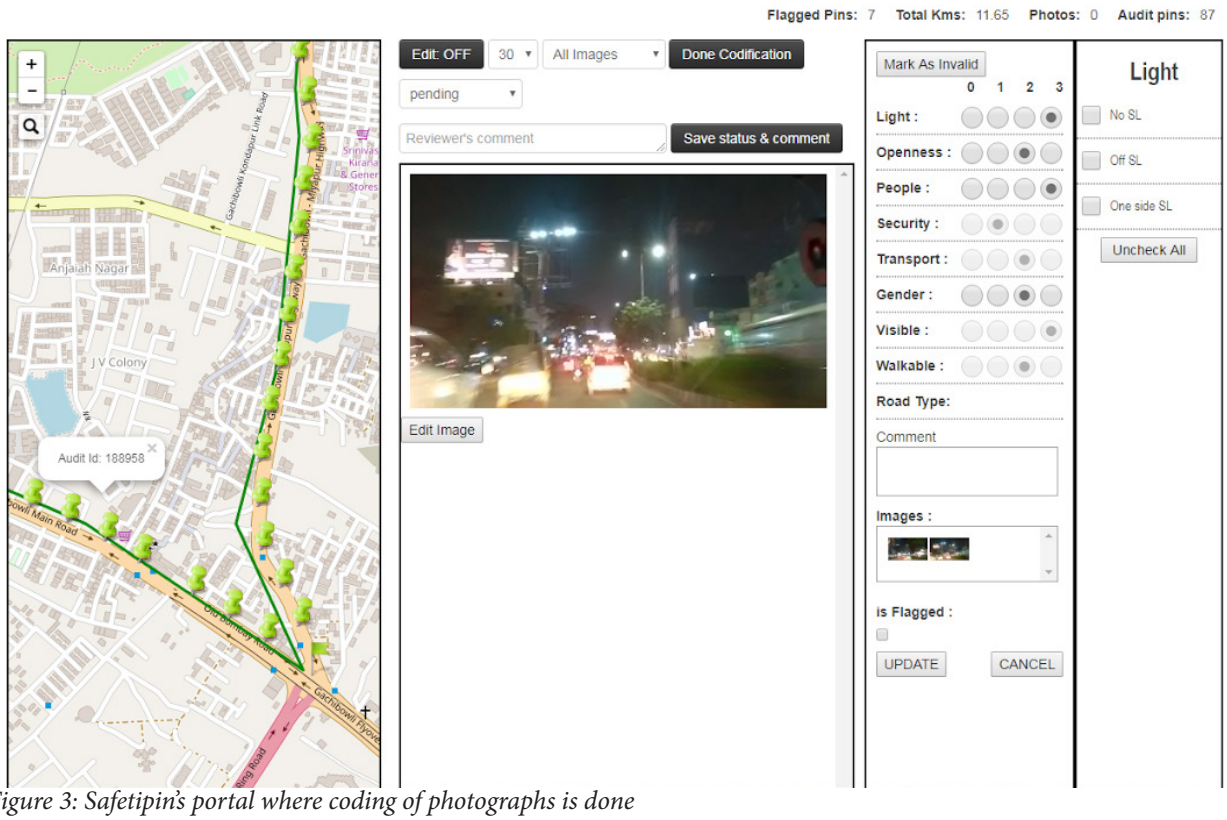


Figure 3: Safetipin's portal where coding of photographs is done

referred as day audits and night audits respectively. These audits were reviewed by Safetipin team before uploading on the server. This quality check ensured that the photograph has been coded correctly. There was random checking of coded audits on a daily basis to ensure that there are no errors.

The coding process is a detailed one which Safetipin has created many protocols. Trying to do it in PNG was an experiment which did not really work out for primarily reasons of internet speed. We feel that conducting the coding in the Safetipin office is the best option in future. The validation workshop demonstrated that the data coded in Safetipin was accurate and reliable. It would be better to carry out coding in Safetipin as we will be able to maintain quality and accuracy. It would require not just internet, but also time from NCDC staff, which may be difficult. In all our other projects , the coding has been done at Safetipin and it works as a practice and produces reliable results.

A total of 3479 audits have been generated by analysing photographs collected through the Safetipin Nite app. Of these 1844 audits have been day audits and 1635 audits are of night-time. Consolidating the data from My Safetipin and Safetipin Nite data, a total of 3491 day audits and 2505 night audits have been generated. The following challenges were identified during data coding:

1. Internet Connectivity:

The internet connectivity was poor resulting in many technical glitches. Much time was invested in setting up Virtual Machine and accessing the internet using MiFi device. Once set up, we were able to access geocapture portal to do the coding demo during the training workshop. It was then decided that the coding team would be provided MiFi device once the data collection is over. Due to slow internet speed (<1 mbps), virtual machine couldn't get started in most of the laptops. Only one system at NCDC was able to set up for the coding using MiFi device. Later, a direct link was provided which could be accessed on slow internet.

2. Technical Understanding for setting up Virtual Machine:

Virtual Machine was set up by Safetipin team for both NCDC and UN Women. The Virtual Machine package containing the setup and instructions were shared with them. However, the virtual machine couldn't get started due to multiple issues. Team Viewer was installed on these systems so to support the local team from India to solve these technical issues.

3. Data Coding Training:

Since there was considerable gap between data collection and data coding phase, a refresher's course on Safetipin data coding was done with the coding team in Port Moresby. The training presentation and introductory document on the geocapture portal was shared with NCDC team.

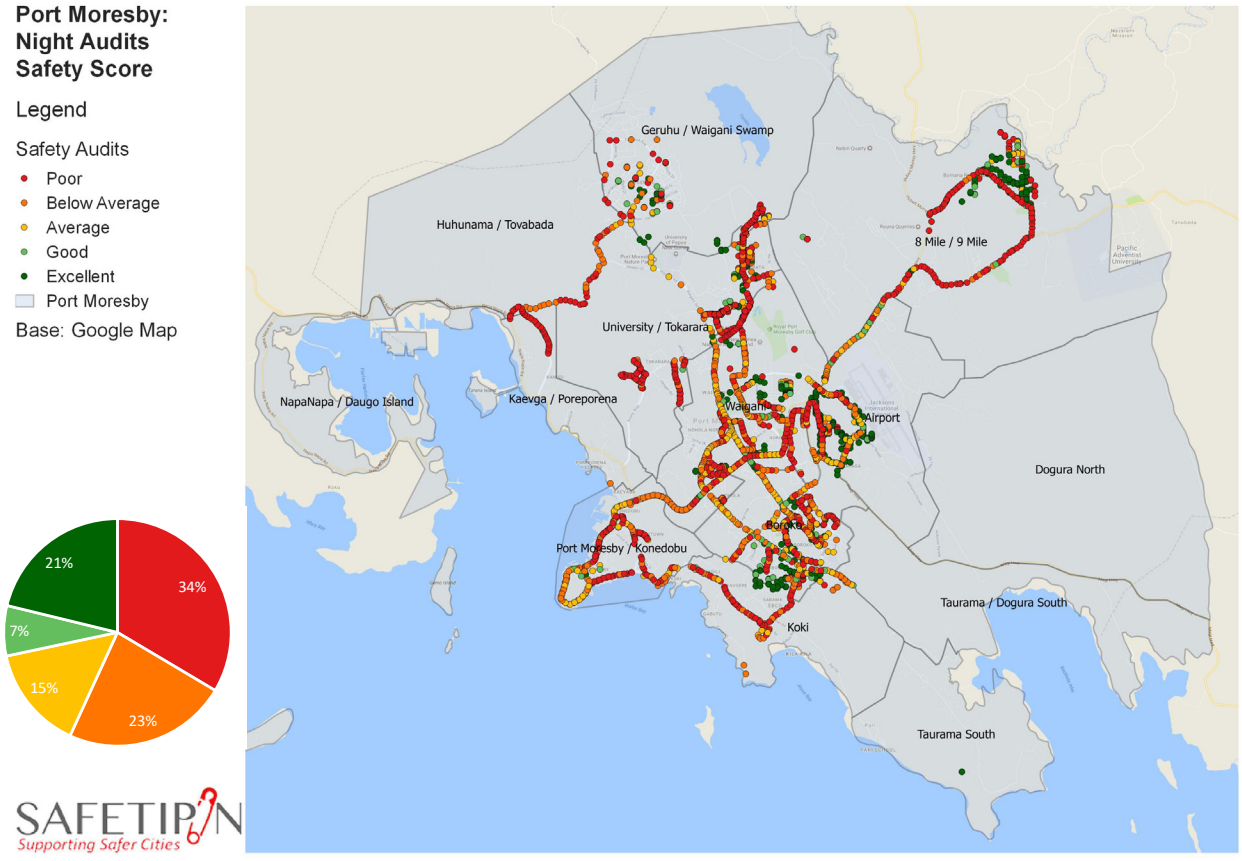
3. Safety Audit Analysis

3.1 Safety Score

Safetipin codes each location point into one of four ratings – 0,1,2,3. 0 and 1 indicates low scores (with high potential to improve) and 2 and 3 indicates good scores. Based on the ratings for each of the parameters, an aggregate Safety Score is generated. The Safety Score of a point is thus a reflection of the perception of safety at that particular location as well as a consolidation of the scores given to each parameter.

The Safety Score of an area is the average of all safety audits done in that area. The safety ratings vary largely on account of the infrastructure provision and planning typology of the area. The overall Safety Score for Port Moresby is 2.0 / 5 i.e. Below Average. This low score is a result of 57% of the audit points being rated poorly in terms of infrastructure and perception of feeling parameter.

Indicated in the pie chart is the percentage distribution of pins in each range. The Safety Score for the audit points is shown in the Map 4. This report provides the details of the safety assessment for the city of Port Moresby. To aid decision making, the data is presented as tables, charts, graphs and maps to highlight aspects which need immediate attention.



Map 4: Audits showing Safety Score rating in Port Moresby

3.2 Parameter Ratings

Each of the nine parameters is rated 0/1/2/3, 0 being the poorest and 3 being the good condition. The average parameter ratings graph indicates the average rating for each parameter during the daytime and night. Overall, the walkpath parameter has been rated the highest followed by Openness and Lighting. Security and Public Transport has been rated the poorest in terms of infrastructure.

From the graph, it is also seen that the presence of people and specifically women (gender usage) reduces after 4 PM. The overall feeling of Safety for the city of Port Moresby is rated Average in day and Below Average in night.

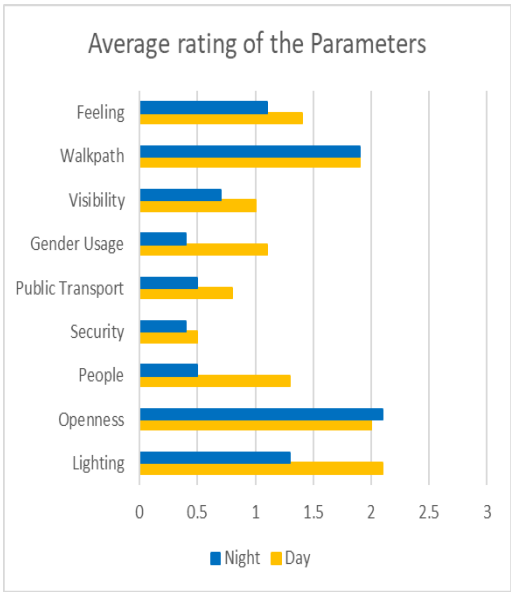


Figure 4: Average Rating of the Parameters

3.3 Parameter-wise Pin Distribution

The Parameter wise pin distribution graph indicates the number of points rated 2 or 3 i.e. the good ratings as positive and points rated 0 or 1 i.e. poor ratings as negative. As seen in the graph, barring the walkpath, most of the parameters have been rated poor. The graph shows that there is poor security presence in most parts of the city. Further it also shows that gender usage is poor, i.e. there are not too many women who use the public spaces especially after dark. In the following sections, we will provide more detailed analysis of the areas and neighbourhoods where there is need for improvement.

Since, increase in Crowd and Gender Usage is dependent on other parameters, the focus should be on improving Lighting, Public Transport, Visibility and Security on the streets of Port Moresby. In terms of lighting, further analysis will show which areas have poor lighting. Similarly, the report will provide concrete data in following sections about which neighbourhoods need improved public transport and security.

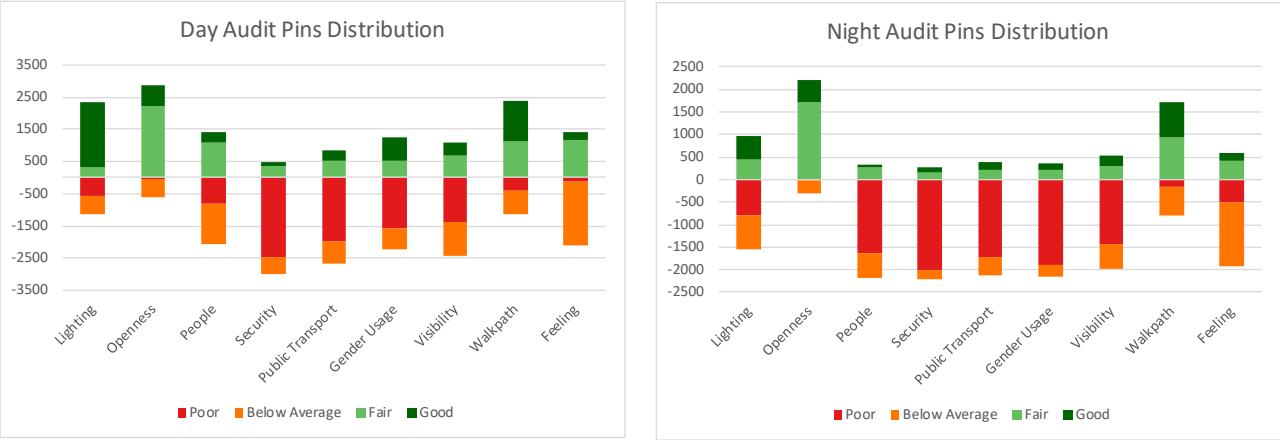


Figure 5: Day and Night audit pins' distribution

4. Parameter Analysis

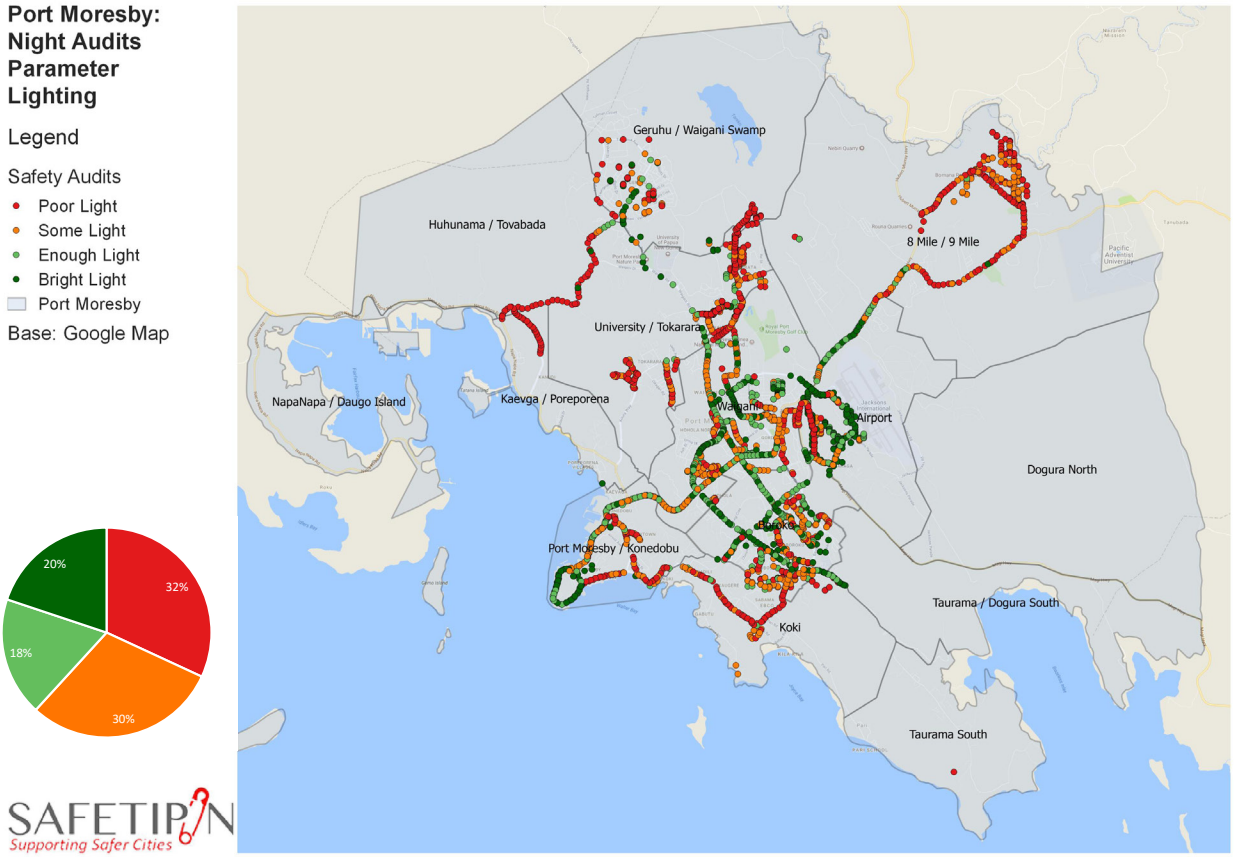
4.1 Lighting

Lighting measures the amount of brightness/ illumination at a place and ranges from Dark to Bright (rating 0 -3). A place can be lit with street lighting or from other sources such as light coming from houses, shops, street vendors etc. Light coming from the vehicles is not considered as it is temporary.

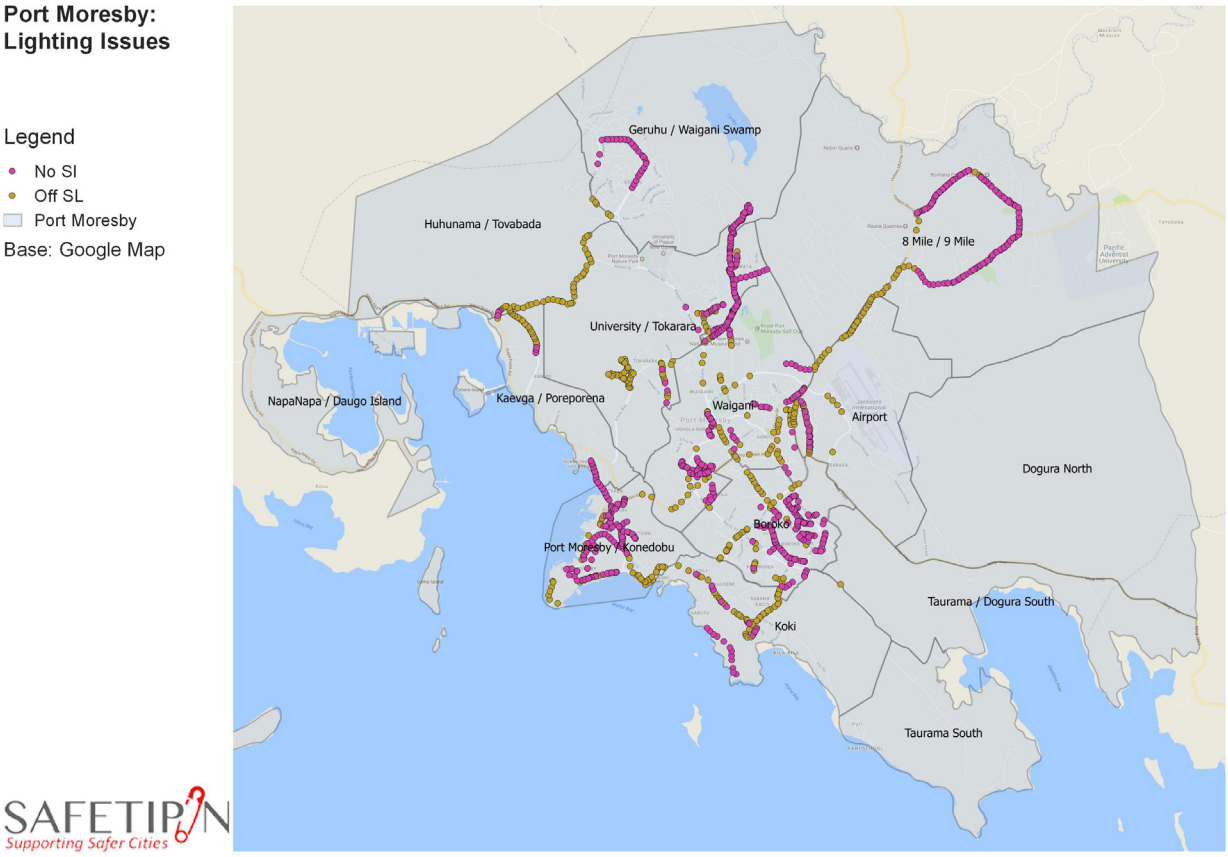
Lighting has been rated 1.3/3 for the city of Port Moresby. 32% of the points have been identified as dark spots i.e. points with no source of lighting and another 30% have been rated poorly in terms of overall lighting. The main roads of the city are well- lit; however, some streetlights were found to be non- functional at the time of the audits.

Figure 6: Poor lighting on the walkpath

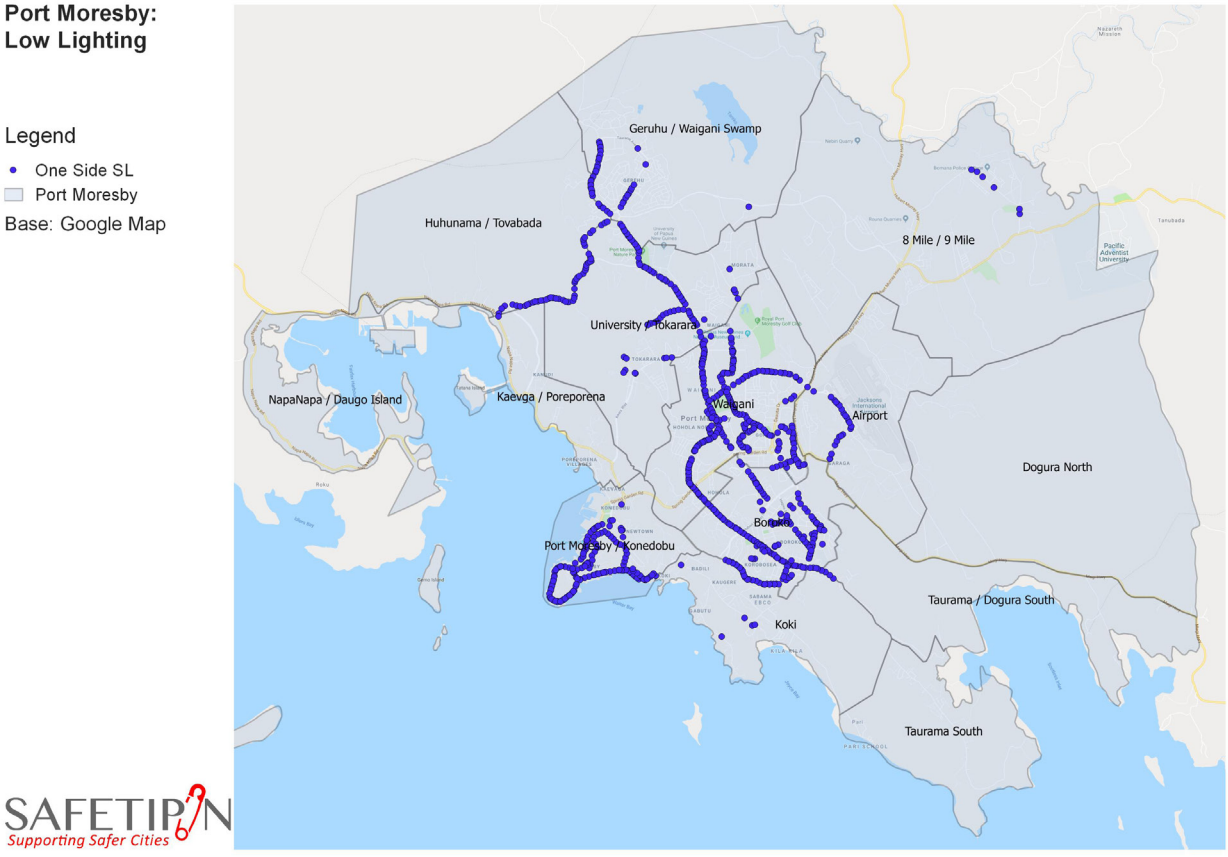
At points with streetlights installed on only one side on the main roads with more than 4 lanes, it has resulted in well-lit vehicular



Map 5: Audits showing lighting parameter rating



Map 6: Audit points with no streetlights or non-functional streetlights



Map 7: Audit points with poor lighting on main roads due to inadequate illumination

carriageway but poorly lit footpath (as seen in Figure 6). Pedestrian scale streetlights are needed at these points to ensure uniform illumination on the streets.

The audit points with poor lighting are indicated in the Map 6 and 7. The corresponding list of streets with no streetlights (as seen in Figure 7) and non- functional streetlight (as seen in Figure 8) for each of the LPAs is shown in Table 1. The streets with no streetlights need to have new streetlights installed as there is no source of lighting for the pedestrians currently. Streets with non- functional streetlights need to be checked and repaired.

Figure 7: Dark spots i.e. points with no streetlights

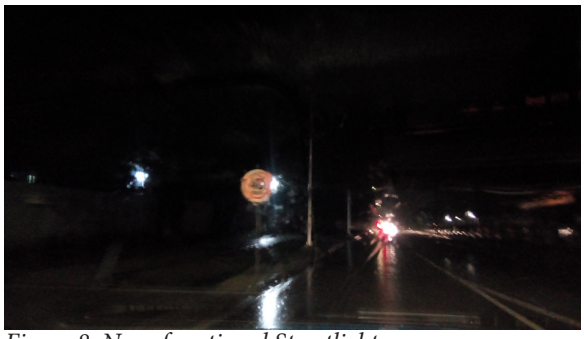


Figure 8: Non- functional Streetlights

Local Planning Area (LPA)	No Streetlight	Non-functional Streetlight
Port Moresby/ Konedobu	Lawes Road	Angau Dr, Near Pacific International Hospital, Queenscliffe St, Gavamani Rd
Boroko	Angau Dr, Turua Ave, Budoa Ave, Ororo cres, Vaivai Ave, Lokua Ave, Gagoma St, Emerald St, Mavaru St, Kaubebe st, Tana Tana ST, Macdhui Cres	Angau Dr, Near PIH along Taurama Road, Gerehu Dr, Taurama Ave, Nigibata Rd
Gerehu	Gerehu Dr, Taurama ave	Gerehu Dr, Taurama Ave, Nigibata Rd
University/ Tokarara	Cassowary Road, Kate Street, Talapia Street	Gannet Road, Pelican Street, Curlew Street, Pipit street, Matabudi Street, Pelican Street, Rakatani Road, Diara Street, Arere Street, Gevana Ave, Sivari Road
8 Mile/ 9 Mile	Near 9 Mile cemetry, Near Bomana Police college	Hubert Murray Highway, Near Bomana Police college
Waigani	Mokoraha Road, Pipit Street, Silkwood Street, Boombox Street, Cananga Road, Kunnai Street, Hibicus Road	Boombox Street, Mango Street, Kwila Street, Wards Strip Road, Waigani Road, Mokoraha Road, Vaibori Ave, Maple Street, Spring Garden Road, Amoora Street
Koki	Scratchley road	Onno St
Airport	Kanage Street	Hubert Murray Highway
Kaevga/ Poreporena	NA	Near Baruni Road

Table 2: List of streets with poor lighting

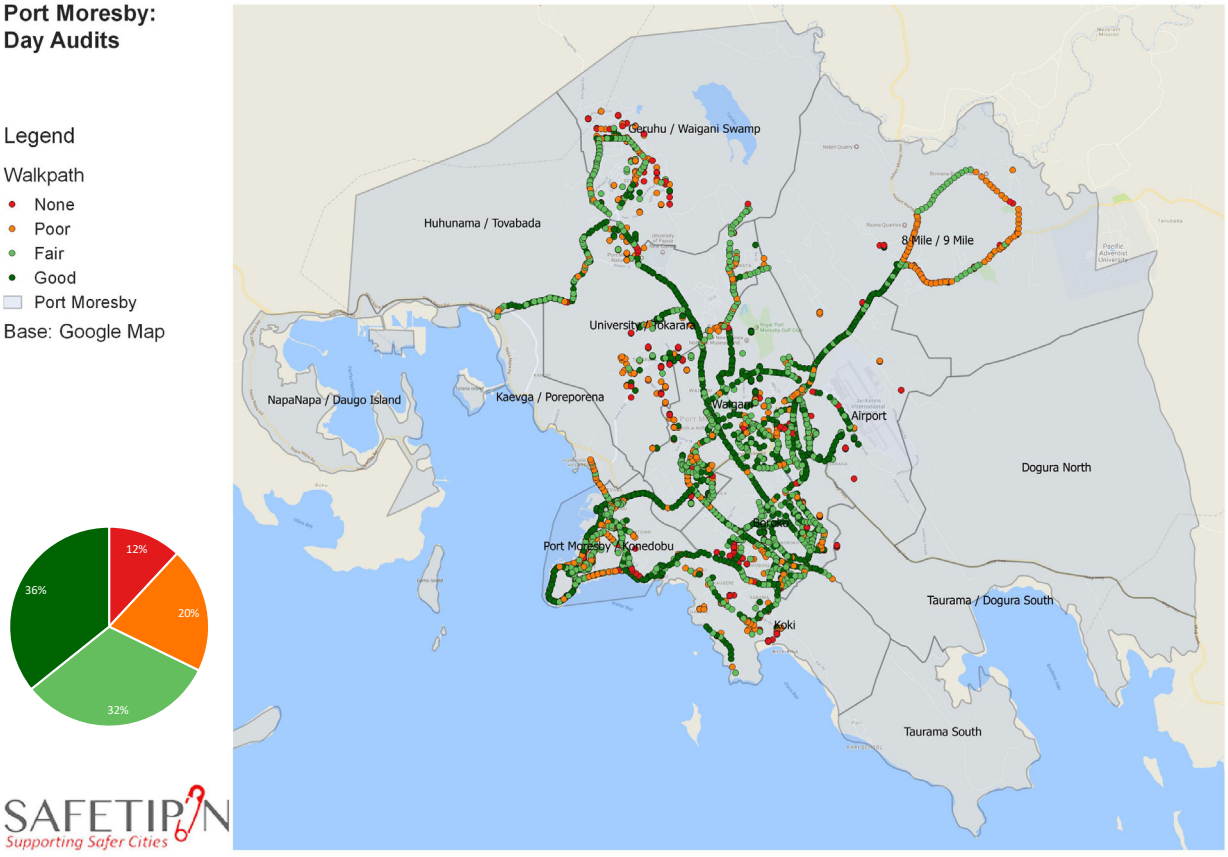
4.2 Walkpath

Walkpath parameter indicates whether a person can comfortably walk at a place. This refer to the quality of a pavement or space left for pedestrians along a road. Map 8 and 9 shows the rating of the walkpath parameter during day time and night audits.

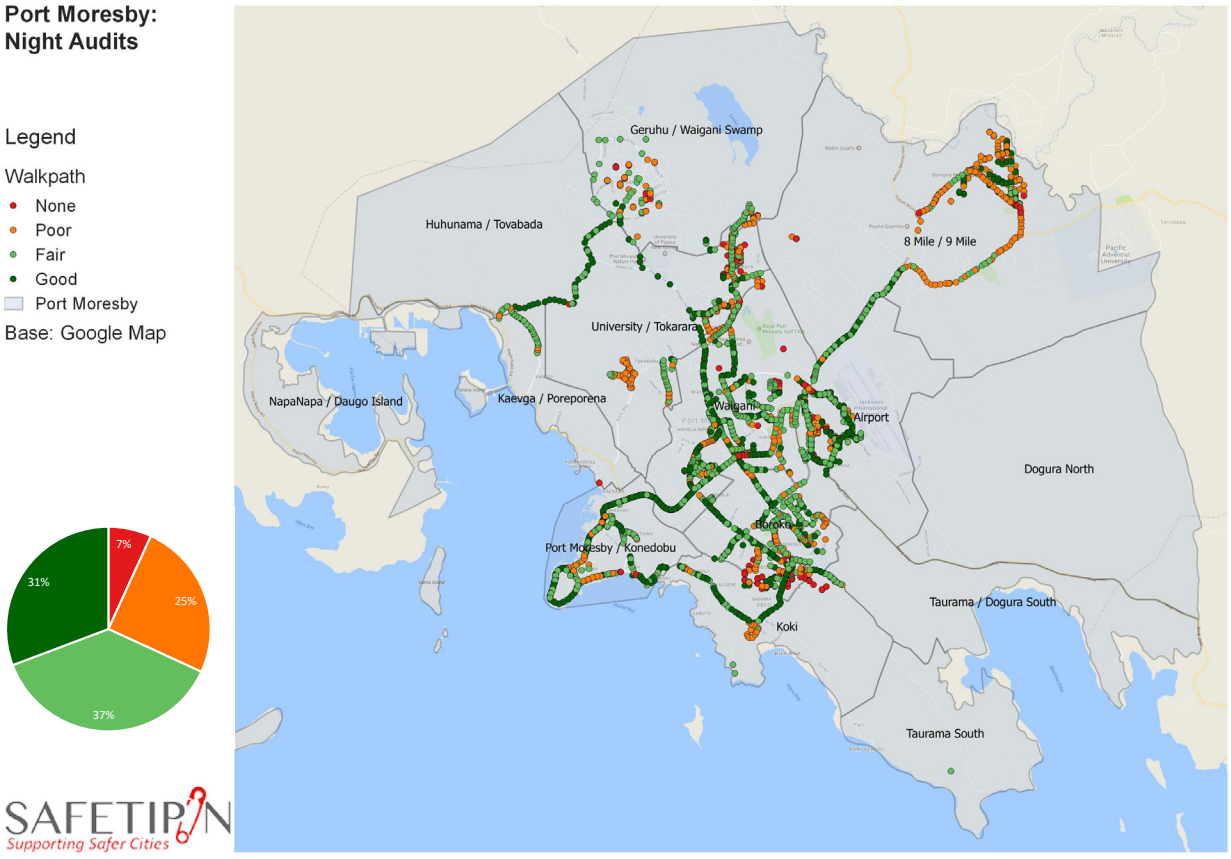
In Port Moresby, walkpath has been rated the highest parameter among all the parameters owing to presence of pavement at 68% of the audit points. The balance 32% of the points were found to either having no pavement or unpaved pavement as seen in Figure 10 and 11 respectively.

Though most of the city has a fairly good availability of pavements, the condition needs to be improved. At points with a high rating for Walkpath, it was found to be obstructed due to car parking (Figure 9). Provision should be made for designated on-street parking, clear of the pedestrian path.

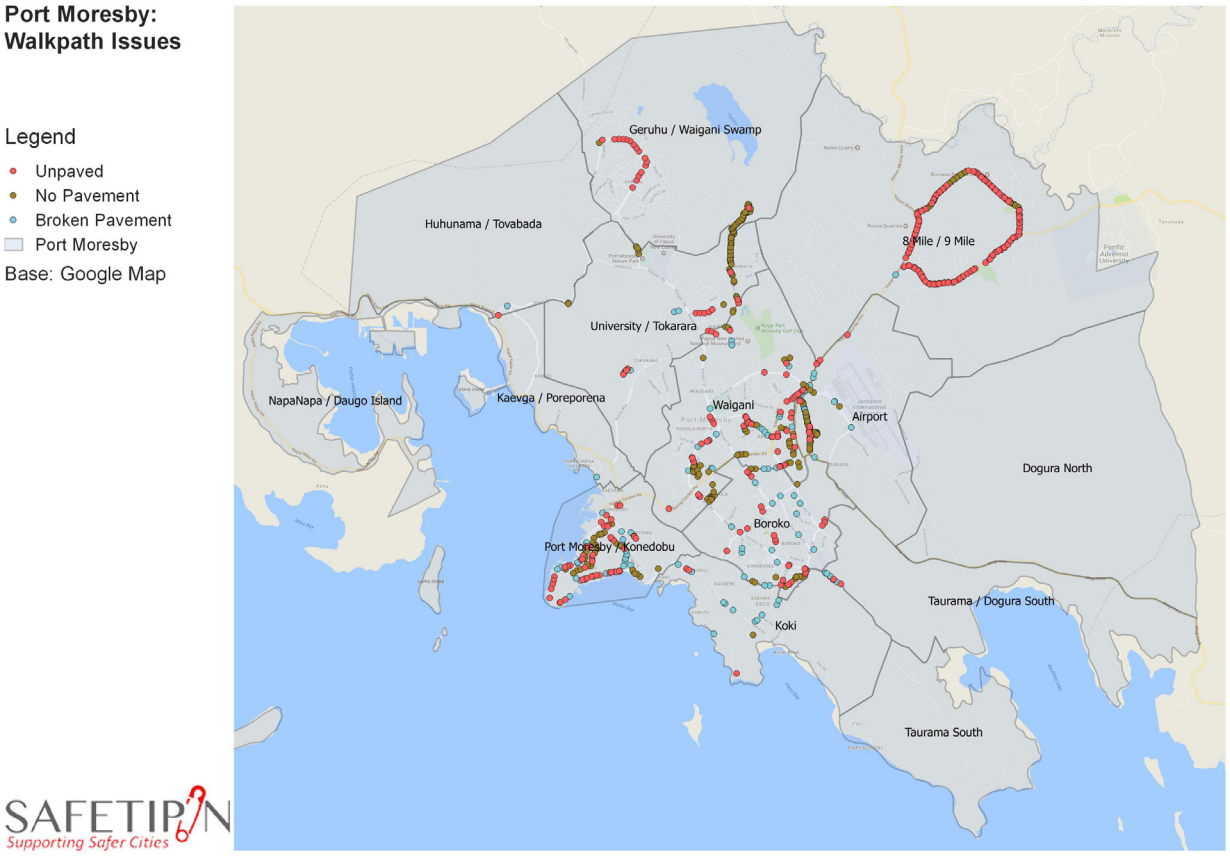
Figure 9: Parked cars blocking the footpath



Map 8: Audits showing walkpath parameter rating for day



Map 9: Audits showing walkpath parameter rating for night



Map 10: Audits showing points with poor walkpath

Analysing audits which gave low ratings to the Walkpath parameter, it was found that it was due to existing unpaved or broken pavement. These points which needs improvement are shown in the Map 10.

The list of streets which needs improvement in terms of walkpath is shown in Table 2 for all the LPAs. Proper raised pavement to be constructed at points with no or unpaved walkpath. Points with broken walkpath needs to be checked for repairs. Regular maintenance checks to be carried out.

Figure 10: No Walkpath

Figure 11: Unpaved Walkpath

Local Planning Area (LPA)	No Walkpath	Unpaved Walkpath	Broken Walkpath
Port Moresby/ Konedobu	Le Hunte Road, Airvos Ave	Champion Parade Road. Near Spring Garden Road, Bramel Street, Le Hunte Road,Charlmes Cres Road, Airvos Ave, Elanese Road	Ela Beach Road, Elanese Road
Boroko	Queenscliffe St	Karu St	Chinsurah St,Gabaka St
Gerehu	Gerehu Dr,Taurama ave,Nigibata Rd	Gerehu Dr,Taurama ave,Nigibata Rd	Gorokaega rd, Sivari
University/ Tokarara	NA	Pelican Street, Diara Street, Gevana Ave	Rakatani Road, Matabudi Street, Pipit Street
8 Mile/ 9 Mile	Near Holi spirit Seminary	Hubert Murray Highway,Near Bomana Police college,Near 9 Mile cemetry	Near Bomana Police college
Waigani	Amoora Street, Kabolu Street	Kabolu Street,Pipit Street, Mokoraha Road,Waigani Road, Kennedy Road, Wards Road	Kate Street
Koki	NA	Scratchley road	Scratchley road
Airport	NA	Kanage Street	Kanage Street
Kaevga/ Poreporena	NA	Champion parade,Boe Vagi Road	Boe Vagi Road

Table 3: List of streets with poor walkpath

4.3 Public Transport

Public Transport refers to the ease of accessing any mode of public transport i.e. metro/bus/taxi etc. and is measured in terms of the distance to the nearest mode.

In Port Moresby, public transport is rated 0.8/3 during the day and 0.5/3 during the night. Both these ratings are very low. Audit points showing the rating of public transport during day and night can be seen in the Map 11 and 12.

57% of the audit points fared poorly in terms of accessibility to the bus stop, that goes to 68% during the night. This is due to absence of designated bus stops around the city. Few areas with designated bus stops have bus shelter as shown in Figure 12.

The areas of Central Business District (CBD), Waigani market, Airport and University area have been rated higher in Public Transport as these are high activity zone. Majority of the buses are run by private service providers and have

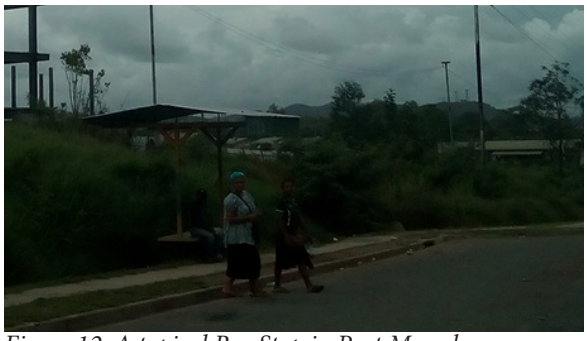
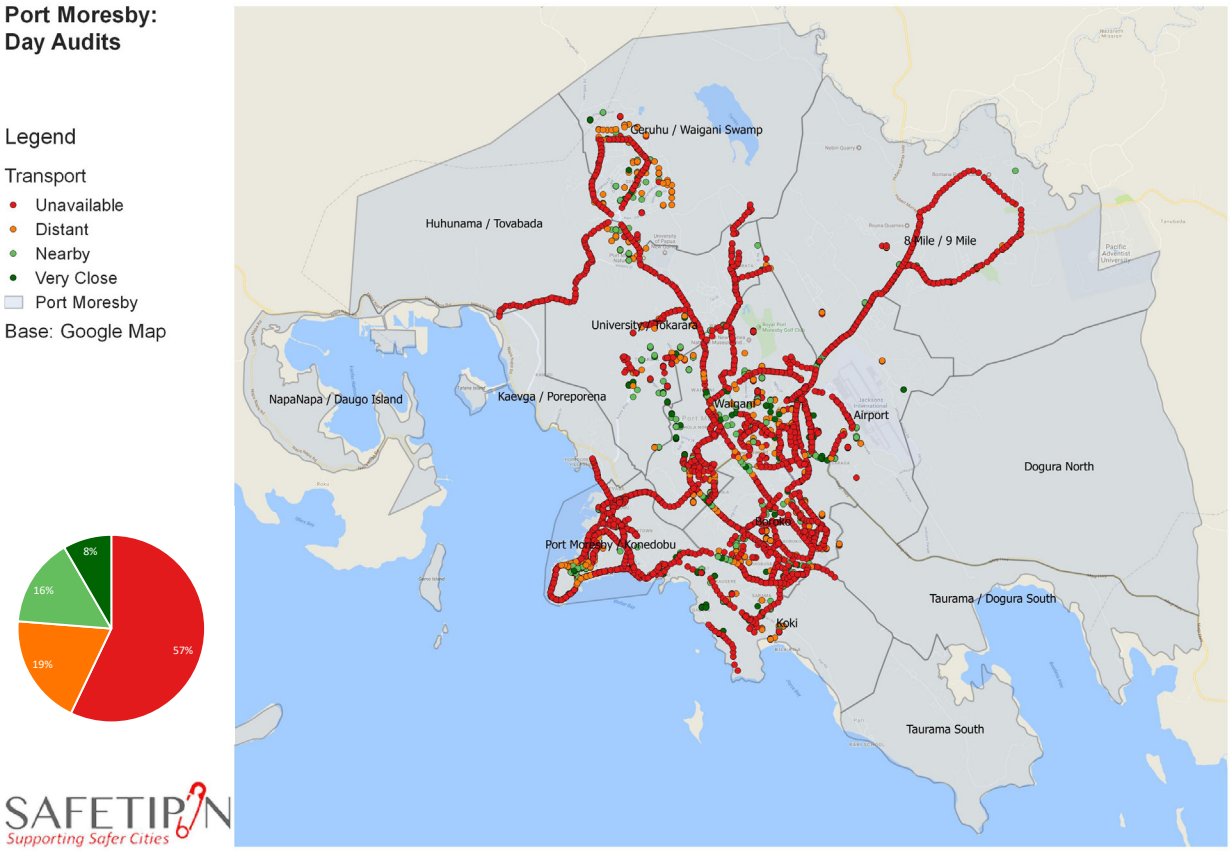
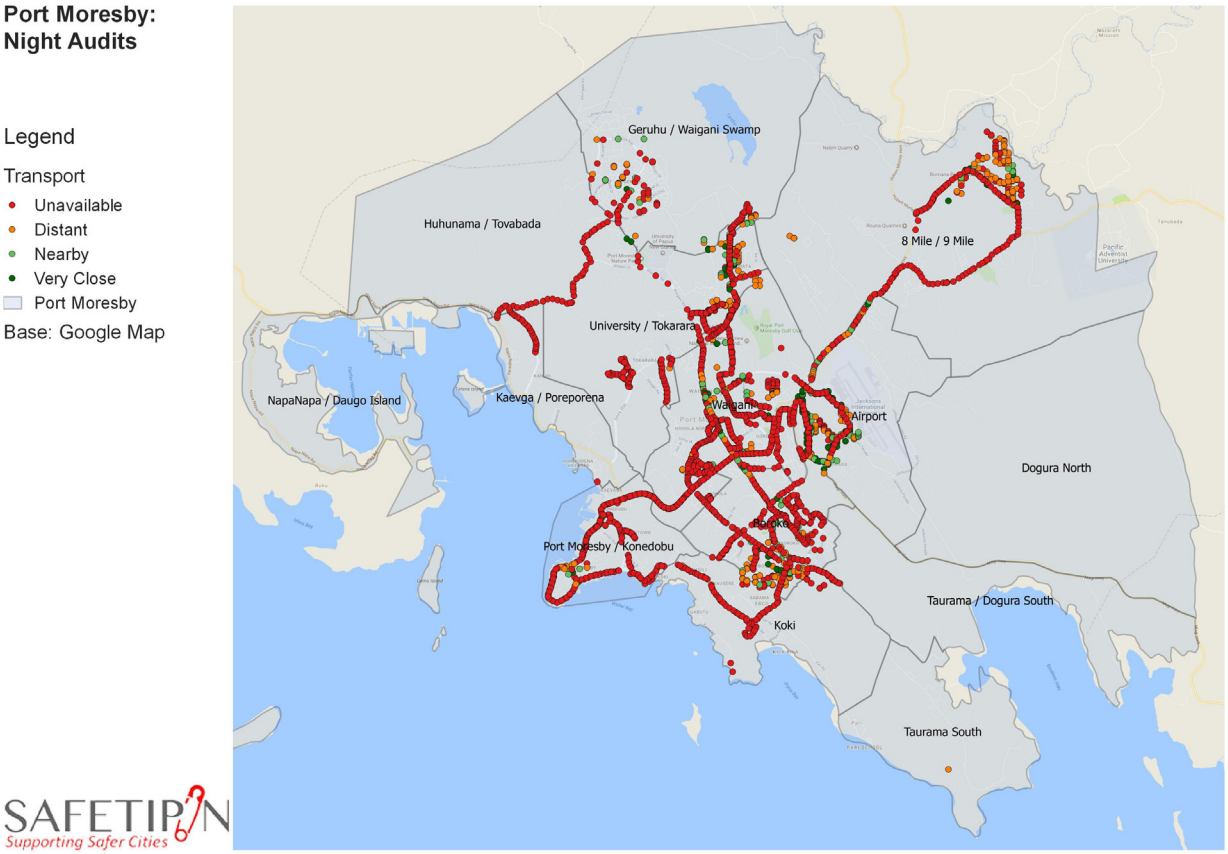


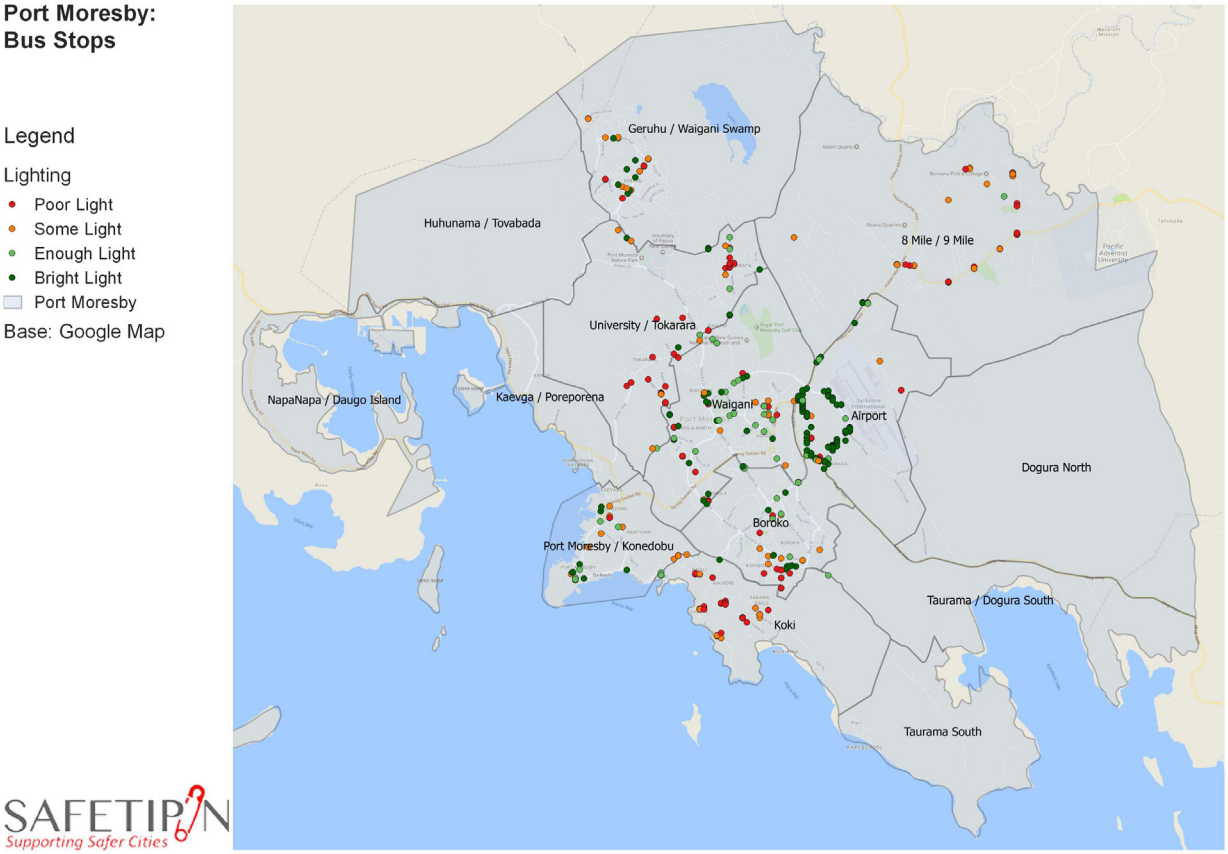
Figure 12: A typical Bus Stop in Port Moresby



Map 11: Audits showing rating of the public transport during daytime



Map 12: Audits showing rating of the public transport during night



Map 13: Audits showing rating of the lighting at the bus stops at night

fixed timings during morning and evening. Some of the existing bus stops were found to be deserted at night and only few of them had proper lighting in the night (Figure 13). Figure 14 shows a bus stop at a height along unpaved part of the road. There should be proper lighting and seating furniture at the bus stops in order to provide smooth and comfortable access to the travellers. Map showing lighting at the bus stops can be seen on Map 13.

Table 3 shows the list of streets withn the various LPAs which don't have bus stops within 400 m distance. New bus stops to be set up here.

Figure 13: Deserted Bus Stop at night

Figure 14: Absence of proper bus shelter & seating furniture

Local Planning Area (LPA)	No bus stop within 400 m
Port Moresby/ Konedobu	Chalmers cres, Ela beach Road, Healy Road, Airvos Ave, Port Road, Champion Parade Road, Lawes Road, Elanese Road
Boroko	Wards Rd, Taurama Rd, Moonbi St, Merrie England Rd, Gavamani Rd, Moisana St, Pipi Gari St, Korobosea Dr, Chinsurah St, Hubert Murray hwy, Lahara Ave, Stores Rd, Waigani Dr, Gabaka St, Angau Dr, Bisine Parade, Laurabada Ave, Okari St, Bava St, Leander St, Igua St, Karu St, Besele St, Bau Bau St, Boroko Dr, Tana-Tana St, Vaivai Ave, Ilimo Ave, Turua Ave, Lokua Ave, Budoa Ave
Gerehu	Gerehu Dr, Tarumana Ave
University/ Tokarara	Waigani Dr, Pelican st, Mokoraha Rd, Pipit st, Gannet Rd
8 Mile/ 9 Mile	Hubert Murray Highway, Near Bomana Police college, Near 9 Mile cemetry
Waigani	Spring Garden Road, Kennedy Road, Gerehu Dr, Henao Dr Road, Spoonbill Road, John Guise Dr Road, Kumul Ave, Somare Circuit Road, Waigani Dr Road, Islander Dr Road, Wards Road, Gorodina Street, Kawai Dr Road, Geauta Dr Road, Pipit Road, Mokoraha Road
Koki	Hubert murray highway, Scratchley road, Gavamani road, lolorua st, Taurama Road
Airport	Hubert Murray Highway, Morea Tobo Road, Kumul Flyover, Kanage Street
Kaevga/ Poreporena	Boe Vagi Road,Near Baruni Road

Table 4: List of streets with no accessible public transport within 400

4.4 Visibility

The parameter visibility refers to how visible is one to others , i.e. can you be seen when on the street. It is based on the principle of 'eyes on the street'. i.e. can you be seen when on the street. This comprises windows-doors of shops, houses along with street vendors and hawkers.

Visibility has been rated 1/3 during the daytime and 0.7/3 during the nightime. 39% of the streets of Port Moresby have no eyes meaning no natural surveillance in form of houses, shops or street vendors. This goes down to 57% in evening.

Figure 15: Limited visibility on highways

This can be attributed to geographical setting of the city which has large number of unused spaces and fields in between the districts. As seen in Figure 15 and 16, open areas provide no or limited visibility, hence people tend to avoid such areas after dark.

Figure 16: Limited visibility along some roads

In districts with residential and commercial buildings, some audit points have been rated poorly in terms of visibility due to high boundary walls. There are high boundary walls along the bus stops also. This leads to limited visibility to women and girls while waiting at the bus stops.

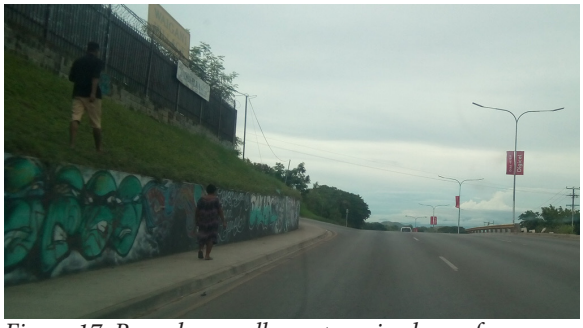
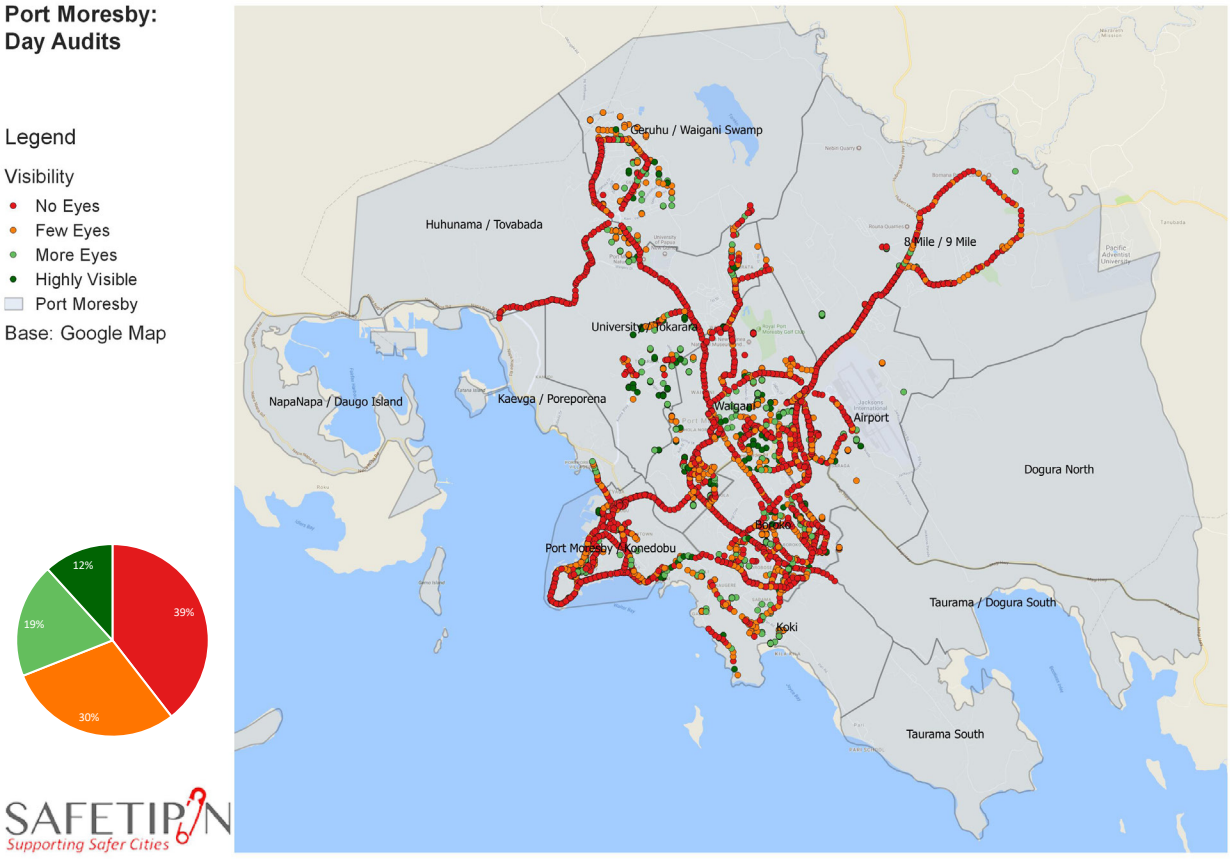


Figure 17: Boundary walls are perceived unsafe

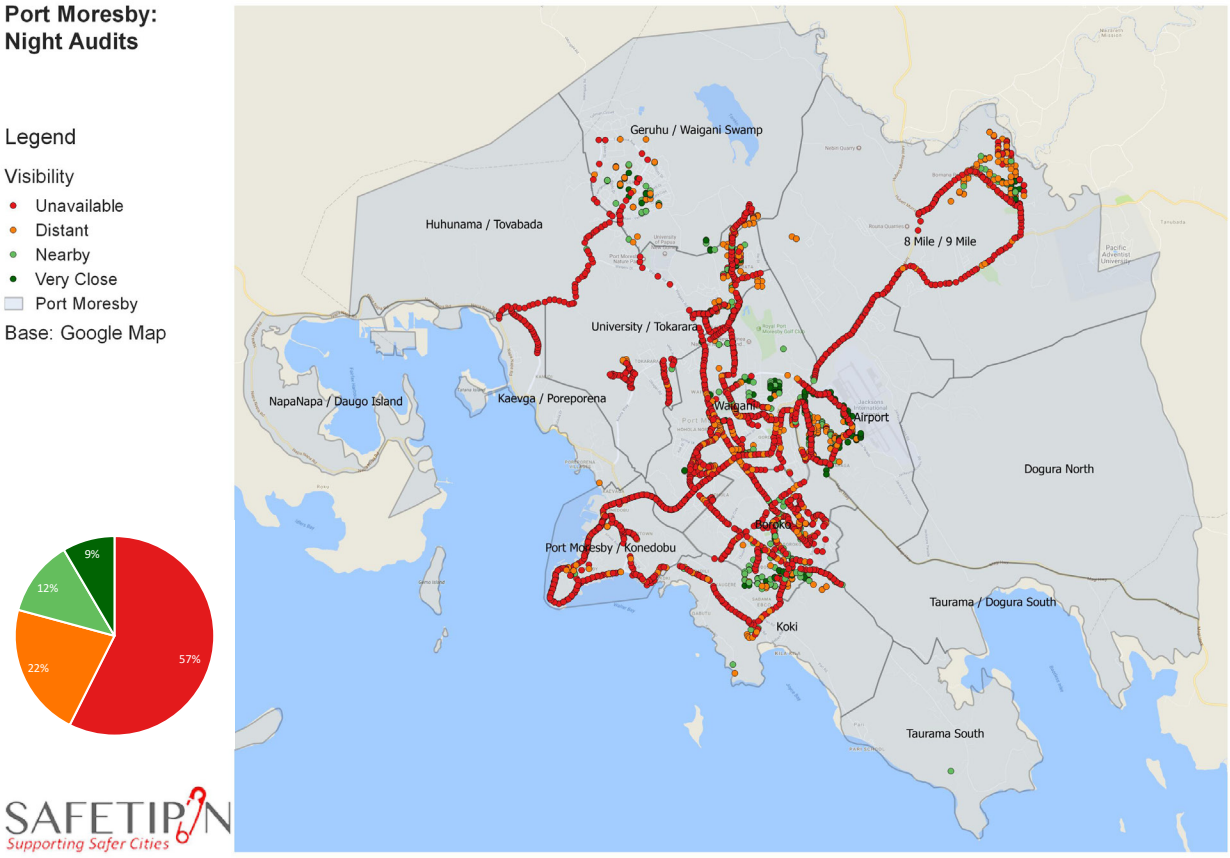
To improve visibility, the height of solid part of the boundary wall should be reduced to maintain some transparency between streets and the buildings for the pedestrians. (Figure 18)

Visibility has been rated high around marketplaces with large number of street vendors and hawkers. Table 5 shows the streets with low and high visibility.

Figure 18: Low boundary wall provides better visibility



Map 14: Audits showing visibility rating during daytime



Map 15: Audits showing visibility rating during night

Local Planning Area (LPA)	Visibility	
	Low (0,1 rating)	High (2,3 rating)
Port Moresby/ Konedobu	Baruni Road, Sivari Road, Nigibata Road, Waigani Dr, Champion parade, Airvos ave, Ela Beach Road, Musgrave Street, Chalmers cres, Healy Road, Streetanley Esplanade	Dauglas Street, Port Road
Boroko	Wards Rd, Taurama Rd, Moonbi St, Merrie England Rd, Gavamani Rd, Moisana St, Pipi Gari St, Korobosea Dr, Chinsurah St, Hubert Murray hwy, Lahara Ave, Stores Rd, Waigani Dr, Gabaka St, Angau Dr, Bisine Parade, Laurabada Ave, Okari St, Bava St, Leander St, Igua St, Karu St, Besele St, Bau Bau St, Boroko Dr, Tana-Tana St, Vaivai Ave, Ilimo Ave	Gavamani Rd, Vaivai Ave, Lokua Ave
Gerehu	NA	Goro-kaeaga Rd, Gerehu Dr, Tarumana Ave, Nigibata Rd
University/ Tokarara	Sivari Road, Waigani Road, Gannet Road, Pelican Street, Koura Way, Rakatani Road, Arere Street, Diara Street, Gevana Ave, Matabudi Street, Talapai Street,	Giung Street, Curlew Street
8 Mile/ 9 Mile	Hubert Murray Highway, Near Bomana Police college, Near 9 Mile cemetry	Near Bomana Police college
Waigani	Kate street, Pipit Street, Somare Circuit, Mokoraha road, Vaibori Ave, JKumul Flyover, Unnamed Road, Islander Road, Wards Road, Satin Street, Amoora Street, Bombax Street, Tanu Street, Cananga Street, Bombax Street, Amoora Street, Kwila Street, Spring Garden Road, Maple Street, Silkwood Street, Gordonia Street, Kunai Street, Waigani Road, Ahuia Street, Kawai Dr, Kennedy Road, Henao Dr, Monise Street, Hubert Murray Highway, Madaha Street, Nuana Road, Lohia Street, Henao Street, Geauta road.	Cameron Road, Mango Street.
Koki	Taurama Road, Scratchley Road, Hubert Murray Highway	NA
Airport	Hubert Murray Highway, Morea Tobo Road, Kumul Flyover, Kanage Street	Morea tobo Road
Kaevga/ Poreporena	Boe Vagi Road, Near Baruni Road	Boe Vagi Road

Table 5: List of streets with low and high visibility

4.5 Security

The parameter security refers to visible security offered either by the police or private security guards (for example along ATM/Bank). Security in the form of patrolling by Police could not be taken in account due to limited information on the same.

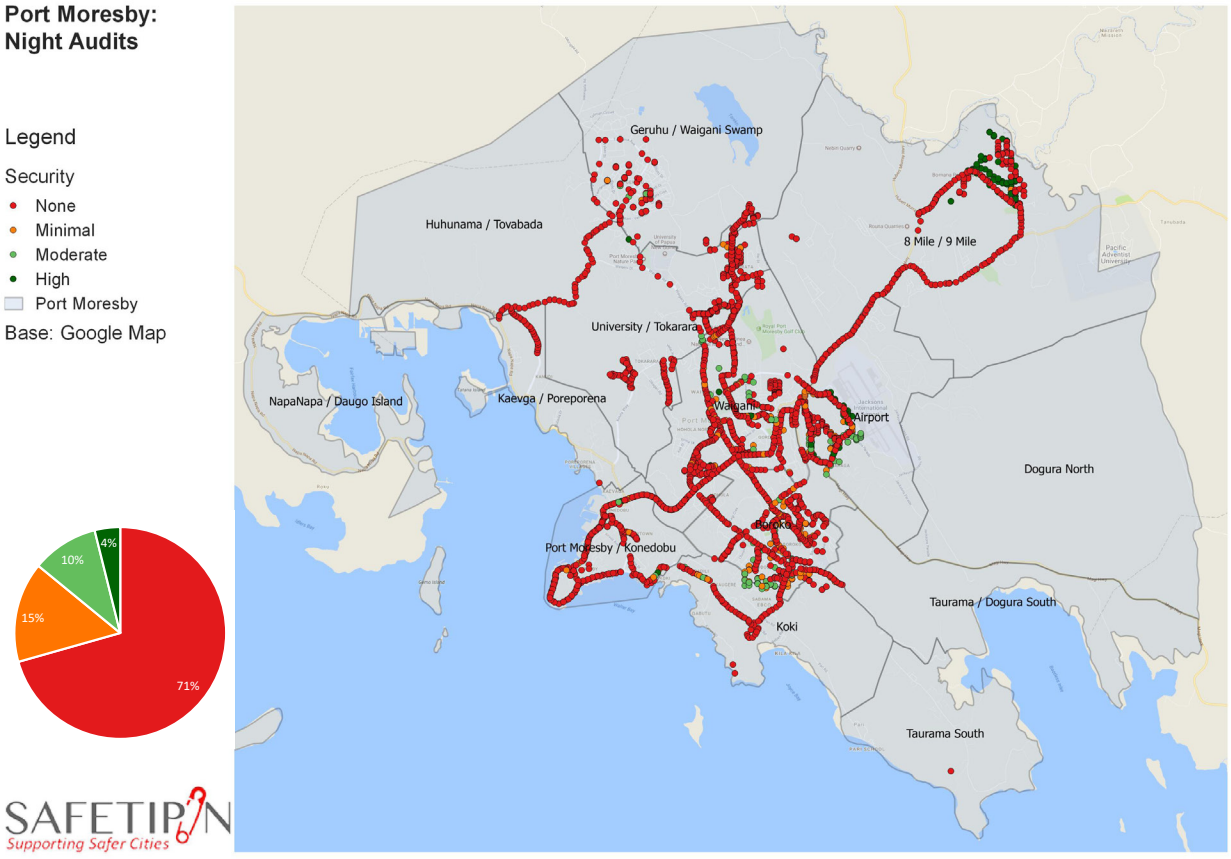
Security is rated 0.5/3 during the day and 0.4/3 during the night. Security along with Visibility parameter are rated the lowest among all the nine parameters. In terms of security, 71% of the audit points were reported to have no form of security. Moderate security is present in the form of private guards in every commercial building and townships. Audit Points around the Police Station have been rated the highest in the security parameter.

In marketplaces with large number of street vendors and hawkers, while visibility was rated high, there was no Police or Private security. At some points, street side vendors and hawkers were found acting as natural surveillance (Figure 20). However, the auditors mentioned that security at these highly crowded areas are a concern. Audit points with high visibility in terms of road side vendors and temporary stalls indicate marketplaces. Around the clock security should be provided at these marketplaces as these are high activity zones.

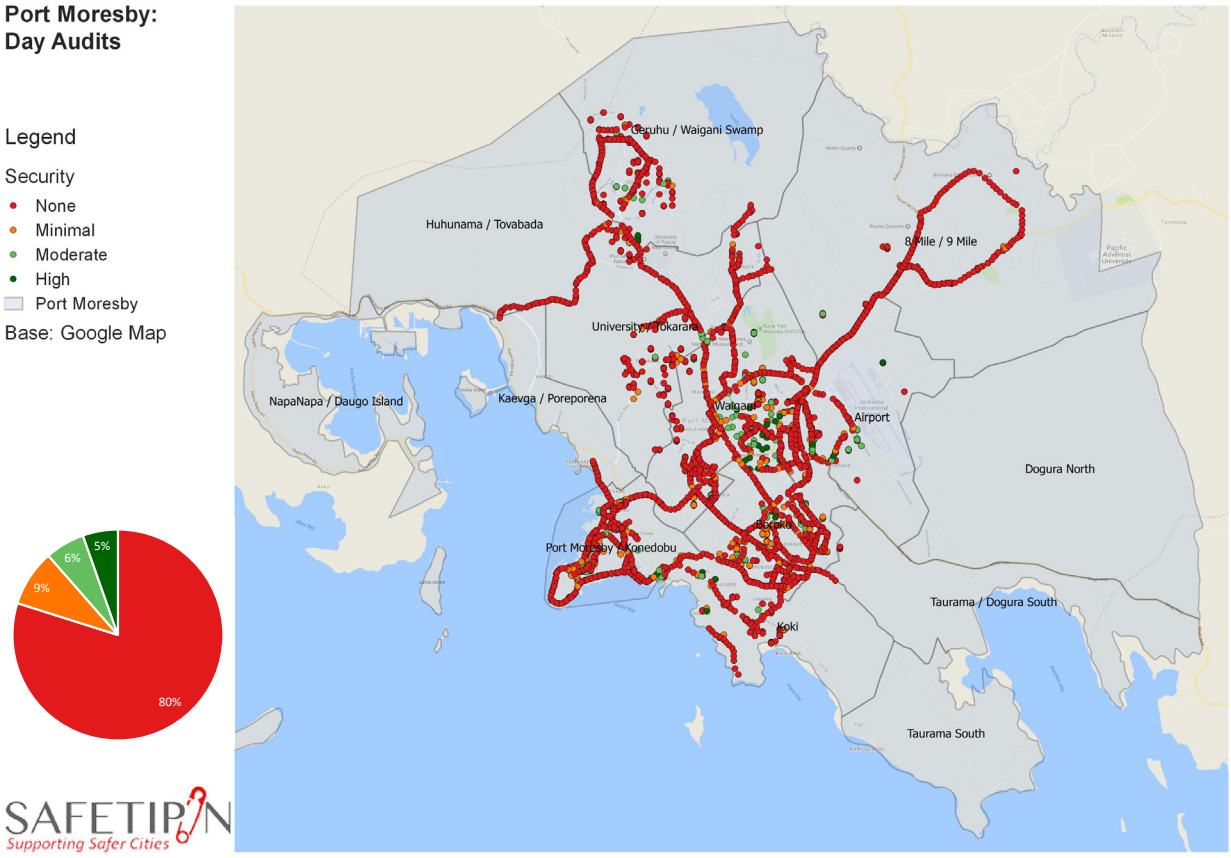
Figure 20: Street Market provides natural surveillance

Additionally, auditors reported cases of harassment and mugging at the bus stops. This dissuade women to wait at the bus stop alone and instead wait on the road. High Boundary walls around the bus stops are added concern for female commuters. Regular Police patrolling around the bus stops could prevent the cases of harassment and theft.

Figure 19: No Security at the bus stop



Map 16: Audits showing security rating during daytime



Map 17: Audits showing security rating during night

Local Planning Area (LPA)	Security	
	Low (0,1 rating)	High (2,3 rating)
Port Moresby/ Konedobu	Chalmers cres, Streetanley Esplanade, Airvos Ave, Ela Beach Road, Champion parade, Healy Road, Davara Road, Lawes Road, Elanese Road	Port Road, Dauglas Street, Musgrave Street, Koki Street, Lawes Road, Elanese Road, Stanley Esplanade
Boroko	Wards Rd, Taurama Rd, Moonbi St, Merrie England Rd, Gavamani Rd, Moisana St, Pipi Gari St, Korobosea Dr, Chinsurah St, Hubert Murray hwy, Lahara Ave, Stores Rd, Waigani Dr, Gabaka St, Angau Dr, Bisine Parade, Laurabada Ave, Okari St, Bava St, Leander St, Igua St, Karu St, Besele St, Bau Bau St, Boroko Dr, Tana-Tana St, Vaivai Ave, Ilimo Ave, Turua Ave, Lokua Ave, Budoa Ave	Nita St., Ororo Cres near St Martin's Church, Lokua Ave
Gerehu	NA	Goro-kaeaga Rd, Gerehu Dr, Tarurmana Ave, Nigibata Rd
University/ Tokarara	Waigani Dr, Baruni Road, Savari Road, Goro-Kaeaga Road, Gannet Road, Cassowary Road, Curlew Street, Pelican Street, Pipit Street, Matabudi Street, Kate Street, Giung Street, Talapai Street, Koura Way, Rakatani Road, Arere Street, Diara Street, Gevana Ave, Kenese Ave	Waigani Dr, Rakatani Road
8 Mile/ 9 Mile	Hubert Murray Highway,Near Bomana Police college,Near 9 Mile cemetry	Near Bomana Police College
Waigani	Cameron Road, Mango Street, Kate street, Pipit Street, Somare Circuit, Mokoraha road, Vaibori Ave, Kumul Flyover, Unnamed Road, Islander Road, Wards Road, Satin Street, Amoora Street, Bombax Street, Tanu Street, Cananga Street, Bombax Street, Amoora Street, Kwila Street, Spring Garden Road, Maple Street, Silkwood Street, Gordonia Street, Kunai Street, Waigani Road, Ahuia Street, Kawai Dr, Kennedy Road, Henao Dr, Monise Street, Hubert Murray Highway, Madaha Street, Nuana Road, Lohia Street, Henao Street, Geauta road	Gordon Circuit, Cobon Street,
Koki	Scratchley road, Hubert murray highway, Onno st, Sebea rd	Korobosea rd
Airport	Hubert Murray Highway, Morea Tobo Road, Kumul Flyover, Kanage Street	Kanage Street
Kaevga/ Poreporena	Boe Vagi Road, Near Baruni Road	NA

Table 6: List of streets with low and high security

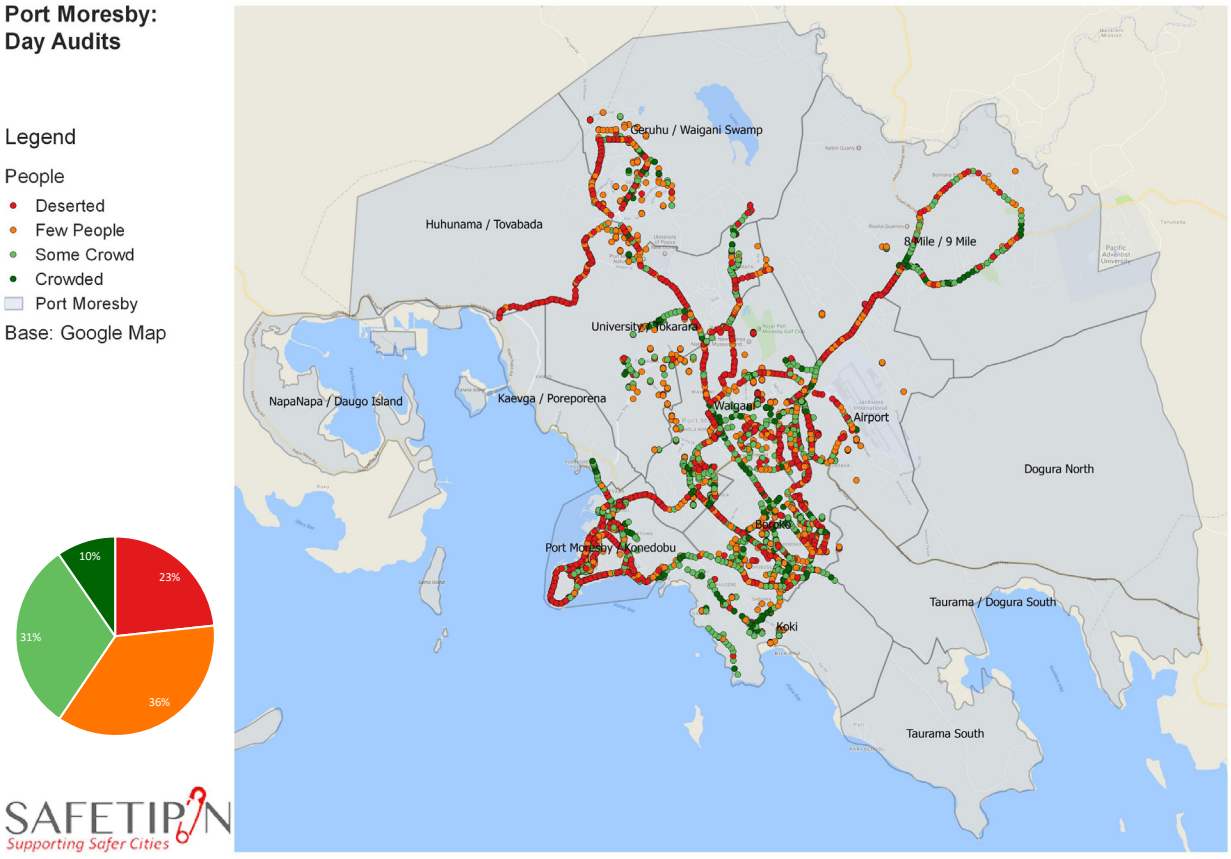
4.6 People and Gender Usage

People and gender usage are two parameters which measure the number of people on the roads, and within that, the number of women. The rating in these parameters increases as a consequence of usage opportunities and perception of safety among the citizens.

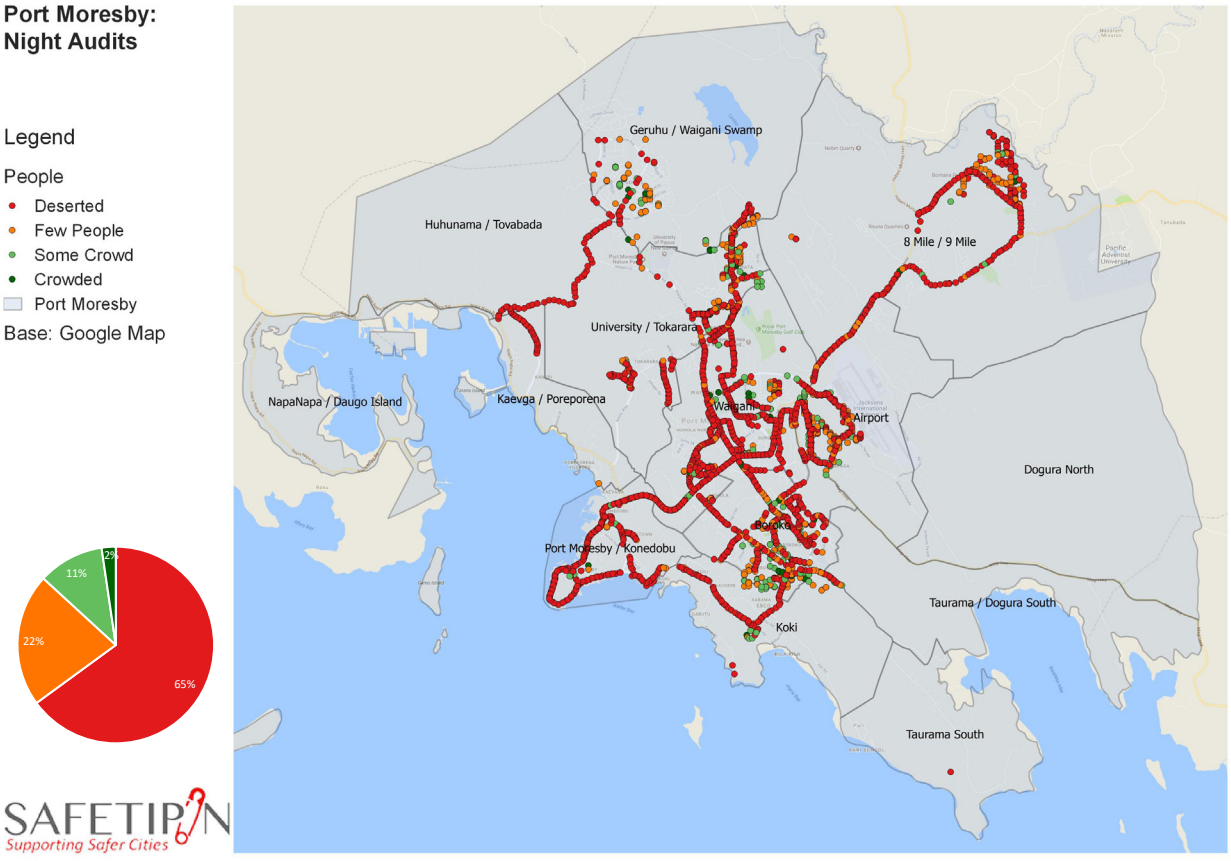
While the ratings for both these parameters have been high in the day, it fares poorly in evening. The percentage of deserted points goes from 23% in daytime to 65% in the night. Women and children participation in public spaces is limited to the residential areas and high activity zones. While 36% of the spaces were found as gender diverse in daytime, it is only 14% during the evening. Table 6 shows areas with low and high presence of people. The areas with high rating of people should be taken on priority basis for physical interventions.

Local Planning Area (LPA)	PEOPLE		GENDER USAGE	
	Low (0,1 rating)	High (2,3 rating)	Low (0,1 rating)	High (2,3 rating)
Port Moresby/ Konedobu	Champion parade, Streetanley Esplanade, Chalmers cres, Healy Road, Davara Road, Lawes Road, Spring Garden Road, Airvos Road	Dauglas Street, Champion parade, Musgrave Street, Elanese Road	Dauglas Street, Musgrave Street, Champion parade, Streetanley Esplanade, Chalmers cres, Healy Road, Davara Road, Lawes Road, Spring Garden Road, Airvos Road	Dauglas Street, Musgrave Street
Boroko	Wards Rd, Hubert murray hwy, Taurama Rd, Geboso Pl, Korobosea Dr, Pipi gari St, Moonbi St, Merrite England Rd, Angau Dr, Lahara Ave, Okari St, Bisini Parade, Bessele St, Bava St, Igaua St, Karu St, Boroko Dr, Vaivai Ave, Tana -Tana st, Gabaka St	Chinsurah St, Queenscliffe ST, Taurama Rd, Moisana St, Korobosea St, Leander st,Bava St, Ilimo Ave, Bisini Parade, Lahara Ave, Hubert Murray hwy, Stores Rd, Waigani Dr, Boroko Dr, Vaivai Ave, Angau Dr, Pipi Gari ST	Wards Rd, Taurama Rd, Moonbi St, Merrie England Rd, Gavamani Rd, Moisana St, Pipi Gari St, Korobosea Dr, Chinsurah St, Hubert Murray hwy, Lahara Ave, Stores Rd, Waigani Dr, Gabaka St, Angau Dr,Bisine Parade, Laurabada Ave, Okari St, Bava St, Leander St, Igua St, Karu St, Besele St, Bau Bau St, Boroko Dr, Tana-Tana St, Vaivai Ave, Ilimo Ave, Turua Ave, Budoa Ave	Hubert Murray Hwy, Vaivai Ave, Bisini ParadeLokua Ave, Geboso Pl, Hagwa St
Gerehu	NA	Goro-kaeaga Rd,Gerehu Dr,Taurama ave,Nigibata Rd	NA	Goro-kaeaga Rd, Gerehu Dr, Taurama Ave, Nigibata Rd
University/ Tokarara	Waigani Dr, Baruni Road, Savari Road,Gannet Road, Cassowary Road, Matabudi Street, Talapai Street, Matabudi Street, Koura Way, Rakatani Road	Giung Street, Talapai Street, Arere Street, Curlew Street, Matabudi Street, Near Waigani Dr.	Waigani Dr, Baruni Road, Savari Road,Gannet Road, Cassowary Road, Matabudi Street, Kate Street, Giung Street, Pipit Street, Pelican Street, Koura Way, Rakatani Road, Arere Street, Diara Street, Gevana Ave, Kenese Ave, Talapai Street	Curlew Road, Near Waigani Dr.
8 Mile/ 9 Mile	Hubert Murray Highway,Near Bomana Police college,Near 9 Mile cemetry	Hubert Murray Highway, Near 9 Mile cemetry	Hubert Murray Highway, Near Bomana Police college, Near 9 Mile cemetry	Near Bomana Police College
Waigani	Islander dr, Spring Garden rd, Wards rd, Mapple st, Huber murrey hway, Hibiscus st, Waigini dr, Islander dr, Kennedy rd, Gordon circuit, Kumul Flyover, Woodcock rd, Kookabura st, Somare circuit, Kumul ave, Pipit st, Kate st	Spoonbill dr, Kumul Flyover, Woodcock rd, Wagini dr, Kawai dr, Wagini dr	Islander dr, Spring Garden rd, Wards rd, Mapple st, Huber murrey hway, Hibiscus st, Waigini dr, Islander dr, Kennedy rd, Gordon circuit, Kumul Flyover, Kookabura st, Somare circuit, Kumul ave, Pipit st, Kate st	Spoonbill dr, Kumul Flyover
Koki	Scratchley road, Gavamani road, Taurama road	NA	Karius rd, Scratchley Rd	Hubert murray highway, lolorua rd
Airport	Hubert Murray Highway, Morea Tobo Road, Kumul Flyover, Kanage Street	Hubert Murray Highway, Morea Tobo Road	Hubert Murray Highway, Morea Tobo Road, Kumul Flyover, Kanage Street	Morea Tobo Road
Kaevga/ Poreporena	Near Baruni Road	Boe Vagi Road	Near Baruni Road	Boe Vagi Road

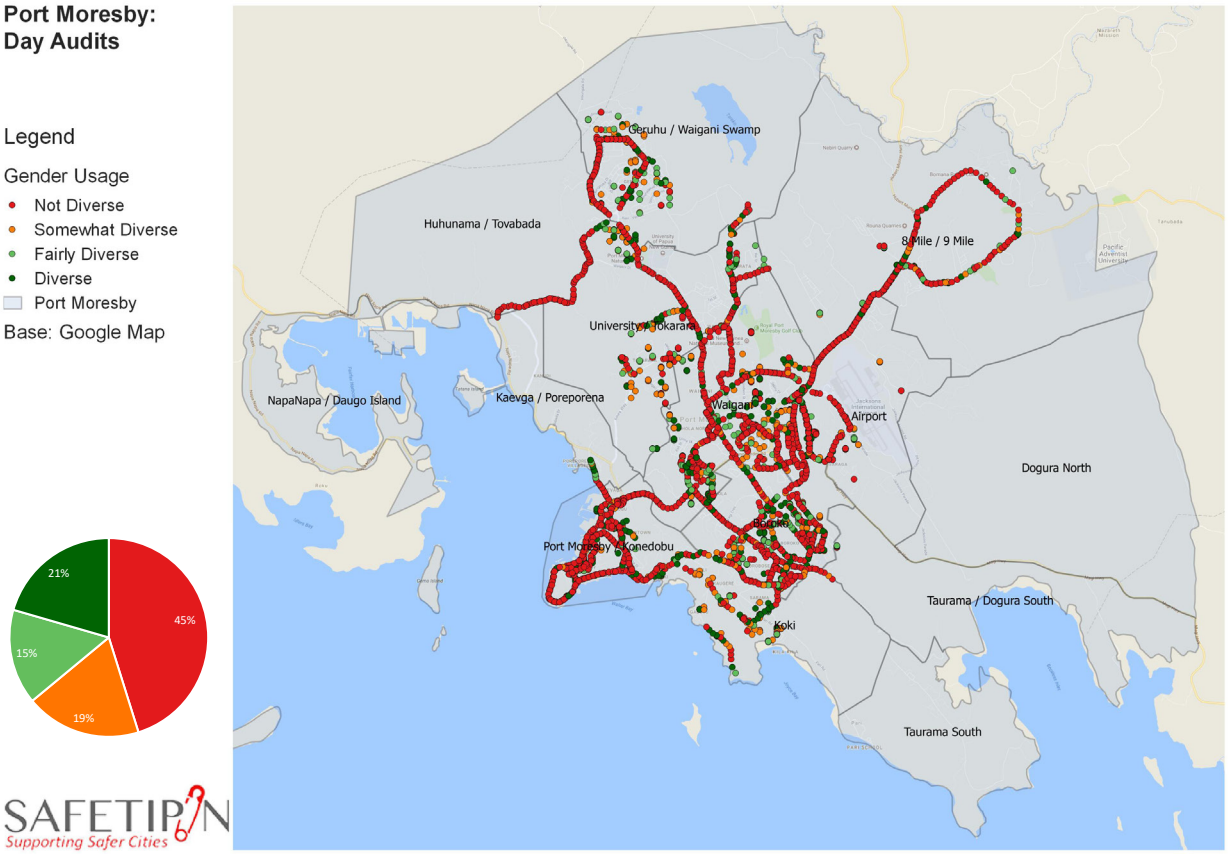
Table 7: List of areas with high and low public participation



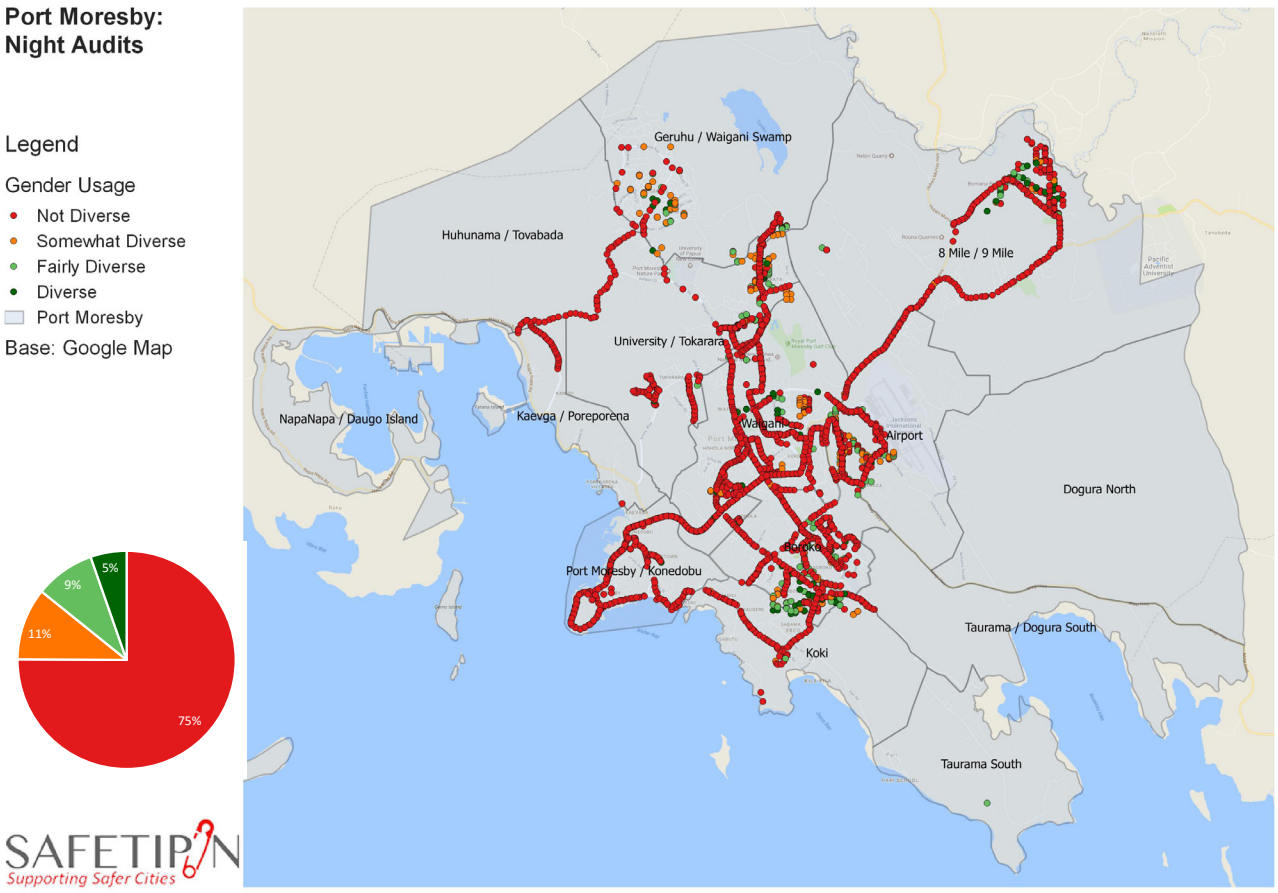
Map 18: Audits showing people rating during daytime



Map 19: Audits showing people rating during night



Map 20: Audits showing gender usage rating during daytime



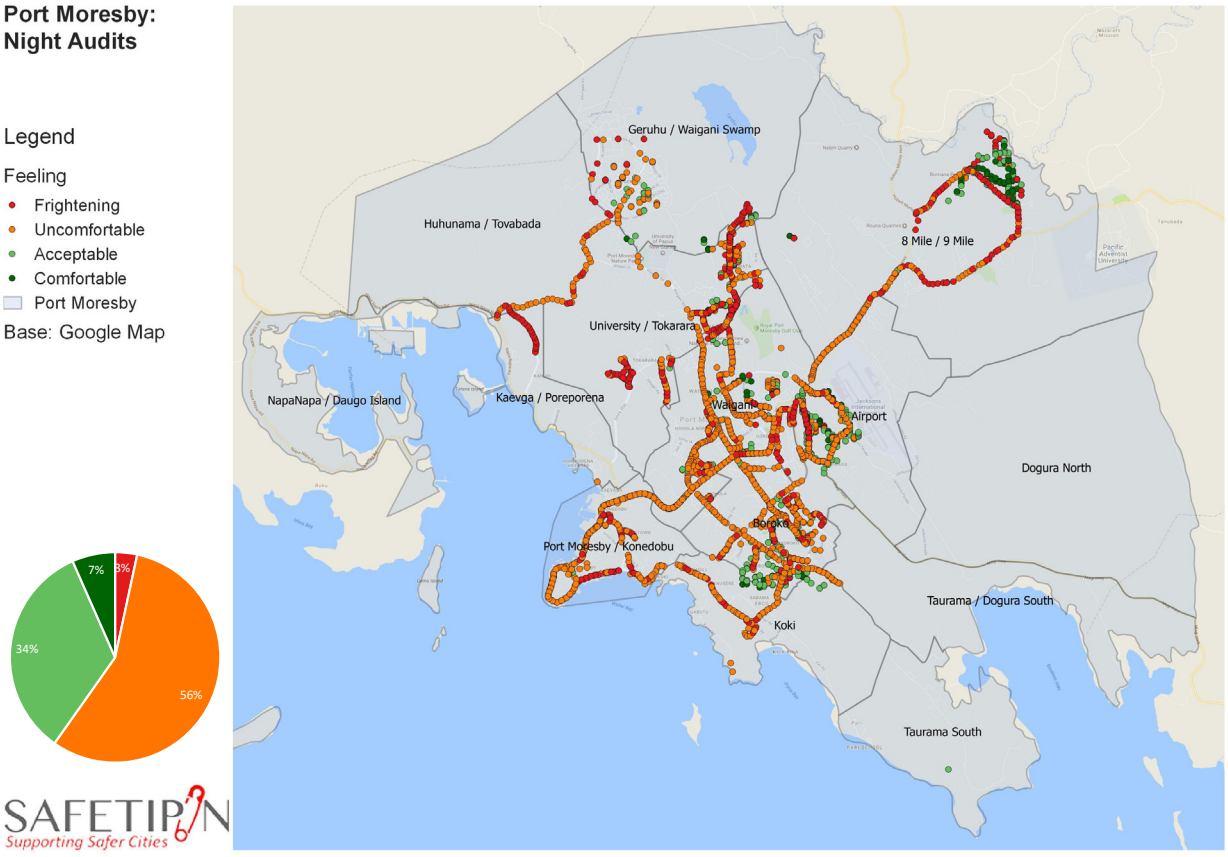
Map 21: Audits showing gender usage rating during night

4.7 Feeling

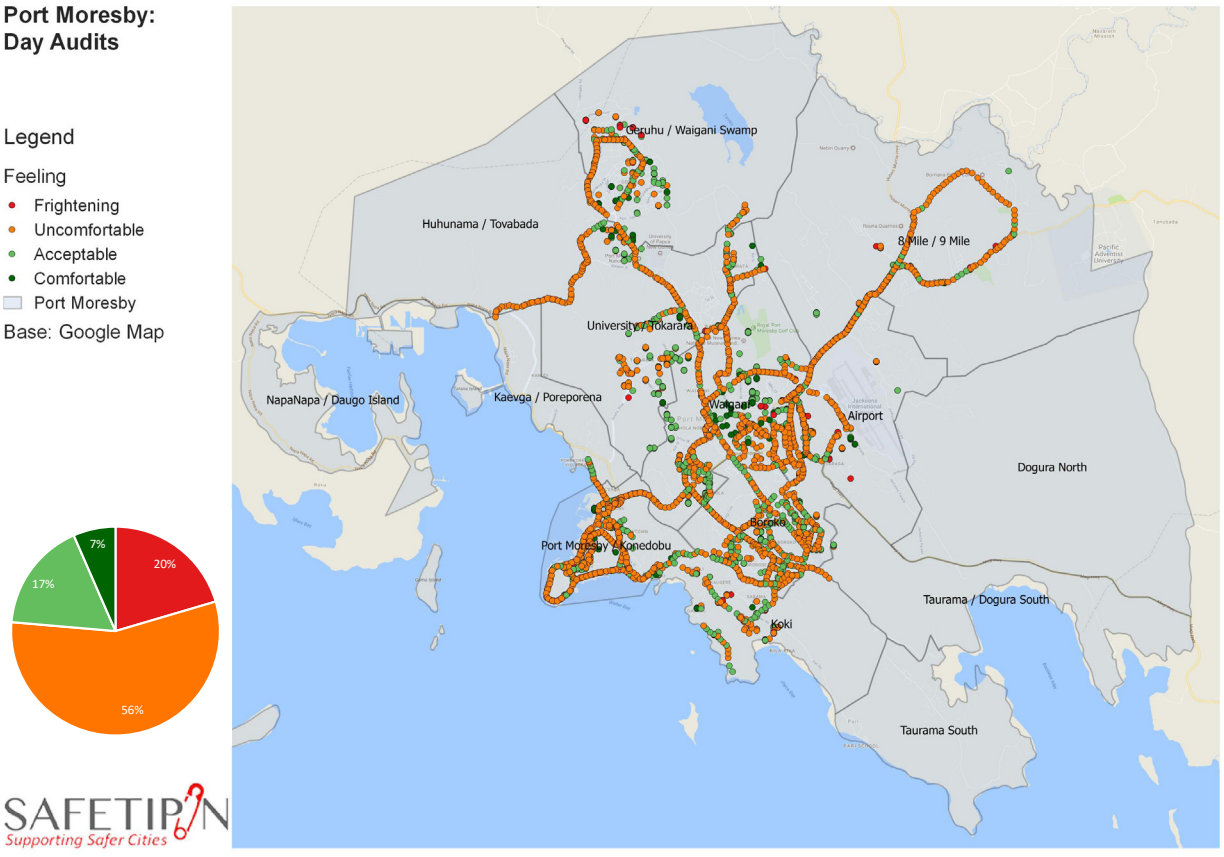
Feeling indicates one's perception of safety at that particular place or point. This can differ from person to person, male to female, child to elderly etc. This is reflected in feeling parameter that shows 59% of the audit points during the daytime as uncomfortable where people wouldn't go alone and prefer company. This feeling of discomfort increases to 76% of the audit points in evening. Most of the auditors have mentioned this difference in their comments while conducting manual audits using My Safetipin app. The following table lists the overall feeling of the people, area-wise.

AREA	Perception of People
Port Moresby/ Konedobu	**Paga Ring Rd:** "very safe and beautiful place.. all street lights are working" **Musgrave St:** "street vendors and commuters help make the street feel safer." "footpath used as carpark.not safe in the night.no street lightings. illegal squatters..won't use this in the evenings!" **Port Road:** "No footpaths, roads are too narrow, unsafe during night no street lights only lights are from residential area's." **Airvose Ave:** "Unsafe for for people to walk around and also the road is too narrow." "This is area is safe during the day coz there are security looking after the properties but in the evening it's quite unsafe because street light's are far from each other"
Boroko	**Koki Market, Hubert Murray Highway** "This is Koki main busstop,it's safe in here during day time but not safe in the night for people to move around." **Pascall Ave:** Not very comfortable to walk by yourself. **Scratchley Rd:** Unsafe for women and girls and no street lights and no proper walkpath **Karius Road near Don Bosco School:** "It's safe in here during early hours but not safe in the late hours for women and children to walk,and also no street lights." "Unsafe for one person to walk during late hours. No street lights and no walkpath" **Komuta Cres:** "not safe no lights no water" "not really safe at times especially for woman at night, no street lights and water"
Gerehu	**Tauriganika Dr:** "the streets have light poles but none of the come on in the evening" **Gahunagaudi Dr:** "zero access to public transportation and a area known for car thefts" **Gerehu Stage 3:** "lights not working, the road is in a good condition but very poor walk path." **Nigibata Road:** "No safe after 5:30 pm. Walk path covered with grass." 5:30 pm - 6:30 pm not safe. Need escort. (Bitapaku St) "its safe but becarefull because plenty of corners" (Maximise Well Christian School) "during the its quite ok but in the evenings from 5:30 to 6 it's very dangerous..no stret lights at all" (Gerehu United Church) "street lights not working. Theft activities take place" (Agolo Dr)
University of PNG	**Goro- Kaeaga Road:** "It is really safe here during early hours and late hours,but it needs more lightings. "it's safe in the day but in the night unsafe" "Safe environment, proper drainage and good footpath."
8 Mile/ 9 Mile	**Bomana:** "This is Bomana,one of the street called YTL,it is safe but needs proper footpath and street lights." "This location is the back road to the main bus stop,needs proper footpath,roads,and security lights." "It is safe for all Genders because all houses are in closed distance." **Bomana Police College:** "This is Police College, one of the street name New Cool, needs proper security lights and footpath." "This is police barracks (Red Sea),needs street liggts,proper footpath, proper roads." "It is safe because it's within the Police barracks, but needs security lights." **Kerepia Barracks:** "This is Kerepia Barracks,it is safe but needs proper security lights and street lights." "This is one of the Kerepia street,it is safe during the day time but during the night,it is not safe and it also needs more lightnings."

Table 8: People's perception of Safety



Map 22: Audits showing rating of feeling during daytime



Map 23: Audits showing rating of feeling during night

5. OSAM

OSAM (Open Space Audit Mapping) is aimed at working with the Community for identifying issues, auditing and preparing a Community Action Plan. Further it is used to reach out to non-smart phone users as well as to disperse the discussion on safety among a wider public arena through advocacy, OSAM sessions are conducted. The concept of OSAM or is to provide space for sharing and discussing safety audit results. This platform provides women and men an opportunity to talk on issues related to safety in public space, harassment and infrastructure in their area and formulate strategies to bring about change in their neighbourhood/ city.

In Port Moresby, two locations namely Boroko and Waigani(North) were selected in consultation with UN Women and YWCA. The OSAM sessions took place on 4th June 2018 at these two location. These two suburbs are densely populated residential areas and frequented by people from other districts. They are also known for being unsafe for women and girls to walk during the day and very unsafe at night between 6.30 pm to 10.30 pm.

The event saw participation from local organisations, officials from the government and the volunteers who did the safety audits in Port Moresby using My Safetipin app. In total there were 12 volunteers along with the representatives of UN Women, NCDC, Sanap Wantim youths and YWCA of PNG. In order for smooth functioning of the event, UN Women provided the security (G4S) for the young people.

The event was 3 hours session where the volunteers opened the session with dance performances to gather the crowd. Post the performance, they introduced Street Harassment Campaign and Safety Audit Study to the public. They talked about how they used Safetipin apps to collect data on safety in Port Moresby.

Later, YWCA invited people to look at the Safety Audit maps and give their feedback on their experiences around safety in public spaces. They were asked to mark unsafe (red) or safe points (green) on the map and write their reasons for the same as shown in Figure . The volunteers encouraged women and young girls to give their personal views on if the dots are correct i.e. , if the places that have been marked safe are actually safe for them. It was positive that the OSAM validated the results of the safety audits. The detailed feedback for both the areas is discussed in the next section.

Figure 21: YWCA representative at OSAM in Boroko

5.1 OSAM at Tabari Place, Boroko

Boroko suburb includes a residential and sports and recreation precinct. It is also a significant commercial centre. However, crimes like pick pocketing, stabbing and sexual harassment of women, girls and young men are common. During the evening, it's unsafe for the pedestrians to walk due to non- functional streetlights . In addition to this, and lights from the shops don't spread out till the footpath. During OSAM session, a major issues related to thugs were highlighted. Majority of the respondents talked about necessity for increasing security and enhancing lighting in the area. The overall comments and suggestions from the public can be seen in the table 8.

Figure 22: Volunteers interacting with the public

Figure 23: Volunteers explaining the safety audit

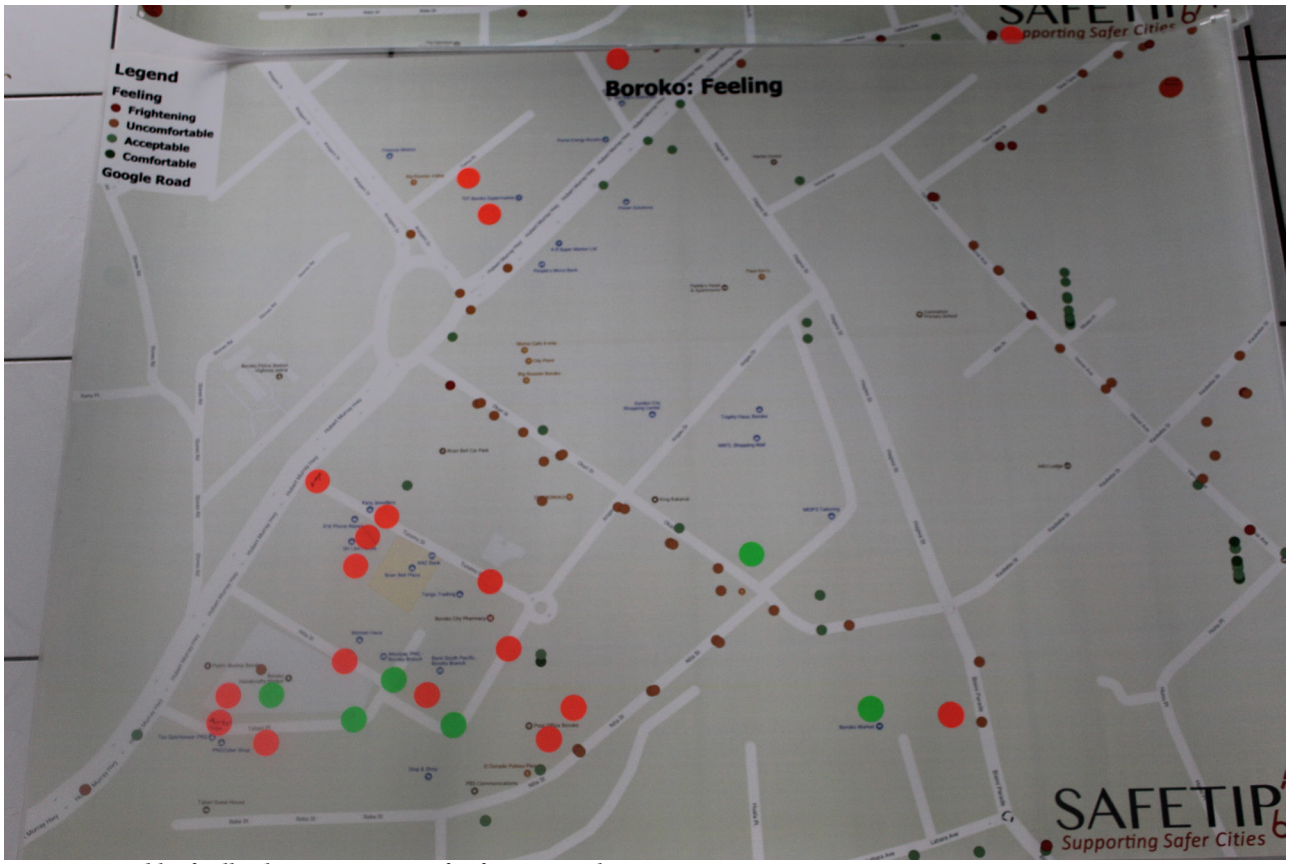


Figure 24: Public feedback on perception of safety in Boroko

Marker/Place	Dots	Comments	Suggestions
Main bus stop, Boroko	Red	*This area has a problem of crime and harassment from thugs. Women are followed by the thugs. Women tend to hide their money while walking around in this place. Lights are not bright enough at 5.30 pm*	Do more public awareness on street harassment next to the bus stops. Hand out pamphlets with pictures on them. Install lights at the bus stop during the night.
Ori Lavi Haus, Brain Bell, City Phamacy, Bank South Pacific, Westpac, Monian Haus, - Turumu St.	Red	*These areas are not safe for women and young girls to walk. Thugs tends to follow and steal bags and phones. They also see men that are not strong or are walking with their families or their girls and attack. There are no lights around the shop centers which are next to the footpaths.*	Ask the shop to install lights that can lit up the sidewalks during the night. Write letters to the companies, making them aware of what the publics views and introduce Safetipin at their companies.
Angau Dr.	Orange	*Not safe during the night. It's okay during the day but be on alert. Some of the public also said that the police station is not safe at night especially for the women and young girls. During the day not all feel safe at the police station*	Install lights. Police to do regular patrolling on foot during the day.
Tabari Pl.	Red	*Thugs hideout here. They steal bags and cars that are parked in this place. No lights here too.*	Involve the shop owners to report any activities that are harming their customers. Shops to install lights that can lit the footpath during the night.
Post Office front and back carpark	Orange	*Vehicles get stolen. Not safe for parking. Make sure you check your doors before walking away. No light during the night.*	Install lights at carpark and recommend Post PNG to put security guards at the carpark.
Stores Rd.	Red	*Women and girls need to be on alert while walking in this area. Footpath is not good. Thugs tend to steal bags when they see someone new or by themselves. There are no street lights at night.*	Install lights.
Stop & Shop – side of shop and back	Green/ Orange	*Walking around here is okay. There are security guards in-front of the shop but not so much on the side of the shop where most of the thugs hang out. At night must take extra pre-caution while walking here. There is a night club next door to the shop. Lights are pretty bad.*	Recommend them to install lights that can lit up their area. Post guards on the side of the shop.

Table 9: Comments and Suggestions for the streets of Boroko

5.2 OSAM at Waigani Market, Waigani

Waigani is an important suburb as it houses many legislative buildings of the national government and embassies of Britain, Australia and Japan. Despite being a high security zone, there have been reports of women and girls being harassed at the three main bus stops from Waigani (North).

Figure 24: UN Women Representative at OSAM

Most of the footpaths leading to the bus stops are not paved and, in the evening, it is not safe for women and girls to walk from the market to their homes. Women mostly reported feeling unsafe due to drunk men loitering around at the bus stops during the daytime and night-time. They have suggested to increasing police patrolling on foot. The overall comments and suggestions from the public can be seen in the table 9.

Figure 25: Women Staff from Stop and Shop

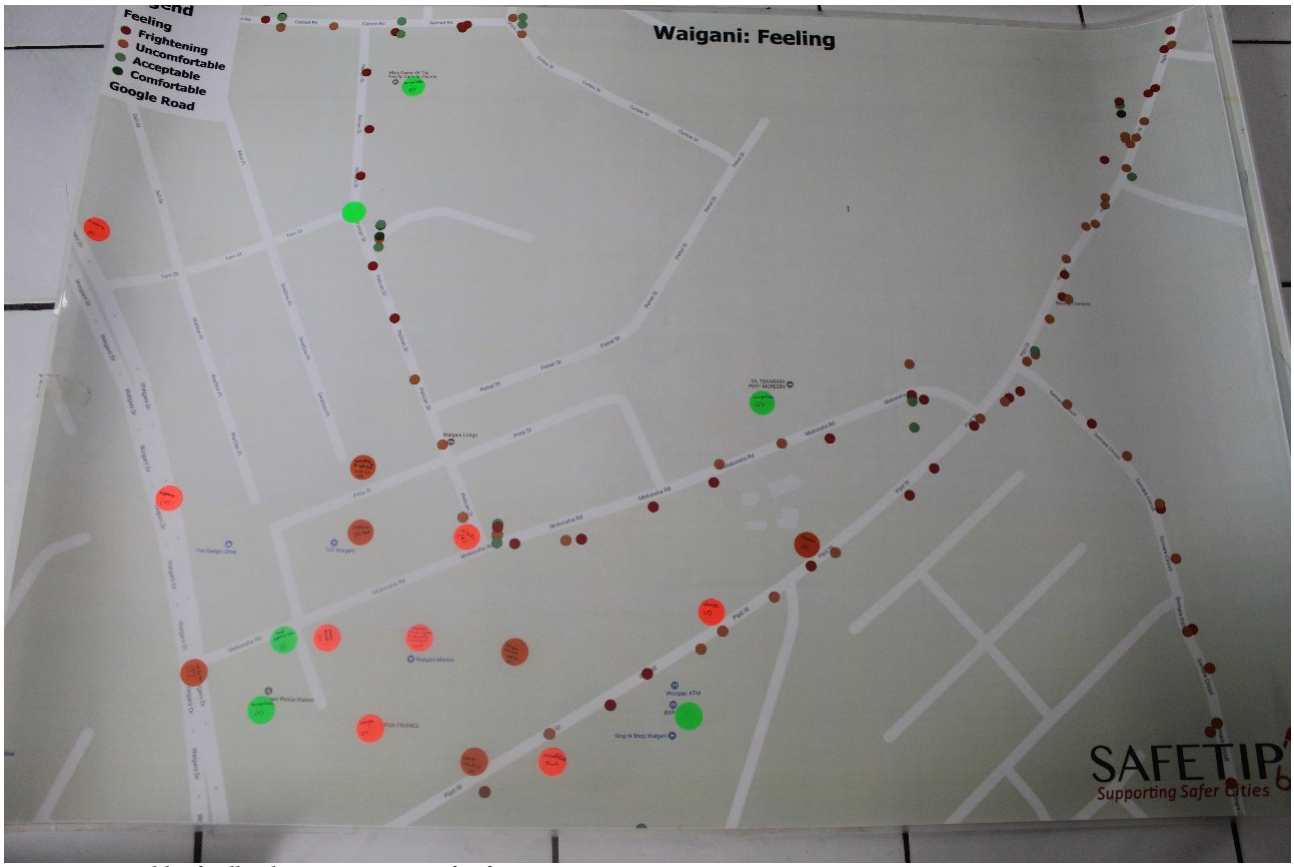


Figure 27 : Public feedback on perception of safety in Waigani

Marker/place	Dots	Comments	Suggestions
Stop and Shop Bus stop, Pipit st.	**Red**	*Unsafe for women and girls from 5.30 pm during the week days. Women have to leave work a bit early just to catch a bus from stop and shop bus to Morata. Women feel very unsafe to stand at the bus stop to wait for the bus.*	NCD to put some street lights next to the bus stop. Have a Meri safe bus to take Morata route. More advocacy about bus stop harassment.
Waigani market	Red	*Unsafe for women and girls when it is a bit late. A market seller said that there are not enough lights at the market. Women who stay a bit late to sell all their goods knowing that it is not safe for them have no choice but to stay on putting themselves in danger. Not enough security.*	Put some more security guards in the market. Add more lights at the market place.
Pelican St.	Orange	*There is a local bar at the end of the market. During Fridays and Wednesday women avoid walking pass through that place as it is not safe for them and many drunk men harass women and young girls.*	Check to see if the local bar is a registered bar. Do street harassment awareness near the bar. Pass out information on areas that a marked red.
Mokoraha Rd.	Red/orange	*It is unsafe for women and girls to walk down this place as it is a common area where women get their bags stolen.*	NCD to put lights at this area.
Main bus stop	Red	*Women feel unsafe as there are a lot of men and young boys who loiter around (smoking and drinking), bully women and harass young girls. Women feel unsafe to get on the bus because some men force them to get on the bus by pushing them from behind.*	Put posters or do more awareness about street harassment. Ask the local police officers to keep an eye on the bus stop.
Police station	Green	*Women feel comfortable when there are police personnel present at the bus stop. Most of the times when officers are busy, criminal activities happen.*	Police officers to do regular patrolling on foot near the bus stops.
Petrel St.	Red/orange	*Women find this street a bit safe, but they feel uncomfortable and unsafe when the young men are under the influence of alcohol. Outsiders who don't live in these areas should take extra precautions.*	Radio awareness or public awareness at the market place on street harassment.

Table 10: Comments and Suggestions for the streets of Waigani

5.3 Challenges and Learnings from OSAM

1. Materials about the study

Some of the general public requested that we should print out pamphlets and hand them out because some of the general public were on break or no time to contribute. The team should print out pamphlets and other forms of materials on hand to give out to public. Make available an Safetipin app for public to do audits or post comments on them.

2. Publicity

The team should carry out publicity about the event to spread awareness. There were suggestions to do a week long radio and media advocacy on OSAM before the actual event so that more members of the public know about it and can participate.

3. Securing a site for OSAM

Some of the people were a bit rude towards the young women conducting the OSAM. Therefore, the place for OSAM session has to be secured using security personnel before the event.

6. Overall Recommendations:

Enhance Illumination along Walkpath

The existing streetlights that have been found non-operational need to be checked. Also, regular checks are necessary to ensure that all streetlights are operational at all times. Streetlights need to be installed along areas, identified as dark spots i.e. at these locations there is no illumination at present.

Construct Pavement and Repair existing ones

At certain locations, the pavement was found to be broken. This damage needs to be repaired and a proper paved surface needs to be created. Along certain roads either no footpath exists, or space has been left for one, but it hasn't been constructed. A proper footpath needs to be constructed, free of any obstruction.

Improve Security

Many areas do not have any form of security – private guards or Police. Regular police patrolling needs to be ensured in all areas.

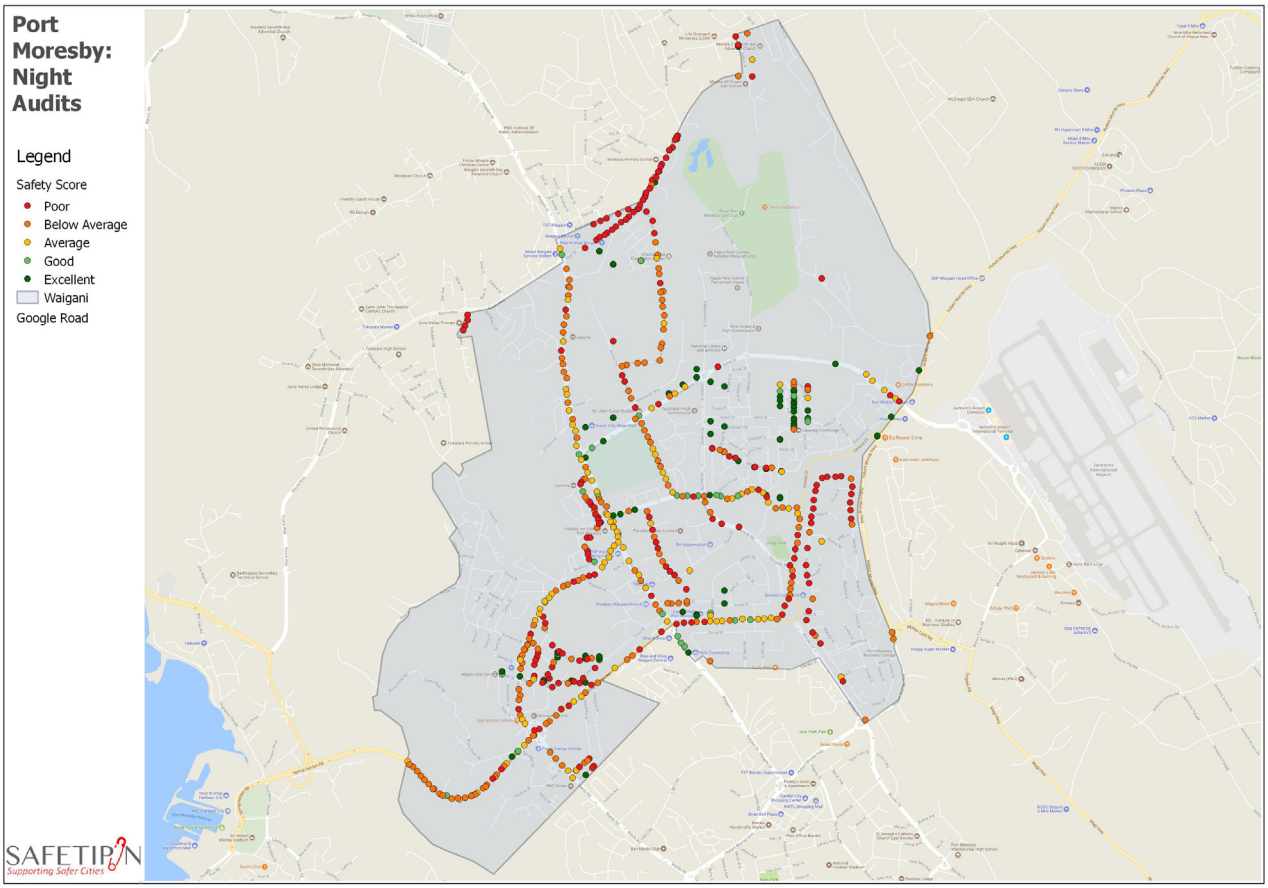
Improve the Public Transport waiting areas

Lighting and accessibility in and around the bus stops should be improved. There is a need for regular police patrolling at all the bus stops. Further bus shelters should be constructed in high usage areas with good seating facilities.

6.1 Area based Interventions: Waigani

Area	Key Issues	Recommendations
Waigani Market, Stop and Shop Bus stop, Pipit st.	• Women feel very unsafe to stand at the bus stop to wait for the bus. • No streetlights in the area, lights from adjoining shops but they close by 5 PM. • Magani Cres, the street along the golf club is deserted and considered unsafe during the day.	• Police officers to do regular patrolling on foot near the bus stops and the market. • Police patrolling should be done along Magani Cres. • Pedestrian Infrastructure to be improved
Hohola North, Church, School, Hostel area	• Area is safe in the day but unsafe for women after 5 PM. • No bus stop nearby, People travel a long way to catch the bus. • Streetlights need immediate attention.	• A bus shelter to be constructed along with the street furniture. This would serve people going to church/ school. • Hohola NBC Compound can be taken up for community space as suggested by the auditors.
Kukabara St. Gordon Church Kumul Flyover Erima Freeway	• Place known for burglary and snatching cases during daytime and night-time • Area around embassies are safe but people feel unsafe walking along Spoonbill Dr to the church, Lapwing Dr to their homes • Streetlights and traffic lights not working on the highway	• Police patrolling needs to be enhanced along these streets. • Maintenance checks needs to be carried out for the streetlights

Table 11: Area-wise interventions for Waigani

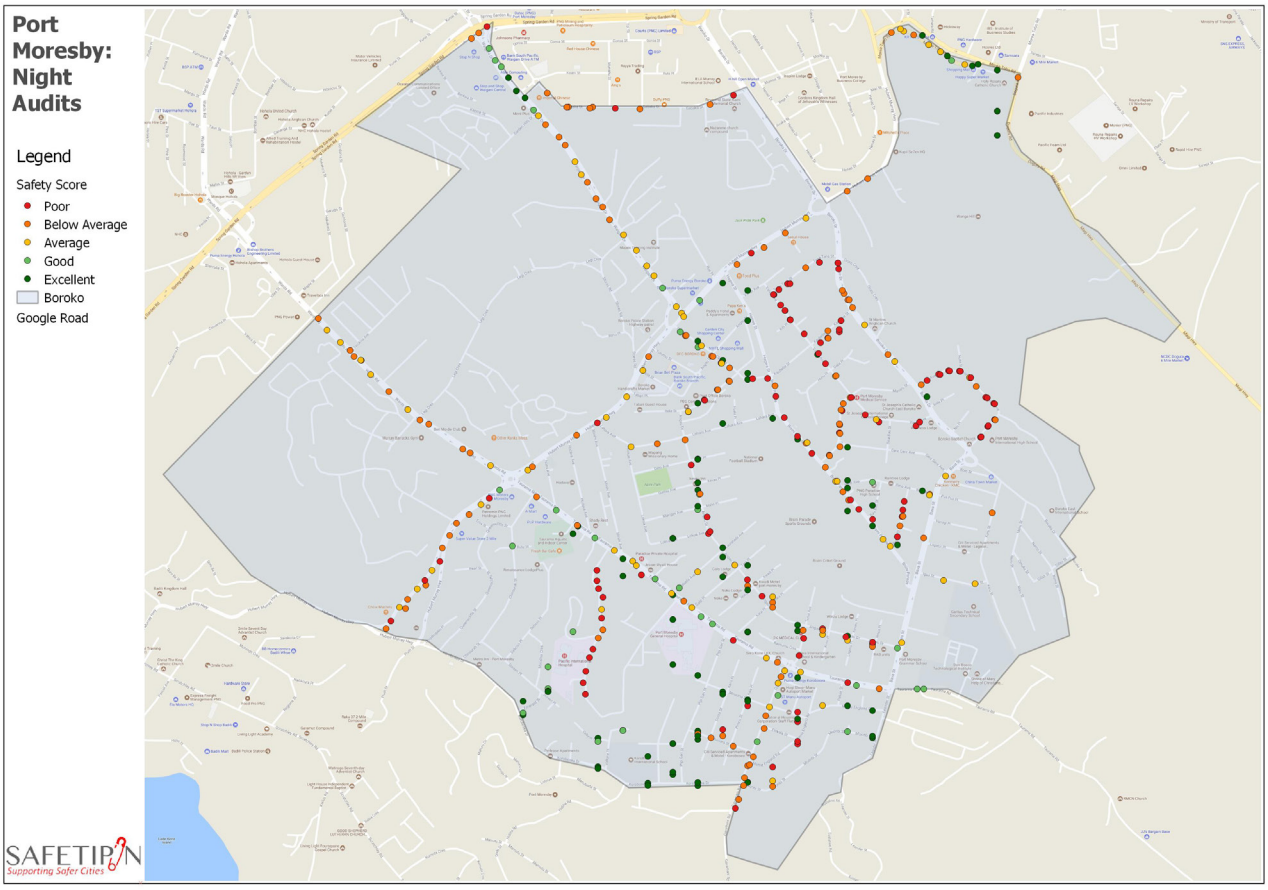


Map 24: Audits showing Safety Score in Waigani

6.2 Area based Interventions: Boroko

Area	Key Issues	Recommendations
Taurama Road, General Hospital, Aquatic Centre	• Bus stop across the road from major hospital reported unsafe at night. • Women feel unsafe to walk in night • Not all streetlights are working	• A bus shelter to be constructed along with the street furniture. • Police officers to do regular patrolling on foot near the bus stop
Bisini Parade, Llimo Ave, Mavaru St. Boroko Dr	• Absence of walkpath and condition of road is poor • Streetlights not working around NWTL shopping mall • Reported unsafe for women after dark on Friday as drunk men often harass women • Car Theft is major concern	• Police patrolling needs to be enhanced along these streets. • Streetlights needs to be installed throughout this street. • Walking infrastructure needs to be laid down as there is a school and market in the adjoining area.
Gavamani Rd, Moonbi St, Leander St	• Residential area with non-functional streetlights. Residents depend on lights coming from houses • No proper Walkpath	• Maintenance checks needs to be carried out for the streetlights • Walkpath needs to be improved.

Table 12: Area based interventions for Boroko



Map 25: Audits showing Safety Score in Boroko

7. Validation Workshop

On August 16, 2018, a Validation workshop was held in Port Moresby with participation of key partners including UN Women, Sanap Wantaim, YWCA, NCDC, Kenny Taxi and other stakeholders. The data and findings were presented to the stakeholders (presentation is in the annex).

Safetipin shared the methodology of data collection and the key findings for each parameter of the audit. The members of NCDC agreed to the assessment given by Safetipin on all the parameters. They responded to the findings positively and agreed to respond to the key problems pointed out in the report with appropriate actions and interventions. The Kenny Taxi drivers were pleased that they were able contribute to an important cause.

The Sanap Wantaim volunteers made a presentation about the process of conducting the OSAM in Boroko and Waigani. They shared the maps which showed that the members of the public who participated in the OSAM event had a similar assessment of the safety of the areas and therefore the OSAM validated the findings of data collected through Safetipin Nite and My Safetipin

Figure 26: Validation Workshop

7.1 Site Visit

On August 17th 2018, a visit was made to Waigani to understand the site and validate the findings. Based on the OSAM findings, it was decided that the main bus stop would be the intervention site. Figure show the condition of the road, bus stand, walk path and lighting in the area (no streetlight near the bus stand). Safetipin has made a design plan for improving this main bus stop area so that people can use it with greater safety and comfort.

Also, the current bus stand is an old design with no proper seating or lighting. We have shared a design

Figure 27: Bus Stop in Waigani (Intervention Site)

of a bus shelter along with lighting which will make the area much more accessible and inclusive. Figure shows the bus stand near Waigani market.

There is a need for a parking bay and a bus stand, designed in a way that it doesn't block pedestrians' path and view. Proper seating and lighting to be provided at the bus stand.

Figure 28: Bus Stand in Waigani (Intervention Site)

7.2 Planning a Safe Bus Stand

Bus Parking:

Bus waiting/parking area must be a well-lit area for parking few buses (capacity and dimensions to be decided in the actual scheme). This area can be behind or beside the bus stop depending on the actual site available. In this illustration, this area is behind the bus stop and a loop road is given for the buses to enter and exit the parking area.

Bus Stop:

Some functional design aspects to be kept in mind while building the actual bus stop to make them safe, comfortable and user friendly.

1. Stops to be well lit for the buses to stop at day/night

2. Stops can have backlit signages/information panels which could also provide additional lighting

3. Stops can have backlit advertisement panels which could generates revenue for the shelter's maintenance and could provide additional lighting

4. Stops should have comfortable seating for waiting passengers

5. Stops can make use of innovative material and design to engage children and commuters actively

6. Stops can be built using cheap, locally available and sustainable materials

7. Stops should install electronic cameras for surveillance

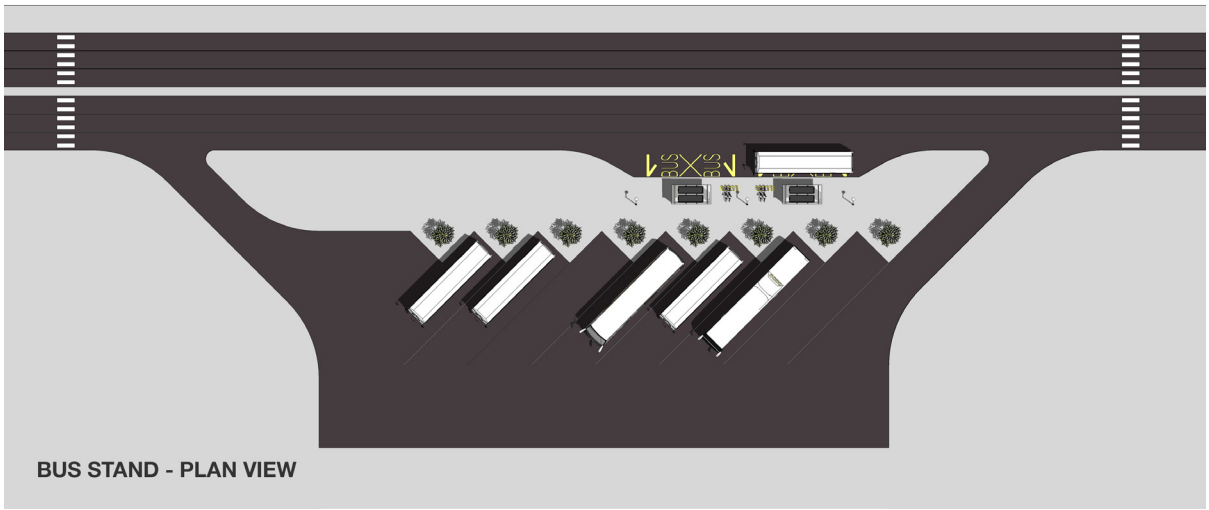
8. Stops can be integrated with cycle stands for last mile connectivity

9. Stops can have green/solar roofs to make it sustainable

10. Additional street lights should be installed around the stops to enhance night time visibility and build a sense of security for the commuters.

7.3 Conceptual Design for a Bus Stand

Illustrations for a small Bus Stand which primarily has a bus stop/shelter and some bus waiting/parking bays are shown in Plan, Top and Side view.



BUS STAND - VIEW TOWARDS THE ROAD FROM THE WAITING BUS BAYS

BUS STAND - TOP VIEW WITH BUS WAITING

BUS STAND - FRONT VIEW OF THE BUS STOPS

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Annex 1: Parameters and Sub parameters

The rubric (as seen below) defines the rating for each of these parameters on a scale of 0-3. Except for Feeling all 8 parameters are objective. Feeling is the only subjective parameter. For rating feeling there is no rule. It can vary from individual to individual.

The Rubric

		0	1	2	3
1	Light (Night)	**None.** No street or other lights	**Little.** Can see lights, but there is low visibility in the area	**Enough.** Lighting is enough for clear visibility	**Bright.** Whole area brightly lit
2	Openness	**Not Open.** Many blind corners and no clear sightline.	**Partly Open.** Able to see a little ahead and around.	**Mostly Open.** Able to see in most directions.	**Completely Open.** Can see clearly in all directions
3	Visibility	**No eyes.** No windows or entrances of shops or residences overlook this point	**Few eyes.** Less than 5 windows or entrances overlook the point	**More eyes.** Less than 10 windows or entrances overlook the point	**Highly visible** More than 10 windows or entrances overlook this point
4	People	**Deserted.** No one in sight	**Few people.** Less than 10 people in sight	**Some crowd.** More than 10 people visible	**Crowded.** Many people within touching distance
5	Security	**None.** No guards or police visible in surrounding area	**Minimal.** Some private security visible in surrounding area but not nearby	**Moderate.** Private security within hailing distance	**High.** Police / reliable security within hailing distance
6	Walk Path	**None.** No walking path available.	**Poor.** Path exists but in very bad condition.	**Fair.** Can walk but not run	**Good.** Easy to walk fast or run
7	Public Transport	**Unavailable.** No metro or bus stop, auto/ rickshaw within 10 minutes walk	**Distant.** Metro or bus stop auto/ rickshaw between 5 -10 mins walk	**Nearby.** Metro or bus stop, auto/rickshaw between 2 – 5 mins walk	**Very Close.** Metro or bus stop, auto/rickshaw available within 2 mins walk
8	Gender Usage	**Not diverse.** No one in sight, or only men	**Somewhat diverse.** Mostly men, very few women or children	**Fairly diverse.** Some women and children	**Diverse.** Balance of all genders or more women and children
9	Feeling	**Frightening.** Will never venture here without sufficient escort	**Uncomfortable.** Will avoid whenever possible.	**Acceptable.** Will take other available and better routes when possible	**Comfortable.** Can take this route even at night

The following is the list of sub parameters that are coded to indicate the condition or status of the existing infrastructure.

Lighting	Visibility	Walkpath	Security	Transport	Road Hierarchy
No Street light (SL)	50% Boundary wall	No Pavement	Private guards	Metro/Rail	Highway
Off SL	100% Boundary wall	Broken Pavement	Police van/bike	Bus/Minibus	Main
Dim SL	Unused Land	Unpaved pavement	Police check	Auto/Shared Auto	Local
High SL	Road side vendors	Car blocking	Police booth	Cycle Rickshaw	No Cars
Too Far SL	Temporary stalls	Vendor blocking	Police Station	Taxi	2 / 3 lanes
Leaves cover SL	Shops	Houses extending	Other Govt.	Rental Bicycle	4 lanes
Other cover SL	Houses upto 4 floors	Trees blocking			6 lanes
One side SL	Houses > 4 floors	Other blocking			> 6 lanes
		Walkable Road			
		On-street Parking			

Annex 2: Capacity Building Workshop Agenda

Time	Agenda	Venue
February 12, 2018		
9:00 AM	Meeting with UN Women, NCDC, YWCA to plan the training workshop	NCDC City Hall Boardroom at Level 3
12:00 - 1:00 PM	Lunch Break	
02:00 – 04:00 PM	Meeting with NCDC officials to discuss Safetipin Data coding and subsequent usage of data	
February 13, 2018		
Safety Audit Training Workshop for Volunteers (10:00 – 2:30 PM)		
10:00 AM	Session on Safety in Public Spaces	Pacific Women Conference Room, Level 6 PwC Haus, Harbour City
10:30 AM	Introduction to Safety Audit Methodology and Safetipin	
11:00 AM	Training to use Safetipin App to conduct Safety Audits	
12:00 - 1:00 PM	Lunch Break	
1:00 - 2:00 PM	Safety Walk to test the App	Just outside the venue
2:00 PM	Assigning zones/areas to the volunteers' groups	
2:30 PM	Closing Remarks	
February 14th, 2018		
Data Coding Training Workshop for Coders (09:00 AM – 02:00 PM)		
9:00 AM	Introduction to Safetipin data and its Parameters	Pacific Women Conference Room, Level 6 PwC Haus, Harbour City
09:30 - 10:30 AM	Training to analyse the photographs	
10:30 – 11:00 AM	Tea Break	
11:00 AM	Session on coding sub -parameters	
12:00 - 1:00 PM	Lunch Break	
1:00 - 2:00	Feedback Session to address queries related to the coding	
Safetipin Nite Training Workshop for Drivers (3:00 PM – 04:30 PM)		
2:30 – 3:00	Tea & Snacks	Pacific Women Conference Room, Level 6 PwC Haus, Harbour City
3:00 – 3:30	Session on Safety in Public Spaces and Introduction to Safetipin Nite for the drivers	
3:30 - 4:30 PM	Training the drivers for Safetipin Nite and a test ride to demonstrate the app	
February 15th, 2018		
9:00 AM	Session with NCDC officials and volunteers to code the uploaded photographs from the test ride	NCDC City Hall Boardroom at Level 3
10:30 - 11:00 AM	Tea & Snacks	
11:00 AM – 12:00	Coding session continues	
12:00 - 1:00 PM	Lunch Break	
02:00 - 03:00 PM	Meeting the volunteers to address queries related to My Safetipin app and safety audits	YWCA office
February 16th, 2018		
9:00 AM	Closing Meeting with UN Women, NCDC and YWCA	UN Women Office

Annex 3: Using My Safetipin App

My Safetipin is a mobile phone application that works to make our cities safer by collecting safety-related information on a large scale through crowdsourcing. At the core of the app is the safety audit that has been designed based on the Safety audits from around the world. These audits should be conducted after sunset. This is suggested to effectively measure the illumination by Street lights and other sources. Also, it is during late evenings and night that a place is considered unsafe.

1. To conduct an audit, the first step is to download the app. My Safetipin, available for free on Apple and Google Play stores.

2. For using the app, it is necessary to ensure that the GPS location is on and the phone is charged. On the home screen of the app, towards the upper left-hand side is the settings option. Here we select the option "Do a safety audit".

3. This brings us to the audit screen where all the nine parameters are listed:

4. The audit screen shows the nine parameters. On selecting a particular parameter, the rating scale is visible. Once all the parameters have been rated, it is important to Pin and take photographs. One can take up to 10 photographs of the location being audited. If the auditor feels the need to give additional information, then that can be specified as a comment. After this, the audit is complete and can be submitted. In case of a poor internet connection, up to 10 audits shall be saved in the app's memory. They shall get uploaded onto our server, once internet is available.

5. Once the audit is done, one can also view the audits conducted by them. On the home screen of the app, towards the lower right corner, on selecting the option "more", one can see the option for Pins. In this, select the option "my pins" which shows the audit pins submitted by them.

Annex 4: List of Volunteers who did Safety Audits

S.No.	Name	Gender	No. of Audits
1	Solomon Jerram	Male	33
2	Adrian Tava	Male	106
3	Jericho Avae	Male	3
4	Edmond Kalabai	Male	2
5	Kewari Ito	Male	1
6	Kone Fisher	Female	1
7	Marie S	Female	1
8	Joanna Oala	Female	195
9	Stella Kewa	Female	149
10	Samuel	Male	6
11	Chris	Female	1
12	Kaipi Ila	Female	117
13	Emillia Banka	Female	310
14	Ruth Oeri	Female	160
15	Tauedea Mado	Female	12
16	Annaruth Avae	Female	120
17	Joyce Yendevenge	Female	252
18	Alana Mou	Female	13
19	Geno Temata	Female	67
20	nasriifrankito	Male	12
21	Junior Karabai	Male	120
22	Michael Kaipu	Male	12
23	Alex Naturu	Male	17
24	Genotemata	Male	158
25	agua	Male	177
26	Aidenkila	Male	29
27	Annaruth	Female	102
28	JosephDumit	Male	104
29	Jennifer Mwawesi	Female	95
30	Jean Ovasuru	Female	91
31	Heidi Kili	Female	11
32	Charlie P	Male	1
33	Lucy Totil	Female	1
34	La Lia	Female	3
35	Sedrick Neni	Male	1
36	Alithia B	Female	1
37	Lisa Luther	Female	4
38	Eve	Female	1
39	Rex Kuman	Male	1
40	Dru Banduru	Female	10
41	Naturu Ali	Female	7
42	Quiqui	Female	1
43	Loxie	Female	3
44	Norris Saun	Male	1

Annex 5: Using Safetipin Nite App

Safetipin Nite app generates data by clicking night-time pictures across the city via a camera phone mounted on a moving vehicle. Data is collected to capture pedestrian's safety conditions at regular intervals. The pictures are then uploaded on to a server, codified and eventually translated into data that appears as points on the Safetipin map. This data is then shared with local stakeholders so they can address and enhance safety measures in different parts of the city.

Below is step by step process of collecting night time data through Safetipin Nite:

1. Go to settings panel and switch on your GPS or location, and mobile data connection.

2. Click on Safetipin map application where you will be asked to enter your user credentials. This will be given by Safetipin team. Once you enter the details, you will be logged in. Select one route among the listed routes in the application.

3. Mount the phone in horizontal manner and adjust the camera in a way so that it captures the area where people walk or cycle. Fix it in a way that it captures both footpath and streetlight.

4. On the left panel at the bottom, there are 3 icons. The satellite icon indicates that your GPS or location setting, the Wi-Fi icon indicates internet connection and the last one indicates battery.

5. On your right panel, you will see map with this blue dot indicating your location. Before you begin driving, click on start. Press the start button only when GPS and Internet are active i.e. coloured in GREEN. Once started, you will see that Auto- capture has started.

6. On left panel at the top, the number indicates the number of photographs. On the map, it will show you the route covered.

7. Please drive on the footpath side of the road at 30-40 km/ hr speed and make sure that the mount is fixed properly so that the phone doesn't get disturbed.

8. You can use pause button on bottom right to take a break from taking pictures. Press play when you start driving again.

9. Once you have finished a ride or route, click on stop. Now, click on upload. This will upload the photographs to our server.

10. Try to upload pictures before the number reaches 1500. Also, remember if the device battery is below 30%, the GPS and Internet of the application will switch off automatically. Put the phone on charging and wait for the GPS and Internet to become active.

Annex 6: Safetipin Nite Training

Step by step process of planning Safetipin Nite training for the local organization:

1. For this assignment, you have to select 6 - 7 drivers from your team. The drivers should be comfortable with smartphone apps and know their way around the city. Data collection will begin after dark till 10:00 PM in night.

2. Drivers will be given a smartphone with Safetipn Nite app, local sim, car charger and a phone holder to mount the phone on the windshield. A group on WhatsApp will be formed by Safetipin team and chosen drivers will be added to it. This group will be used for solving queries related to app.

3. Training would be given to the drivers by Safetipin team. Additionally, a video explaining the app will be shared with the local organization who will be coordinating with the drivers.

4. The routes to be covered wi1ll be created in consultation with the local partners. Unique login ID for Safetipin Nite app will be created for each driver and selected routes would be assigned to them. This way we can keep track of each driver’s progress.

5. Drivers will be given 15 days of time to finish data collection within the assigned area. Post data collection, local organization has to collect all the materials from the drivers.

Annex 7: List of drivers for Safetipin Nite data collection

The list of drivers and the number of images collected through Safetipin Nite app are listed below:

S.No.	Driver ID	Name	No. of Images Collected
1	pm01	Stanly Wak	10391
2	pm02	Peter Kiap	8957
3	pm03	Simon Plak	3610
4	pm04	Johna Samuel	6704
5	pm05	Joe Tembri	4834

Annex 8: Setting up the Virtual Machine

Steps to set up Virtual Machine and run geocapture portal for Safetipin data coding:

1. Download VirtualBox from this link: https://www.virtualbox.org/wiki/Downloads

2. Download Linux virtual appliance file from this link: https://www.dropbox.com/s/zn16v4rdecgndav/Linux.ova?dl=0

3. Install VirtualBox.

4. After successful installation of VirtualBox, click on "File" and then "Import appliance".

5. Now a file selection wizard will open. You need to select Linux.ova file (downloaded in step-2) and then click Import. This will take some time to import the appliance.

6. Once the appliance imports successfully, right click on the Linux appliance on left section and click on "Start->Normal Start". This might take some time to boot up the VM.

7. System password is metadesi

8. Do not upgrade Ubuntu if asked on start up.

9. Click on the icon on top left to search for Chrome

10. Use Chrome to access geocapture portal. Here is the local link to geocapture website: http://localhost/trunk/geocapture/index.php/site/login

11. Open Terminal.

12. Run the command listed below whenever machine will be started (mentioned in step-5). You can also run this command If the link doesn't work and give error "This site can't be reached".
Command: sudo /opt/lampp/lampp restart

Annex 9: Coding parameters on Safetipin's portal

Logging in the Portal

1. Open the portal using given link on Chrome

2. Enter Username and Password - Login

3. Assigned project will be shown

4. Open the Project by clicking on view button

5. Assigned routes will be shown

6. Click on view button

Coding Screen

1. Pick a Draw marker button

2. Place a marker on the route to start an Audit.

3. Select two images within 50m of same directions. Use Radius to measure Transport and Security from the audit pin.

4. Use edit option to recheck your audit pin it will appear as green.

5. Now, rate appropriate score for each parameter with the help of images.

6. The rubric for rating the parameters was shared with the local teams.

Annex 10: Conducting an OSAM session

Following activities to be done to organise an OSAM:

1. An area has to be identified by the local partner (YWCA) in consultation with UN Women and NCDC for OSAM. The area should be a busy public place like a market/ public park, courtyard of mall/college, etc. where people can be gathered.

2. A Banner with Project information and logos of the participating organisations needs to be put up. If required, the banner with project information can be in local language. Safety Audit Maps of the area/ city would be put up. It would be a A1/A2 size flex banner displaying the safety audit points.

3. An interactive session has to be planned where information related to Safety Audits project has to be disseminated. People should be invited to look at the maps and give their feedback on their experiences around safety in public spaces. They should be encouraged to mark unsafe or safe points on the map and write their reasons for the same.

The volunteers who took part in data collection should inform people about the Safety Audit Methodology and record people's feedback.

4. Other awareness campaigns related to safety in public space, and team building activities can be planned to generate public participation. For e.g. awareness on Sanap Wantaim or Meri Seif Buses campaign can be part of this session.

5. Post the session, the feedback from the public and the learnings of the session has to be documented by YWCA. Statements recorded in local language has to be translated in English for the reporting. A word document along with the images has to be shared with Safetipin team who can then put these in the Report.

6. Safetipin's work in Badarpur, India can be read here (http://www.safetipin.com/projects/8/safety-in-badarpur-can-we-make-it-reality/)

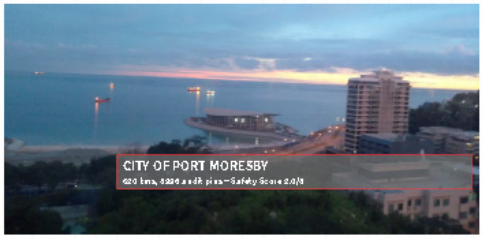
Annex 11: Stakeholder Consultation Agenda

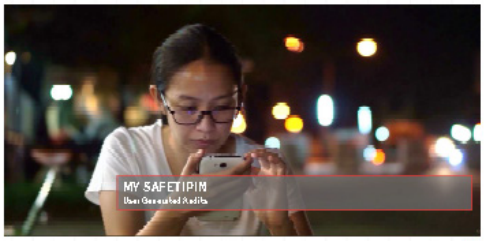
August 16th, 2018	
Stakeholder Workshop (10:00 – 2:00 PM)	
Time	**Agenda**
10:00 – 10:15 AM	Welcome Address & Introductions - UN Women
10:15 – 10 :30 AM	Presentation on Safe City Programme - UN Women
10:30 – 11: 00 AM	Presentation on Safety Audits' Findings - Kalpana Viswanath, Safetipin
11:00 – 11:30 AM	Q&A
11: 30 – 11: 40 AM	Presentation on OSAM - Alex Tanabi, YWCA
11: 40 – 12:00 noon	Sharing the experiences (TBC) - Volunteers/ Auditors
12:00 - 1:00 PM	Lunch Break
1:00 – 1:20 AM	Address by the Government - NCDC official (TBC)
1: 20 – 2:00 PM	Way Forward - Identify possible sites for interventions - Discussion with the stakeholders

Annex 12: List of Participants at Stakeholder Consultation

S.No.	Names	Organisation	Contact
1	Naomi Woyengu	YWCA	73820421
2	Lisa Wainama	NCDC	75502225
3	BOB Yawa	PMV Association	72134362
4	Simon Kanamen	PMV Association	79233870
5	Jacinta	PMV Association	71066397
6	Stanely Wak	Kenny Taxi	72117032
7	Joe Tembri	Kenny Taxi	74304054
8	Wek Kewa	Kenny Taxi	72952108
9	Jonah Samuel	Kenny Taxi	79190219
10	Kay Kaugla	NCDC	70853585
11	Zita Kawang	NCDC	75325273
12	Mike Field	Ginigoada	72108945
13	Wilson Wariaka	Road Traffic Authority	72306911
14	Dinah Omenefa	Department of Transport	71180698
15	Kay Ma'a	NCDC	76336608
16	Joan Oala	YWCA	79886361
17	Lavinia Raula	NCDC	75616179
18	Jeanette Ila	UNWOmen	75822465
19	Brenda Andrias	UNWOmen	70919819
20	Reggie R	NCD-FSVAC	75616182
21	Paul Pyande	NCDC Planning Division	79012407
22	Jane Kurika	UNWOmen	70309438
23	Kaipi Ila	YWCA	70856048
24	Bessie Naomi Maruia	UN Women	70696930

Annex 13: Validation Workshop Presentation





MANUAL AUDITS

About 40 volunteers were trained on Safety Audit methodology

Volunteers were divided in groups of 3-4 and assigned various areas.

A total of 2,662 manual audits have been conducted by the volunteers.

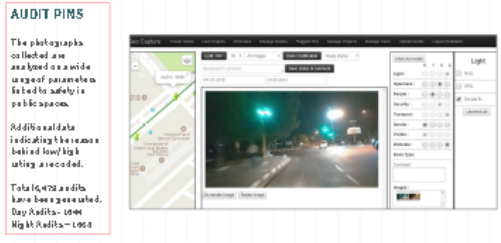
Day Audits - 1,061
Night Audits – 647

MIGHT DATA COLLECTION

6 drivers of Kessy Trans Services were trained to operate Safetipin Mite App.

Data Collection took place from 4 PM – 6 PM, thus collecting both daytime and night time photographs.

About 60017 photographs of Port Moresby streets were collected for the project.

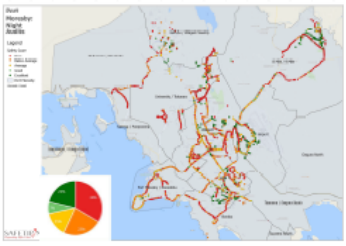


AUDIT PINS

The photographs collected are analysed on a wide range of parameters linked to safety in public spaces.

Additional data indicating the reasons behind low/high ratings are coded.

Total 16,478 audits have been generated.
Day Audits - 1044
Night Audits – 1,068

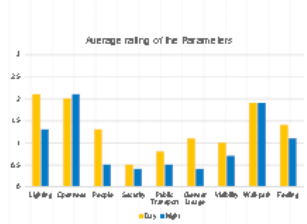


SAFETY SCORE

The Safety Score of an area is the average of all safety audits done in that area.

The overall Safety Score for Port Moresby is 2.0 / 3 i.e. Below Average.

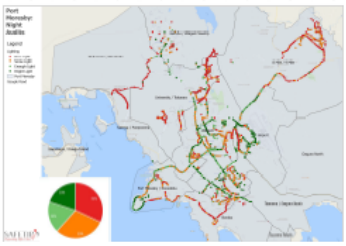
67% of the audit points in the city have been rated poorly i.e. safety score rating is below 2 out of 3.



PARAMETER AMALYSIS

Overall, walkpath parameter has been rated the highest followed by Openness and lighting.

The parameters of Security, Gender Usage and Public Transport have been rated poorly for the most parts of the city.



LIGHTING

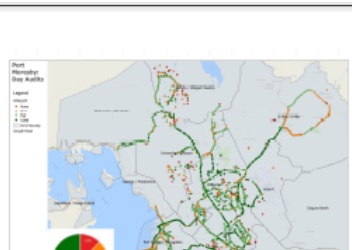
Lighting measures the amount of brightness/illumination at a place.

62% of the points have been identified and categorised i.e. points with no source of lighting.

At points with street lights installed on only one side on the main roads with more than 4 lanes, it has been found as well lit for vehicular carriageway but poorly lit for footpath

No Street lights installed

Non-functional Street lights



WALKPATH

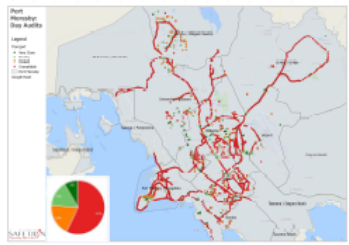
Walkpath parameter refers to the quality of a pavement/ footpath or space left for pedestrians along a road.

Though most of the city has fair availability of foot path, the conditions of same should be improved

At points with highly rated Walkpath, it was found to be obstructed due to car parking.

Unpaved Foot path

Obstructed by Cars

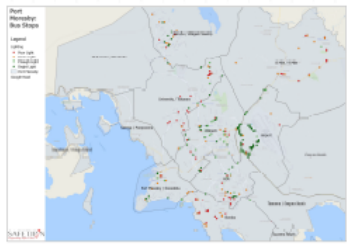


TRANSPORT

Public Transport is measured in terms of the distance to the nearest bus stop/ parked stand.

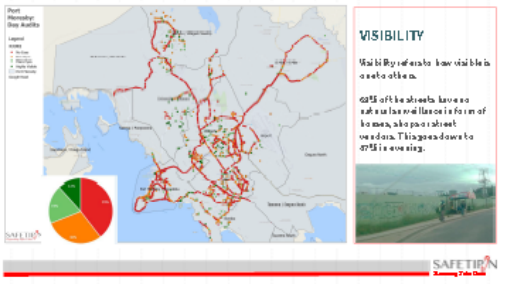
There are few designated bus stops around the city.

67% of the audit points rated poorly in terms of accessibility to the bus stop, that goes to 68% during the night. Bus Stop were found to be deserted at night and only few of them had proper lighting in the night



Absence of bus shelter

Lighting at a bus stop


VISIBILITY
Visibility refers to how visible is one to others.
62% of the streets have no natural surveillance in form of homes, shops or street vendors. This goes down to 47% in the evening.
SAFETIPIN


SECURITY
Security refers to visible security offered either by the police or private security guards.
In crowded market places with large number of hawkers, the auditors have expressed need for the security personnel.
SAFETIPIN


PEOPLE
People indicate the number of pedestrians around the audit point.
26% of the audit points were found to be deserted during the daytime. This increases to 69% in the night.
SAFETIPIN


GENDER USAGE
Gender is a basic diversity i.e. the percentage of women and children among all the crowd.
While 68% of the spaces were found as gender diverse in daytime, it lowers down to 14% during evening.
SAFETIPIN


FEELING
Feeling indicates one's perception of safety at that particular place or point. This can differ from person to person, male to female, child to elder by etc.
82% of the audit points have been rated as uncomfortable i.e. where people would not go alone and prefer to be escorted. This increases to 76% of the audit points in evening.
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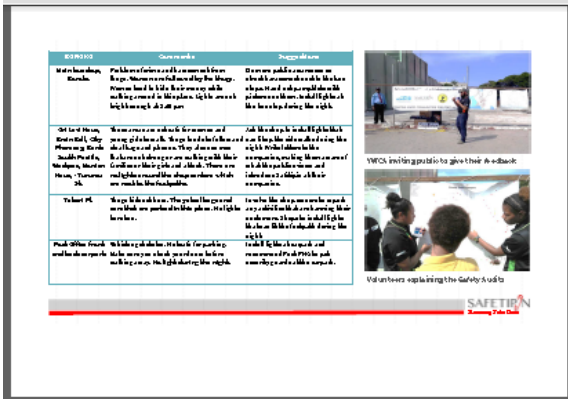
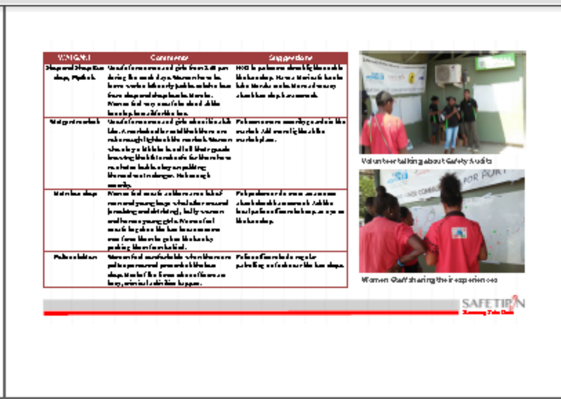
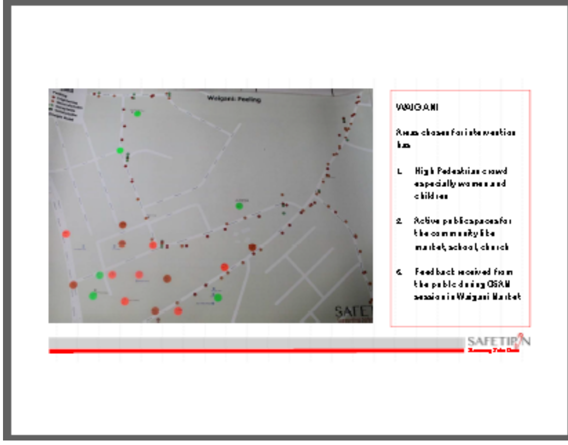
SAFETIPIN

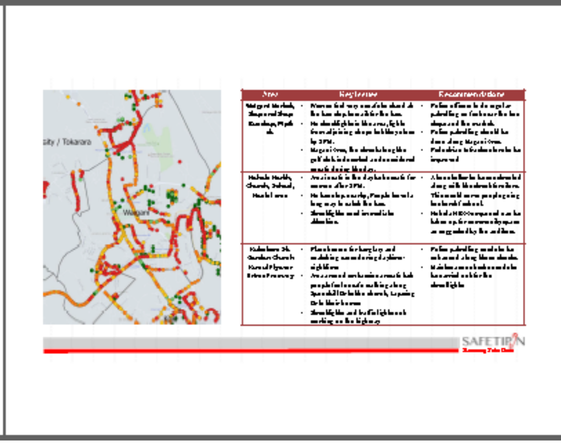

COMMUNITY EMGAGEMENT
Documenting knowledge and experience
SAFETIPIN

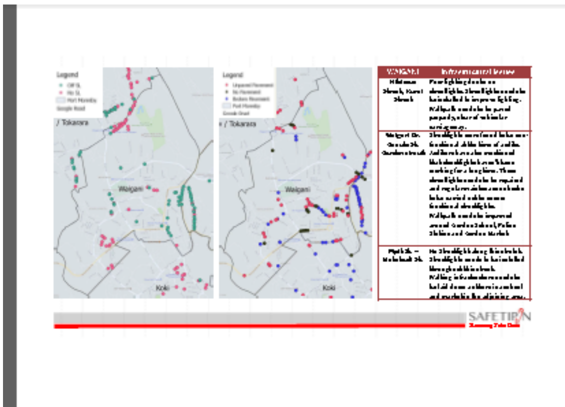

OSAM (Open Space Audit Mapping)
Public participation is essential to understand and give visibility to what happens in certain spaces, to document community knowledge about the place, and in particular, to capture the daily experience of women.
OSAM sessions were conducted in
- Tabani Place, Baroda
- Wairgani Market, Wairgani
SAFETIPIN


YWCA inviting public to give their feedback
Volunteers explaining the Safety Audits
SAFETIPIN

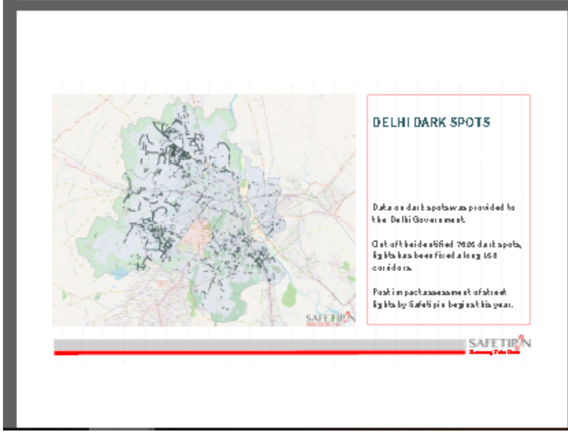

Volunteer talking about Safety Audits
Women Staff sharing their experiences
SAFETIPIN

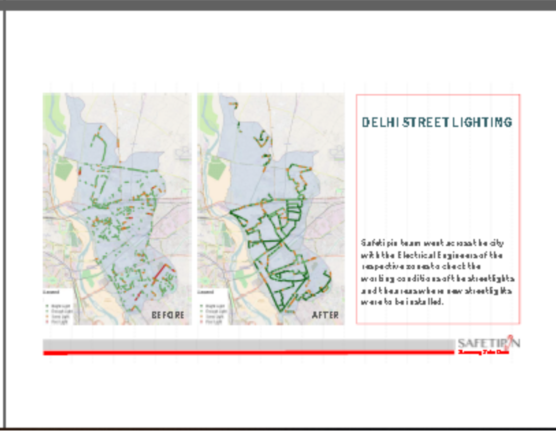

WAIGANI
Areas chosen for intervention has
1. High Pedestrian crowd especially women and children
2. Active public spaces for the community like market, school, church
6. Feedback received from the public during OSAM session in Waigani Market
SAFETIPIN


SAFETIPIN

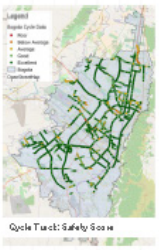

Waigani
Koki
SAFETIPIN


Recommendations:
Improve Security
Many areas do not have any form of security – private guards or Police. Regular police patrolling needs to be ensured in all areas.
Enhance Illumination
Streetlights need to be installed along areas, identified as dark spots i.e. at these locations there is no illumination at present.
Construct Pavement and Repair existing ones
Along certain roads either no footpath exists or space has been left for one but it hasn't been constructed. A proper footpath needs to be constructed, free of any obstruction.
Improve the Public Transport services
Lighting and accessibility in and around the bus stops should be improved. There is a need for regular police patrolling at all the bus stops.
Pedestrian infrastructure to be improved
Accessible Bus Shelter to be provided
SAFETIPIN


DELHI DARK SPOTS
Data on dark spots was provided to the Delhi Government.
Out of the identified 7828 dark spots, lights has been fixed along 168 corridors.
Post impact assessment of street lights by Safetipin begins this year.
SAFETIPIN


BEFORE
AFTER
DELHI STREET LIGHTING
Safetipin team went across the city with the Electrical Engineers of the respective zones to check the working conditions of the streetlights and the areas where new streetlights were to be installed.
SAFETIPIN

SAFETIPIN



BOGOTA BIKE TRACK MAPPING

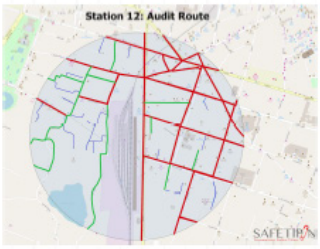
Bogota's Ciclovia system is well integrated with BRTS to improve last mile connectivity.

Safetipin Mitra was used to assess the safety aspect of these tracks and to encourage women to cycle at night.

606 kms, 6060 pins of Bike Tracks were assessed and audited.

70% - cycle tracks rated excellent
60% - street lights were added,
CCTVs and bike stands installed.

SAFETIPIN



HANOI GENDER-SENSITIVE SAFETY AUDITS

Key objectives of the Pilot Project are

Identify the need for improved accessand proposed stations

Support the preparation of Hanoi Metro Line 6 Gender Action Plan

Improve safety, accessibility, mobility, connectivity and overall freedom of movement for women and girls and other vulnerable groups

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