

*makmende is a guardian service that utilizes the power of groups to move people through dangerous areas in Mathare. A woman who needs to travel through distant neighborhoods or at night walks with a group led by a reputable escort. She can text the service to see when a group of “guardians” will be at a nearby stop, and travel to and from work or the market without fearing danger.*

## MAKMENDE VIABILITY DOCUMENT

### group five

Ray, Margaret, Clare, Nan



## COST OF SOLUTION

### A) TECHNOLOGY

#### 1) COMMUNICATION SERVICES

The cost structures of different solution technologies (consulted: Sunny):

- Voice: Ksh 2-3 / minute
- SMS: Ksh 2-3 / text message
- USSD: Ksh 1-10 / session
- 3G: Ksh 2-3 / megabyte

Given these costs, 3G is the cheapest way to transmit information, but we understand that very few people will have smart phones<sup>1</sup>. For this reason and the advantage of higher-resolution communication, we provide our guardians with smart phones which could constantly transmit their GPS location. This would be cheaper and incur less information overload for users than having guardians text in their location every couple of minutes.

**User side**, SMS would only involve 2 text messages:

- > *User request for bus route info*
- > *System reply with requested route info*

It would cost us a fixed monthly cost of \$200-\$1000 to register an SMS/USSD/Voice service with Safaricom (or any other telecom company), we could save on this cost by using Frontline SMS (Sunny).

[Hardware necessary to facilitate these communications listed in the budget at the conclusion of this document.]

### B) PEOPLE

*Walking route leaders, aka “guardians”*

People will be our largest cost, as determined by consulting Sunny and public transit systems. The service will **run 7 days a week, 6 hours during each of those days** (primarily during dark hours - in the morning as people walk to work or the market, and the evening as people return from central Nairobi and work). Through testing with Edwin Wasonga in Mathare, we found that the system should operate during

- Morning hours from **4am - 7am**
- Evening hours from **8pm - 11pm**

A typical salary for a full time security guard who commutes to Nairobi city earns about Ksh 15,000 per month (Sunny). We will recruit a full time guardian for **Ksh 8,000 per month** (The wage difference due to part-time responsibilities, no commute, and consistent salary).

If we then take as our baseline three “routes” with four guardians simultaneously working each route, salaries costs per month come to Ksh 96,000 - or about **\$1160**. This cost sounds high to us, but is not astronomical. It may be possible to drastically reduce this cost by exploring alternative incentive programs.

- **Marketing** - Flyering throughout Mathare, community introduction events
- **Customer Acquisition** - *no direct cost*
- **Travel** - Anticipate two or three team members traveling to coordinate and administer data collection and pilot.

**FUNDING** will be sought through grants to compensate for costs throughout the entire system, and then we will approach the Kenyan government about compensation alongside the existing community policing system.

<sup>1</sup>Although, if we witness a drastic increase in the saturation of smart-phones in the overall market in the area, we would adapt our strategy accordingly.

## SKILLS REQUIRED

This project's biggest challenge is getting the right people to run the program.

### REQUIREMENTS FOR GUARDIANS are:

- **Social capital within community** (evaluated by vetting by community policing and women's groups)
- **Basic familiarity with smartphones and/or SMS/ USSD** (via training or experience)
- **Knowledge of Mathare layout**
- **Self-defense and conflict resolution skills** (via training)

Guardians must be **trustworthy**. The current system is based on community recommendations and background checks, but we will incorporate another level of community affirmation for guardians. **Women's groups** will be given voting and veto power for guardians, and the selection process will be documented, formalized, and publicized.

Guardians should be **safe within the route** for which they are responsible. They should be able to say to a stranger: "You don't have to worry about anything here, because you are with me."

### DISPATCH CENTER COORDINATORS:

- Proficiency with smartphones (expected to have a basic understanding, and this person will be further trained in our system, by a technical team member)^

### USERS:

- Familiarity with SMS/USSD (via experience/training)(*People are willing to invest time and effort in learning to use new systems, if its services are worthwhile.*)

Users in Kenya are very familiar with both USSD and SMS based systems, and they often use these systems in everyday interactions (mPESA, buying credit, checking credit balance, etc).

Our system would require minimal interaction: the user simply sends an SMS requesting information on a particular route, and gets back an SMS telling her the route schedule and the current location of the patrol.

<sup>^</sup> **NOTE:** Sunny suggested that we eliminate this position, as it adds an unnecessary layer of bureaucracy and an additional salary cost.

## CUSTOMER ACQUISITION

*We have several strategies here:*

1. First, we will leverage **MYSA, the community policing program, women's groups, and a large community meeting** to spread news of this system through community events. We will target influential and visible community leaders including community elders and ensure that they understand the system and promote it. Users will find out about the service and learn how to use it by word of mouth and those that they trust.
2. We also plan to target **market women** as potential users. We believe these women to be great potential advocates of our service because they:
  - **are often at the center of various social networks (customers, vendors, etc)**
  - **usually travel early in the morning or late at night**
  - **carry cash and are targets for muggers/thieves**

We hope that female vendors will tell their customers about how useful our service is and promote it by word of mouth.

Because our service is relatively straightforward, we do not imagine that it will cost our customers much in terms of time to learn how to use it. The barrier to entry here is low, especially as it will initially be a free service (we will initially seek grants, and then integrate with the existing community policing program).

*We also do not plan on charging our users a fee to access the service, because*

1. It's a walking group, which makes it **difficult to exclude those who don't pay**. Thus we could only charge people when they request route information.
2. But we did a back of the envelope calculation, and if we charged the monthly price of Ksh 100 (deemed appropriate by the public in our surveys), even with 8000 uses per month, **only 0.8% of our operating costs would be recovered**.
3. Also, as people become more familiar with the patrol schedule, **there will be less and less need to check route information**, and hence we would have fewer and fewer "paying customers" over time.

That being said, there would still be the cost of sending SMS messages (as charged by the service provider). We would not subsidize these costs, as if the service is useful, users will be interested in paying an appropriate amount for it. Indeed, as the schedule becomes more familiar to users, the cost to them decreases.

## GOVERNMENT REGULATION

We consulted Kennedy Opalo about this issue. He couldn't think of any specific government regulations that we would have to worry about. Unlike our previous "emergency responder" system (where we were essentially trying to replicate 911 functions), our current system is just people walking around in an organized fashion. Though this system is less formal, we will collaborate with and keep local policemen informed, and seek their input.

Ken mentioned a situation where some policemen walk around at night looking for bribes from lone drunk people. If we have larger groups walking around, we might take away this source of illicit income for the police. But Ken also said that if local people were happy with our service, they might pressure MPs to neutralize the bribe-taking policemen.

Also, the police might genuinely appreciate our service if we can deter crimes from happening (saving the police a trip into Mathare). Guardians will not be formally asked to report crimes, though it is their prerogative to do so.

*CONSULTED: Kennedy Opalo, Gerald Omoke, David Thiru, Sunny Jeon, Edwin Wasonga, Raphael Omondi*

## COMPETITION

In terms of similar services, no formal competitors exist, though communities have similar informal systems in place. For example, women who wish to visit the latrines at night may try to gather a group of neighbors to walk together, or walk with a male family member.

But if your neighbors don't want to go, or if you are a single woman, your options are far more limited.

Using mobile technology to facilitate coordination of larger groups, our service simply scales up these spontaneous walking groups by regularizing the routes and providing people who would otherwise have to walk alone with some company. This solution is the first of its kind in Mathare, and addresses a need that has previously only been met with informal solutions.

## ORGANIZATION

David Thiru of MYSA was happy to move forward with finding partners interested in the project, and has suggested involving the police and community policing groups directly. The **Community Policing District Officer** for Mathare, **Gerald M. Omoke**, would like to work with us and introduce us to people that will help us further needfind and implement the project, which he spoke about as promising, and something he is willing to sponsor.

In speaking to with **Raphael Omondi of Pamoja Youth**, he stressed that the most important aspect of this system is getting the right people. There exists a vetting process for members of the community policing system (members are similar to neighborhood watch members and police informants) which is relatively reliable, but could be augmented by a vetting process that involved community groups such as women's groups, who encompass part of our primary target audience.

## OTHER STAKEHOLDERS

The primary "outside" stakeholders are cellphone providers. The cheaper the SMS rates they provide, the less burdensome it would be to the user in terms of costs to access our system.

MAKMEDE



**MAKMEDE VIABILITY BUDGET**  
**ALL FIGURES FOR SIX-MONTH PILOT PERIOD**

<b>Escort Salary</b>	ksh
(12 at 8000 per month for six months)	<b>576,000</b>
<b>SMS Modem</b>	<b>10,000</b>
<b>Computer</b>	<b>20,000</b>
<b>Smart Phones (3 at 8000 each)*</b>	<b>24,000</b>
<b>Data Service (rate to-be-negotiated)</b>	<b>516,000</b>
<b>IT Person and Administrator</b>	
(One at 8000 per month for six months)	<b>48,000</b>

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**1,194,000 Ksh**

(\$13,900)  
for a six-month pilot

*\* we anticipate replacing guardian phones on a  
yearly basis, so this cost is ultimately annual*



