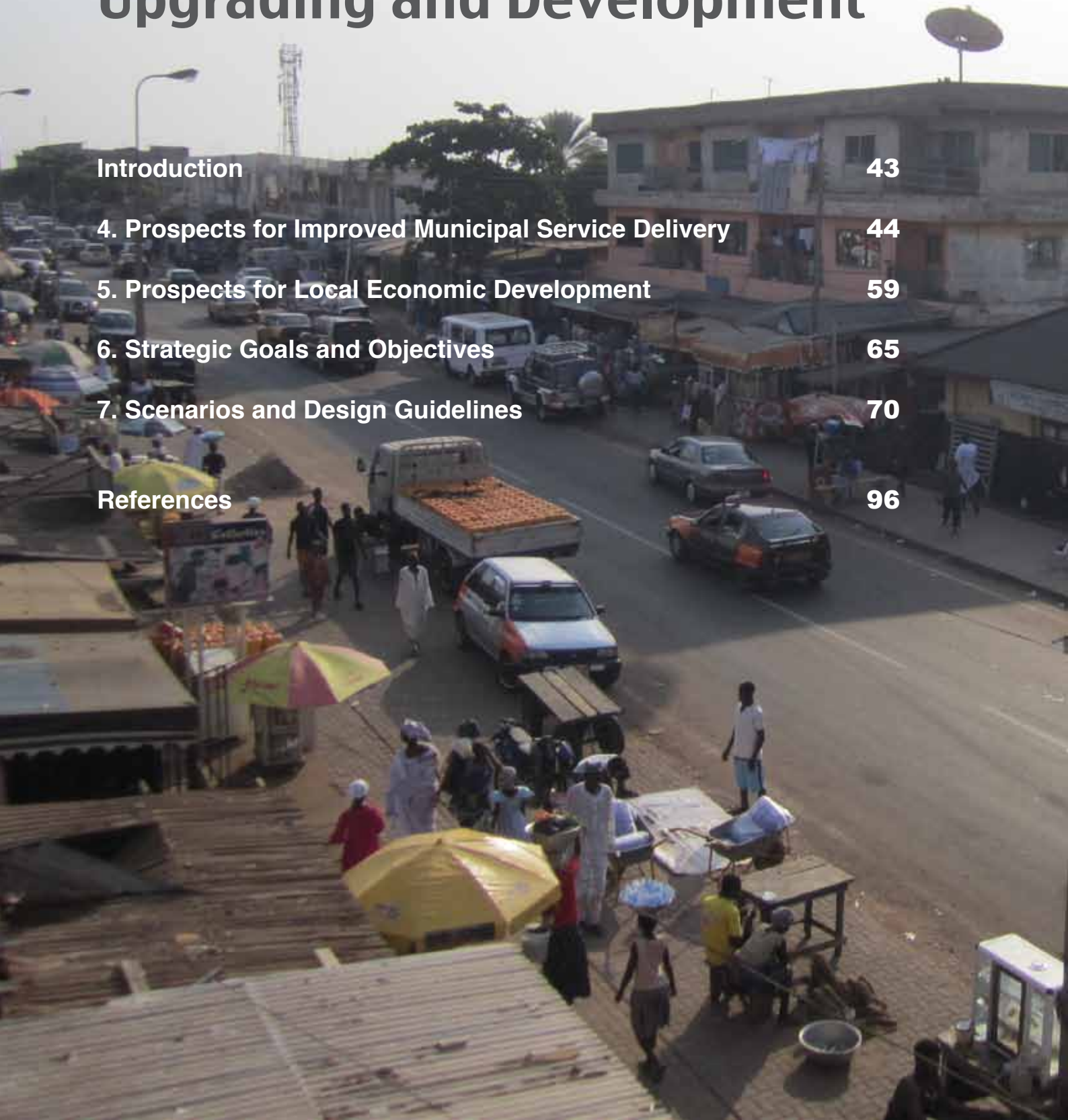


Part II

Prospects and Scenarios for Upgrading and Development

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Introduction

The rest of this report presents MCI's set of concept guidelines and future scenarios that can be used by stakeholders to help them maximize their development strategy for the Gutter area. It is important to emphasize that these guidelines and scenarios do not represent the results of a stakeholder planning process. Such a process will not be possible until homeowners are consulted on the redevelopment process and due compensation is addressed. When the appropriate time arises, MCI's work can be used by the AMA and stakeholders to further the planning process, if they wish to do so.

Development along the gutter can be conceptualized as having a number of layers in the process. Key to these concepts is the integration of municipal service delivery (e.g., infrastructure) and local economic development. The first layer follows up on the analysis of existing conditions, with an assessment of prospects for improving municipal services and local economic development. This entails identifying leveraging enabling environments for both aspects of development – where water, sanitation and waste management services can be expanded and improved; where health and education services can be established; where and under what conditions can business growth and employment opportunities for the local labor force flourish.

With the prospects for municipal service improvements and local economic development identified, the second layer outlines effective

approaches to the visioning process, including setting goals and strategic objectives. Within this layer, we outline the logic that has informed our scenarios for planning.

The last layer is the scenarios themselves. We present three scenarios that differ regarding how much space (right of way, or ROW) is allocated for the road works. We hinge the scenarios on the ROW space because it is the main determinant of what can and cannot be done in terms of development. That is, the potential and flexibility for development for a 15-meter ROW is greater than that for a 10-meter ROW; the same is true for a 20-meter ROW, which holds the most potential and flexibility, with the enlarged space allowing for mixed-use, multi-story development. However, each ROW scenario also presents its own challenges, with a 20-meter ROW scenario requiring the greatest amount of planning and stakeholder buy-in. Of course, weighing these opportunities and constraints is a crucial part of the planning process. We elaborate on each of these scenarios later in the report, with the intention of helping the AMA and key stakeholders weigh their options.

Prospects for Improved Municipal Service Delivery

All aspects of municipal service delivery – access (vehicular and pedestrian), basic services (water, sanitation, waste management, health and education services), housing and public open space – need considerable upgrading. The drainage and road works enable specific opportunities and constraints for each aspect.

To understand these opportunities and constraints, it is helpful to visualize the spatial conditions of the existing gutter and proposed drain corridor. See Sections 1 and 2 to understand the two typical conditions found along the corridor: (1) the two sides of the gutter are level with each other and the new roadway, and (2) the two sides of the gutter differ in elevation and are above the surface of the road. See Sections 3 and 4 to understand how those differing conditions are affected by the introduction of the road and drain.

ACCESS

Vehicular

Opportunities: Building a new four-lane road will greatly improve overall circulation and access within the Nima-Maamobi area and provide key connectivity between Nima and Kanda highways. It can also serve as an access node enabling residents to walk from the road into the nearby residential area.

Constraints: The popularity of such a new connection runs the risk of serving people passing *through* the community on those major thoroughfares, rather than serving the community itself. If poorly planned, these roads could add to the existing traffic congestion. We assume that the DUR will include a detailed traffic flow plan that looks at how traffic will flow at the intersections (lights, turn lanes, etc.), including the Kanda Highway entrance, where Kawkudi Avenue already connects just north of the new drain corridor. At the Nima Highway intersection, an existing T intersection will be turned into a four-way intersection. Traffic calming measures will need to be considered along what will be a long stretch of road. As has been seen on Kawkudi Avenue, it is important to slow traffic for the community's safety and to encourage the commercial use of the road. This new road also doesn't provide full access for the core of Nima East, which still has no road access.





end. Fortunately, there already exists a network of pedestrian pathways used by residents to walk across Gutter, Nima and Kanda Highway and everywhere in between. Residents know these pathways by heart, but most of the pathways are not in good condition. We strongly recommend upgrading these pathways and establishing them as proper routes linking Kanda Highway to the new roads at the drain area and across to Nima

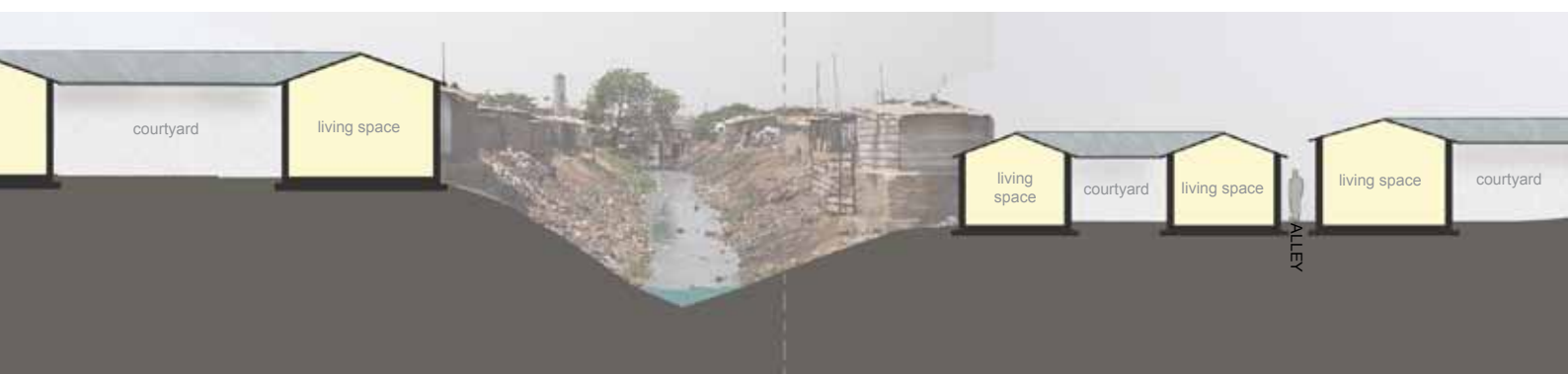
Pedestrian

Opportunities: We cannot emphasize enough that, for the new roads to reach their full potential as an access node, a good network of pedestrian pathways leading from the residential areas to the roads will need to be established. This is particularly true for Nima East, which, as mentioned, does not have access to a road linking Nima Highway and Kanda Highway at its north



Section 1

Existing Corridor Cross Section - typical condition at level locations



Section 2

Existing Corridor Cross Section - typical condition at locations with an elevation change

Highway. The pathways can then also serve as infrastructure bundle routes, where water, sewerage and drainage connections can also be extended into the neighborhoods. To best illustrate this potential, we present Map 15, which shows how the routes identified by VOiCE¹ can best connect the residential areas around the drain to the new roads. Crosswalks between the

¹ VOiCE is a youth group in Nima-Maamobi East that helped MCI gather information about the neighborhood.

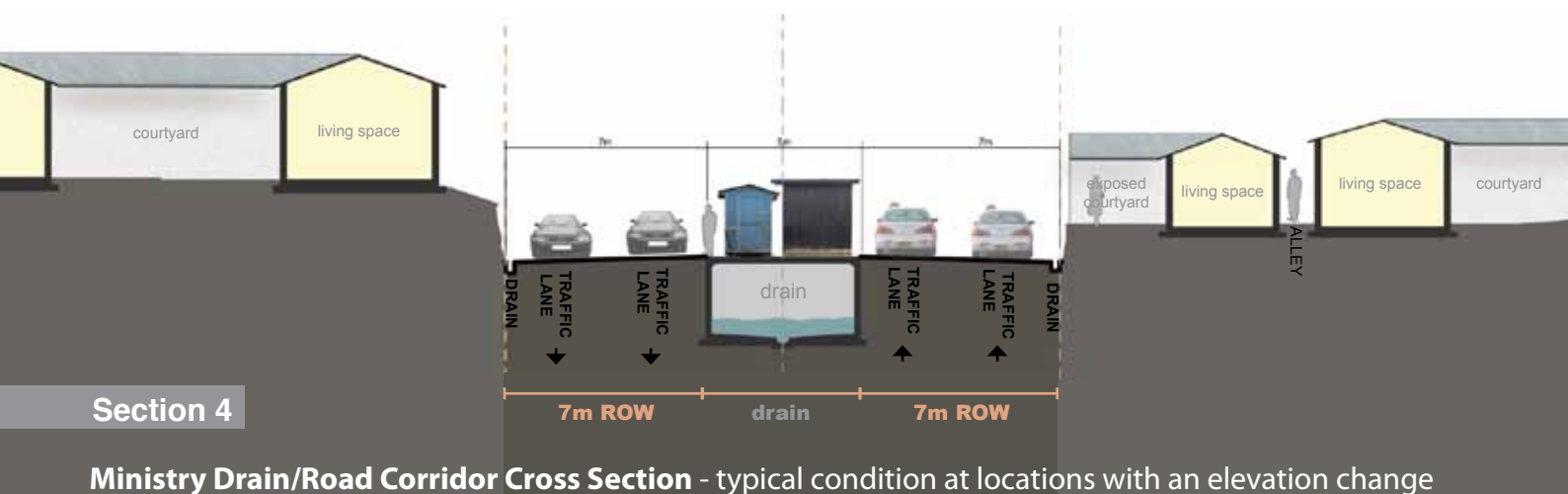
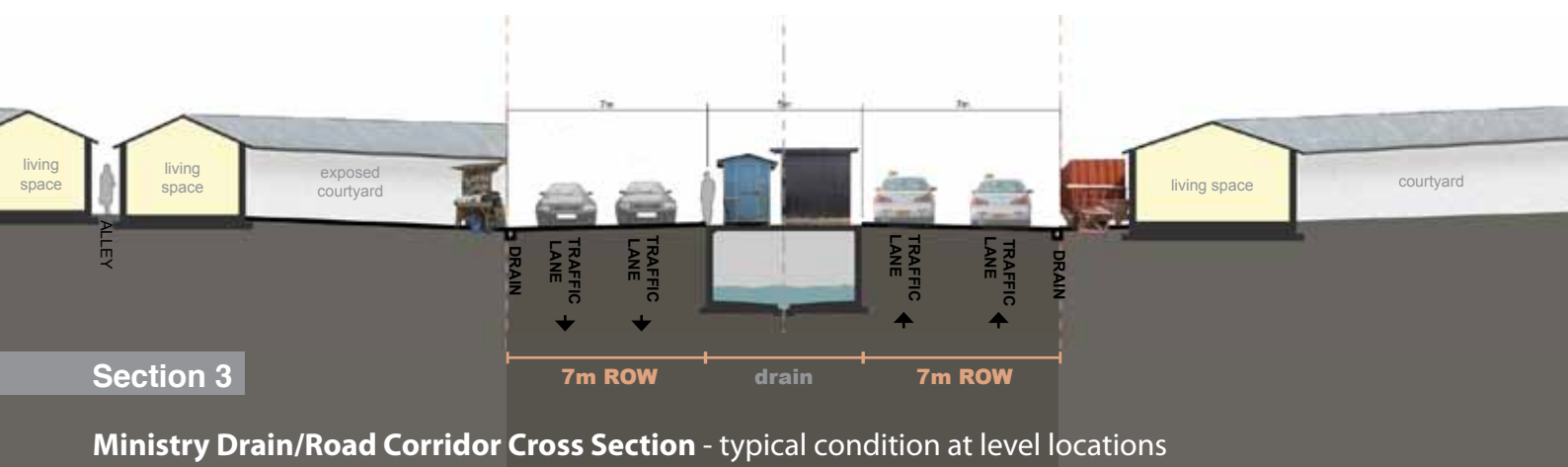


Nima and Maamobi East neighborhoods should be included as part of the upgrading package.

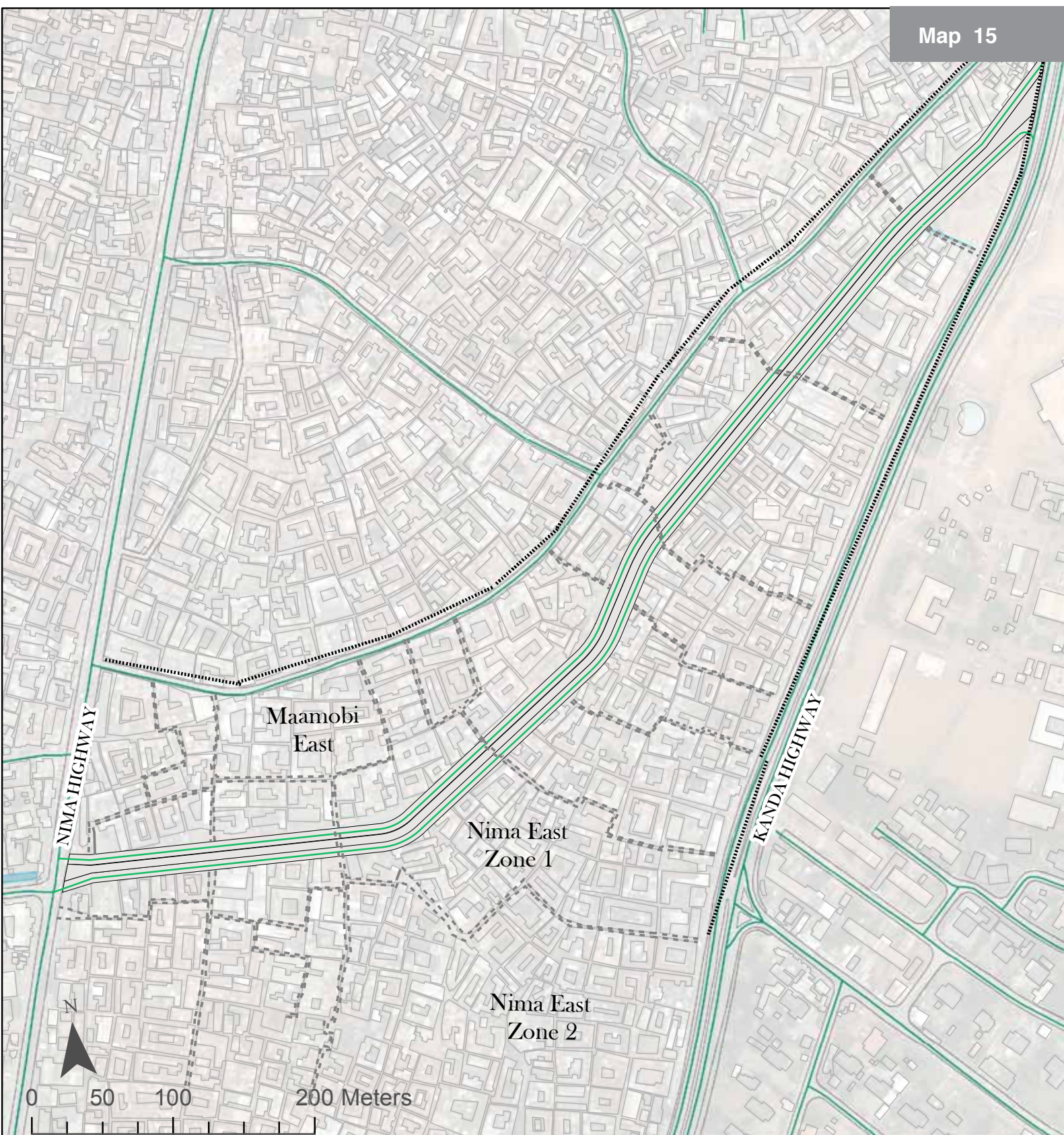
In addition to mapping these pathways, MCI has noted their width measurements (in meters) and whether they were paved or unpaved. Map 16 shows an portion of the route circuit, with width levels.

As a supplement to this report, MCI will submit profiles for each proposed pathway, showing widths, paving conditions and photo-documentation, enabling the DUR engineers to reference the path conditions when planning for upgrades.

Constraints: No space for sidewalks has been accounted for along the new road, although it has been suggested that pedestrians use the top of the new drain slab for circulation. This is problematic for several reasons. First, it puts pedestrians in the center of two high-traffic, double lane roads. Second, it is likely that the newly created space



Map 15



PROPOSED PATHWAY NETWORK FOR UPGRADING: Nima-Maamobi East Drain Area

Legend

-----Proposed Pathway Demarcations



CURRENT PEDESTRIAN PATHWAYS: Nima-Maamobi East Drain Area (Zoomed In)

Legend (Pathway widths in meters)

0.01 - 0.49	1.50 - 1.99	3.0 - 3.49	4.50 - 4.99
0.50 - 0.99	2.00 - 2.49	3.50 - 3.99	5.00 - 5.49
1.00 - 1.49	2.50 - 2.99	4.00 - 4.49	5.50 - 6.01



on top of the drain slab will attract commercial encroachments because of its proximity to a major road. This would block pedestrians from using it for circulation.

There is also no detailed plan for pedestrian crossings from Nima East to Maamobi. With four lanes and the projected high volume of traffic, crossing on foot will be formidable. The new road also creates another major obstacle for pedestrians. Currently, people walk from Nima East to Maamobi across the Gutter or on footbridges. To maintain a consistent drainage and driving slope, the drain will cut into the banks of the existing gutter in some places. This means that along much of the drain corridor, the existing alleys and buildings will be above the road and drain. Of all the existing crossings mapped, only two will still be usable without the construction of stairways. The road runs the risk of tearing these two communities apart, rather than bringing them closer together. As such, we agree with the DUR that additional ROW of 3 meters is needed more to ensure safe pedestrian passage.

BASIC SERVICES

Drainage

Opportunities: Enclosing Gutter in a concrete drain provides an obvious environmental health improvement by eliminating the ability to dump waste in it, defecate in it and come into contact with contaminated water. This alone will provide an enormous service to the surrounding communities.



Constraints: However, the slabbing of Gutter does nothing to improve drainage within the community and, if not upgraded carefully, could make the situation worse. The current proposal only accounts for the connection of five formal drains into the new drain. As discussed earlier, there are many informal drains that should, at a minimum, be connected to the new drain, in order to avoid flooding. Since the drain will be enclosed in concrete, local residents will no longer be able to add drains where the formal system falls short.



The maps of drains on Pages 24-26 in Chapter 2 may provide a reasonable indication of drains that can be upgraded in order to discharge properly into the main drain. However, a number of these drains were designed not by engineers, but by residents themselves. The HSD, or AMA Works Department, would need to determine which drains can be upgraded, or if new drains would need to be sited and constructed.

Solid Waste Management

Opportunities: Modest improvement in solid waste management has been observed in Nima-Maamobi East, due in large part to a better level of service through the Zoomlion “bola bicycles” that can maneuver into small alleys.² While there is no formal provision for additional waste collection services attached to the project, the new roads provide better access that can improve both point and door-to-door collection. First, new skips can be located more centrally for better access, while door-to-door collection service improves incrementally. Second, and more importantly, an established pedestrian pathway network from within the communities to the road can help improve the collection circuit for bola bicycles, if the pathways are paved. Knowledge of the pathways may reduce collection times for service providers. A trial project could also be implemented whereby trash bins are strategically

² Source: interview with VOiCE, a youth group in Nima-Maamobi East.

placed along key pathways so that passers-by have the option of tossing the refuse into them, rather than on the ground. The bins would need to be sturdily fastened to the ground to prevent theft.

Constraints: If the proposed pathway improvements are implemented, the new door-to-door collection along the roads will only improve service for the residences directly next to the road.

Sanitation

One environmental health benefit that the slabbed drain will bring is that it will prevent open defecation there. However, this brings one unintended consequence. People, especially children, use Gutter to relieve themselves when the queue lines are too long at the few public toilet facilities. The urgent need for sanitation facilities will be magnified with the slabbing of the drain. Given the importance of being as realistic as possible when considering these needs, we recommend that in addition to prospects for installing condominium sewerage, new public toilet facilities be constructed to account for the surge in demand for toilets.

Opportunities: The AMA will have the opportunity to negotiate with land and homeowners to acquire land specifically for sanitation use. This would allow for multi-story public toilet facilities to be built (in fact, at least one multi-story public toilet facility has opened in Nima). In our designs section, we indicate spaces along the drain area where open land



will be available as part of the drain and road construction, due to infill and required clearing. These become potential sites where sanitation facilities may be sited, provided that negotiations for land are successful.

The new roads will also allow the opportunity for the construction of sewerage as part of the overall trunk infrastructure package. We recommend condominial sewerage, given the neighborhoods' layout and housing density. If sewerage lines are installed along the new roads, there may be an opportunity to expand those lines into the residential areas adjacent to the roads. We illustrate such a scenario in MAP 17.

Constraints: There are two main constraints associated with introducing sewerage into the area. First is the issue of cost recovery. Whether a condominial sewerage network is financed by the AMA or another development agency, a feasibility/cost analysis will be needed. The AMA Sewerage Department would most likely conduct its own analysis, but this can be done in collaboration with a development agency or NGO. The analysis, of course, needs to include consultations and forums with resident beneficiaries. Nima and Maamobi have their respective Community Water and Sanitation Boards which can help facilitate this process, along with the local Assemblymen and youth group leaders.

Water supply

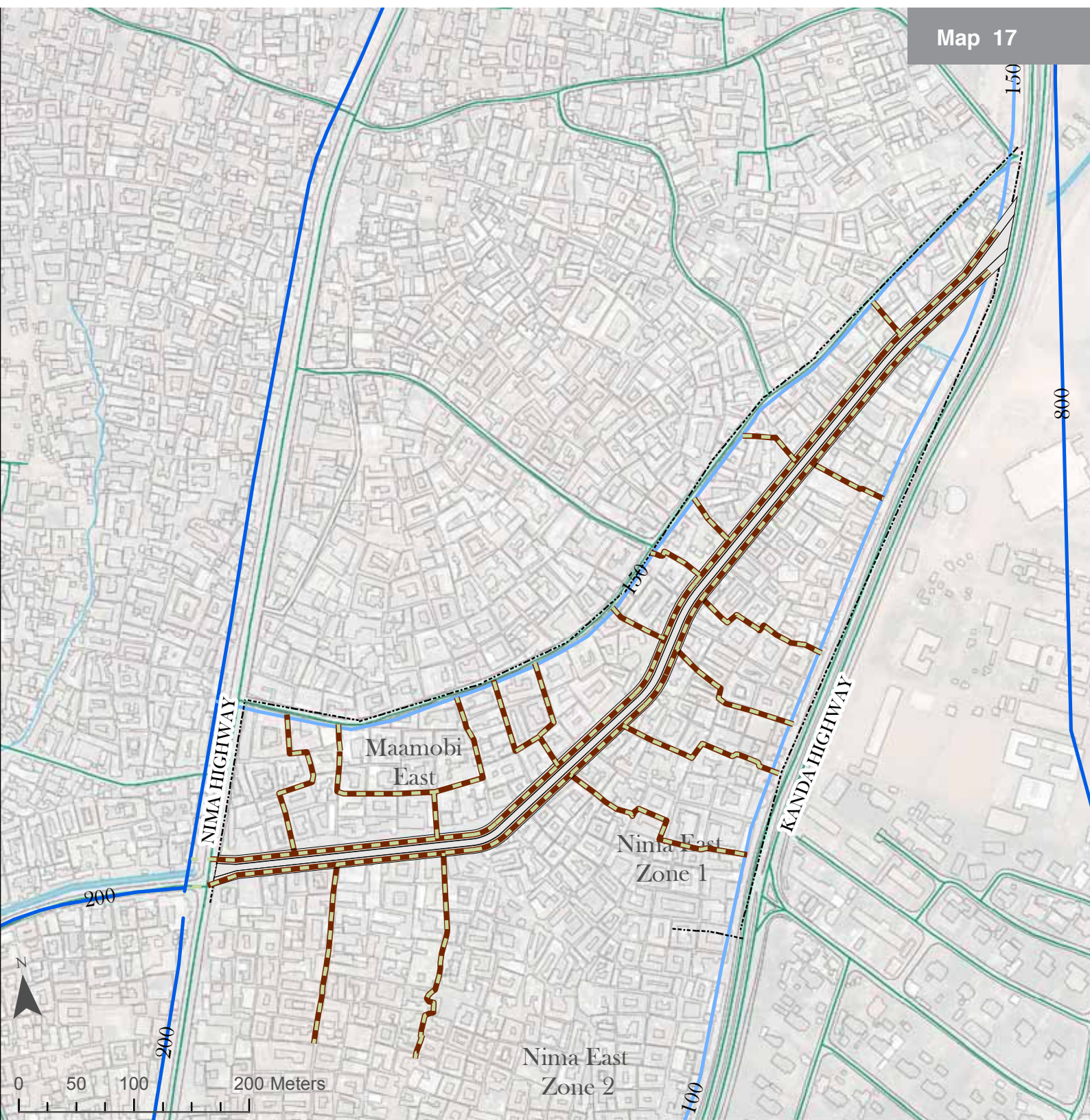
Opportunities: In accordance with Ghanaian law, it is expected that water trunk infrastructure will be installed as part of the road works package. Installing water mains along the roads will provide the opportunity for residential and commercial structures to benefit from water supply service. It may also enable expansion of water mains into the neighborhoods. This is particularly important for Nima East zones 1 and 2, which have long been isolated from even a fairly reliable piped water supply network.

As already mentioned, a primary incentive for upgrading pedestrian pathways in neighborhoods is the opportunity to expand water supply service to residents. In the rarer cases where homes are already linked to a GWCL pipeline, PVC and



HDPE pipelines have been used (MCI 2010), which are reasonable and at relatively low cost. Installation of pipes is more cost-effective for unpaved pathways or those with crude (thin-layered) paving. As indicated, any of the pathways identified by VOiCE have widths of one meter or more, which allows sufficient space for expansion of water pipes from the envisaged road water mains.

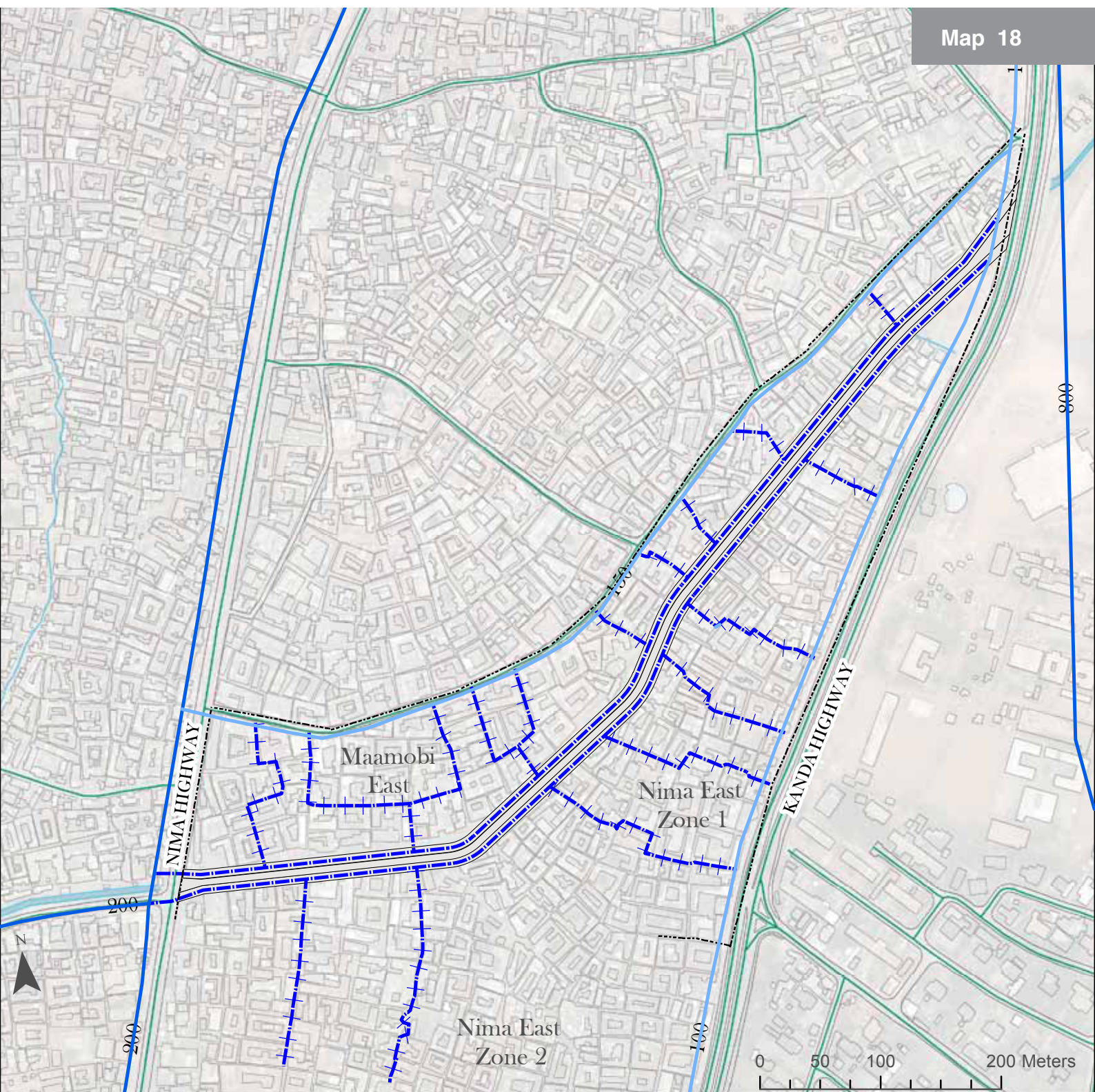
Map 18 shows potential water expansion routes starting from the new roads into the neighborhoods. These potential routes run along the pathways we propose for upgrading. We illustrate only the options for expansion along the identified pathways, as we do not have sufficient data regarding other side alleys to recommend further expansions. Further, we emphasize that engineers from either the AMA or GWCL will need to confirm the feasibility of these potential expansion routes. As a supplement to this report, MCI will submit the geographic coordinates and photo-documentation of all these routes for the appropriate authority's reference. It is worth noting that we have not recommended expansion of water supply service along the main pedestrian thoroughfare in Nima East Zone 1, as the thoroughfare is slabbed to cover the drain underneath. We do not assume the cost effectiveness of expanding water works along this route and leave it to the municipal authorities to consider it. Depending on layout and economic considerations, there may be good opportunities to further expand water pipes from the recommended routes.



POTENTIAL SEWERAGE BRANCHES: Nima-Maamobi East Drain Area

Legend

- Water Main (Over 150mm diameter)
- Water Main (150mm diameter or below)
- - - Potential routes for key condominial branches

Map 18

POTENTIAL WATER SUPPLY EXPANSION: Nima-Maamobi East Drain Area (Pathways provide access for expansion of water supply pipes)

Legend

- Water Main (Over 150mm diameter)
- Water Main (150mm diameter or below)
- +++ Potential Water Supply Expansion Route

Constraints: Of course, it is not a given that water mains should be expanded into these areas. A cost recovery analysis would have to be conducted by the water utility authorities, including willingness-to-pay consultations with residents that can be facilitated by the Nima and Maamobi Community Water and Sanitation Boards. But residents will probably not use a piped water network if they cannot afford it and are unlikely to be willing to pay for it when they have a more affordable option. As mentioned in Chapter 2, prices for a jerry can of water from a vendor are X *pesewas* [to be filled when confirmed] and prices from a borehole fetch X *pesewas* [to be filled when confirmed]. That said, residents of poor communities such as Nima-Maamobi East pay considerably higher prices to vendors for their jerry cans than more affluent residents in communities like Airport Residential Area pay for piped water. As such, it is reasonable to anticipate a price-effective service for water supply in Nima-Maamobi East.³

³ MCI is working with the Columbia University School of Engineering and Applied Sciences to pilot smart metering for water in low-income urban neighborhoods in the Millennium Cities, to bring down this price differential dramatically. The Nima-Maamobi area would be a promising and appropriate venue for such a trial.



Opportunities: Landowners stand to benefit greatly from their new proximity to a road that offers economic opportunity in commercial and residential development. The AMA will need to consider how to ensure that tenants also have access to opportunities for housing services along the drain area.

Constraints: The initial impact will be negative, since many structures will have to be partially or completely demolished to create the required right-of-way. The demolitions will have an impact on other aspects of housing services, namely crowding conditions, basic infrastructure, and the physical condition of housing stock.

Crowding Conditions

Since many residences will have to be demolished completely or partially, housing availability will be further reduced – especially for tenants. There will also be pressure to convert residential space into more profitable commercial space. Therefore, there will need to be planning for additional housing stock to accommodate anticipated increases in demand. Committing to vertical development – that is, building multi-story structures offering apartment units – can provide additional housing units. But this will not be very beneficial to residents if appropriate policies are not put in place to control use, affordability and occupancy rates. It will be ideal for a multi-story structure to have quotas on how many units can be leased for commercial activity, how much landlords can charge for residential units and how many people can occupy each room within any one unit.



HOUSING

The existing houses along the Gutter will bear the most impact from the drain construction, both positive and negative. It is crucial that landowners and residents be included in the planning process and that they be properly compensated for their losses. As mentioned elsewhere, this has not happened in the process so far.

Basic Infrastructure

There is no provision to improve basic infrastructure for the surrounding homes. In fact, in many cases, partial demolition may destroy existing toilet facilities or disrupt water supply.



Physical Conditions

The proposed response to the rehabilitation of affected structures is minimal: to rebuild an enclosing wall where a room has been partially demolished. This will have a huge impact on the functionality and continuity of most homes, one of the most common of which is that once-private courtyards will turn into semi-private spaces that are suddenly open to a major road.

Since many of the structures were already threatened by the Gutter erosion, partial demolition and rebuilding could improve their condition. It is crucial to note here that the way in which the new elevation change will be created between the road and the existing building is crucial to the structural stability of those buildings. There is no space or budget allotted in the proposed ROW, to our knowledge, for a safe slope or a retaining wall.

In theory, slabbing the drain provides a huge public space. The entire surface of the new drain is designated for recreational use because the top of the drain cannot have buildings on it. That is a huge opportunity for the community but is nevertheless complicated to implement. The location between the two new surface roads makes it very attractive for commercial activity and openly dangerous for recreational

use, especially by children. The 5m width also limits the type of activities that can happen there (i.e., not soccer). There is no plan for any physical improvements to turn the surface into a comfortable and safe public space. It is hard to foresee how encroachments will be avoided without serious vigilance and major enforcement.

HEALTHCARE SERVICES

Opportunities: The new roads will provide a much needed, additional access point to reduce emergency response time, particularly for residents of Nima East. Additionally, depending on successful negotiations with landowners, the AMA may acquire land to site a health clinic along the road, which would have the benefit of easier mobility and access.

Constraints: The new road planned for Nima East Zone 1 still does not provide comprehensive access to the rest of Nima East, especially to its dense core of Zone 2.⁴ The new road extension by the Nima Welfare Clinic will help, giving access to Kanda Highway. The paving of pedestrian pathways will also help a bit, in providing stable ground for people to carry injured and sick patients to the roadside. However, in the future, space for at least one new road within the dense core will need to be identified. Naturally, as with other key decisions, identifying this road would have to occur in consultation with community leaders and residents.

EDUCATION SERVICES

Opportunities: As mentioned in Chapter 3, the new roads will allow students a new route to school that may reduce their travel time, although this will depend more on traffic management than on the actual road construction.

Constraints: Rather than pursue siting of vocational training centers *and* a primary or secondary school along the road space, MCI recommends that the new roads accommodate

⁴ In general, Nima East has worse access than Maamobi East does, as Maamobi East benefits from having Kawkudi Road. Maamobi East is also closer to the Maamobi Polyclinic.

only the siting of vocational training institutes. Anything more may only add congestion along the roads, which will already have to absorb traffic from increased commercial and residential activities.

CONCLUSION

In sum, this section has illustrated the prospects for improving municipal service delivery by strategically placing sanitation facilities along the roads; upgrading pedestrian pathways to dramatically improve access; including a bundle of water and sewerage infrastructure along the pathways; and improving waste management collection networks. We also highlight the important constraints that may arise from the drainage and road projects, including impacts on housing supply and occupancy issues, drainage, and the limited geographic impact of the upgrading on beneficiaries.

These opportunities and constraints apply only to the municipal services dimension. An overall picture of the issues discussed here can be seen in the Site Plans 1 and 2: (1) of the existing gutter and (2) of the drain and road as engineered by the Ministry. We now turn to the essential prospects that road works may have on local economic development.

Site Plan 1



Nima-Maamobi Corridor - Site Plan of Existing Gutter

LANDUSE AND ACTIVITY

— vehicular routes	residential
... pedestrian routes	mixed-use
public space	commercial
public services	existing buildings (mostly residential)

0 50 100 200 Meters



Site Plan 2



Nima-Maamobi Corridor - Site Plan of Drain and Road As Originally Designed (7m ROW)

LANDUSE AND ACTIVITY

— vehicular routes	residential
- - - pedestrian routes	mixed-use
public space	commercial
public services	existing buildings (mostly residential)

0 50 100 200 Meters



Prospects for Local Economic Development

A robust analysis of opportunities and constraints for local economic development (LED) in a community typically requires, in part, reliable information drawn from a set of survey questionnaires, including household surveys, business outlook surveys, investment climate surveys and interviews with firms to get data on their assets, suppliers and customers. To the best of our knowledge, this kind of current data is not available for the site in question. The MCI team chose not to conduct any surveys in the study area before the Ministry released specific information on the drain project to homeowners, because the residents would have looked in vain to MCI for answers to questions where MCI has no authority. Therefore, our ability to present prospects for LED is limited. For an optimal vision for LED, these surveys should be conducted in the near future, so that stakeholders can maximize the potential of the development along the drain

and link it to the entire community's economic structure and eventual success. In the interim, we can provide an indication of prospects for LED, based on focus groups and our knowledge base on the subject, combined with our experience in the community over the past two years.



There are a few points to consider when assessing prospects for LED along the Nima-Maamobi East drain area, which will affect the entire community. First, despite the prominence of its ECOWAS market and its reputation for being a hub for affordable goods and labor, Nima-Maamobi has been socially and economically isolated from the rest of Accra for decades. Since at least the 1950s, local government has been neglectful of Nima-Maamobi's condition and needs, which include access, due to inadequate layout, proper sanitation and employment opportunities. This was no doubt due in large part to its status as "a *zongo*." In the past few years, the AMA along with local NGOs have made efforts to improve upon those conditions. We support furthering this endeavor, which should recognize the Nima-Maamobi residents' rights to municipal services, including physical, economic, health and educational infrastructure.

Second, Nima-Maamobi's problems with economic development—particularly employment and access to capital for entrepreneurship—have evolved over a long time, which means that the poverty dynamics are deeply embedded. Physical design cannot, in of itself, address these issues. Social interventions will be key— including skills development programs, public awareness programs aimed at reversing Nima-Maamobi's stigma as a hotbed for delinquents and promoting enabling environments for emerging economic activities. The AMA can play a lead role in this by partnering with other government agencies, such as the Ministry of Education Council for Technical Vocation and Education Training, and local NGOs.

Third, making meaningful progress towards reducing poverty in the community will require diversifying income-earning modes within the labor market. This includes strengthening support for entrepreneurship but wage employment is also very important. Entrepreneurship is sometimes romanticized by development organizations as the key to poverty reduction. The reality is that only some manage to enter entrepreneurship with an innovative idea or a keen interest in business. Many people start their own micro-firm as a survival strategy, trying to make more than they would as employees in other micro-firms or as

unpaid family helpers.¹ Of course, many in the labor force are employed by a firm and also own their own small business. But this often also reflects a survival strategy. Given the opportunity to earn higher wages, workers may very well opt for this choice as their primary livelihood. The key, then, is to address the underlying issues: the lack of jobs and economic investment in Nima-Maamobi, and how to contribute to improving the situation using the envisaged drain area.

With these considerations in mind, we now turn to the opportunities and constraints for LED associated with the upcoming corridors.

OPPORTUNITIES AND CONSTRAINTS

Opportunities

Wholesale and retail goods are more affordable than elsewhere in the city, as is labor. Nima-Maamobi is known across the city for cheap goods and workers, and various merchants and firms come in to take advantage. The Nima Market is one of the main agricultural trade hubs in the GAMA region. Nima Highway has seen steady growth and has attracted even such transnational firms as Shell Oil, Barclays and Coca Cola. Its current location between two major traffic routes in the city, the Nima and Kanda Highways, offers a diverse customer base, if the right kind of enterprises are introduced. The new road corridor connecting these two routes provides a critical moment to make a strategic shift in that direction. There is opportunity for economic growth in Nima-Maamobi.

Constraints

Some firms in Nima-Maamobi engage in small-scale manufacturing of various products (such as foodstuffs, textiles, etc.) but do not significantly produce any regional, national or international exports. Rather, there are many micro-firms and small businesses struggling to make meager profits, especially those further from the key roads. Many of these businesses are not registered as separate entities from their owners and may not document their transactions. Since

¹ See Bannerjee and Duflo (2011) for more insight on this trend.

contract enforcement is problematic in Ghana and other African countries (Fafchamps 2004), most of these firms face risks in their dealings with suppliers and customers, requiring them to conduct key business transactions only with people they trust. Conducting business through known and trusted networks is not necessarily a bad thing, but helping such firms thus requires a good familiarity with their practices and with the specific kinds of services they need, both institutional and financial. What this means is that financial services such as microlending should be customized to these firms' needs, rather than having the proprietors jump through a series of obstacles just to be eligible, which only serves to dissuade them from seeking assistance.

Further, as mentioned, entrepreneurship is not the magic cure for poverty. Many young adults in Nima-Maamobi, like elsewhere in Accra, enter entrepreneurship out of a complete lack of viable employment opportunities. Focus group

participants lamented the “small-small” profits they earned in such common businesses as tailoring, hairdressing and street trade. The labor market will benefit from a stronger combination of entrepreneurship and wage employment.



STRATEGY

From this information we can conclude that an effective LED strategy would look at supporting established and emerging economic activities, attracting new industries (small, medium and larger corporate firms), and very importantly, improving skills development opportunities for the burgeoning youth population entering the labor force. Of course, accomplishing this for the entire community cannot be done within the drain area alone. However, development along the drain area can be linked to the economic activities taking place at the market and the Nima and Kanda Highways and can also provide at least several institutional spaces to cultivate skills development and a healthier local labor market.

There is no direct plan to support economic development along the envisaged corridor, but the new roads may provide an ideal opportunity for attracting new investors and customers, especially when considering its scale and role in connecting two major traffic routes in the city. The new roads provide a unique opportunity to attract a new customer base from outside of Nima and Maamobi. Two important questions arise: should stakeholders plan for economic development along the corridor, or should they let things develop spontaneously, as was the case for Nima Highway? And, if economic development should be planned, what is the appropriate and optimal role of the public sector in facilitating it?

The first question is very interesting, as it accommodates the assumption that all the area needs is infrastructure to help it “take off” economically. The growth occurring at Nima Highway shows that this scenario is indeed possible. The problem with the assumption, however, is that the drain area corridor is not a major thoroughfare from one key road (Ring Road Central) to another. So it may not attract a similar type of investment simply by providing key infrastructure. Thus, at baseline, Nima Highway is not a good point of comparison. A better example is the Kawkudi “Avenue,” which starts from Nima Highway and flows eastbound towards Kanda Highway. Those familiar with the community know that vigorous economic “spillover” from Nima Highway onto Kawkudi

Avenue has not occurred. The type of economic activity is more bound to neighborhood residents, which is a good feature. Figures 1 and 2 show the nature of economic activities along Kawkudi Avenue and the types of structures sheltering these activities, respectively.

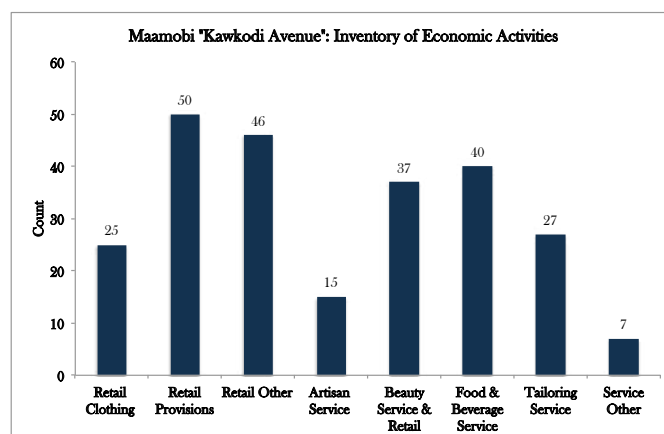


Figure 1

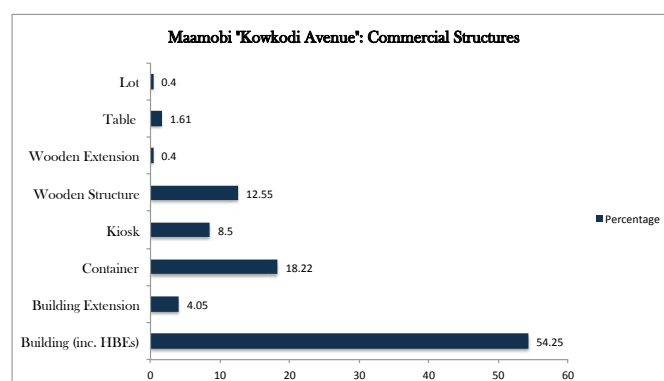


Figure 2

The graphs reveal a great concentration of activity along the road. We also see a good number of businesses that fall under the “retail other” and “artisan service” categories, which refers to emerging firms such as cellphone repair, hardware stores, cold stores, etc. However, we also see a large number of such oversaturated businesses as beauty shops, provisions stores, tailors, chop bars, etc. Additionally, we see that over 58 percent of all economic activity takes place in buildings or building extensions, most of them being homes. Thirty-nine percent of the businesses are in containers, kiosks or wooden structures. These businesses are vital as livelihood sources and as services for local customers. In this sense, we can safely assume that economic activity along the new roads would develop similarly to that along Kawkudi Avenue, if no LED planning takes place. This type of ad hoc business development would indeed be an improvement over the status



Small shops along Kawkudi Avenue

quo and would generate a good number of livelihood opportunities for local entrepreneurs. But this type of development also squanders the opportunity to better integrate businesses along the roads with other businesses and clients, both outside and within the community. It is also important to ensure that the roadway created supports the desired level of economic activity. Without sidewalks or parking, commercial activity and traffic are often in conflict. Without proper planning and support the growth is slow and haphazard, often leading to a concentration of similar, redundant enterprises. As such, we do recommend a concerted effort in planning for LED.

The second question pertains to the role of the public sector, or AMA, in this effort. Aside from providing key road works, and water, sanitation and waste management services, the AMA is able to acquire additional land through negotiations and can lease the land to potential investors. The case can be made to prospective investors that Nima-Maamobi is an attractive place to open shops and small-scale manufacturing industries, given its central location and reliable supply of affordable labor. For example, given that cell phone repair services are increasing in the area, a Ghanaian cellphone manufacturing firm may find it attractive to open operations along the drain area, provided that there is space, reliable infrastructure and an affordable lease. The AMA can facilitate these inputs. Another example would be to take advantage of the emerging youth's interest in ICT and to use that asset to attract firms in the ICT sector with the

same incentives. With regard to both cellphone manufacturing and ICT, land will likely need to be allocated for vocational training facilities, and the AMA can help ensure that land could be allocated for this purpose. Yet another possibility would be to attract new wholesale distribution firms and link them to the Nima Market, so that their products can complement (that is, fill in gaps left by) those found in the market. In short, the AMA could provide land and implement land use regulations along the corridors. We discuss this more in the section on scenarios for planning and design.

Financial Services

Of course, financial institutions and development agencies will have a very important role in LED along the corridors. There are actually a number of entrepreneurs living within Nima-Maamobi with more than sufficient capital to invest in commercial enterprises along the drain area. Whether they would invest in providing employment opportunities in the community is not certain. Certainly, it is important to have incentives for them to invest in and develop the area. Given the relative success of Nima Highway, it would not be naïve to assume that such entrepreneurs will be interested in investing along the drain area. But serious attention should also be paid to entrepreneurs with lesser means, who face two significant challenges in the business environment of Nima-Maamobi: an unfavorable environment for taking risks and investing in innovative services and products, and the lack of access to capital for business startup and expansion.

Microfinance is often hailed as the solution for these struggling entrepreneurs. There are many success stories found in microfinance but there are also many failures. Rather than focus a entrepreneurship support program around microfinance, it would be more beneficial to diversify the range of access to capital and involve other types of financing organizations in addition to banks and microlender NGOs. This includes community savings groups and rotating savings and credit associations (ROSCAs)². Local

² Banerjee and Duflo (2011) provide more in-depth analysis on these options.

opinion leaders can be consulted on convening such savings groups and discussing avenues for assistance.

In the next section, we will present our concept guidelines, goals and objectives that weave together these policy instruments with physical design.

Other Considerations

The fact that a lot of the road will run next to a steep bank with the buildings inaccessible above, making it very hard for drivers and businesses to interact and pushing more commercial activity to the drain slab, which is not engineered to support structures. The minimal available space will limit the initial volume of activity, since many landowners along the corridor will not have the capital to start a new construction project or enterprise right away.

CONCLUSION

In conclusion, Nima-Maamobi has a number of favorable features for LED: a reputation for affordable goods and labor; established commercial nodes in the Nima Market and Nima Highway; emerging economic activities, such as cellphone repair and internet services; a diverse ethnic group with a range of crafts skills; and a well-organized youth cohort keenly interested in skills development opportunities. Depending on the amount of ROW space acquired, the new roads along the drain can attract emerging and new firms from within and beyond the neighborhoods, and can also connect to the other economic nodes nearby.

For all of this to occur, a series of policy instruments will be needed. Physical design alone will not facilitate LED. Additional land acquisition through negotiations is essential, as are land use and zoning regulations to manage the style and rate of development. Job creation for wage employment, as well as skills development, must be high on the LED agenda. Reasonable, informed financial services need to be developed to afford local struggling firms sensible access to capital. These are the types of instruments that need to go hand-in-hand with physical development strategies. The AMA, development partners, community leaders and youth groups all have critical parts to play in this endeavor.

Strategic Goals and Objectives

The first two sections of this chapter presented our analysis of the prospects of improving municipal service delivery and LED along the drain corridor area. They laid out the opportunities that can be maximized for both aspects, as well as the constraints meriting caution, and they indicate the substantial “raw potential” of the area. Transforming raw potential into a steadily evolving functional corridor begins with a stakeholder-led visioning process, resulting in goals and objectives for development. Our contribution to this process includes visioning discussions with focus groups consisting of entrepreneurs, contractors, youth group and women group members. Their preferences have been mentioned in various sections of this report, especially in Chapter 3, which was written by a leader of local youth group VOiCE. Their perspectives have also informed the next chapter, which is a set of strategic goals and objectives that serve as conceptual guidelines for the scenarios in this report. We do not intend to present these goals and objectives as the standard reference – the standard reference should be consensus-driven. Rather, we present them as for stakeholders to consider as part of this planning and design process.

Although multiple scenarios for development along the drain area will be discussed here, the goals and basic strategies are the same for all of them. This section will outline recommendations for the site regardless of the implementation scenario pursued. The overall layout of the

corridor can be seen on Site Plan 3 at the end of this chapter.

Goals

This process aims to create an improvement framework that transforms the drain/road project from an isolated city works project into a comprehensive community empowerment project. This entails maximizing the capacity of the new corridor to address community needs.

1. **Basic Services** – Provide infrastructure improvements that create a thorough and even network of services. Service should meet immediate need and provide flexibility for future demand and expansion.
2. **Access** – Enhance access throughout the Nima-Maamobi area for both pedestrians and vehicles.
3. **Local Economic Development** – Facilitate opportunities for local residents throughout the neighborhood to improve their economic outlook through both entrepreneurship and job opportunities.
4. **Housing** – Protect and improve the lifestyles of existing residents, both tenants and landlords. Increase the area’s capacity to accommodate the continually growing population by facilitating needed densification and vertical growth that can be immediately integrated into the existing community.

- 5. Public Outdoor Space** – Help the community create public spaces that serve the diverse needs of all residents: men, women, children, different religious groups, etc.

Key Concepts

Key concept guidelines and strategies aimed at achieving the goals include the following:

1. The residents and entrepreneurs of Nima-Maamobi are the main client for this project. The area has a lot of potential, and the community is driven to make improvements. However, resources are still limited, and suggested strategies must be within the relevant community members' means. Although outside investment (outside the community) is to an extent necessary to drive development, the situation where all (or most) land is leased to outside developers should be discouraged, because the main clients, local residents and entrepreneurs, will then lose out on opportunities to improve their standard of living and economic prospects. This may be achieved through carefully designed regulations, with an active role taken by local government.
2. Securing tenure for residential and commercial uses is absolutely essential to the success of the project.
3. Creating a positive commercial and social identity for the corridor will help its overall economic success.
4. Both landlords and tenants should be considered in redevelopment. It is critical that strategies meet the needs and aspirations of impacted landowners, and it is only with their participation that the corridor vision can be achieved. That said, strategies should not serve landowners to the extent that they harm other residents.
5. Since most residents will still be walking and using the existing network of alleys, it is critical to create a safe and secure environment for them – especially along the new road, where cars and people will be in close proximity. This should be done as discreetly as possible, to maintain a sense of community ownership along the corridor.
6. It is inevitable that local entrepreneurs will want to take advantage of new economic opportunities along the road. This appetite typically leads vendors to encroach on walkways and public space, where they set up tables and semi-permanent kiosks. Some enforcement will be necessary, but this is very difficult to control. Instead of accepting an all-or-nothing approach, space for informal vending should be planned into any scenario, so that it does not get in the way of other functional and recreational activity.
7. Building new shops along the road is not enough to trigger economic change for the entire neighborhood. Active business and workforce support will be necessary.
8. There should be space for a range of enterprise types and scales, to achieve a more inclusive and diversified range of economic growth.
9. Putting in the road automatically forces existing residences into a very public interaction with the road. It is therefore vitally important to make such a transition a positive one by protecting private space and creating commercial space wherever possible.
10. The space created on the drain slab is very long and can be subdivided into multiple, well-defined usage areas, which will help alleviate tension between public use and enterprise development.
11. The new space created by this project offers a new asset to the community, but demands on the use of the space will be many. It is important to establish needed land use early in the process so it is not open to interpretation. However, that use should be flexible and should try to serve as many user groups as possible.
12. Vertical growth and densification is necessary to meet the growing demand for housing in this area.

13. New development along the corridor should not create a wall between new commercial activity on the road and the existing residential community behind. Mixed-use facilities are preferred, and new buildings will reinforce the layout of the existing community rather than counteract it. No buildings shall be taller than four stories.
14. Public infrastructure such as toilets and water tanks should be managed and maintained by community institutions, to provide constant oversight and foster a sense of ownership of the infrastructure.
15. Local police authorities should collaborate with community organizations and leaders to enforce or implement incremental improvements, thereby helping to implement and maintain sensitive change. Roles should be equitably distributed, to ensure that one group doesn't obtain a level of control that might be abused.

Strategic Objectives

These elements define the basic spatial considerations that will be included in all of the following scenarios.

1. Basic Services

- a. Upgrade all new roads and improved pedestrian pathways with paving and covered drains.
- b. Locate health clinic on public space, in addition to the existing public toilet.
 - There is plenty of space for additional public uses.
 - The health clinic is ideally situated here, since it is centrally located along the corridor.
 - The health clinic would then manage the public toilet and ensure that quality conditions are maintained. They could contract out to a local cesspit service but would maintain oversight, to ensure sanitary conditions. This can also be a livelihood opportunity for local women or youth, depending on the finances available.

- c. Locate a public toilet in the new training facility proposed to be sited along Kanda Highway.
- d. Use available open space to locate new public toilet and waste disposal facilities
 - Space facilities evenly along corridor, maximizing access and convenience to residents.
 - For public health reasons, never place both uses in the same space.
 - Do not locate waste disposal facilities at the two main intersections into the corridor. This creates a bad visual impression.
 - Calculations will need to be made, to size the facilities for needed capacity.

2. Access

- a. Both roads and pedestrian pathways should be well lit, for functional and safety reasons.
- b. Parking is needed, and some of the available or acquired open space should be allotted for this purpose.
- c. Sidewalks and raised crosswalks should be installed for pedestrian use.
- d. Two turnarounds are needed along the length of the corridor:
 - The corridor is too long to have no option for changing direction between major intersections.
 - This will help facilitate commercial activity.
 - Stoplights should be installed at these locations, for safety reasons.
- e. The intersections at Nima Highway and Kanda Highway should be considered major entrances, and stoplights should be installed accordingly.
 - Traffic engineers will have to conduct further analysis as to how best to manage this circulation. It is a complex and potentially dangerous location to bring two one-way lanes into an intersection with another major road.

- f. As part of the current development process, plans should be made for future roads into the inaccessible core of Nima East, thereby minimizing potential barriers to the construction of the connector road.

3. Local Economic Development

- a. Create a narrow space between the drain and road where small kiosks can be built in designated areas.
 - This will allow for the desired commercial use on the drain without threatening the structural stability of the drain itself.
 - The kiosks would be for storage and opened up during the day, to create market stalls facing the center of the drain
 - This will create a small market space that should be managed as such, so that rules can be enforced by a market association and police.
 - Hours of operation should be created so that the drain space can be used for community recreational use on nights and weekends.
- b. Use AMA property for a workforce development center that can provide many support services:
 - Vocational training
 - Computer lab
 - Business set-up advice
 - Areas to display goods produced within the community, to attract outside customers passing through
 - Serving as a visual draw on prime location at the intersection to the Kanda Highway
 - Toilets, parking and other service facilities
- c. If the tenure of the lot on the other side of the drain is cleared as AMA land, it should be actively developed to expand the local employer base. This could be done by recruiting a manufacturing firm to locate a facility on the site.

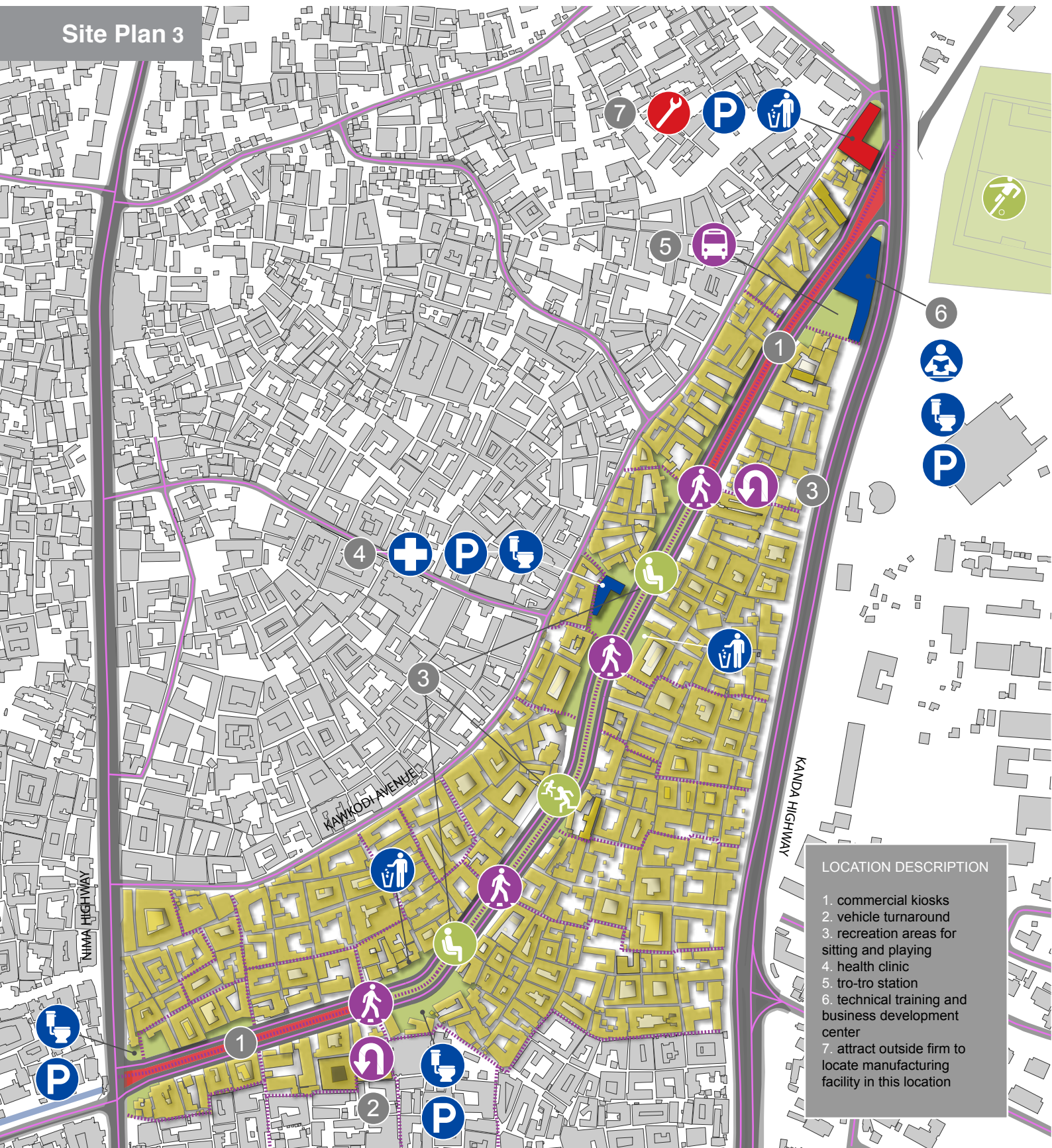
4. Housing

- a. Wherever possible, consistent commercial space should be built along the road.
- b. Privacy and compound functionality should be maintained.

5. Public Outdoor Space

- d. Areas of the drain surface should be designated for public use and designed as such. To do this, the space must be transformed from a hot slab of concrete to a comfortable gathering space, including:
 - Shade, so important in the hot climate
 - Benches
 - Retractable elements to open up space on weekends
 - Information posting boards and community kiosks that provide public announcements and services
 - Safe and open play areas for children
 - Learning space for students (painted games on surfaces, etc.)

These goals, conceptual guidelines and strategic objectives place into context the level of planning needed in order to implement a healthy and inclusive form of development along the corridor. With this framework established, we will present the specific planning and design scenarios in the next section.



Nima-Maamobi Corridor - Site Plan of Overall Scenario Strategies

LANDUSE AND ACTIVITY

— vehicular routes	residential
... pedestrian routes	mixed-use
public space	commercial
public services	existing buildings (mostly residential)

0 50 100 200 Meters



Scenarios and Design Guidelines

This chapter looks at the range of strategies and project expansion that can be applied to target a desired level of development. These targets can be formed in all the key aspects of neighborhood need: basic services (water supply, sanitation, drainage, waste disposal, health services), access (pedestrian and vehicular), local economic development, housing conditions and public space. The focus here is on the corridor itself, but the community wide infrastructure and LED proposals have been incorporated into the process. Many variables will influence the extent of potential development: community buy-in, government coordination, local and municipal oversight capacity, investment, etc. Multiple scenarios are illustrated here to provide a point of comparison for community and municipal decision-making. These scenarios range from minimal measures to ensure the new drain and roadway is not a destructive influence, to the opportunity for new multi-story development. The approach for each is based on goals created from analysis of existing conditions and the ministry's drain proposal, along with the application of stated goals and objectives. Each scenario provides a reference point for improvement strategies and their projected outcomes.

Scenario Key

LANDUSE

- vehicular routes
- pedestrian routes
- public space
- public services

- residential
- mixed-use
- commercial
- existing buildings (mostly residential)

SERVICE FUNCTION



parking



public toilet



public waste disposal location



health clinic



community information



vocational training center



children's play area



public seating area



football field



pedestrian crossing



blocked pedestrian crossing



pedestrian access stairs



vehicle turnaround point



tro-tro station



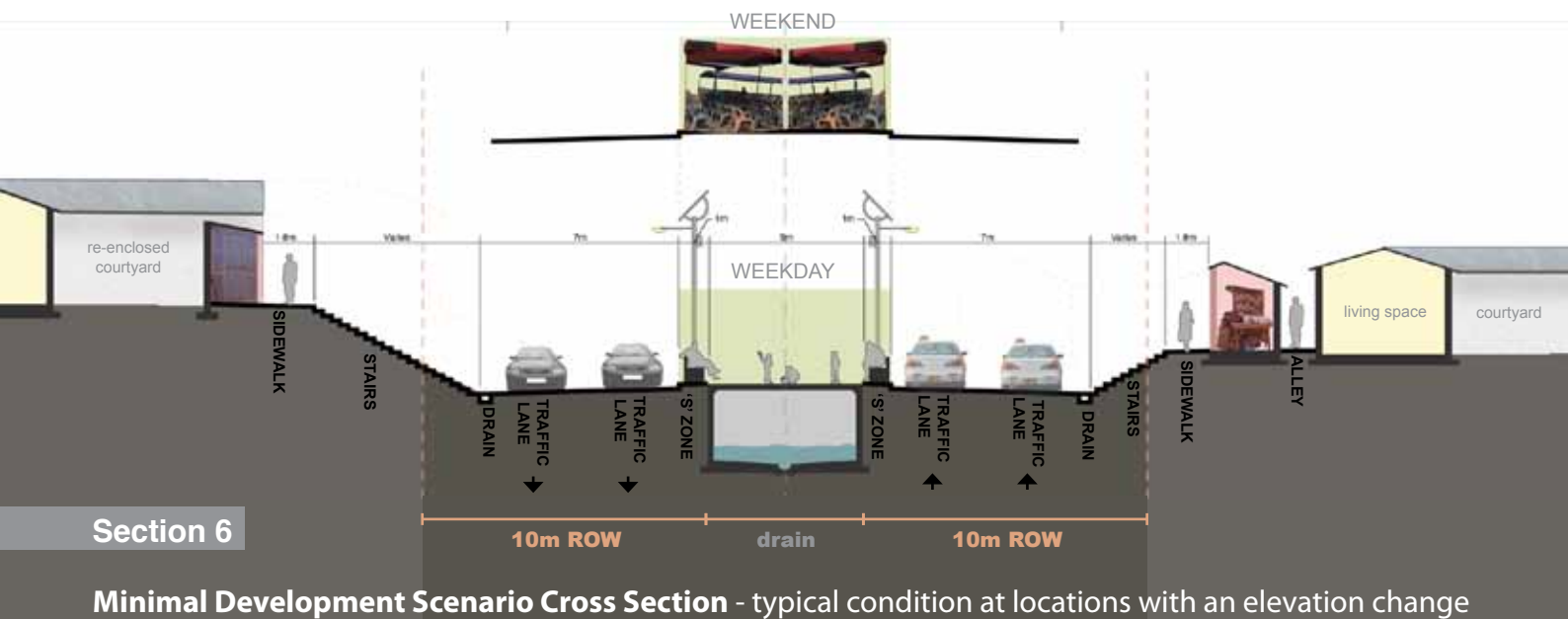
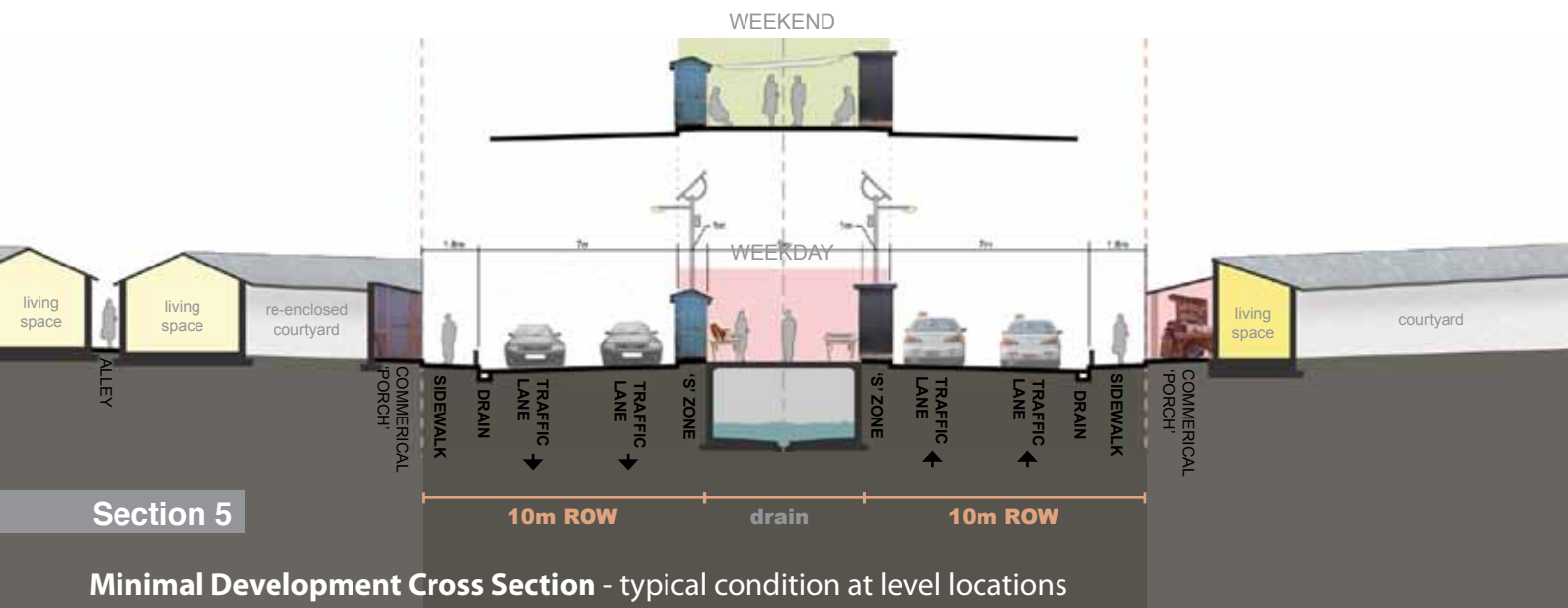
manufacturing facility

MINIMAL DEVELOPMENT (10M ROW + ELEVATION FLUX)

For the corridor to function holistically, there are a few key things that can be added or adjusted with minimal additional construction or finances. This scenario looks at what is the minimum that should be done to create a viable corridor, in the event that more funding cannot be obtained, the relevant landowners are resistant to any additional buy-out, there is lack of interest, etc.

At a basic level, this is done by extending the 7m ROW to 10m to allow for sidewalks and usable space between the road and drain slab. It is also necessary to add additional width in some places,

to allow for the change in elevation between the road and the existing neighborhood. The overall layout of the scenario can be seen on Site Plan 4 (page 73). See Section 5 (level elevation) and 6 (elevation difference between the adjoining land and road corridor) for cross sections of the scenario's differing conditions.



Strategies

All improvements beyond road and sidewalk construction can be community-built and managed.

1. Basic services - Services as designed in baseline layout (Site Plan 3, page 69).

2. Access

- a. Build 1.8m wide sidewalks on either side of the road. Where there is an elevation difference, the sidewalk should stay at neighborhood level, rather than at street level. That allows consistent commercial experience for residents who would typically be shopping on foot. The drain slab should be the road-level circulation route.
- b. Stairways are built at crosswalks where there is an elevation difference between the road and the neighborhood.
- c. Safety fences should be built between the sidewalks and the road. The structures on the drain structure zone ('s' zone) can act as a safety perimeter between the road and the drain.

3. Local economic development

- a. Vending kiosks along the drain 'structure zone' are individually constructed by vendors, but should be built to approved dimensions and approved by the market association.
- b. Build commercial 'porch' wherever space is created between the street and an existing building. The 'porch' would be a roof and paved surface. This would create a space for commercial activity at minimal cost, labor and disruption of the existing buildings. Individuals could then infill walls and display space based on their own means and needs. This measure would minimize haphazard encroachment and create the image of a consistent commercial corridor.

4. Housing

- a. Build a new enclosing wall wherever a room has been partially demolished.
- b. Private courtyards should be viewed as another room in the house, and a wall should be built constructed as part of any reconstruction, to maintain its private function.
- c. When it is necessary for a wall to be built to re-enclose a room or courtyard, it should be placed 1-2m back from the sidewalk edge so the commercial 'porch' can be built from there.

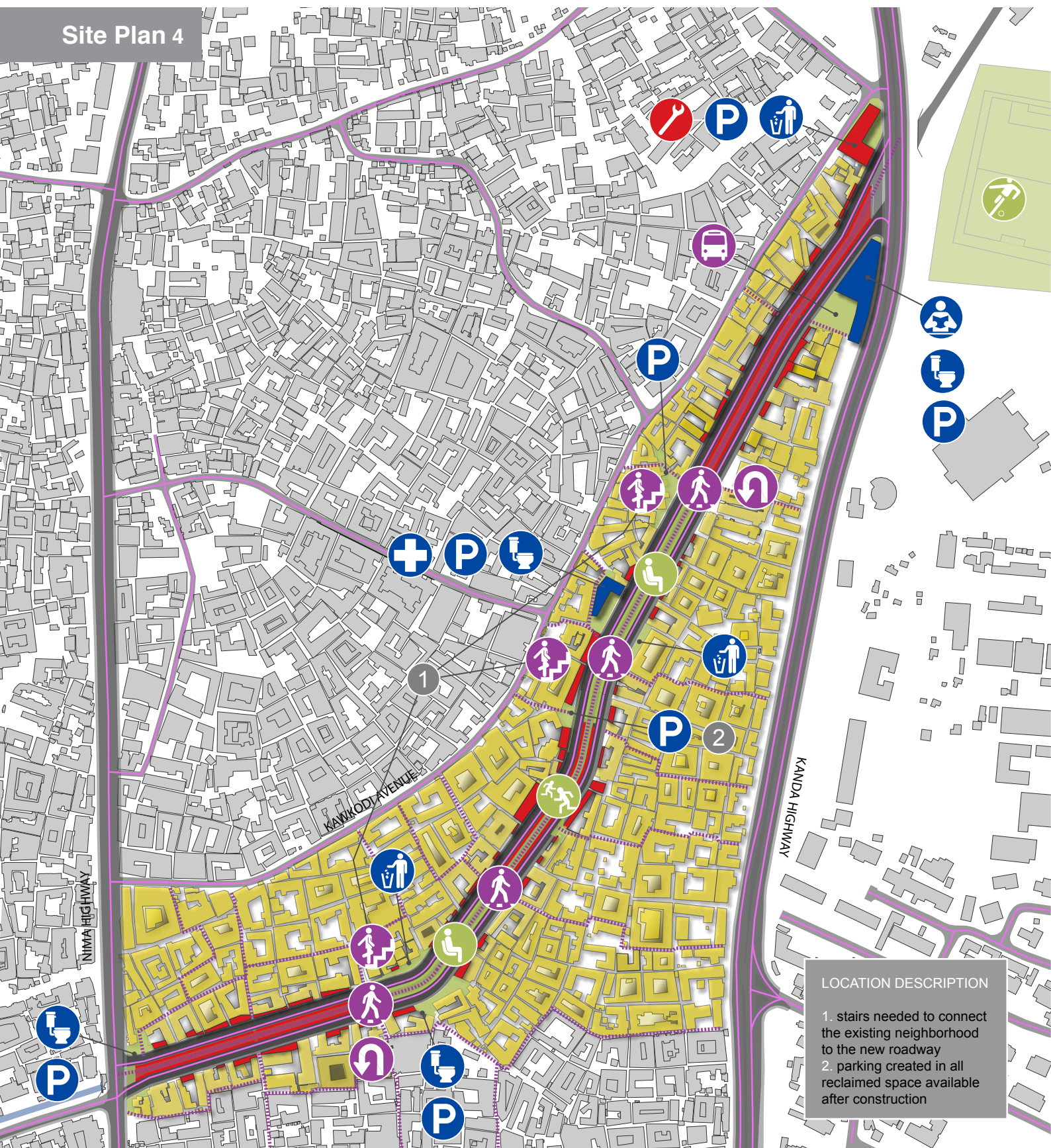
5. Public space

- a. Community organizations build benches for the edge of the public space. This is the first step in making it a place for people to gather for recreational activities. The benches also act as a safety fence between people and vehicles and define the boundaries of the space.
- c. The concrete surface can be painted to define the boundaries of the public space.

Limitations

This scenario does not create a cohesive commercial corridor that is comfortable for residents and customers. Without parking and dense clustering of commercial activity, the local community cannot attract potential customers from outside the area. The narrow right-of-way and minimal reconstruction leave little space or flexibility for future expansion.

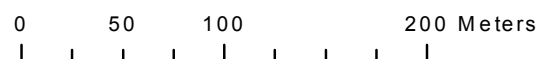
Site Plan 4



Nima-Maamobi Corridor - Site Plan of Minimal Development Scenario (10m ROW)

LANDUSE AND ACTIVITY

- vehicular routes
----- pedestrian routes
■ public space
■ public services
- residential
■ mixed-use
■ commercial
■ existing buildings (mostly residential)

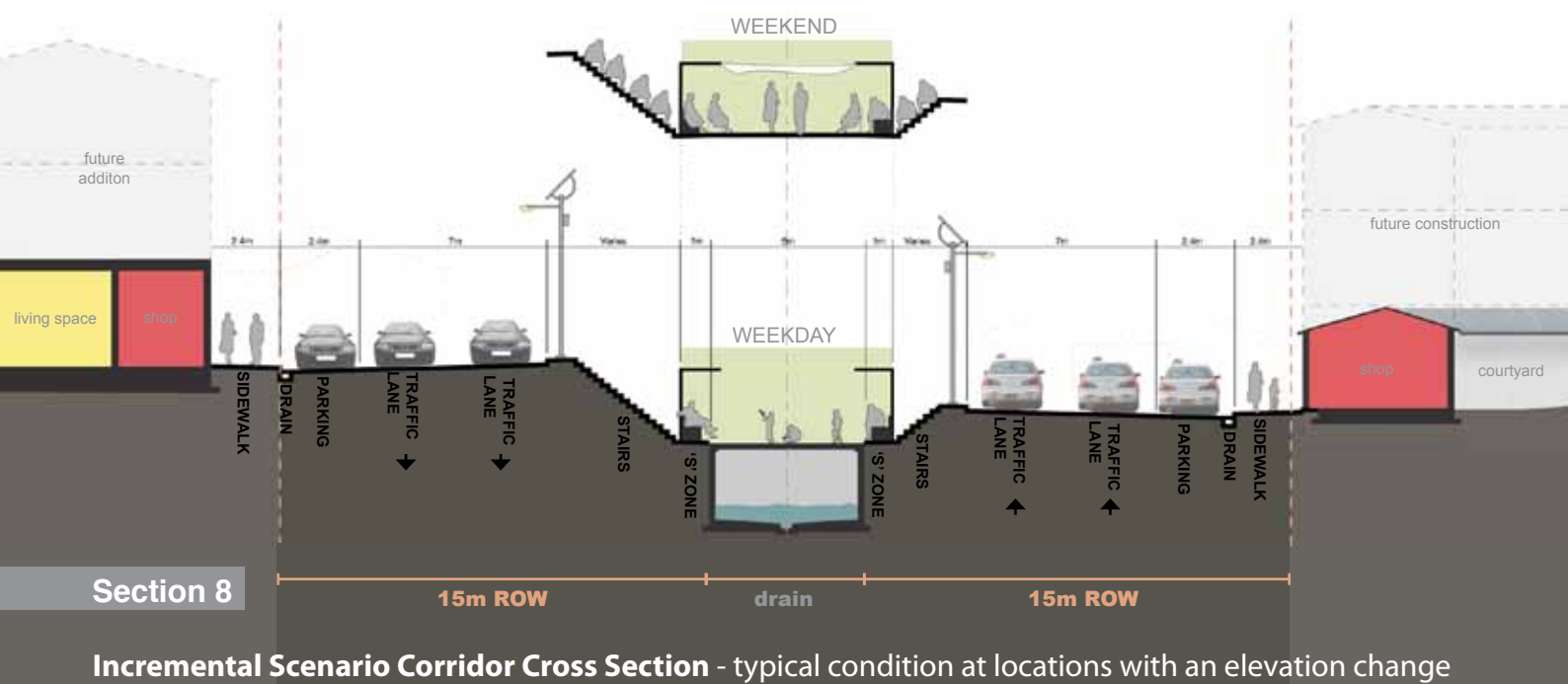
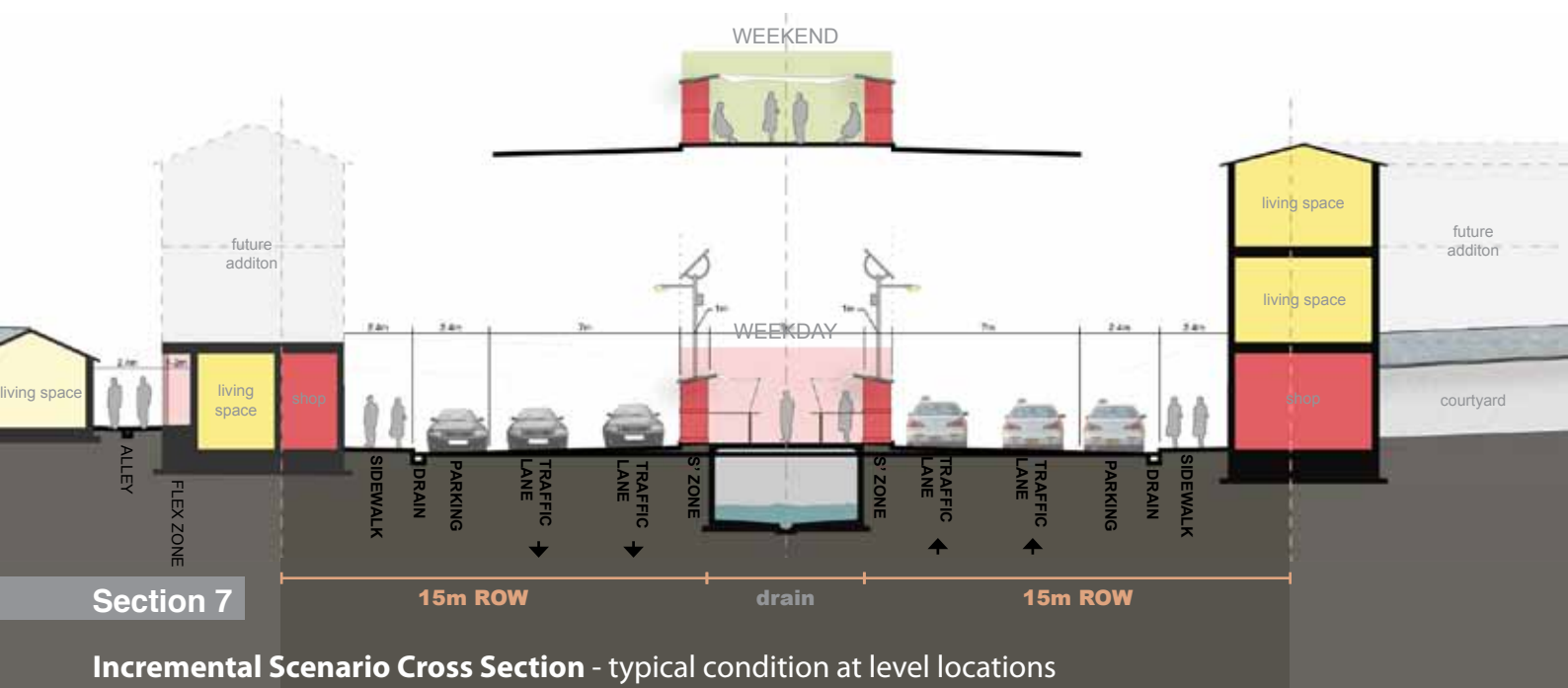


INCREMENTAL DEVELOPMENT (15M ROW)

This scenario shows a more evolved transition where the corridor is improved to facilitate incremental redevelopment over time. It looks at how each landowner can use his/her resources to take advantage of the new road as appropriate to them, in the immediate term and as his/her resources increase.

The new right-of-way is widened to 15m to

accommodate parking and a small setback along the road that is designated as required commercial land use. This commercial use can vary in scale (room in existing house, or new multi-story), but the consistent density of commercial activity would define the corridor as a commercial district for new customers. The slope needed periodically to adjust for elevation difference is located between the road and drain to ensure that the road, sidewalks and commercial space have a strong connection. The overall layout of the scenario can be seen on Site Plan 5 (page 77).



See Section 7 (level elevation) and 8 (elevation difference between adjoining land and road corridor) for cross sections of the scenario's differing conditions.

Strategies

1. Basic services

- a. As part of compensation, every affected house along the road should be attached to any new infrastructure installed (water, sewerage, drainage, etc.). Connections can be run between two buildings and the connection shared, to minimize resources used. Alleys between buildings along the road that are not improved/designated pathways can then be approved extension zones. That means any extensions built in that zone are lawful and encouraged to accept and control encroachment. As part of this objective, it is also important that all new buildings be constructed with a vertical chase that allows upper floors (existing or future) to be easily connected to new services introduced in the future (i.e., sewerage).

2. Access

- a. Widen sidewalk to 2.4m for comfortable pedestrian circulation.
- b. Add 2.4m to roadway to create space for on-street parking. This addition also replaces the need for safety fences along the sidewalk since a buffer is hereby created between pedestrians and cars.
- c. Negotiate the change in elevation by placing the embankment between the drain and the road, allowing buildings with new commerce to interact with the road directly. This has the added benefit of providing expanded for celebrations held on the drain public space. The one consideration is that it shifts the drainage; patterns, forcing the drain slab to drain separately from the road.
- g. New buildings built adjacent to improved pathways must be built based on new, widened alley dimensions (~2.4m).

3. Local economic development

- a. As a required part of the ROW setback, all buildings (new or existing) should have commercial space facing the street that can be rented or used by residents. Ideally, when a building has been partially demolished for the road, it should be reconstructed with a commercial space. This could be done through partial external funding to assist in additional construction cost beyond the ministry budget.
- c. Build standard unfolding commercial kiosks on drain structure zone. This allows commercial activity to happen along the drain without permanent structures that would displace any public recreational use. For this reason, the kiosk should only be large enough for the storage of goods. It could be built so that vendors can open it and unfold tables, with overhead shading/rain protection during the day. Vendor opens and tables and overhead shading/rain protection unfolds during the day. The kiosk would also act as the safety buffer along either side of drain. Building the standard kiosks, which could be rented out, allows the area to be structured more like a market. That would create maximum control to ensure that the slab is not encroached upon and that the space is being used appropriately. New buildings along improved pathways should include a flexible space of 1-2m facing the alley, to allow for commercial activity.

4. Housing

- a. Rebuild all structures to include a commercial space facing the street.
- b. Rebuild displaced household units (rooms) by adding a second-story addition above the existing structure. Since most existing structures cannot support additional floors, a support structure can be built to span the existing building, rather than to rest on it.

- d. Support services should be provided to help individual landowners rebuild within their means and when they are ready. Services should include information on financing options and incremental methods. This can be done in many ways, including building one story at a time or building a narrow commercial building at the front of the land that can allow for the rest of the land to be developed later.

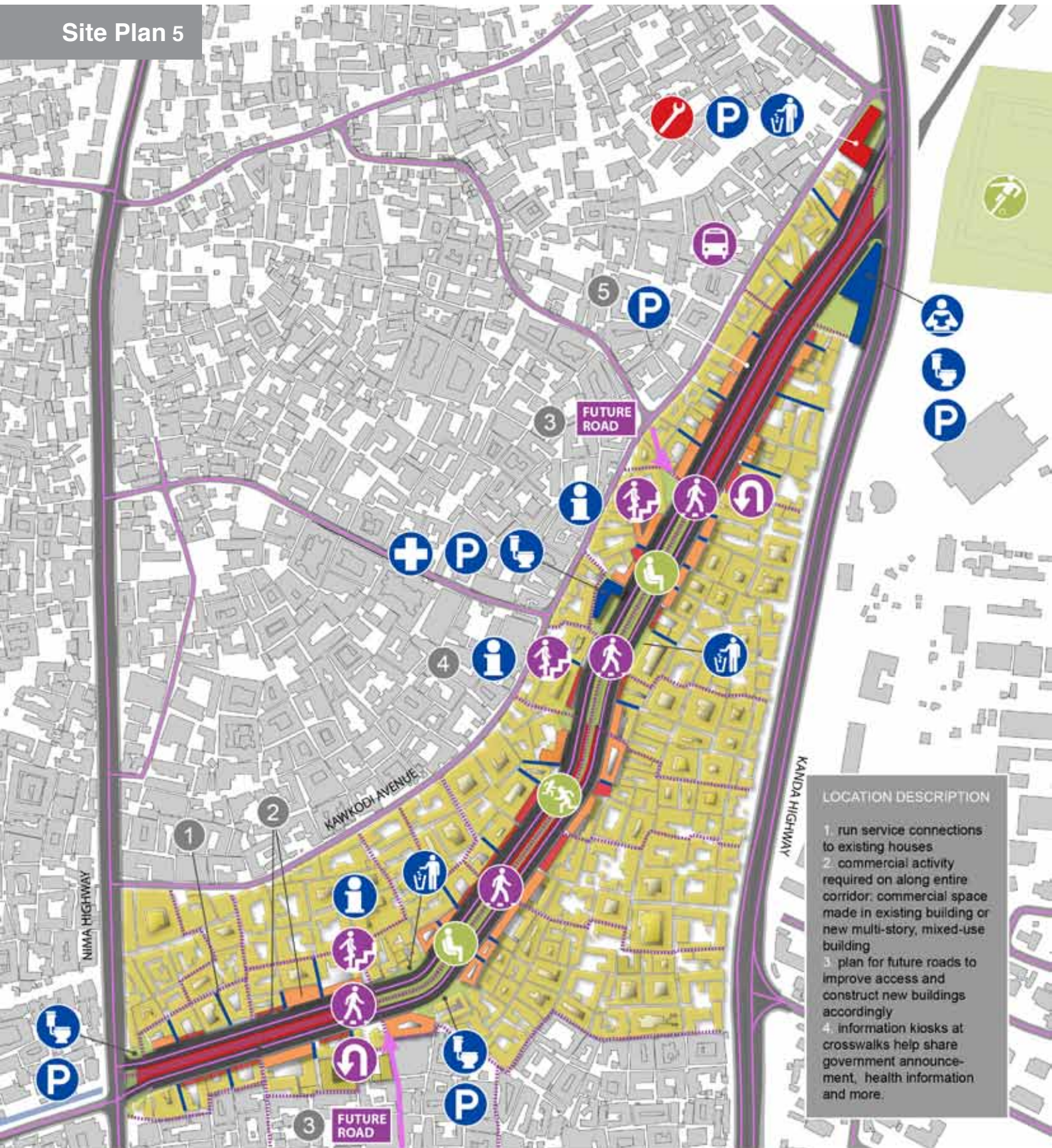
5. Public space

- a. Benches should be built to include shading devices.
- b. Locate community information boards and kiosks in spaces near crosswalks.

Limitations

The ongoing timeline of this scenario makes it challenging to control the final outcome. It relies on residents, landowners and local officials to work together to maintain the long-term vision and to help each other achieve it. Having the elevation transition slope between road and drain turns the drain area into a disconnected trench in some places, reducing the likelihood that people will use it on a consistent basis.

Site Plan 5



Nima-Maamobi Corridor - Site Plan of Incremental Development Scenario (15m ROW)

LANDUSE AND ACTIVITY

- vehicular routes
- pedestrian routes
- public space
- public services
- residential
- mixed-use
- commercial
- existing buildings (mostly residential)

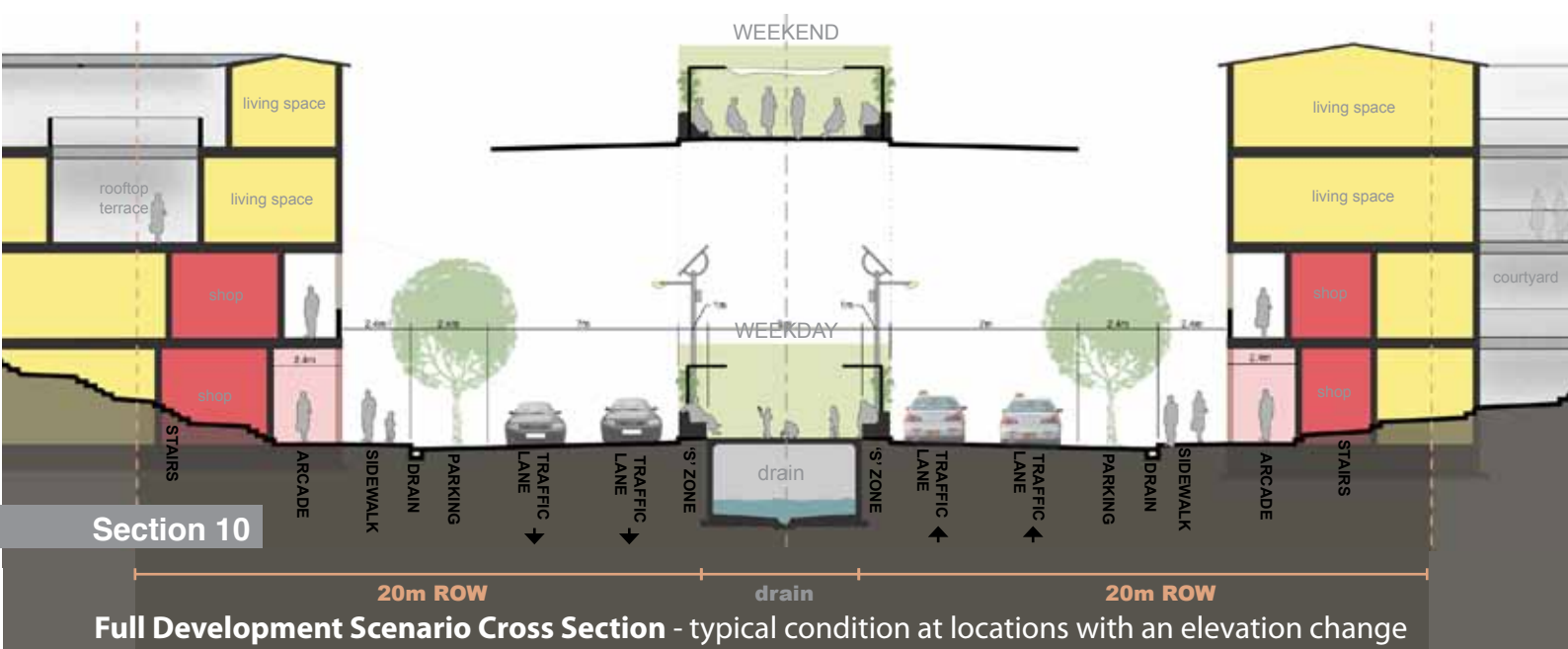
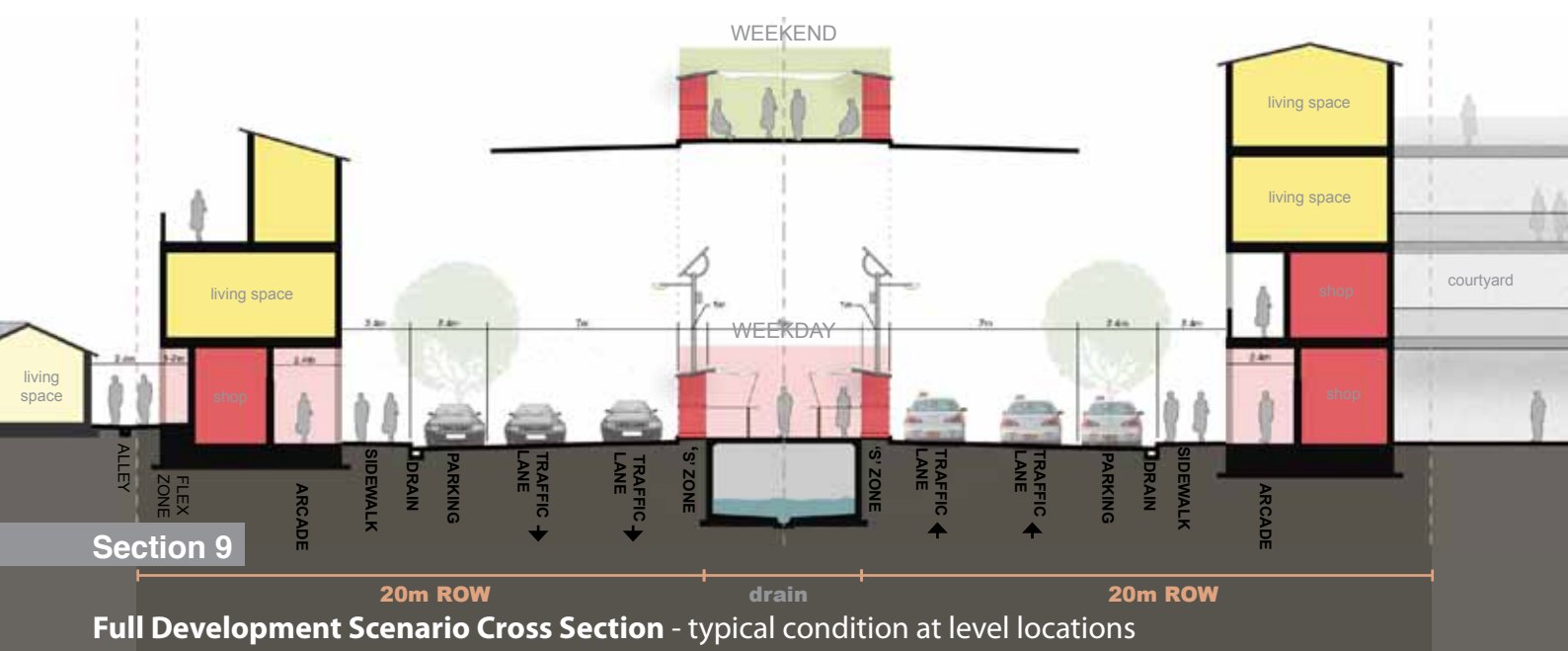
0 50 100 200 Meters

FULL REDEVELOPMENT (20M ROW)

With serious investment and cohesive landowner cooperation, there is the potential to construct a new commercial corridor development along the corridor as an integrated part of the drain/road project. This scenario looks at how multi-story, mixed-use development can be maximized along the new road.

In this scenario any building within 20m of the drain must be rebuilt. All new buildings will have commercial space on the ground floor and an

arcade, to maximize shopping space. The overall layout of the scenario can be seen on Site Plan 6 (page 80). See Section 9 (level elevation) and 10 (elevation difference between the adjoining land and road corridor) for cross sections of the scenario's differing conditions.



Strategies

1. Basic services

- a. All new structures must be built to modern standards:
 - Toilets
 - Water supply
 - Showers
 - Kitchen facilities
 - Refrigeration
- b. Use service core concept found in the Incremental Scenario.

2. Access

- a. Use complete overhaul of the corridor as an opportunity to level the site and create a consistent commercial corridor where buildings are level with pedestrians, vehicles, public space, etc. This is done by gradually stepping the site up the entire length of the property and along alleys.
- b. Construct connector roads into the inaccessible core of Nima East and connect Kawkudi Avenue to the corridor, creating a complete vehicular access network.

3. Local economic development

- a. Any buildings that are within the 20m setback must be rebuilt as new mixed-use, multi-story buildings. The new structures should fill the space between the setback and sidewalk (at a minimum).
- c. Use complete redevelopment as opportunity to reorient buildings to the road and to create a more standard streetscape. Maintain the original building zone square footage, but reorient the edges so that all new buildings create a parallel commercial front to the road and have a more rectangular footprint that both maximizes building square footage and is easier to build.

4. Public space

- a. Plant shade trees and bamboo where possible, to improve environmental comfort and visual conditions. This

can be done within the parking zone, near public spaces and within public spaces not on the drain slab. The slab benches can be built with integrated planters in the back for bamboo and other small shade plants.

- c. Encourage private plazas near the main pathway/road crossings.
 - These would be privately owned open spaces created during new construction
 - This would expand flexible space for the community without necessitating government oversight or buy-out
 - Such plazas are beneficial to landowners because they would provide another income stream. Landlords can -
 1. rent out space for events
 2. rent vendor tables during the week that can be folded and stored inside after hours
 4. offer pay-to-use toilet services
 5. provide outdoor seating space as part of a restaurant

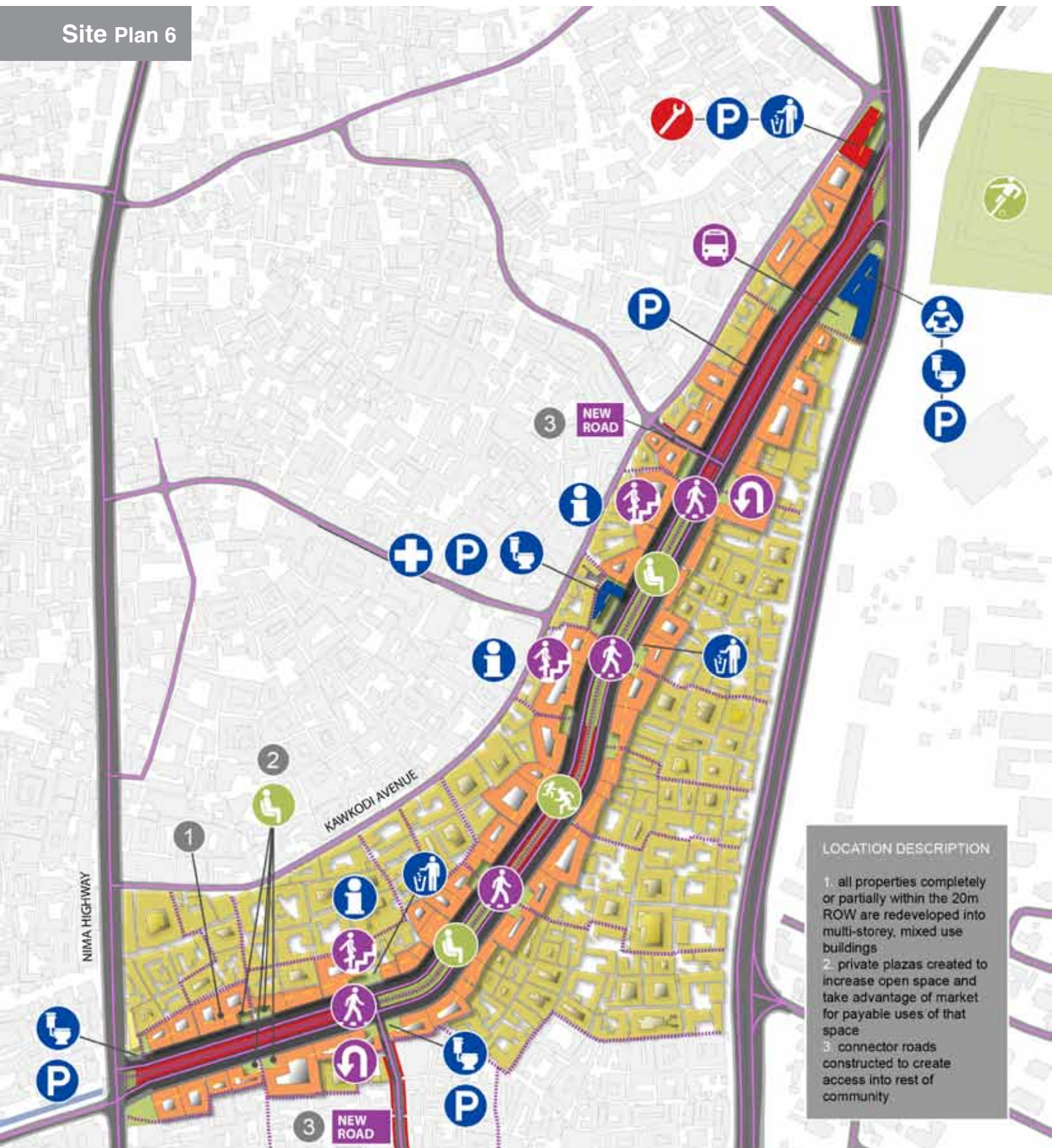
5. Housing

In this scenario we look at a more detailed suggested design for new mixed-use structures. These design strategies will be laid out in the following section.

Limitations

The upfront cost and level of buy-in for such a large-scale redevelopment is a huge obstacle to implementing such a scenario. It also runs a risk of being ‘too much too fast,’ since projections regarding the level of activity and potential commerce are purely speculative. By constructing all the buildings first there is no flexibility to adjust for changes in the anticipated activity along the road. This level of densification is also not appropriate for the current level of service infrastructure in the community: this scenario is necessarily contingent on the infrastructure system improvements proposed earlier, since current systems cannot support all this new development. Overall, a significant amount of buy-in among stakeholders towards a specific micro-development plan will be necessary in order to justify such an investment.

Site Plan 6



Nima-Maamobi Corridor - Site Plan of Complete Development Scenario (20m ROW)

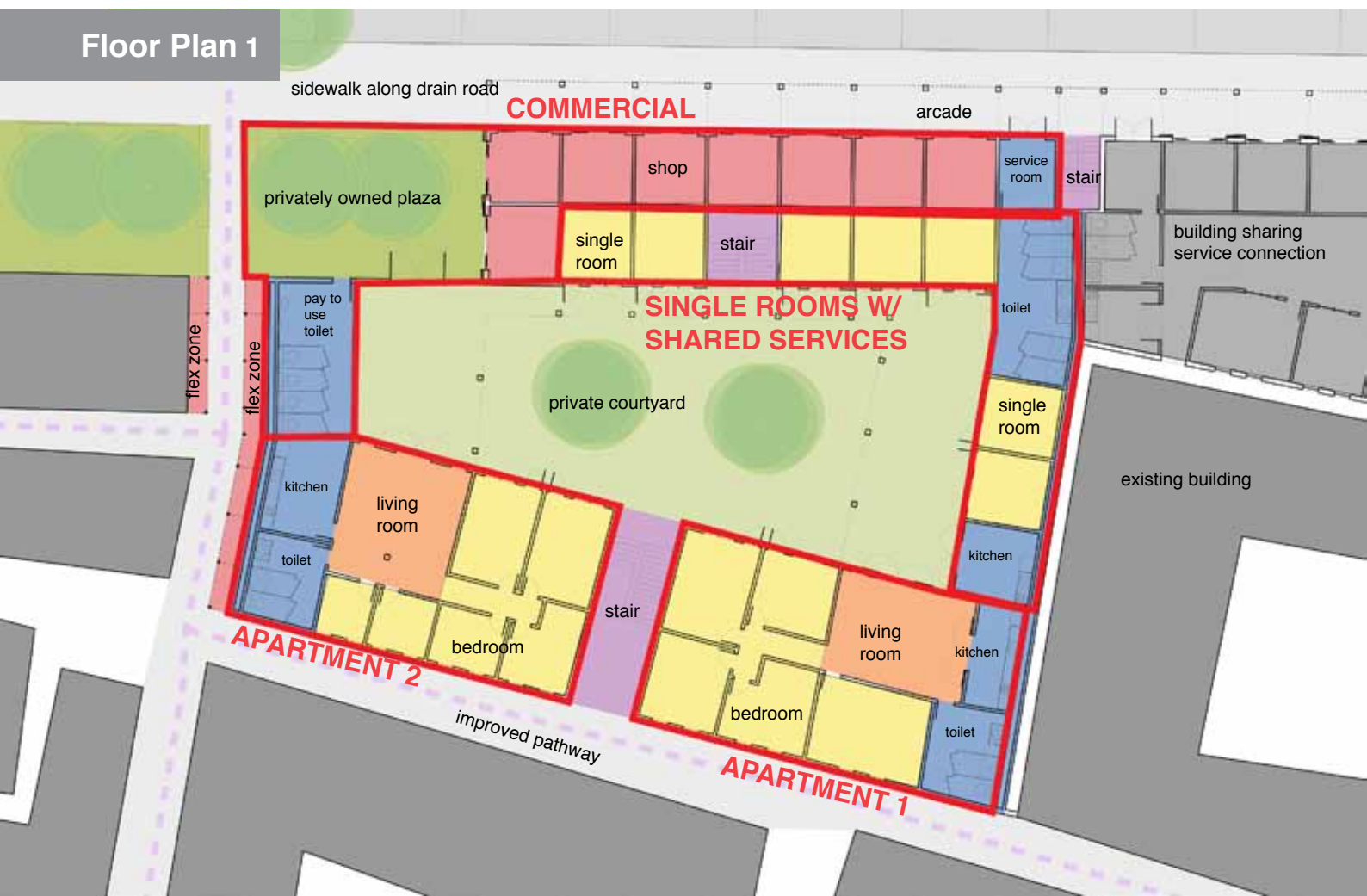


New Mixed-Use Housing

An example of the type of mixed-use buildings proposed as part of this scenario can be seen in Floor Plans 1-3 (pages 81-83). This is not meant to be an exact design to be replicated along the corridor, but rather a layout that shows all the components that should be included in any new construction and the considerations that should be made. Some basic parameters should be followed for the construction of any new building along the corridor:

1. Each building should have a diversity of unit types, including -
 - full private apartments
 - apartments with shared amenities
 - rental rooms
2. First floor commercial space is setback from the building zone to create an arcade. The arcade provides several benefits to the commercial corridor:
 - shaded walkway for shopper comfort
 - since it is inevitable that businesses will spill over, the arcade creates space for that
3. Buildings should be no more than four stories.
4. All commercial space should be flexible to maximize economic opportunity:
 - modular, so that it can be the smallest shop, or can be made larger simply by moving a non-load-bearing wall
 - depending on overall square footage available, provide commercial on second floor
 - consider restaurants and pay-to-use toilets, to fully leverage new amenities
5. Install amenity connections from the beginning, including -
 - central vertical cavity for future expansion or changes in community access shared between buildings (e.g., sewerage brought to the area)

Floor Plan 1

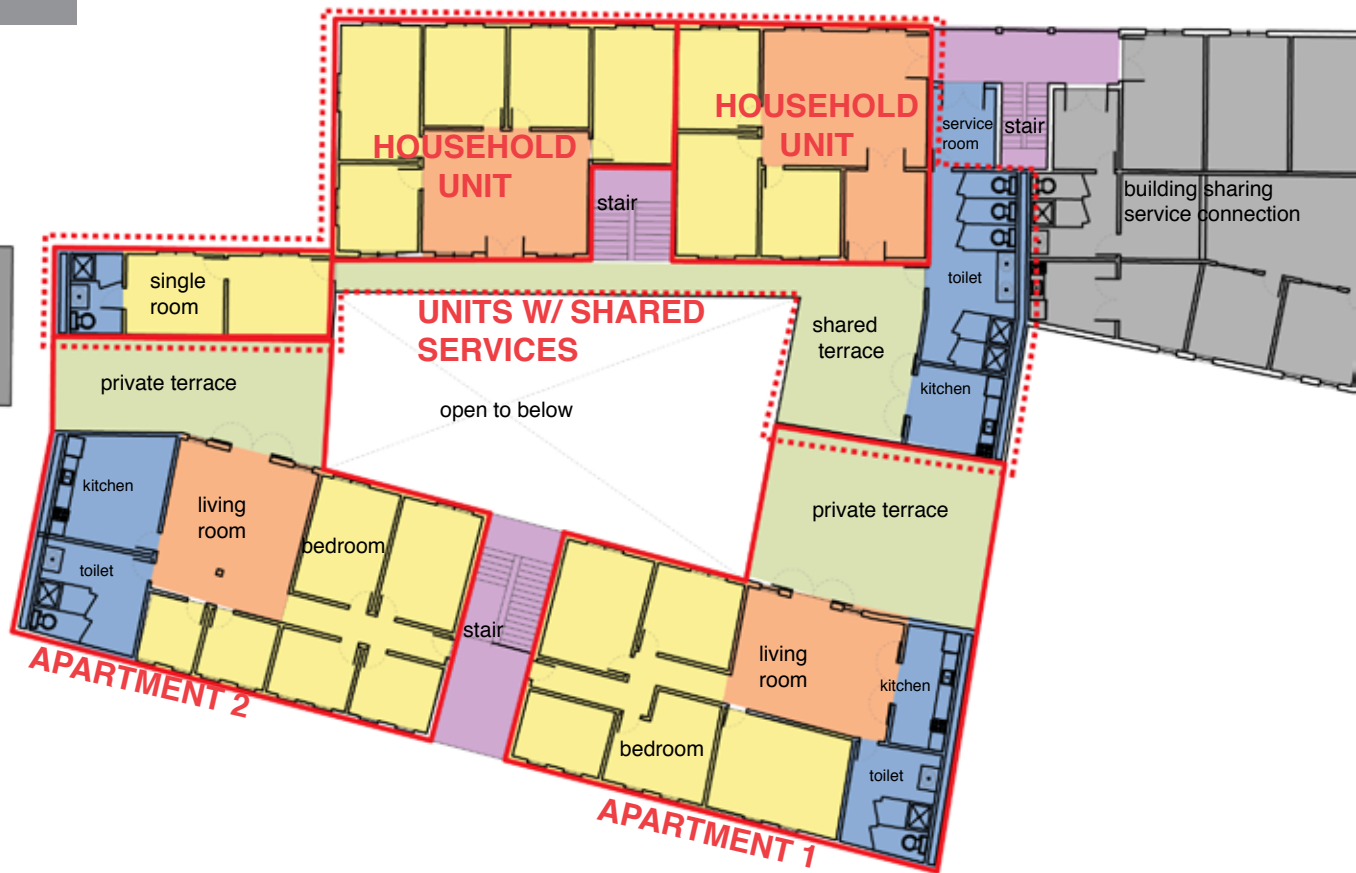


- space for support system
 - flexible facilities for shared use, as well as, private ones
6. Build two stairways: one shared between buildings for commercial, a second in the back, for private use.
 7. Locate the main private entrance on the alley, to maintain community feel/privacy.
 8. The traditional outdoor courtyard should be maintained, with terraces and rooftops created, to provide usable outdoor space for all residents, no matter on which level of the building they live.
 9. Large windows face the inside, while small ones face the outside on the first level, to minimize theft and break-ins.
 10. If the building is along an improved pathway, flexible space must be built in, to accommodate small-scale commercial activity.

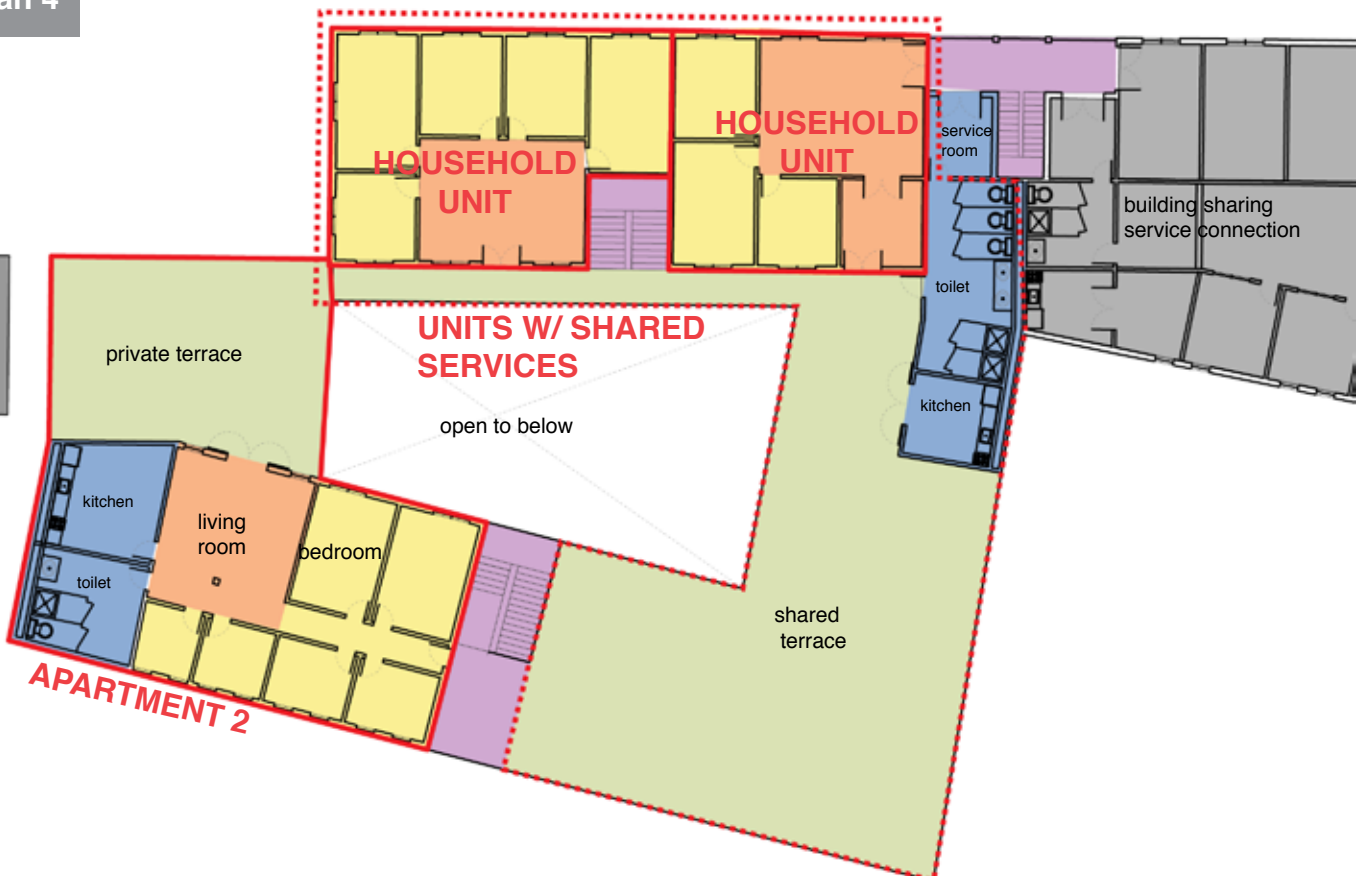
Floor Plan 2

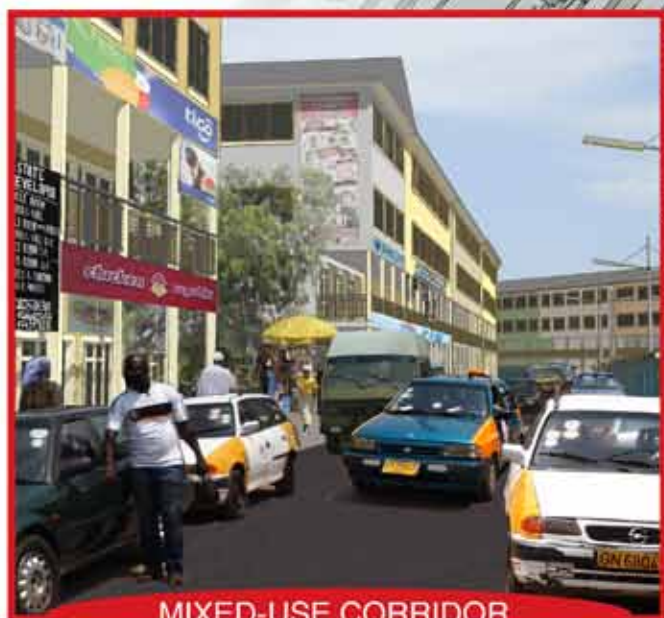
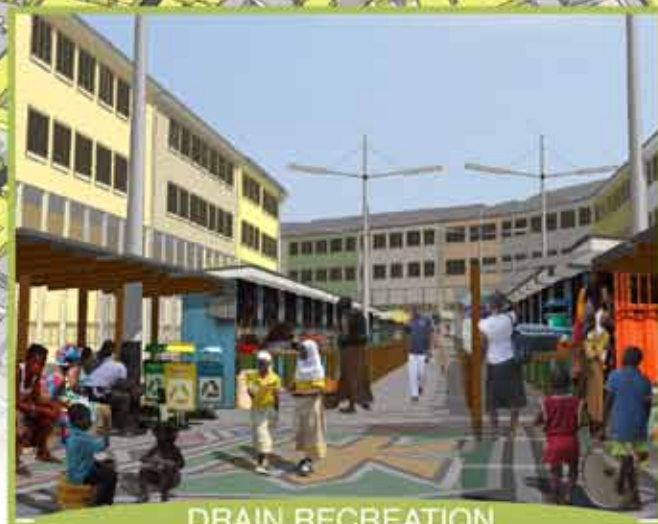


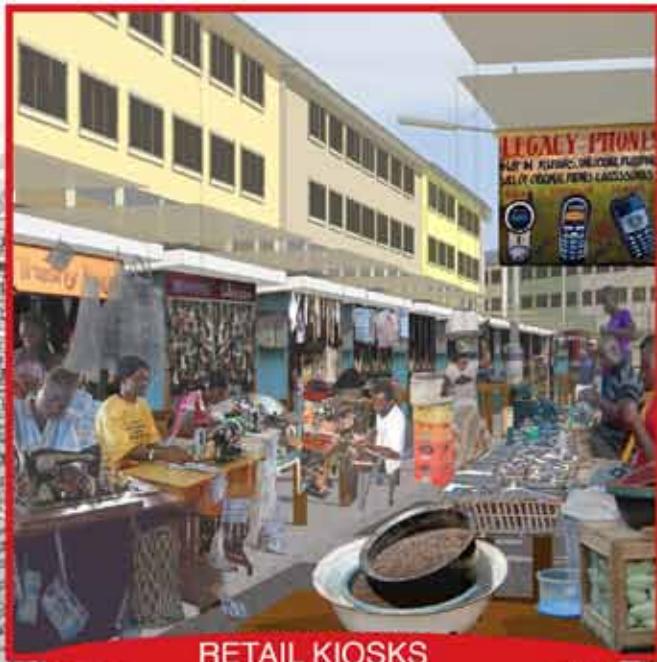
Floor Plan 3



Floor Plan 4



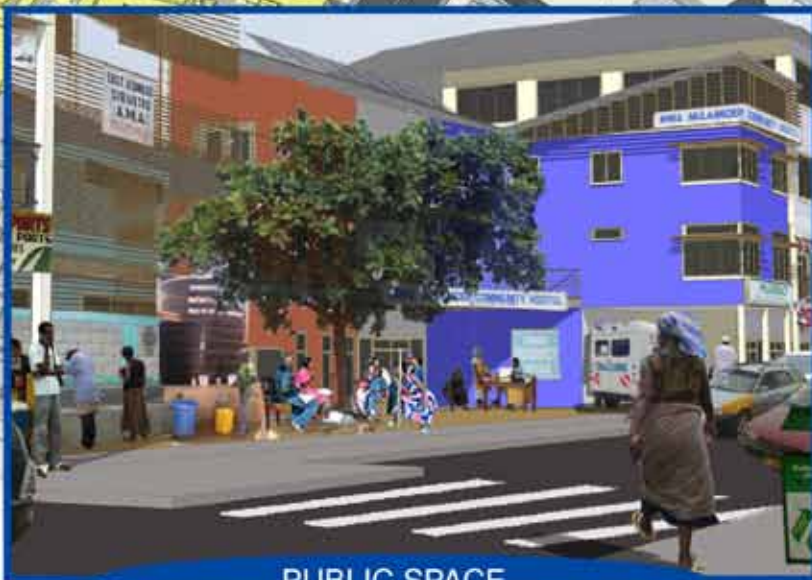
Visual 1: Envisioned usage conditions along corridor following complete redevelopment (20m ROW)**NIMA HIGHWAY ENTRY****DRAIN EVENTS****MIXED-USE CORRIDOR****DRAIN RECREATION**



RETAIL KIOSKS



KANDA HIGHWAY ENTRY



PUBLIC SPACE

Visual 2: Envisioned entry from Nima Highway following complete development (20m ROW)



Visual 3: Envisioned roadway condition following complete development (20m ROW)

Visual 4: Envisioned weekday commercial kiosk activity on drain surface following full development



Visual 5: Envisioned drain surface condition following complete development (20m ROW)

Visual 6: Envisioned weekend event use of drain surface following complete development (20m ROW)



Visual 7: Envisioned public space with combined community services following full development



Visual 8: Envisioned entry from Kanda Highway following complete redevelopment (20m ROW)



References

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