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TRANSPORTATION CHALLENGES IN THE PERI-URBAN AREAS OF ONA-ARA LOCAL GOVERNMENT IN IBADAN, OYO STATE

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Abstract
The developing countries of the world are challenged by provision of affordable, efficient transport infrastructures to facilitate the movement of peri-urban residents to the city centres. This situation is further compounded by the public constrained budget and level of poverty. It is against this that the study examined transportation challenges in the peri-urban areas of Ona-Ara Local Government of Ibadan. A multi-stage sampling procedure was adopted. From the 3,053 residential building, random sampling method was used to select 214 (7%) buildings for the administration of structured questionnaire while the transport providers were also interviewed. Findings revealed that most communities within the LGA were accessible and majority of the respondents commute to the city centres to demand for essential services. About 74.0% of respondents had never had a personal means of transportation and motorcycles were the major means of transportation. Most of the access roads were not tarred and in deplorable conditions with implication on travel time and cost. The challenges of the transport providers included poor condition of road. The study concludes that the transportation challenges experience are transport exclusion and transport poverty., Therefore, policy of decentralization of basic facilities and service from the city centre to the transition zones to reduce the need to travel should be adopted.

Key Words: *Transport poverty, Mobility, Accessibility, Transport challenges, Peri-urban*

Introduction

The past fifty years have brought unprecedented changes to the world's urban landscape (Satterthwaite, 2007). Rapidly growing megacities of ten million or more residents becoming commonplace with a shift in population density from rural to urban areas (Farrell, 2018). These patterns are likely to accelerate. The Population Reference Bureau (2008) projects that by 2050; urban residents will make up 70 per cent of the world's population compared to lower than 50 per cent at the beginning of the new millennium. In the world's poorest countries, the bulk of this growth will occur in fringe developments outside the megacity centre.

Despite a growing population, many megacities have failed to provide affordable and efficient ways for peri-urban residents, especially in the developing countries to access the city's core (Marshall *et al*., 2009). Policymakers often ignore peri-urban areas, resulting in inadequate access to education, sanitation,

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and health infrastructure, as well as poorly enforced zoning and building standards (Chirisa, 2010). Furthermore, people tend to amass in peri-urban areas owing to a desire to be close to the city's economic opportunities that is short-changed by prohibitively high prices and predatory zoning policies in operation at the city's centre. The attributes of the city centre are, especially problematic for residents with constrained budgets (UH-HABITAT, 2015). This reinforces the cycle of poverty by trapping peri-urban residents in their low-income neighborhoods with poor mobility and access to the centre of the city (Méndez-Lemus and Vieyra, 2014). The available mobility means and mode is usually through inefficient pollutant emitting automobiles and micro-buses (Transportation Research Board, 1996).

In higher-income developing cities, shopping centres, strip malls, wholesale supermarkets, and sometimes high-tech industry clusters have started to appear in the peripheries (Dorina and Stead, 2015). However, the inadequacy of transit modes to accommodate the growing population of the peri-urban areas taking into consideration the condition of some roads may cause congestion where transport demand exceeds supply (Rodrigue, 2020). Congestion problems in Nigeria have its roots partly in the structural pattern of roads, unplanned growth and haphazard developments (Aderamo, 2012).

The shape that urban expansion assumes is said to be a contributing factor that affects travel patterns in addition to other factors such as; increasing incomes, increasing motorization, transport infrastructure deficit, ineffective traffic management, and city fiscal and regulatory institutions (Li, 2006; Zhao *et al*., 2007). Specifically, urban sprawl along the peri-urban arears of a city is one of the main factors that leads to long-distance travel between the city centre and its corresponding suburbs, in addition to congestion frequently experienced at city centres (Wu, 2002). Given this circumstance, land-development management put in place to control urban sprawl may have transportation related implications. Nevertheless, these implications are most times overlooked by land-use and transport policies (Zhao *et al*., 2010).

Ona-Ara Local Government Area of Ibadan like other transition zone globally, has peculiar accessibility problems. The area has grown significantly between the periods of 1991-2020. It is one of the major accommodation havens to former urban dwellers, especially the middle-income households who were displaced owing to high property/land rent in the city and the new migrants to the city. A number of studies had been done on mobility challenges in urban area, however the focus of such studies had been on mode of transportation, urban journey to work and availability of transportation infrastructure. Also, studies had been conducted on peri-urban interface with major attention on movement of goods to urban centre while the human element has been neglected or not given the required attention. Therefore, this study takes an exploratory approach to examine the transportation (access and mobility) challenges in Ona-Ara Local Government Area, a transitional zone in Ibadan.

Transport in Peri-Urban

Urban spatial change will influence intra-urban travel patterns, as commuting in any city is dependent on the location of jobs and housing (Kasim, 2018). Polycentric development is often thought to control or decrease the increasing travel

distances typically experienced when cities expand. For example, Gordon et al (1989a) claimed that decentralising employment across the city would lessen overall trip length. Similarly, Cervero and Wu (1997) found that workers who reside in suburban centres in the San Francisco Bay Area make shorter trips than residents in large and dense areas of the city. A number of researches, nonetheless, concluded that monocentric cities have shorter trip distance than polycentric cities (van de Coeveringa and Schwanen, 2006).

The colocation/mixed-use hypothesis is essential in rationalising the effect of the subtleties of housing development and industrial development on workers' travel patterns in the peri-urban areas. This hypothesis integrates the belief that workers are 'rational' stakeholders, thus, can set the locations of workplace and housing in a 'free-market' system to adjust travel costs (Gordon *et al*., 1989b; Levinson and Kumar, 1994). It is said that jobs and population trail each other in the process of suburbanization, decentralizing into sub-centres (Garcia-Lopez, 2012). As a consequence of this 'mutual' relocation, a job - housing balance would ensue in the suburbs, in that way decreasing trip distance and travel demand to the city centre. A number of literature are in support of this hypothesis (Downs, 1992; Levinson and Kumar, 1994; Kim, 2008).

Concerning cities of developing countries, the land use types are thought to have a key impact on travel patterns (Gauray *et al*., 1998), even though empirical research is scarce to support this (Zhao, Lu and de Roo, 2010). For instance, in some megacities in developing countries, for example, Manila where dramatic new developments are springing up; these new developments are typified with urban sprawl at the peri-urban areas resulting into longer travel distances and more traffic congestion at the city centre (Barter, 2000). A number of studies conveyed that fast changes in land use, in addition to other social and economic elements, impacts travel patterns in China's megacities, such as Shanghai (Pan et al, 2009) and Beijing (Wang, 2008). Yang (2006) found that housing relocation to the city's peri-urban area characterised with low local jobs-housing balance, has risen travel times in Beijing. Pan *et al*. (2009) revealed that greater travel demand and increased car us are caused by new forms of land development at the neighbourhood level coupled with non-pedestrian/cyclist-friendly urban form which emerged after the 1990s.

Residents in the peri-urban are more likely to be confronted with increasing transport cost owing mainly to distance (Saroli, 2015). As observed by Snyder and Bird, (1998) living in larger, more spread-out spaces would generally make public services more expensive. Residents of low-density urban sprawl spend a higher proportion of their income on transportation than residents of high-density compact areas (McCann, 2008). Potential transport related problems are also the absence of local facilities (schools, health services, shops, recreation) requiring long unnecessary trips to urban centre in the absence of physical transport integration.

Study Area

The city of Ibadan is in the southwestern part of Nigeria. It is located approximately on longitude 3°5′ to 4°36′ East of the Greenwich Meridian, and latitude 7°23′ to 7°55′ North of the Equator and it covers an area of approximately 3,200 km^2 as shown in Figure 1. Ibadan is located at a distance of 145 km north of

Lagos. Ibadan region encompasses eleven Local Government Areas (LGAs) (Figure 1). Five of the LGAs (Ibadan North, Ibadan South, Ibadan Northwest, Ibadan Southwest and Ibadan Northeast) constitutes Ibadan metropolis while rural LGAs at the fringe of the city are six namely Akinyele, Oluyole, Ono-Ara, Ido, Lagelu and Egbeda. Ona-Ara LGA is one of six rural LGAs in Ibadan region, covers an area of about 330 sq km, and has a population of 300,659. It has about 200 communities, all of which are rural and agrarian, except for the urban clusters of Olorunsogo, Olunloyo, Idi-Ose, Idi-Osan and Ore-Meji adjoining the urban LGAs of Ibadan region in the outskirts of city (Figure 2). The predominant cash crops grown in the LGA are cocoa, cashew, kola nut and citrus. Majority of the access roads in the LGAs are untarred except for the Trunk B Road that traverses the LGA from Ibadan to Ijebu Igbo in Ogun State.

The relief of the LGA is undulating ranging from 70 m to 105 m above sea level, and the area is within the humid tropics with a mean rainfall of 1,237 mm. The climate is characterized by two seasons, namely, the rainy season (April – October) and the dry season (November – March). Ona Ara wet season runs from March through October and dry season runs from November to February. Based on the location of the LGA at the southern fringe of Ibadan city, the vegetation is classified as rain-forest vegetation. However, owing to agricultural activities, the LGA is covered prominently by secondary forest.

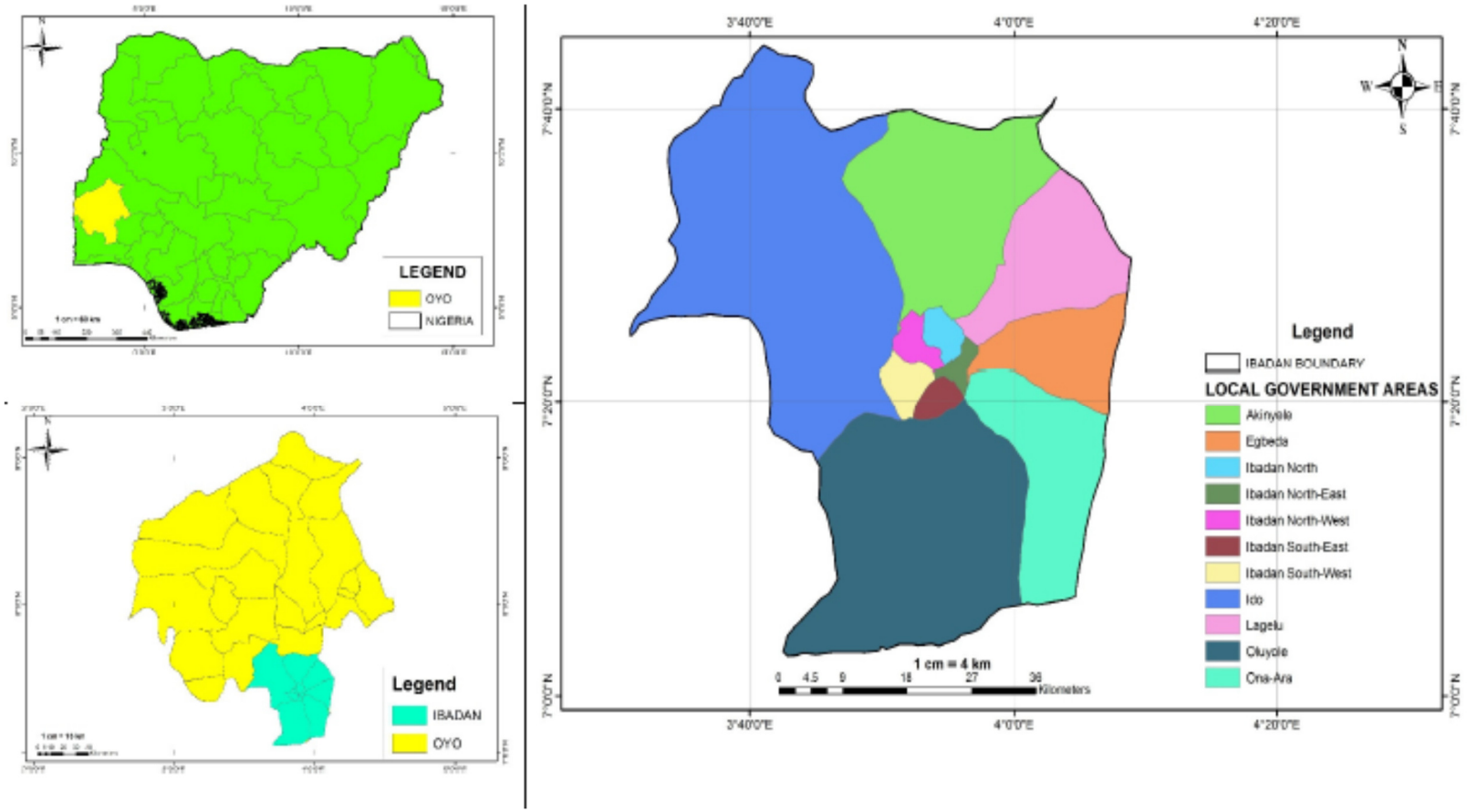

Fig. 1: Ibadan Region in the Context of Oyo State and Nigeria

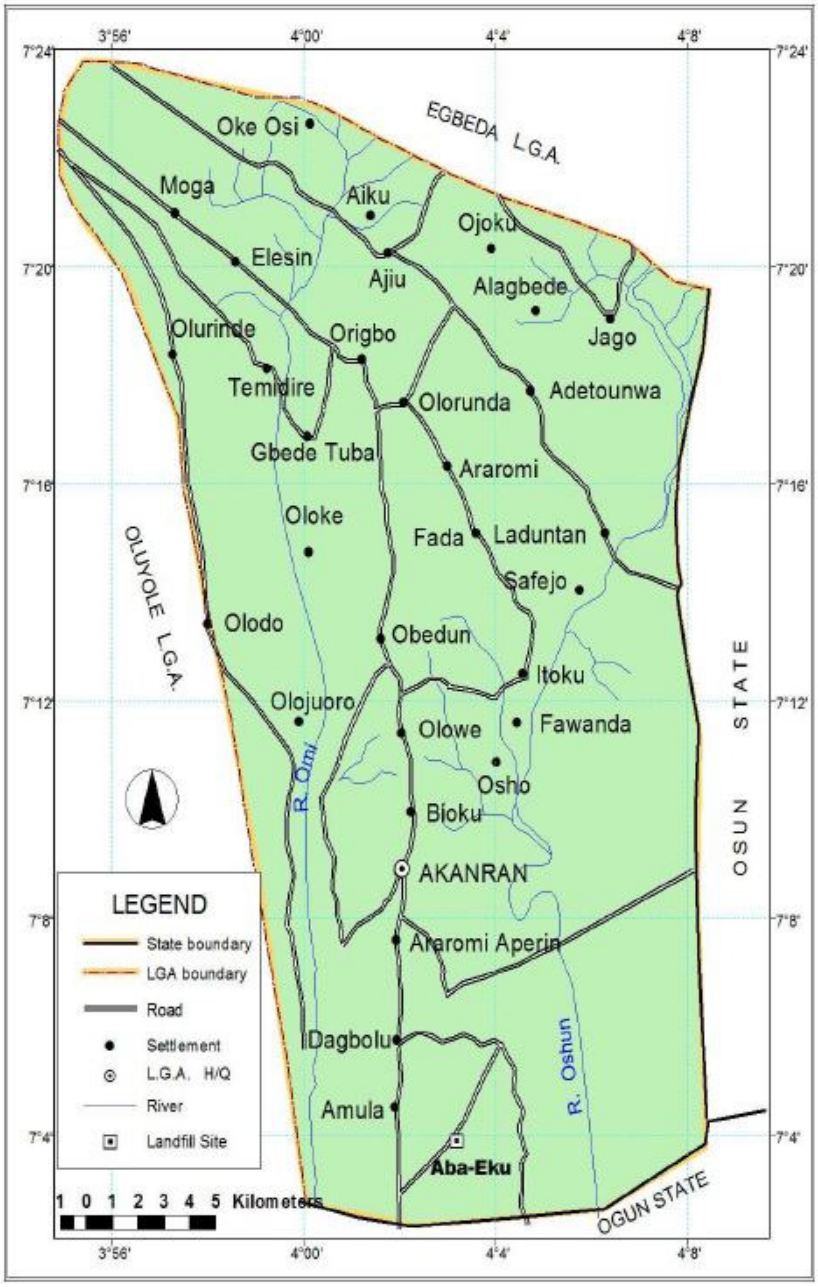

Fig. 2: The Study location

Data Collection

Primary data collection involved administration of structured questionnaires to residents of Ona-Ara Local Government Area. A multi-stage sampling procedure was adopted for this study. Ona-Ara has eleven (11) political wards which represents the sample frame. The housing stock in the sampled wards were ascertained; in which a total number of 3,053 houses was obtained from the selected communities (only communities not lying along major transportation routes were selected). A sampling ratio of 7% was used to randomly draw a sample size of 214 for the purpose of

administration of pre-tested structured questionnaire. In addition, 44 transport service providers serving the study area were sampled. Data analyses were done using descriptive statistics in Statistical Package for Social Sciences version 25

Result and Discussion

Socio-economic Characteristics

The findings showed that 41.1% of respondents in the study area whose ages fell within 15-30years were more dominant in the study area while 40.2% fell within 31-40 years, 15% within the age range of 41-50 years while 3.7% of the entire population were above 50 years. Males were more dominant in the study area as they constituted 52.8% while 47.2% were females. This shows that the households in the study area were more headed by males. About 65.0% of respondents inhabiting were married and likely to spend more on transportation in order to provide for families' or households' transportation needs. Single accounted for by 31.8% of the respondents, 0.9% had divorced while 2.3% were widows. The research showed that more of respondents in the study area had formal education (Secondary, primary, NCE/Polytechnic and tertiary) education while only 9.8% had informal education. Almost 23.0% and 21.0% of the respondents were self-employed and traders, respectively. The other respondents in the study area were artisans, farmers, civil servants or students. This showed that those of higher categories in terms of occupation were more likely to spend more on transport on their respective occupation. In addition, the distribution of respondents by income showed that 37.9% (5,000-10,000) of respondents were within the least category of income followed by 30.8% (10,001-20,000), 13.1% (20,001-30,000), 14.0% (50,000+) and 4.0% (30,001-40,000) earned a little higher.

Existing Mode of Transportation in the Communities

Approximately 74.0% of respondents did not own any means of transportation, while 26.2% reported that they owned a means of transportation. Furthermore, the transportation mode readily available, were motorcycle (90.2%) while other mode of transport such as private vehicle, taxi, mini bus, and tricycle were used as means of commuting by 9.8% of the respondents (Table 1). From the analysis conducted, two main transportation challenges were obvious. The communities in the study area are socially excluded (transport related), while the residents of the communities are transport poor. These two concepts are related but different; while transport poverty resides with the individual (Lucas et al., 2016), transport related social exclusion resides with both the individual and the community.

Conceptually, transport poverty manifests in various forms, while several of the types is prevalent in the study area. Mobility poverty as one of the forms of transport poverty experienced in the area is perceived. As observed by Moore et al (2013) general transport deficiency (usually motorized) creating mobility difficulties could often (but not always) be associated to lack of transportation service or infrastructure. In the study area, the predominance of 2-wheel motorcycle over 4-wheel transport motorized options, unpaved roads long waiting time at stops and high transportation fares are all evidence of mobility poverty.

Table 1: Ownership of Personal Transport Mode & Available Transport Mode

Variable	Frequency	Percentage
Ownership of Personal Mode of Transport		
Did Not Own	158	73.8
Owned	56	26.2
Total	214	100
Common Mode of Transport in the Communities		
Motorcycle	202	94.8
Buses	2	0.9
Tricycle	1	0.5
Private Car	2	0.9
Taxi	7	2.9
Total	207	100

Mobility and Access Challenges in the Communities

Table 2 shows that 97.6% of the respondents reported that their communities were linked by road while 2.4% of respondents submitted that their communities were not linked by road. This indicates that majority of the communities are accessible by road, and could have access to opportunities in the city core. However, 72.4 % of respondents indicated that the road leading to their communities were unpaved or dilapidated while only 27.6 % of respondents indicated that roads leading to the communities were paved and in fairly good condition.

Table 2: Access to Community

Variable	Frequency	Percentage
Access to Community by Road		
Accessible	206	97.6
Not Accessible	8	2.4
Total	214	100
Road Types		
Asphaltic	59	27.6
Unpaved	155	72.4
Total	214	100

Table 3 shows that 79.0% of the respondents reported that transportation was a challenge while 21.0% reported that transportation was not a challenge. This indicates that residents of the study area are not satisfied with the level of transportation services and infrastructure provided in the study area, which often hinders mobility of the residents. Analysis of public transportation challenges faced by residents revealed that 80.8% of respondents have to walk a considerable distance from their respective homes to access public transport mode. While 68.0% experience long waiting times at stops and public transport loading bays which are in awful conditions (Plate 1); lastly, 42.5% reported waiting for 15-20 mins, while 7.9% waited for an hour or more. The transportation cost as one of the major challenges was adjudged to be high

by 74.5% of the respondents while 7.9% of the agreed that it was not high.

Transport affordability as a dimension of transport poverty is the insufficiency of individual/household means to purchase means of transportation but resort to the use of public transport (Litman, 2015; Serebrisky *et al*., 2009). The same circumstance is experienced where 72.4 % of the respondents do not have access to a personal car. However, Lucas et al (2016) stated that peculiar to cities in the global south is the case of not being able to afford bus fares for a formal transit service, and that the affordable transport services most times leads to stress in terms of journey time required, unsafe and uncomfortable travel conditions. This is also the case in the study area as travel conditions are awful given the conditions of roads, Bus stop conditions, together with long waiting times where by 42.5% of respondents spends at most 20 minutes in a dusty, unsheltered bus stop coupled with high transport fares.

Table 3: Public Transportation Challenges

Variable	Frequency	Percentage (%)
Had Challenges with Transport in the Community		
Yes	169	79
No	45	21
Total	214	100
Walk to access public transport mode		
Yes	173	80.8
No	41	19.2
Total	214	100
Experienced long waiting times for mode of transport		
Yes	146	68
No	68	32
Total	214	100
Waiting Time at Stops		
5-10minutes	69	32.2
15-20minutes	91	42.5
25-30minutes	20	9.3
35-40minutes	17	7.9
More than 1 hour	17	7.9
Total	214	100
Transport cost		
High	159	74.5
Moderate	38	17.6
Not High	17	7.9
Total	214	100

Table 4 shows response of transport service providers as regards physical impediments to their service. The analysis showed that 79.5% of transport service providers identified that the presence of physical impediments in their various forms affects their provision of transport services, while 20.5 % stated otherwise. The physical impediments identified included rock outcrops, rivers and lack or

collapsed bridges and culverts, water logged environment and general poor condition of roads.

Transport related social exclusion as the 'process by which people are prevented from participating in economic, political, and social life of the community because of reduced accessibility to opportunities, services and social networks, owing to, in whole or part, insufficient mobility in a society and environment built around the assumption of high mobility. In addition, Church *et al*. (2000) provided characteristics of transport systems that contributes to exclusion; one of which is physical exclusion whereby physical barriers constrain the accessibility of transport service. There are several physical and natural impediments to mobility and access in the study area. The presence of these impediments socially excludes residents of various communities.

Table 4: Impediments to mobility

Response	Frequency	Percentage (%)
No	9	20.5
Yes	35	79.5
Total	44	100

Conclusion

Transportation challenges facing communities in Ona-Ara local government area of Ibadan is transport poverty, and transport social exclusion related. Given that the communities in the study area are in one of the transition zones of Ibadan metropolis, it is experiencing sprawl and consequently unplanned growth. The status of the study area as a transition zone exposes it to many transport externalities such as high traffic, noise pollution, and increased carbon emissions. This situation provides opportunities for policy makers and planners to resolve sprawl by adopting robust spatial planning techniques. Decentralizing the locations of employment, education, health care from the city hub would bring controlled and sustained development to location such as the study area located at the urban transition zones; this would reduce the need to travel excessively, thereby reducing the impacts of transport externalities peculiar to these areas, and increase the general quality of life of residents.

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