

# Federal Democratic Republic of Ethiopia

## Addis Ababa Urban and Metropolitan Transport and Land Use Linkages Strategy Review

Note of Proposed World Bank Engagement on Urban and Metropolitan Transport and Land-use for Inclusive Green Growth in Addis Ababa

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AFRICA



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**ETHIOPIA**

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for Inclusive Green Growth in Addis Ababa**

Ethiopia: Addis Ababa Urban and Metropolitan Transport and Land Use Linkages Strategy Review  
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# I. Introduction and Context

## A. Country Context

1. **Since 2004 Ethiopia has experienced strong and generally broad-based real economic growth averaging 10.7 percent per annum.** In 2012, Ethiopia was the 12th fastest growing economy in the World and among the highest in Sub-Saharan Africa which sees an average aggregate growth rate of 5.2 percent. Ethiopia's GDP stood at approximately USD 43 billion in 2012. Industry and services, which are based mainly in urban areas, continued to propel overall growth in 2011/12 with rates of 13.6 and 11.1 per cent per annum, respectively.

2. **Ethiopia is one of the most populous countries in the world, but it is not highly urbanized.** With an official population of 86.6 million<sup>1</sup>, Ethiopia currently ranks 14th in the world in terms of overall population, but that population is largely rural. In 2007, only 15.1 million out of the country's total population of 86.6 million people, or 16 percent of the population, lived in urban areas<sup>2</sup>. But even this urban population is sparsely distributed; in 2007, Addis Ababa, the country's only truly large city, accounted for only 25 percent of the urban population, with the remainder roughly evenly split between the medium-sized cities of 20,000 – 500,000, and small cities of under 20,000 people.

3. **Nevertheless, urbanization in Ethiopia is taking place rapidly, and is expected to increase over the coming few decades.** The UN projects the country's population to increase within a wide range of 165 million to 310 million by 2050<sup>3</sup>; most of this growth is expected to occur in urban areas. Its urban population has already doubled in 35 years, from 8.5 percent in 1967 to 17.4 percent in 2012. The UN expects the rate of urban growth to average 3.57 per cent per annum between 2010 and 2015 placing Ethiopia among the fastest urbanizing countries in SSA. Urbanization is important for Ethiopia's growth as cities and urban areas, while home to only 17 per cent of the country's population, produce over 58 per cent of Ethiopia's GDP<sup>4</sup>.

4. **Addis Ababa, capital of Ethiopia, is its commercial and political center and exemplary of the rapid urban growth of Ethiopia.** The population of Addis has nearly doubled every decade since the 1980s. The 2013 population size of the city is estimated at 3.1 million<sup>5</sup> and is estimated to reach 12 million in 2024<sup>6</sup>. It is also home to two continentally important institutions: the Africa Union Commission and United Nations Economic Commission for Africa. Addis plays a critical role in sustaining the country's double-digit economic growth and delivering the potential benefits of urbanization.

5. **The rapid urban and metropolitan growth in Addis Ababa is exacerbated by poor planning and land-use, inadequate infrastructure, and chronic housing shortage.** Although structure plans have been created for Addis Ababa and the nine cities comprising the Oromia special zone, detailed local development plans (LDPs) to guide development are lacking for much of this area; LDPs should exist, but do not, for nearly half the land area of Addis Ababa, and all of the Oromia special

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<sup>1</sup> 2012 Official Census, Central Statistical Agency (CSA).

<sup>2</sup> Central Statistical Agency of Ethiopia, 2013 (Population Tables: Table B2; Table B.4).

<sup>3</sup> United Nations Population Division, Department of Economic and Social Affairs database.

<sup>4</sup> World Bank Ethiopia County Economic Update, 2012.

<sup>5</sup> Central Statistical Agency, Ethiopia. 2013. Population Statistics Abstract. Projected figures for 2013 were based on the results of the last census – the May 2007 National Population and Housing Census of Ethiopia.

<sup>6</sup> UN Habitat

zone cities. One result is inadequate infrastructure and production of housing; one recent estimate suggests that nearly a quarter of the population in the region is looking for housing, while another has estimated that the rate of informality in the housing stock in Addis Ababa is as high as 80 percent.

6. **A key challenge for housing in the Addis Ababa metropolitan area, and, indeed, of planning in general, is that lack of coordination with transportation.** In discussions with key officials in the Bureau of Land Management, the World Bank team learned that there is almost no coordination between planning and land development on the one hand, and transport investment on the other. Housing and land-use decisions are taken on the basis of where available land resources are, with almost no assessment of transport impacts. Transport investments are nominally made on the basis of the urban structure plan from 2004, but the road infrastructure called for in that structure plan are based on anticipated, not actual, land-uses; no effort is made in the process of programming transport investments to prioritize them on the basis of where population settlement is *actually* occurring, but rather on the basis of where it was normatively *intended* to occur, ten years ago. As a result, mobility in the Addis Ababa metropolitan area has become extremely challenging, as congestion throughout the metropolitan region has exacerbated substantially over the current master plan period.

7. **The one factor that has mitigated the growth in congestion has been that motorization rates in Addis Ababa are very low by global standards.** The motorization rate in Addis Ababa in 2012 was about 65 vehicles per 1000 persons. In 2012, the total vehicle fleet in Addis Ababa<sup>7</sup> city was estimated at 196,980 vehicles. However, experience worldwide suggests that vehicle ownership increases with per capita income levels, implying that growth in vehicle ownership in Ethiopia and Addis Ababa is likely to continue at a strong pace for the foreseeable future. The net result is a likely continuance of the current rate of motorization growth and a doubling of the motor vehicle fleet in less than 10 years.

## ***B. Sectoral and Institutional Context***

8. **Over the past seven years, Addis Ababa has been making a concerted effort to improve the urban transport situation, largely through large investments in new infrastructure, including roads, a new Light Rail Transit (LRT) system (under construction) and plans for a new Bus Rapid Transit (BRT) system, and improved standards and practices for improving and integrating pedestrian facilities in major transport capital projects. It has invested heavily in its road asset stock, with 26 percent of its capital investment budget dedicated to transport.** The road network in the city consists of about 2,900 kilometers of classified roadway, of which only 26 percent is paved, comprising about 3,200 lane kilometers, of which 42 percent is paved. An additional 242 kilometers of roadway are included in the 2005 masterplan, but have not yet been constructed. 11.1 percent of the spatial area of Addis Ababa city is covered by road right of way, while 4.2 percent is covered by physical roads themselves. Capital investment in transport constitutes about 26% of the city's three year Capital Investment Plan (CIP) budget, second only to water and sewer. However, little focus is given to road maintenance - the city spends about US\$260 million per year on new road construction (over 35 percent of annual capital investment budget), but only about \$6 million per year on maintenance, none of which is allocated from the city's own revenue, but rather comes from an annual apportionment of the Ethiopia road maintenance fund.

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<sup>7</sup> An additional 33,000 vehicles are estimated for the Oromia region. However, it is not possible to estimate what proportion of these vehicles are operating in the greater Addis Ababa metropolitan region.

9. **These investments in the road network may provide less economic and mobility value for residents than their planners may have intended, for four reasons.** First, as already noted, most residents are either pedestrians or public transport users. Indeed, most of the investment made so far provides very little benefit for public transport users; along Bole Road, for example, the rehabilitated and redesigned roadway provides no facilities for public transport stops. Second, even among car users, the infrastructure is often developed in a way that limits car parking. Bole Road is also a good example; the rehabilitation eliminated most of the on-street car parking, providing no off-street alternatives. This means that businesses along Bole Road are now less accessible by car than they had been before the rehabilitation. Third, because of the lack of integration of road development with surrounding urbanization, many urban neighborhoods have suffered a reduction in quality of life. The ring road, for example, cut many neighborhoods in half, creating a barrier in the middle of the neighborhood; the LRT currently under development carries a strong risk of doing the same. Finally, investments in infrastructure may not have addressed the key challenge giving rise to congestion in the first place: the way traffic is managed.

10. **Indeed, at the current low rates of motorization, the frequent and ubiquitous congestion in the city suggests substantial shortcomings in how traffic is managed,** rather than a fundamental mismatch between transport supply and demand. And this poor traffic management affects not only car drivers, but also pedestrians and public transport passengers, both by making travel times by public transport longer (since public transport vehicles are also stuck in congestion), and more expensive (since congestion drives up the cost of public transport service provision for the operators). The main challenges giving rise to the poor traffic management situation are related to: (i) limited institutional capacity and ineffective traffic management; (ii) pedestrian safety concerns and high accident rates; (iii) lack of traffic control at major intersections and few signalized junctions; and (iv) no central control system.

11. **In order to improve public transport, for the city's largely non motorized population, substantial investments in mass transport network have been made or identified.** The main forms of public passenger transport in Addis Ababa currently consist of buses (a total fleet of about 1000 buses, on a network of over 100 routes), minibus-taxis (about 10,000 vehicles operating in the city, plus an additional 400 "Higer" midi-buses), taxis and 3-wheelers. Mass transport systems are being developed: two LRT<sup>8</sup> lines totaling 32 km, with 32 stations, 10 of which being hub stations, are under construction (estimated to be operational in 2016); and one BRT line<sup>9</sup> of around 12 km is in the planning stage with a further six possible lines identified. However, for both the LRT and BRT, the operations and maintenance oversight responsibility have not been decided, and it is not clear whether these would be a city or national function.

12. **The current public transport provision/operation has a number of weaknesses, with governance being a critical one.** Current public transport modes and services are not integrated, in terms of network coverage/routes, fares, schedules and facilities. In addition, the two main passenger transport modes, Anbessa bus and the independently operated mini-bus-taxis are somewhat weak in planning, organization, operation, productivity and quality. These weaknesses are exacerbated by a lack of an integrated passenger transport agency unit<sup>10</sup> or capability within Addis Ababa Road and Transport Bureau to effectively manage comprehensive network design, according to public needs, by poor

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<sup>8</sup> The LRT lines are being developed by the Federal government through the Ethiopian Railway Corporation (ERC), a relatively new institution of Federal government created in 2008 to pursue the development of the national rail network. The system is currently under construction under a design-build contract, supported by the Chinese government.

<sup>9</sup> Financing for the BRT line has not been finalized, but it is widely expected that it will be developed by AACA with some assistance from the French government, through the French Development Agency (AfD).

<sup>10</sup> Notwithstanding the recent integration of transport services into a single Bureau (AARTB).

enforcement on the behavior of operators, and by a general lack of effective traffic management. The resulting congestion reduces the overall effectiveness of public transport services.

13. **Even though most trips in Addis Ababa are made by walking, facilities for pedestrians tend to be inadequate and substandard.** A study in 2011 estimated that walking mode share in 2011 was around 54 percent of all trips. Even motorized trips, by public or private transport, begin and end with pedestrian movements. However, transport planning and provision of related infrastructure are largely not human-centric. While sidewalks are normally provided with new infrastructure, they are not scaled to the volume of pedestrian traffic and often built with poor access to adjacent properties or neighborhoods. Many road facilities in the city are wide, with no signalization, striping, or pedestrian islands, but with long gaps between marked pedestrian crossing point, making pedestrian movement across these facilities both necessary and treacherous.

14. **Integrating transport with land-use development has also proven to be very difficult in Addis Ababa.** For example, at present, there is only a very weak off-street parking requirement that is required of the land-development process. Nominally, developers need to provide one parking space per large apartment, one parking space per 5 moderately-sized apartments, one parking space per 10 small apartments, and 1 parking spot for every 70 m<sup>2</sup> of commercial space provided. Even these standards are poorly enforced, with a great deal of non-compliance or subsequent conversion of parking to higher return uses. As already mentioned, housing development has not been integrated with transport development at all.

15. **In terms of overall urban development, although the Ethiopian government is making attempts at planning and catering for the rapid urban growth, urbanization still takes places largely in an unplanned/informal way.** The master plan for Addis Ababa and surrounding Oromia region is currently being revised with the passing of a decade since the last plan. In addition, Local Development Plans (LDPs) (developed by the Urban Planning Institute) which guide urban renewal (responsibility of the Land Development and Urban Renewal Agency) and government subsidized housing programs (responsibility of the Construction and Housing Development Office) support the overall efforts in urban planning and development. However, a large gap exists between the plans and actual developments, with the main challenges being: (i) a general lack in capacity in most urban planning and development agencies<sup>11</sup> from planning to implementation and enforcement; (ii) gaps in related regulations, planning standards and execution; (iii) lack of coordination between agencies within the same sector and across sectors (eg. with transport and other infrastructure agencies). The resulting unplanned urban growth prevents the Ethiopian economy from maximizing the opportunities provided by urbanization and growing cities.

16. **In recent years, the rate of spatial expansion of the city is outpacing the rate of population growth, resulting in a less than efficient overall physical form.** The overall density of Addis Ababa is still relatively high (at around 5000 people per sqkm) and the city consists largely of mixed-use developments. However, recent urban developments do not reflect a clearly structured hierarchy to organize and best match services and infrastructure, transport network, employment and population centers. Currently, extremely high density (from around 15,000-30,000 people per sqkm) is found within four main sub-cities (Addis Ketema, Arada, Lideta and Kirkos) near the city core, concentrating around 30 percent of the population on 8 percent of the land in Addis, with generally poor living conditions. New residential areas are largely established on the fringe of Addis, far from jobs and not sufficiently served by necessary amenities and mass transport options. The resulting urban sprawl underlies fundamental

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<sup>11</sup> For example, only approximately 4 percent (around 2000 ha) of Addis has Local Development Plans prepared. This implies that most developments are not well guided by detailed plans.

inefficiencies and leads to rising costs of services and transport provision to city residents.

17. The Government of Ethiopia (GoE) and its various agencies have expressed strong interest to engage the World Bank to support efforts in integrated transport and urban development, focusing on the capital city of Addis Ababa and the surrounding Oromia Region. In particular, GoE and the City of Addis Ababa have requested assistance in identifying key actions and investment priorities that would most effectively help improve the urban transport situation in the metropolitan region, and also improve the outcomes of the master planning development and implementation processes.

## II. Rapid Diagnostic

18. The urban development and transport challenges facing Addis Ababa are manageable, but require a holistic and strategic approach, diligence, consistency and professionalism to begin to get a handle on the challenges of rapid urbanization and motorization. This approach necessarily involves a mixture of institutional change and strengthening, new ways of perceiving and approaching well known problems, and an honest reassessment of the priorities that have and continue to govern resource allocation.

19. **Strengthen institutions to manage transport.** The World Bank team believes that six factors form the key in Addis Ababa to more effective transport institutions. These themes were discussed extensively during a workshop on urban transport institutions in October, 2013:

- *Institutions should be organized effectively.* Functions of a strategic, tactical and operational nature should be incorporated into an institutional framework that makes sense in the local context, even though all these functions need not be performed by a single entity, or even within the public sector.
- *Human capital needs to be mobilized and engaged.* The challenge in Addis Ababa is not necessarily that the necessary skills toward more effective transport management are not available in the market, but rather ensuring that the right skills are in the right jobs.
- *Social capital needs to be created and then exploited.* This means developing the know-how to sequence the right sets of studies in order to arrive at well-considered, evidence-based solutions at every step of the project development cycle.
- *Lead institution should create “public value” in a visible way, early in its institutional life.* In the next chapter, the Bank team recommends supporting this theme through a corridor-specific approach to its proposed program of support.
- *High level political support can ensure that the lead agency will be able to carry out its mandated functions, obtain the financial resources it needs to support high-caliber staff, and manage internal opposition to reform programs.*
- *Communications and ICT functions need to be an integral part of the institutional arrangements for transport, not an afterthought.* Managing public expectations – helping the public to understand how and why to use new transport services or how and why fares or services are changing – is a critical and integral part of what transport institutions are meant to do, so those functions have to be built into the very DNA of the way those institutions are structured and organized.

In the proposed program of support outlined in the next chapter, the above themes would underlie many of the aspects of the Bank’s assistance, particularly in capacity development.

20. **Recognize the importance of streets and the multi-faceted role they play in urban life and economies; streets do not just move traffic.** Streets are a basic building block of cities; they have an important place-making function in cities and provide access to buildings and to land. Indeed, European

languages make a distinction between the word “street” and “road”, the former evoking to some degree the place-making function of public thoroughfares, while the latter evokes the movement function. While such a distinction does not exist in Amharic, there are great merits and a need for improved understanding of the place-making role of streets. This role is important for streets at all levels of the road hierarchy, from arterials to very local streets. So while it is important to ensure that the proportion of street coverage in the overall urban area is consistent with international norms, it is equally if not more important to ensure an appropriate balance among street or road types within the hierarchy.

21. **Raise the priority given to traffic management and road maintenance.** While Addis Ababa has invested, and will likely continue to invest heavily in expanding the city street system in response to increased travel demand, it should be recognized that many cities have tried and failed to build their way out of the traffic problem. In ten years’ time, even with continued heavy investment in expanding the road network, well over 90% of the network that will exist already exists. In fact, it is hard to know if investment in new road facilities is an effective use of city resources when the existing network is clearly inefficiently managed and the capacity of the existing network is not fully exploited. So it is critical to undertake measures to obtain the greatest possible efficiency out of this current network. Moreover, traffic management investments in improving the existing network are without a doubt likely to produce better traffic results per unit of expenditure than investments in expanding the road network. With respect to road maintenance, the city spends about US\$260 million per year on new road construction (over 35 percent of annual capital investment budget), but only about \$6 million per year on maintenance, none of which is allocated from the city’s own revenue, but rather comes from an annual apportionment of the Ethiopia road maintenance fund. It is critically important for the city to allocate its own resources toward road maintenance, in line with the maintenance needs determined in the context of a function and active road asset management program. Equally important is the way road maintenance is being managed. At the moment almost all maintenance works are being carried by own force in a centralized manner. However, given the size of the network city, more efficient and effective ways of maintenance management need to be explored.

22. **Ensure that freight, an important part of the traffic mix, is understood as part of the urban transport problem and encompassed in the solutions.** Freight is particularly important for the Addis Ababa metropolitan area because it is a major transshipment point for freight coming from the port of Djibouti to the rest of Ethiopia. As such, freight vehicles crisscross Addis Ababa, heading to and from the north such as Debrebrihan to Modjo and Hawassa and also from Djibouti to other parts of the country crossing Addis Ababa. In the process the road to south along the southern cone from Addis Ababa has become dotted with small industry warehouses and distribution centers but the location of these facilities, and the movement of vehicles to and from them, is very poorly understood. Nevertheless, there is no institution that has comprehensive responsibility over improving the functioning of freight vehicles in the city or the Metropolitan region. A green freight strategy would attempt to influence the kinds of vehicles being used the frequency with which they are used, the time of day in which they are taken to make deliveries and other aspects of freight vehicle movements that can affect their impact on traffic, the total number of vehicle kilometers they make, the amount of energy they consume and the amount of pollution they emit. A key first step in developing such a program will be to understand the factors driving the location of these centers, as well as the factors driving likely future demand.

23. **Use parking strategically as a tool to shape neighborhoods.** Parking is identified as one of the key "infrastructural" challenges in Addis Ababa under the 2011 Transport Policy of Addis Ababa. However, the nature of the problem as identified in that document is essentially that there is not enough off-street parking, and too much on-street parking. For example, under section 1.3 "Critical issues in the Transport Sector" of the aforementioned Transport Policy, "lack of off-street parking facilities and over utilization of road space by parked vehicles" is high on the list of infrastructure issues. The issue of parking – especially the overutilization of road space by parked vehicles, lack of off-street parking facilities, and the

need to create and incentivize the use of park-and-ride facilities related to mass transit services – is indeed an important area of concern for sustainable transport policy. However, this phenomenon is better understood as a market failure, rather than as a problem of infrastructure. While there are instances when developers flout the law and do not provide the necessary off-street parking or illegally convert parking to other uses, the main issue is that parking in general is not appropriately recognized as a commodity and regulated as such. In reorienting parking policy along these lines, parking can be a useful tool to help shape streets as the building blocks of neighborhoods.

24. **Improve public transport operations by focusing on effectiveness and user needs.** At present, both major suppliers of public transport services – Anbessa Bus and the mini-bus taxi operators – orient their services around minimizing (their own) costs – that is, they are efficiency-driven. But in cities around the world that are most successful at integrating public transport services with vibrant urban development, public transport services are oriented around user needs – that is, they are effectiveness-driven. Transforming urban public transportation into a service that is responsive to the needs of the users is a complex undertaking in any context, but the Bank team identifies four key areas for initiative that will be critical to be successful in such an undertaking. These include creating an effective public transport authority, setting fares appropriately, having a transparent approach to subsidies, and managing, operating and maintaining the system, including the LRT, in an integrated and effective manner. In addition, having an effective communications strategy for the public, so that the public can be brought along with any changes being made to the system, is crucial. For Anbessa, in particular, being able to pursue the above means strengthening its operations in four key areas: computerization of operations, improved management, improved maintenance facilities, and scientific application of comprehensive operational analysis. All the above should be underlined by a coherent strategic vision and plan for the public transport sector, particularly one that builds upon existing mass transport investments to help create an integrated network and lays out a realistic development program for getting there.

25. **Ensure that city form, land-use functions and transportation modes, because of their strong inter-dependent relationship, are developed in a coordinated manner.** There is an urgent need to better articulate and integrate the land use and transport network (and the necessary accompanying policies and regulations) of Addis Ababa. Urban development and land-use decisions and actions are generally still taken without adequate integration with related transport functions. Improvements can be made through developing a hierarchical system of urban development nodes (or centralities) which concentrate urban activities and transport intermodal services, matching appropriate development densities with the necessary transport infrastructure and service capacities. While the draft Master Plan of Addis Ababa is proposing such a hierarchical system of transit-oriented developments (TOD) with a fully-equipped and distinguishable high density main city center and a set of sub-centers (some ten centralities), these remain largely broad concepts with no clear concrete mechanisms for implementation<sup>12</sup>. In addition, the various tasks associated with preparing, analyzing and rolling out implementation solutions are not fully financed yet.

26. **Strengthen current capacity and institutional arrangements for urban planning and development.** The ability to implement master plan recommendations for a single sector, let alone coordinating multiple sectors, remains a serious challenge in Addis Ababa. There are three fundamental issues with respect to strengthening the urban planning and development institutions: (i) general lack in capacity and expertise, especially to develop greater clarity, specificity and granularity in urban plans and guidelines; (ii) lack of a cohesive, continuous ecosystem which supports the key stages of planning, implementation and enforcement in a reiterative urban development process; and (iii) generally weak inter and intra agency coordination. In general, the institutional structure is complex and fragmented. Responsibilities for urban planning and development, from the planning stages to implementation and

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<sup>12</sup> Although the Ethiopian Railway Corporation is making progress on its plans to develop the 10 TODs.

enforcement, rest with multiple agencies and are often overlapping, not clearly defined or not well-coordinated. Inter-agency coordination (such as amongst units within the Land Management and Development Bureau or between transport and land use agencies or land use and housing agencies) is generally weak, resulting in large inefficiencies. There is thus an urgent need to strengthen institutional ability and capacity to develop appropriate and clearer planning standards, land use controls and ensure their enforcement as part of the master plan implementation process.

### III. Structure of proposed engagement

27. **Recognizing the relatively low capacities existing in Addis Ababa at present to take on the above challenges, a three-phased program is proposed for consideration.**

**Phase 0** involves technical assistance and capacity building to strengthen planning and plan implementation, specifically to facilitate the integration of transport and land-use measures. This phase is already underway, and is anchored by a two-year technical assistance program of US\$1.1 million (already secured), which might be also supplemented with further trust fund resources for specific purposes. This is discussed below.

**Phase I** would include a mix of planning, investment and management strengthening measures to help support the development of centralized capacity at the Addis Ababa City Government level for improved transport and land-use outcomes. This phase will be anchored by an Investment Project Finance (IPF) credit from IDA17.

**Phase II** would provide further operational investment to the Addis Ababa City Government to support needs identified in the Phase I investment. This phase might also use the engagement with AACG to leverage support on urban transport and land-use issues to other jurisdictions or levels of government.

These core investments would be supplemented through additional activities supported by trust funds affiliated with the World Bank for work on particular issues. The entire program would be coordinated through an integrated and multi-disciplinary World Bank team, working in concert with key counterparts in the Mayor’s office and in the technical bureaus responsible for transport and land-use to build their capacity over time through the sustained engagement.

#### ***A. Phase 0. Non-lending technical assistance***

28. *KGGTF*. The initial phase of World Bank Group engagement in support of urban transport and land-use planning in Addis Ababa is already underway, through a Technical Assistance to promote integrated urban planning in Addis Ababa to foster green growth, supported by a grant from the Korean Green Growth Trust Fund. This support is providing assistance in three key areas: 1) the engagement of transport advisors to assist with the transport chapter of the master plan revision; 2) strategic assistance in specific areas necessary to advance preparation of an investment project (development of traffic management and public transport units, ITS, strategic planning and TOD projects); and training and knowledge exchange activities. The overall assistance provided is US \$1.1 million, with an allocation as given in the following table. This NLTA program is for a two year period, from October 2013 through September 2015. Key outcomes of this assistance are anticipated to be a revised urban master (structure) plan along green growth principles that better integrate transport and land-use planning and programming, an improvement in the way day-to-day traffic, pedestrian, and public transport systems are managed and delivered, a Transit-Oriented Development program for the city developed, and a program of prioritized investments to begin implementing the revised master plan. Key inputs provided are summarized in the table below:

Activities funded by KGGTF	Amount (US \$)
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Support to ASSOID on transport chapter of master plan update	100,000
Support to AARTB on traffic management, traffic signals, ITS, and strategic planning	300,000
Support to Anbessa on ITS	90,000
Support to Public Transport Authority	70,000
Study to develop transit oriented development (TOD) projects	200,000
Topical consultant support to AARTB	60,000
Participation in Global Metropolitan Lab and Seoul technical visit	15,000
World Bank support costs	75,000
Under discussion	190,000
<b>Total</b>	<b>1,100,000</b>

29. *PPIAF*. In addition to the NLTA supported by the KGGTF discussed above, the World Bank team has also held preliminary discussions with the Public Private Infrastructure Advisory Facility on developing a program of support for urban passenger transport following on from a very successful international workshop on urban transport institutions held in October in Addis Ababa. The program would focus on urban transport governance, development of urban bus networks based on scheduled routes operated with large buses, management and development of the mini-bus taxi network, and development of appropriate institutional and operational structures for BRT. The program would link efforts across four cities in east Africa, including Nairobi, Kampala, and Dar es Salaam, as well as Addis Ababa, which were selected because all are facing similar challenges with respect to managing existing public bus services, while trying to establish new, bus-based mass transport services.

30. The program that has been under preliminary discussion would have three key areas of focus: i) urban transport governance; ii) managing bus operations; and iii) capacity assessment and building. The approach of the program would be to support learning exchanges among the cities, and also use their proximity to each other to facilitate some technical studies, capacity development, and expert advice provision with economies of scale. For example, one activity that has been discussed has been to carry out a common human resource needs assessment among all four cities, which may facilitate the development of integrated capacity development strategies across the four cities.

31. *Multi-Donor Trust Fund for Sustainable Logistics*. In addition to the above, the team has had preliminary discussions with staff working with the multi-donor trust fund for sustainable logistics, regarding the prospect of supporting a study of green urban logistics for the greater Addis Ababa metropolitan region. Such study is important for Addis Ababa, since the metropolitan region is the key distribution center for the country as a whole, partially because of the predominance of domestic-oriented manufacturing there, and partially because of the growing importance of the inland port facility at Modjo. The MDTFSL would initially support a study of freight logistics in the metropolitan area, with potential subsequent support for a green freight plan. The team discussed the possibility of this study with the client, and it was agreed that the Program Management Office would be the key counterpart for this study.

32. *CityStrength resilience assessment*. A key objective of the Bank's engagement in integrated transport and land-use planning and investment for Addis Ababa is to help it become a more resilient city, that is, enhance its ability to withstand and bounce back from any plausible hazard, while ensuring continuity of critical urban services and processes. Other key systems, including power, sanitation, water supply, municipal finance, and disaster risk management will also play a key role in the city's overall resilience. CityStrength is an assessment methodology that the Bank is currently developing, in concert with partners, to have a more systematic and harmonized approach to resilience assessment in cities. It is proposed to carry out a CityStrength assessment as a complement to the Phase 1 work on investment finance on transport and land-use integration described below.

## ***B. Phase 1. Investment Project Finance***

33. Investment Project Finance support of about \$100 million from IDA 17 is proposed. This project could be presented for approval by the World Bank Board of Directors in late FY15 or early FY16. The project's parameters, as discussed with the AACG and MOFED, are summarized below.

### **Proposed PDO/Results**

Proposed Development Objective(s)

34. The project development objective (PDO) is proposed to *improve urban accessibility and transport efficiency in the Addis Ababa metropolitan area.* (See Box 1 on Accessibility.)

Key Results

35. Achievement of the PDO will be monitored through the following proposed key results indicators:

- a) Reduction in travel time along project corridors; and
- b) Improve accessibility for bottom 40% of Addis' population;

### **Project Context**

36. While various GoE and donor investments are being made in the transport and land use sectors, there is an urgent need to consolidate and "harvest value" from these ongoing and planned initiatives. Key gaps and needs in three areas have been identified in discussion with the GoE and its relevant agencies: (i) transport systems management, (ii) public transport improvements, and (iii) integration between urban planning and transport. At this opportune time while urbanization and motorization rates are still relatively low and large-scale mass transport infrastructure are being planned and implemented, efforts focusing in these three areas could potentially compound the overall impact.

## Box 1. Accessibility

### **Accessibility as an objective**

The development objective of the proposed strategy is to enhance the accessibility of residents in the Greater Addis Ababa metropolitan area while simultaneously seeking to reduce the growth of motor vehicle travel. The team considers that such an objective, if attained, will assist the government of Ethiopia in its vision to achieve middle income status by 2025 while staying true to the principles of a climate-resilient, green economy, as articulated in ECRGE 2011.

Accessibility here refers to minimizing the resource expenditures – usually time and money – that individuals, households, and firms need to make in order to obtain goods and services, participate in common activities, and interact with other people. The accessibility part of the above development objective, therefore, is the factor that most contributes to the ability of Ethiopia to achieve middle income status by 2025. Measuring accessibility is no longer the elusive indicator that it once was, thanks in part to the increased ease and availability of sophisticated spatial analysis through GIS. An example of a simple accessibility measure, for example, would be the number of people who can get to Piazza or Mercato within 45 minutes during the AM peak period.

Reducing the growth of motor vehicle travel is the factor that brings in the low-carbon and resilient (green) element of the CRGE vision to the strategy. The indicator of interest here are vehicle kilometers of travel – that is, the total number of kilometers travelled (VKT) by all vehicles in Addis Ababa over a given period of time. Worldwide experience shows that vehicles kilometers of travel grow with population, country wealth, and other factors such as the rate of urbanization or the value-added content of goods being traded. So we assume that VKT will increase in Addis Ababa; what is of interest is in reducing the rate at which that increase occurs.

Over the long run, with 20 and 30 year planning horizons, one of the best ways to reduce the rate of VKT growth is to avoiding the *need* for more VKT through sound planning and coordination of land-use and transport mechanisms. The less the population of greater Addis Ababa is dependent on motorized travel to meet accessibility needs, the more resilient it would be in the case of shocks to the motorized transport system, such as sudden fuel price increases or climate related losses of infrastructure. The more options urban populations have to obtain goods and services, participate in common activities, and interact with other people beyond doing more motorized vehicle kilometers, the more opportunity for them individually and collectively through concerted policy to lower carbon equivalent emissions associated with accessibility.

### **A framework for conceptualizing accessibility**

Accessibility – a measure of the relative resource expenditures required (usually in terms of time and money, or some combination) for households and firms in an urban or metropolitan area to occupy space, produce and exchange goods and services, and participate in religious, civic, recreational and other social activities. The greater the resources needed, the lower the accessibility. In a planning context, the concept needs to be applied both for those households and firms who are already in present in the city, and those likely to come in the future.

4 strategic approaches for providing accessibility:

- Proximity – put people near other people and things they need
- Mobility – facilitate the ability of people and / or the things they need to move around
- Channelization – concentrate movements of people along designated channels and through key nodes, and put the things they need along those channels and at those nodes
- Virtuality – facilitate the ability of people to interact through ICT without needing physical movement.

A practical approach to accessibility will try to utilize all four of these strategic approaches, in different mixes. Practically, this means trying to integrate transport, land-use and ICT approaches toward a common solution. Conventional transport planning as practiced in the US and Africa focuses only on mobility.

## **Project Components**

37. **Component 1: Transport Systems Management (Approximately US\$50-70Million).** It was noted above that, notwithstanding substantial infrastructure investment, Addis Ababa remains plagued by chronic transportation stresses such as high levels of congestion, high transport costs, and long travel times. Among the reasons discussed above are poor traffic management, incoherent and ineffective parking policies, insufficient maintenance of road facilities, and poor compliance with traffic rules and regulations. This component will help establish transport systems management capacity and expertise within the Addis Ababa Road and Transport Bureau, which is quite weak at the present time. It will support critical measures in traffic and transport systems management to increase the effectiveness, efficiency, capacity and safety of the existing street network (See Box 2), but the specific measures it finances are, however, secondary to the capacity development and know-how transfer that would result from engagement in these activities. The sub-components of the Transport Systems Management component consist of the following:

- a) **Component 1a – Comprehensive traffic management measures.** To better demonstrate the impacts of a comprehensive approach to traffic management, this sub-component will support multiple and integrated traffic improvement measures, such as bus priority schemes, pedestrian safety improvements, intersection management improvements etc., along selected strategic street corridors, and at key intersections and districts (such as Piazza and Merkato). In addition, this component will potentially finance multi-modal or mini-bus terminals, to be identified.
- b) **Component 1b – Traffic signal system and ITS measures.** This sub-component will finance the expansion and upgrading of the traffic signal system, intelligent transportation system (ITS) initiatives, and the development of a centralized traffic control center to manage area-wide traffic control schemes in the city
- c) **Component 1c – Street asset management.** Reforms are necessary to ensure that street system assets are managed in a way to ensure that these assets attain their useful design life while minimizing the resources needed to do so, ensuring longer term sustainability. This sub-component supports the implementation of the road asset management plan<sup>13</sup> and developing a road management reform program which includes the financing structure for sustainable road performance. In addition, assistance will be provided in initiating street maintenance and road rehabilitation contracts as an alternative to the dominant practice of using in-house staff for this purpose.
- d) **Component 1d – Parking management.** Current parking and access issues are not only about the provision of infrastructure (eg. the overutilization of road space by parked vehicles and lack of off-street parking facilities) but more fundamentally a market issue and the need to recognize parking as a commodity. This sub-component will support the preparation of a city-wide parking strategy and implementation program. In addition, assistance will be given to implement necessary measures such as priority paid parking schemes and strengthening enforcement actions.
- e) **Component 1e -- Traffic enforcement.** Traffic enforcement is a logical complement to traffic

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<sup>13</sup> This plan has been developed under the Urban Local Government Development Project (ULGDP).

management and to parking management. The traffic police are short of desired equipment to adequately enforce moving traffic violations. There are additional problems in managing ticketing of traffic violations. As more traffic signal installations are provided, the traffic police will need to be redeployed to mobile enforcement which will require additional vehicles. This sub-component will provide assistance in obtaining the needed equipment and vehicles as well as training in mobile enforcement.

38.

**Box 2. Transport Systems Management**

Transportation systems management (TSM) must be a key element of any short-term urban transport strategy for a large modern city. However, TSM has not received the level of attention that it should for a city the size of Addis Ababa. There is growing interest and attention at the technical and policy levels in improving traffic management, particularly the development of ITS and a traffic management control center, and it is agreed by Addis city officials that these elements must be part of a Transportation Systems Management (TSM) strategy. But the team argues that a successful TSM approach needs to be broader than traffic management and ITS. TSM encompasses a range of actions to ensure that the existing transport infrastructure is managed as optimally as possible. As an element to contribute to the overall development outcome proposed above, we propose that success of TSM measures in Addis Ababa be gauged primarily through measures of effectiveness (e.g. enhancing accessibility), and only secondarily through measures of efficiency. Thus, the intermediate outcome that could be expected from instituting a range of TSM measures is that the existing transport system is managed more effectively to ensure maintenance and enhancement of levels of accessibility.

In practice, TSM should be understood as a series of *managements*, in the plural, of different interrelated systems that form the transport system. These include traffic (vehicular and pedestrian), parking and access, incidents, and assets. We discuss these in turn.

### **Traffic Management**

Within the constraints created by competing uses for public street space, and the recognition that the movement function of streets is not always the only or even main function to prioritize in certain contexts, the objective of traffic management is to enable the street-based transport network to facilitate the movements of the trip making public to their destinations with increasingly greater reliability and increasingly greater safety, while minimizing vehicular conflicts that can contribute to congestion-related delays. In other words, we argue that the objective of a traffic management program in the context of a green agenda should be improving reliability and safety of the system and minimizing vehicular conflicts. If appropriately instituted, such a system would increase the carrying capacity of the existing street system, reduce the number of congestion-causing incidents such as road accidents or impromptu mini-bus taxi stops, and increase, on a short-term basis, travel speeds along particular road sections. Because vehicular traffic can be induced by increases in travel speeds, and one of the development objectives of the overall program is to avoid an increase in vehicle kilometers traveled if possible, we argue that speed improvements and congestion reduction should not be an objective of the traffic management program, but rather should be seen as a side benefit. Because the objective of traffic management is to facilitate the movements of the trip making public to their destinations within the existing network, a key strategy to consider adopting is public transport priority – that is, putting in place traffic management measures such that select high-capacity public transport modes are given priority access in the network over private vehicles or low-capacity modes.

A key objective of any traffic management program should be to overcome the historic under-resourcing of traffic management in the past, both in terms of investment and in terms of developing qualified staff to plan and manage this investment. Expected benefits and outcomes would be:

- Increased traffic carrying capacity of the existing street system
- Short term increases in travel speeds (until traffic volumes increase)
- Enhanced public transport services through priority given to public transport
- Reduced traffic accidents through improved traffic control
- Improved safety and comfort of pedestrians and cyclists
- Better response time to accidents resulting in less travel delay

- Reduction in frequency and duration (impact) of traffic congestion incidents through planning and implementing temporary traffic management measures to address special events
- Improved medical response to serious accidents

### **Parking and access management**

As discussed in the previous chapter, parking is a critical component of, as well as implementation tool for, a green growth transport strategy, because parking policy can anchor efforts to manage travel demand. Access management is a related concept, that sets out the rules that public and private developers must adhere to when providing access from private property and developments to the public street network. Where and how access roads connect to the street network can affect the performance of those streets, in terms of both their link and place-making functions. For example, poor access decisions can substantially degrade the performance of arterials, by introducing vehicular interference at either ill-conceived or unnecessary points in the network. In the case of both parking and access management, it is likely that enforcement and decisions about compliance would be made at the sub-city level. This includes both the way enforcement actions are carried out, as well as decisions about permitting for building construction. Therefore, any program on parking and access management would necessarily need to include a strong component on capacity development and incentives for the ten sub-cities. The work of those sub-cities would need to be coordinated by a strong centralized unit, so it is proposed that a dedicated parking and access management unit be created and strengthened within the AARTB.

The objective of a parking management activity would be to ensure that parking assets – both public and private – are developed and managed in a manner that incentivizes the judicious use of the private car consistent within the broader objectives of enhancing accessibility while minimizing vehicle kilometers of travel, while limiting the interference of car parking activities on both the link and place-making functions of urban streets.

The objective of an access management strategy would be to ensure that access to private property from the public street network is provided in as unobtrusive a manner as possible, to limit interference of accessing or egressing vehicles on vehicle or pedestrian traffic flows. Expected outcomes and benefits would be:

- Improved access to available parking spaces by rationing available spaces through parking charges
- Reducing traffic congestion caused by vehicles searching for available parking spaces
- Reducing traffic congestion through improved parking enforcement
- Using parking revenues for investing in parking or other city improvements
- Improved traffic conditions through appropriate access controls associated with land development
- Greater developer assumption of financial responsibility in providing for traffic improvements associated with their developments.

### **Road asset management**

As has been discussed extensively in the previous chapter, there is a substantial budget for new road construction, but comparatively little has been focused on road maintenance and rehabilitation. The objective of a Road Asset Management activity would be to ensure that road and street assets are managed in a way to attain their useful design life while minimizing the resources needed to do so. Such a program would yield the following benefits and outcomes:

- More efficient use of city financial resources in maintaining the existing road system
- Improved road conditions resulting in lower vehicle operating costs.

42. **Component 2: Public Transport Improvements (Approximately US\$25-30Million).** This component aims to build capacity in the management and delivery of urban public transport in Addis Ababa, to help transform the urban public transportation into a service that is responsive to the needs of the users, underlined by a strategic vision and plan for the public transport sector, building upon existing mass transport investments to help create an integrated network. (See Box 3.) The sub-components include:

- a) **Component 2a – Modernizing Anbessa operations.** This sub-component targets improvements to the operation efficiency and management of Anbessa. Proposed activities to be financed includes the design and implementation of ITS and fare collection system for Anbessa and a review and redesign of its bus network.
- b) **Component 2b - Support for public transport planning and management. This sub-component focuses on two main areas:** (i) establishment of a Public Transport Agency (with the aim of providing overall coordination and management of the public transport sector) and (ii) restructuring the minibus-taxi sector.
- c) **Component 2c- Improving operating environment for public transport.** Physical improvements could be made in the operating environment for public transport to improve its performance. Activities to be funded under this sub-component include: (i) selected road rehabilitation at key locations/junctions in the public transport network, and (ii) implementation of complementary public transport measures, such as bus lanes, priority traffic signals, junction improvements, signages and bus support facilities.
- d) **Component 2d - Planning for expansion of mass transport network (support to follow on project).** Considering ongoing and planned initiatives for mass transport network, further studies on mass transport development will be supported under this sub-component to assess the need and feasibility of future mass transport network expansion.

**Box 3. Strengthening public transport**

A program to improve the way public transport services are conceived, planned, and delivered is critical for a city whose population and wealth is growing as rapidly as Addis Ababa's, because absent improvement of public transport services, worldwide experience suggests there will be an unsustainable growth in the amount of vehicle kilometers of traveled on the streets of Addis Ababa. This growth will be driven by both a growth in the number of private vehicles on the road, and the extent to which each of those vehicles is used. To be sure, growth in vehicle kilometers of travel is likely to occur anyway, simply as a function of population and income growth, but the pace of that VKT growth, and the point toward which that growth moves (i.e. the "saturation" level) can be strongly influenced by public policy measures such as how effectively the public transport system is transformed into meeting user needs.

The objective of such a "transformation" in public transport service delivery is to re-orient how public transport services are conceived, planned, and delivered from one based on the efficiency of the operator (helping the operator minimize costs) to one based on the effectiveness of the offer (maximizing the number of motorized trips made by high-capacity vehicles). The proposed strategy to effect such a transformation is built on the

strengths of the existing institutions in the public transport sphere: Anbessa is a well-established public operator, which provides critical services to key segments of the market, while the mini-bus taxi operators provide a ubiquity of service which has tremendous value and which needs to be built upon. The proposed strategy relies on nine interrelated, and not necessarily sequential, actions.

The transformation of the public transport sector in the above manner would yield the following benefits and outcomes:

- All PT modes will be integrated to provide a comprehensive passenger transport network in Addis Ababa
- The PT network will be designed according to the researched needs of users, and guided by the Urban Master Plan
- The PT network of Addis Ababa will be well and conveniently connected to both its hinterland to the long-distance transport of the country
- The PT operators will use modern methods and technologies to provide an efficient, safe service, attractive to the users, and in a manner that is financially sustainable
- The negative impacts of PT will be curtailed, and all vehicles will operate to higher environmental standard

In addition to strengthening the core bus network, mass transit needs to be further developed as a comprehensive network rather than as stand-alone axes. The LRT and BRT need to be developed as complementary elements of an integrated mass transit system, so that collectively they form a 'structuring network' for Addis Ababa. This will provide a mass transit 'backbone', to which the regular city bus routes, feeder routes and minibus routes will be adapted and linked. The objective is to enhance accessibility in Addis Ababa by providing a core system of rapid and reliable transportation that can meet the needs of daily commuters and other users, and can contain the growth in private car use by offering an attractive alternative. The development of mass transit in Addis Ababa requires thus three complementary actions: (i) development of the overall plan for mass transit, consisting of complementary LRT and BRT lines, and forming the structuring network. This would be developed within the Urban Master Plan processes, and would be consistent with the urban centralities; (ii) continued investment in mass transit, so that the core network would be in place by 2025; and (iii) integration of the mass transit at multiple layers - conceptual, organizational, physical, service, operational, ticketing and information.

45. ***Component 3: Integrated Urban Planning and Transport (Approximately US\$3-5Million).*** Existing and future investments on mass transport facilitate the creation of transit-oriented developments

(TODs) - denser urban nodes around transit stations. These urban nodes will allow easy access to a concentration of key services and amenities as well as focal points for social interaction, to better serve the urban population and minimize unnecessary travel. This component seeks to integrate urban planning and transport as demonstrated by TODs and improve overall urban planning and development processes through capacity building for relevant agencies. The sub-components are:

- a) ***Component 3a – Preparatory studies for Transit-Oriented Developments.*** Under this sub-component, two main tasks in preparation for TODs will be conducted: (i) detailed planning and design for selected strategic TOD(s), and (ii) formulating the operation and management strategies and implementation plan for these TOD(s). This sub-component will potentially lead to investments in accessibility and integration improvements as well as, specific public infrastructure in the TOD(s). (These tasks will be conducted in close coordination with and considering current key players such as the Ethiopian Railway Corporation, which has ongoing TOD plans for the 10 major LRT hubs.)
- b) ***Component 3b – Capacity building for urban planning and development agencies.*** Various urban planning and development agencies require capacity building support to (i) increase coverage and depth of urban plans (especially local development plans); (ii) strengthen the link between planning and implementation; and (iii) enhance actual implementation and enforcement. The capacity building activities will be informed by a capacity building needs assessment to be conducted as part of the project.

**Box 4. Overview of urban centralities concept for Addis Ababa**

Economists rightly identify transport as a “derived” demand, meaning that no one engages in travel for the sake of it, but rather because they intend to accomplish an objective, such as undertaking employment, attending school, going shopping, getting medical attention, or visiting with friends or relatives. In this sense, transport “policy” needs to look beyond the actual means by which people move around, and, in addition, focus as much on where people are going and why. Coordination of transport with land-use can enhance overall *accessibility*, by generating high urban activity around the stations of the main transport infrastructures, and by feeding lines of complementary modes of transport from other existing urban density areas. These two objectives coincide in the concept of “urban centralities.” By focusing on developing strong centralities, government policy makers can enable people to accomplish multiple trip-making goals along the walking or public transport pathways they are already taking. Planning of specific “centralities” and their characteristics is entirely a contextual activity, but there are some generic features of “centralities” that can be used to make the concept clearer. Effective centralities have certain design principles in common. These include the following:

- a. Integrated planning
  - Land-use, transport and services
- b. Good connectivity
  - Pedestrian access to adjacent parcels and larger surrounding area and transit stations
  - Vehicular access for drop-off, parking
- c. Pedestrian-friendly environment
  - Provision of pedestrian walkways (linked and covered if possible)
  - Safety and buffer from traffic (dedicated zones where possible)
  - Human-scale
- d. Transit-oriented development
  - More efficient use, higher value of transit nodes
  - Greater (but appropriate) density, at and immediately surrounding centralities
- e. Vibrant street life
  - Interface of building at ground floor with street (activity-generating uses, high permeability)
  - Provision of public and gathering spaces
  - Visual porosity
- f. Mixed primary use
  - Depends on programming / function of each locality (to be determined accordingly)

To implement an urban centralities approach for Addis Ababa, several factors should be taken into account. First, the urban fabric of Addis Ababa is generally low density. While high “densities” are generally permitted in many locations, in practice, in many districts, only a few plots are built, and it is the extensive unbuilt land that forms the characteristic of the urban fabric. The sprawling form of the city thus created results in high cost of infrastructure investment, which is often insufficient, low quality, and insufficiently maintained.

A concerted program of centralities creation should be considered high on the policy agenda, in order not only to shape the growth of the metropolitan region and begin to address the problems created by low densities, but also in order to make better and more efficient use of transport investment already being made in the development of mass transit lines.

The creation of a hierarchy of centralities, and the selection of one or more of them for pilot investment should be oriented along the axes of the emerging mass transport routes, and should take into account a number of principles:

- Strategic location - proximity to the city center or population catchment area;
- Availability and readiness of land;
- Positioning and typology of centrality, e.g.:
  - Development intentions eg. logistics, type of residential, commercial, tourism etc.
  - Order of services/amenities, in relation to hierarchy of centers
  - Catchment area;
  - Image
  - Sense of community etc.
- In line with master plan and detailed local plans;
- Relationship to emerging transport network, including:
  - Adjacency to intermodal nodes
  - Primacy of feeder routes passing through
  - Intermodality with possible future commuter train along existing rail rights of way

Preliminary analysis of these factors points to selecting centralities east and south of central Addis Ababa, close to the edge of the metropolis in such way they can become metropolitan sub-centralities, attract decentralizing activities, form an urban structure around with the perpendicular feeding routes and allow development of empty land with management possibilities. An example is shown in the figure below

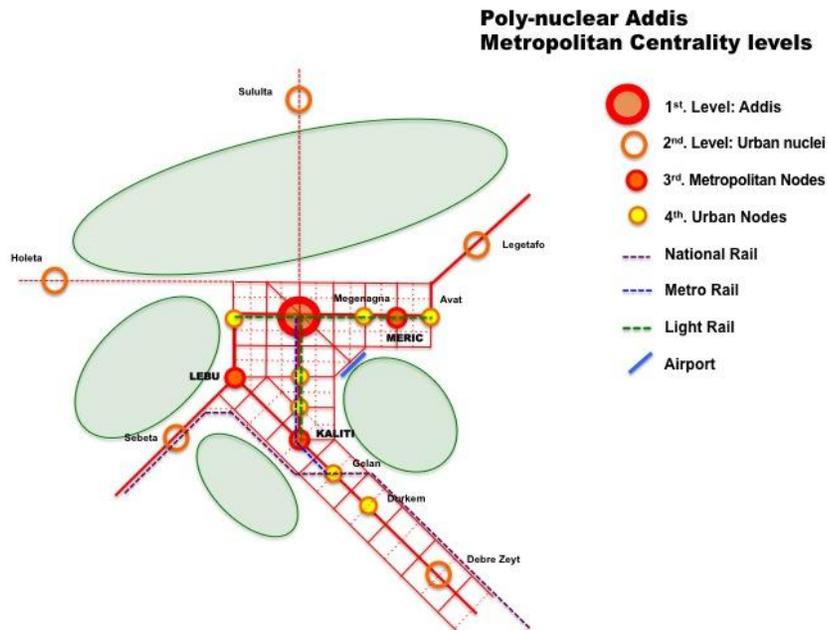


Figure. Potential system of urban centralities to anchor metropolitan growth.

48. **Component 4: Institutional Strengthening and Implementation Support (Approximately US\$3-5Million).** Additional and incremental institutional support and capacity will be provided, possibly in the form of: (i) support or the transport master plan, (ii) support for tertiary education curriculum development (for transport and urban planning related degrees), and (iii) any other needs as identified during the project. In addition, costs to support the overall project implementation, monitoring

To realize the development of centralities, a generic roadmap would include the following steps:

- Perform **gap assessment** of existing institutional structure and supporting regulations/mechanisms to support TOD development
- Identify, discuss and set-up **operation model** and **financing mechanism** (eg. facilitation of private sector investment, for example through involvement of IFC, PPP, Gov funded, separate/new implementation unit under government, transport agency funded; determine financing amount/partnerships, phasing, implementation agency etc; mindful of local context and political economy.)
- Determine **key parameters** & draft **design brief**, including both physical/design parameters and operation/management model (Activities may include *market study*, *stakeholder engagements* etc to determine key parameters including functions even identify potential tenants, GFA, geography scope/boundary, population, integration with transport etc.)
- **Conduct detailed planning & design** of TOD (based on design brief and operation model, engage consulting firm eg. through competition, procurement method)
- **Obtain necessary approval** of detailed plan and design
- **Implementation** of TOD developments including enabling infrastructure investments at nodes (e.g. intermodal facilities, access / egress streets, roads, utilities, amenity creation, etc.)

50. **Component 4: Institutional Strengthening and Implementation Support (Approximately US\$3-5Million).** Additional and incremental institutional support and capacity will be provided, possibly in the form of: (i) support or the transport master plan, (ii) support for tertiary education curriculum development (for transport and urban planning related degrees), and (iii) any other needs as identified during the project. In addition, costs to support the overall project implementation, monitoring and evaluation will be funded under this component.

51. A summary of the indicative project costs by components is presented below. These costs could vary substantially as project preparation proceeds.

#### Summary of Indicative Costs by Project Component

Components	Description	Costs (US\$M)	% of total
<b>Component 1</b>	<b>Transport Systems Management</b>	<b>50-60</b>	<b>50-60%</b>
1a	Comprehensive traffic management measures	25-30	
1b	Traffic signal system and ITS measures	20-25	
1c	Street asses management	2-10	
1d	Parking management	2-3	
1e	Traffic enforcement	1-2	
<b>Component 2</b>	<b>Public Transport Improvements</b>	<b>25-30</b>	<b>25-30%</b>
2a	Modernizing Anbessa operations	10-12	
2b	Support for public transport planning and management	2	
2c	Improving operating environment for public transport	10-15	
2d	Planning for expansion of mass transport network	2	
<b>Component 3</b>	<b>Integrated Urban Planning and Transport</b>	<b>3-5</b>	<b>3-5%</b>
3a	Preparatory studies for Transit-oriented development	2-3	

3b	Capacity building for urban planning and development agencies	2	
<b>Component 4</b>	<b><i>Institutional Strengthening and Implementation Support</i></b>	<b>3-5</b>	<b>3-5%</b>
	<b>Total</b>	<b>~100</b>	<b>100%</b>

### Implementation arrangements

52. Implementation of the project will primarily adopt a programmatic approach, with the overall project implementation role, including coordination and monitoring and evaluation, undertaken by the **Addis Ababa Road Transport Bureau (AARTB)**. The day-to-day project functions and support will be provided by its subsidiary agency - the **Addis Ababa City Roads Agency (AACRA)**. AACRA has significant experience in managing and procuring projects, although not specifically World Bank funded projects. Other agencies involved in the project implementation and their functions are:

- **Under the AARTB, besides AACRA:**
  - **Addis Ababa Transport Programs Management Office (PMO)**. This office would fill three main functions which are not currently being addressed in the current structure of transport institutions: (i) Carry out strategic and project planning for the transport sector in Addis Ababa; (ii) Coordinate and potentially implement special projects in transport; and (iii) Develop human and social capital (including improving institutional processes) for the different units of the AARTB and the transport units of the sub-cities.
  - **Other unit under AARTB**. AARTB is currently in the process of forming several units, which will have various functions including public transport, traffic management and road safety programs, transport planning, and licensing and regulation of motor vehicles and drivers' licenses.
  - **Anbessa**. Provides the public bus services and operations for the city.
- **Addis Ababa Land Management and Development Bureau (AALMDB)**. Main city bureau responsible for urban land development and administration. Its associated agencies are:
  - **Urban Planning and Information Institute**. Its primary function is to prepare Local Development Plans as well as associated regulatory functions, such as providing planning approvals.
  - **Master Plan Project Office**. This is a temporary office responsible for the currently ongoing revision of the Addis Ababa master plan.
  - **Land Development and Urban Renewal Agency**. In charge of urban renewal work within the city, including preparation of land, the urban renewal operations and management.
- **Addis Ababa Capacity Building Bureau**. Main city bureau responsible capacity of the civil servants and thus would be integral to the various capacity building activities.

53. To better coordinate across the different agencies, it is proposed to set up a Project Task Force (PTF), comprising a focal person from each of the Bureaus and agencies. The PTF will be chaired by the AARTB who will provide overall coordination support for the PTF. This PTF will meet on a quarterly basis to review implementation progress between all components, address any technical and

implementation issues and provide overall monitoring of the project's development objective.

54. In addition, the project will provide TA and capacity building to both AARTB and AALMDB and their associated agencies to address capacity gaps based on institutional capacity assessments to be carried out during the project preparation.

### ***C. Phase 2. Follow-on investment operation***

55. Currently, there are a range of investments under consideration to improve urban transport and its integration with land-use. These include, in addition to the development of the light rail line, a network of at least 7 Bus Rapid Transit (BRT) lines, and potentially others that are yet to be identified. During project preparation, the design of some of these proposed investments would be selected for inclusion as part of the project. Some of these activities, developed and designed in the Phase 1 investment operation, would be forward looking to identify needs and develop details for longer term engagement through a second phase of investment support. These could possibly include the following:

- Investments in expansion of mass transport network
- Accessibility and integration improvements around and within TOD
- Public Infrastructure in TOD (eg multi-modal transit terminal, public facilities/ buildings; parks and public spaces etc.)