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IDA/R2017-0029/1

February 16, 2017

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<p><b>Closing Date: Wednesday, March 8, 2017 at 6 p.m.</b></p>
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FROM: Vice President and Corporate Secretary

**Tanzania - Dar Es Salaam Urban Transport Improvement Project**

**Project Appraisal Document**

Attached is the Project Appraisal Document regarding a proposed credit to Tanzania for the Dar Es Salaam Urban Transport Improvement Project (IDA/R2017-0029), which is being processed on an absence-of-objection basis.

Distribution:

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Report No: PAD1464

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 316.2 MILLION

(US\$425 MILLION EQUIVALENT)

TO THE

UNITED REPUBLIC OF TANZANIA

FOR A

DAR ES SALAAM URBAN TRANSPORT IMPROVEMENT PROJECT

February 14, 2017

Transport and ICT Global Practice  
Africa Region

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**CURRENCY EQUIVALENTS**  
(Exchange Rate Effective December 31, 2016)

Currency Unit = Tanzania Shillings (TZS)  
US\$1 = TZS 2,179.98  
SDR 1 = US\$1.344

**FISCAL YEAR**  
January 1 – December 31

**ABBREVIATIONS AND ACRONYMS**

AFCS	Automated Fare Collection System
AfDB	African Development Bank
BRT	Bus Rapid Transit
CAG	Controller and Auditor General
CAS	Country Assistance Strategy
CBA	Cost-Benefit Analysis
CBD	Central Business District
CTCP2	Second Central Transport Corridor Project
DA	Designated Account
DART	Dar Rapid Transit Agency
DBS	Director of Business Support
DCC	Dar es Salaam City Council
DMDP	Dar es Salaam Metropolitan Development Project
DUTA	Dar es Salaam Urban Transport Authority
DUTP	Dar es Salaam Urban Transport Improvement Project
EIRR	Economic Internal Rate of Return
ERB	Engineers Registration Board
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FBS	Selection under a Fixed Budget
FM	Financial Management
FYDP	Five-Year Development Plan
GDP	Gross Domestic Product
GIS	Global Information System
GoT	Government of Tanzania
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GRSF	Global Road Safety Facility
IAD	Internal Audit Department
IC	Individual Consultant
ICB	International Competitive Bidding
ICT	Information and Communication Technology
IE	Impact Evaluation
IFR	Interim Financial Report
IRR	Internal Rate of Return

ISP	Interim Service Provider
ITS	Intelligent Transportation System
JICA	Japan International Cooperation Agency
JNIA	Julius Nyerere International Airport
LCS	Least-Cost Selection
M&E	Monitoring and Evaluation
MoWTC	Ministry of Works, Transport, and Communication
NCB	National Competitive Bidding
NMT	Non-motorized Transport
NPV	Net Present Value
NTP	National Transport Policy
O&M	Operation and Maintenance
OTPA	Open Trip Planner Analyst
PAP	Project-Affected Person
PDO	Project Development Objective
PO-RALG	President's Office, Regional Administration and Local Government
PPP	Public-Private Partnership
PS	Permanent Secretary
QCBS	Quality- and Cost-Based Selection
RAIS	Road Accident Information System
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
RSA	Road Safety Authority
SEAP	Structured Engineers Apprenticeship Program
STC	Short-Term Consultant
SUMATRA	Surface and Marine Transport Regulatory Authority
TANROADS	Tanzania National Roads Agency
TASAF	Tanzania Social Action Fund
TAZARA	Tanzania Zambia Railway Authority
TOD	Transit Oriented Development
UDA	Usafiri Dar es Salaam
VOC	Vehicle Operating Costs

Regional Vice President:	Makhtar Diop
Country Director:	Bella Bird
Senior Global Practice Director:	Jose Luis Irigoyen
Practice Manager:	Aurelio Menendez
Task Team Leader:	Yonas Eliesikia Mchomvu

**TANZANIA**  
**DAR ES SALAAM URBAN TRANSPORT IMPROVEMENT PROJECT**

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## PAD DATA SHEET

Tanzania

Dar es Salaam Urban Transport Improvement Project (P150937)

### PROJECT APPRAISAL DOCUMENT

AFRICA

Transport and ICT Global Practice

Report No.: PAD1464

Basic Information			
Project ID P150937	EA Category A - Full Assessment	Team Leader(s) Yonas Eliesikia Mchomvu	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ]		
	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date 09-Mar-2017	Project Implementation End Date 30-Jun-2023		
Expected Effectiveness Date 09-Jun-2017	Expected Closing Date 31-Dec-2023		
Joint IFC No			
Practice Manager/Manager Aurelio Menendez	Senior Global Practice Director Jose Luis Irigoyen	Country Director Bella Bird	Regional Vice President Makhtar Diop
Borrower: United Republic of Tanzania (Ministry of Finance and Planning)			
Responsible Agency: TANROADS			
Contact: Telephone No.:	Eng. Patrick A.L. Mfugale (255-22) 2926001	Title: Email:	Chief Executive tanroadshq@tanroads.go.tz
Responsible Agency: Dar Rapid Transit Agency (DART)			
Contact: Telephone No.:	Eng. Ronald M. Lwakatare +255 22 2461093/4/6	Title: Email:	Chief Executive <a href="mailto:ceo@dart.go.tz">ceo@dart.go.tz</a>
Project Financing Data(in USD Million)			
[ ] Loan	[ ] IDA Grant	[ ] Guarantee	
[ X ] Credit	[ ] Grant	[ ] Other	
Total Project Cost:	450.80	Total Bank Financing:	425.00
Financing Gap:	0.00		

Financing Source		Amount							
BORROWER/RECIPIENT		25.80							
International Development Association (IDA)		425.00							
Total		450.80							
Expected Disbursements (in USD Million)									
Fiscal Year	2017	2018	2019	2020	2021	2022	2023	2024	
Annual	10.00	30.00	80.00	90.00	95.00	90.00	25.00	5.00	
Cumulative	10.00	40.00	120.00	210.00	305.00	395.00	420.00	425.00	
Institutional Data									
Practice Area (Lead)									
Transport & ICT									
Contributing Practice Areas									
Social Protection & Labor, Social, Urban, Rural and Resilience Global Practice									
Proposed Development Objective(s)									
The Project Development Objective (PDO) is to improve transport mobility, accessibility, safety, and quality of transport service delivery along the selected corridors in Dar es Salaam.									
Components									
Component Name						Cost (USD Millions)			
Component A: Establishment of the Third and Fourth Phases of the Dar es Salaam BRT System						287.10			
Component B: Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System						99.90			
Component C: Institutional Strengthening and Reform, ICT Innovation, Safety Net, and Transport Studies						38.00			
Systematic Operations Risk- Rating Tool (SORT)									
Risk Category								Rating	
1. Political and Governance								Substantial	
2. Macroeconomic								Moderate	
3. Sector Strategies and Policies								Moderate	
4. Technical Design of Project or Program								Substantial	
5. Institutional Capacity for Implementation and Sustainability								High	
6. Fiduciary								Moderate	
7. Environment and Social								High	
8. Stakeholders								Substantial	
9. Other									

<b>OVERALL</b>	Substantial		
<b>Compliance</b>			
<b>Policy</b>			
Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [ X ]	
Does the project require any waivers of Bank policies?	Yes [ ]	No [ X ]	
Have these been approved by Bank management?	Yes [ ]	No [ ]	
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [ X ]	
Does the project meet the Regional criteria for readiness for implementation?	Yes [ X ]	No [ ]	
<b>Safeguard Policies Triggered by the Project</b>			
	<b>Yes</b>	<b>No</b>	
Environmental Assessment OP/BP 4.01	<b>X</b>		
Natural Habitats OP/BP 4.04		<b>X</b>	
Forests OP/BP 4.36		<b>X</b>	
Pest Management OP 4.09		<b>X</b>	
Physical Cultural Resources OP/BP 4.11	<b>X</b>		
Indigenous Peoples OP/BP 4.10		<b>X</b>	
Involuntary Resettlement OP/BP 4.12	<b>X</b>		
Safety of Dams OP/BP 4.37		<b>X</b>	
Projects on International Waterways OP/BP 7.50		<b>X</b>	
Projects in Disputed Areas OP/BP 7.60		<b>X</b>	
<b>Legal Covenants</b>			
<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.E.3 Independent Assessment of Resettlement Action Plans	<b>X</b>		Yearly
<b>Description of Covenant</b>			
The Recipient shall: (i) not later than December 30 in each year during Project implementation, or such other date as may be agreed with the Association, arrange, under terms of reference satisfactory to the Association, an independent assessment of the implementation of the applicable Resettlement Action Plans; and (ii) review, jointly with the Association, the findings of such assessment referred to in subparagraph (i) above, and thereafter implement any agreed recommendations in the manner and within the period acceptable to the Association.			
<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.E.5 Strengthening TANROADS' Environmental and Social Unit		30-Jun-2018	
<b>Description of Covenant</b>			
The Recipient shall cause the Project Implementing Entity to hire, no later than twelve (12) months after the Effective Date, or such other date as may be agreed with the Association, additional staff to its			

environmental and social management unit, in adequate numbers and with qualifications and terms of reference satisfactory to the Association, as further set forth in the Project Implementation Plan.

<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.F.2 Strengthening TANROADS' Contract Management capacity		15-Dec-2017	

**Description of Covenant**

The Recipient shall cause the Project Implementing Entity to, no later than six (6) months after the Effective Date, or such other date as may be agreed with the Association, hire a contract management firm, satisfactory to the Association, to assist TANROADS in contract management for the Project.

<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.F.3 (a) Capacity Strengthening of DART		15-Dec-2017	

**Description of Covenant**

The Recipient, through DART, shall: no later than six (6) months after the Effective Date, or such other date as may be agreed with the Association, have hired a BRT management firm, satisfactory to the Association, to assist DART in BRT management for the Project.

<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.F.3(b) Fare Collector and Fund Manager for BRT phase 1		30-Sep-2017	

**Description of Covenant**

The Recipient, through DART, shall: no later than September 30, 2017, or such other date as may be agreed with the Association, have hired a fare collector and Fund Manager for operation of BRT Phase 1, satisfactory to the Association.

<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.F.4(a) Provide Guarantees to Private BRT Operators		30-Jun-2021	

**Description of Covenant**

The Recipient, through DART, shall: not later than June 30, 2021, or such other date as may be agreed with the Association and pursuant to a provision to be included in the respective contracts with bus operators and fare collectors for operation of the DART system under the Project, provide a guarantee to each bus operator, and/or fare collector to back-stop the loss of such bus operator, and/or fare collector in the event that DART may fail to satisfy any of its obligations pursuant to any contract with any bus operator, or fare collector, as the case may be.

<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Schedule 2, Section I.F.5 Road Safety Audit	<b>X</b>		Continuous

**Description of Covenant**

The Recipient shall cause the Project Implementing Entity to: (a) conduct an independent road safety audit for all designs for construction and rehabilitation of infrastructure for BRT Phase 3, 4, 5 and 6; and (b) to incorporate relevant and appropriate findings and recommendations into the designs for BRT Phase 3 and BRT Phase 4 prior to implementation of any activities related to such designs under the Project.

**Conditions**

Source Of Fund	Name	Type		
IDA	Article V. 5.01 (a) Subsidiary Agreement	Effectiveness		
<b>Description of Condition</b>				
The Subsidiary Agreement has been executed between the Recipient and the Project Implementing Entity under terms and conditions acceptable to the Association.				
Source Of Fund	Name	Type		
IDA	Article V. 5.01 (b) Project Implementation Plan	Effectiveness		
<b>Description of Condition</b>				
The Recipient and Project Implementing Entity have each adopted the Project Implementation Plan, acceptable to the Association.				
Source Of Fund	Name	Type		
IDA	Article V. 5.01 (c) Communication Program	Effectiveness		
<b>Description of Condition</b>				
The Recipient, through DART, has developed a communications program for Project stakeholders, specifically private operators of public transport vehicles (daladals) and daladala drivers, satisfactory to the Association.				
Source Of Fund	Name	Type		
IDA	Article V. 5.01 (d) Terms of Reference for ESIA for BRT phase 4 and Road Safety Infrastructure	Effectiveness		
<b>Description of Condition</b>				
The Recipient has prepared terms of reference for the ESIA or ESIA's, as applicable, for BRT Phase 4 and complementary road safety infrastructure, satisfactory to the Association.				
IDA	Section IV.B.1. (a) Retroactive Financing	Disbursement		
<b>Description of Condition</b>				
No withdrawal shall be made for payments made prior to the date of the Financing Agreement, except that withdrawals up to an aggregate amount not to exceed SDR18,600,000 may be made for payments made prior to this date but on or after January 20, 2017, for Eligible Expenditures.				
Source Of Fund	Name	Type		
IDA	Section IV.B.1. (b) Launching of Competitive Tendering for BRT phase 3 Operator	Disbursement		
<b>Description of Condition</b>				
No withdrawal shall be made under Category (2), until the Recipient has provided evidence to the Association that the request for qualifications for one bus operator for BRT Phase 3 has been launched, in form and substance satisfactory to the Association.				
<b>Team Composition</b>				
<b>Bank Staff</b>				
Name	Role	Title	Specialization	Unit
Yonas Eliesikia Mchomvu	Team Leader (ADM Responsible)	Sr Transport. Spec.	Transport Engineer	GTI01
Gisbert Joseph Kinyero	Procurement Specialist (ADM Responsible)	Senior Procurement Specialist		GGO01

Henry Amena Amuguni	Financial Management Specialist	Sr Financial Management Specialist		GGO31
Abel Lopez Dodero	Team Member	Urban Transport Specialist	Urban Transport Specialist	GTI04
Arturo Ardila Gomez	Team Member	Lead Transport Economist	Urban Mobility GSG co-Lead	GTI10
Atsushi Iimi	Team Member	Senior Economist	Transport Economist	GTI01
Benqing Jennifer Gui	Team Member	Senior ICT Policy Specialist		GTI11
Bilal Murtaza Siddiqi	Team Member	Economist	Impact Evaluation	DECIE
Christiaan Johannes Nieuwoudt	Team Member	Finance Officer	Finance Officer	WFALA
Chyi-Yun Huang	Team Member	Urban Specialist	Urban Development Specialist	GSU13
Edward Charles Anderson	Team Member	Senior Disaster Risk Management Specialist	ICT Specialist	GSU13
Eric Dickson	Peer Reviewer	Sr Urban Spec.		GSU13
Georges Bianco Darido	Peer Reviewer	Lead Urban Transport Specialist		GTI02
Jane A. N. Kibbassa	Safeguards Specialist	Senior Environmental Specialist	Environmental Safeguards	GEN01
Jean O Owino	Team Member	Finance Analyst	Finance Officer	WFALA
Judith Elimhoo Mziray	Team Member	Team Assistant		AFCE1
Julie Rieger	Counsel	Senior Counsel	Country Lawyer	LEGAM
Loy Nabeta	Team Member	Communications Officer	Communication	AFREC
Mary C.K. Bitekerezo	Safeguards Specialist	Senior Social Development Specialist	Social Safeguards	GSU07
Mei Wang	Counsel	Senior Counsel	Country Lawyer	LEGAM
Muderis Abdulahi Mohammed	Team Member	Sr Social Protection Specialist	Social protection Specialist	GSP01
Nathalie S. Munzberg	Safeguards Advisor	Regional Safeguards Adviser		OPSPF
Richard Martin Humphreys	Team Member	Lead Transport Economist	Lead Transport Economist	GTI01
Roger Gorham	Peer Reviewer	Transport. Economist		GTI04
Shomik Raj Mehndiratta	Peer Reviewer	Adviser		GTIDR

Tatiana Peralta Quiros	Team Member	Economist		GTISO	
Veronica Ines Raffo	Team Member	Senior Infrastructure Specialist	Road Safety Specialist	GTI04	
Victoria Hilda Rigby Delmon	Team Member	Senior Counsel	PPP Specialist	GWA02	
<b>Extended Team</b>					
<b>Name</b>	<b>Title</b>	<b>Office Phone</b>	<b>Location</b>		
Aleksandra Liaplina	Consultant		Washington, DC		
Allen Natai	Highway Consultant	255756406497	Tanzania		
Elkin Bello	Urban Transport Specialist	16463301676	Washington		
Gladys Frame	Traffic Management and Road Safety Specialist, Consultant		Edinburgh		
MaryGrace Weber	Consultant/Urban Planner	---	Tanzania		
Steven Segerlin	Urban Planning Specialist	15857298519	Washington, DC		
<b>Locations</b>					
<b>Country</b>	<b>First Administrative Division</b>	<b>Location</b>	<b>Planned</b>	<b>Actual</b>	<b>Comments</b>
Tanzania	Dar es Salaam	Ubungo	<b>X</b>		
Tanzania	Dar es Salaam	Kinondoni	<b>X</b>		
Tanzania	Dar es Salaam	Ilala	<b>X</b>		
Tanzania	Dar es Salaam	Temeke	<b>X</b>		

## I. STRATEGIC CONTEXT

### A. Country Context

1. **Tanzania's recent economic performance has remained broadly favorable.** Real gross domestic product (GDP) growth remained robust at about seven percent in 2014–2015 and is projected to remain at the same level in FY15–16. Economic expansion has been driven by several fast-growing sectors, including construction, communication, financial services, and mining, supported by public and private consumption and investment. More recently, manufacturing (processed food, beverage, tobacco, basic metals, and construction materials) and retail trade have also expanded more rapidly. By contrast, agriculture—the sector on which about 70 percent of households depend as their primary economic activity—has continued to post slower growth. Inflation, which increased to 6.8 percent in December 2015 due to higher domestic food prices and lagged effects of recent depreciation of the Tanzanian shilling, declined to 5.2 percent in May 2016. At 5.2 percent, inflation remains within the Government's medium-term target and significantly lower than the 19 percent recorded at the end of 2011.

2. **Tanzania's medium-term macroeconomic outlook remains favorable, with economic growth projected to remain stable at about seven percent over the next two years.** The attainment of this target is to be facilitated by the implementation of the second Five-Year Development Plan (FYDP II), which focuses on industrialization and human development, coupled with benefits from the positive terms-of-trade impact from lower oil prices and a faster rate of expansion in Tanzania's usual growth sectors. The rate of inflation is expected to stabilize at around five percent, assuming no exogenous shocks from commodity price fluctuations or weather conditions, together with consistency in monetary or exchange rate policies. The overall external balance is expected to remain stable with a lower current account deficit based on lower oil import bills and stronger export performance. In the medium term, the current account deficit is expected to improve when the use of onshore and nearshore natural gas will replace liquid fuel as the main source of thermal power generation, thereby reducing costly energy imports.

3. **Tanzania is urbanizing rapidly—half of the population is expected to live in major and secondary cities by 2050.** The share of the urban population increased from 18 percent to 27 percent over 1990–2012. Tanzanian cities already account for the majority of the country's physical, financial, academic, and technological capital. Economic activities in urban areas contribute approximately half of GDP. Tanzania's dominant primary city—Dar es Salaam—accounts for around 40 percent of the urban population. It is the third fastest growing city in Africa, growing at an average rate of 5.8 percent annually over 2002–2012. Dar es Salaam has a population of about five million inhabitants and is expected to become a mega city with more than 10 million people by 2030.

4. **Improving the efficiency of cities is critical to derive greater agglomeration benefits and create productive jobs.** The number of working-age Tanzanians—with an estimated 800,000 entering the market annually—has grown faster than the number of jobs. Most firms face considerable constraints that reduce their productivity and ability to hire, so job seekers are gaining employment in the informal economy. The 2014 Tanzania Country Economic Memorandum noted that (a) cities are driving the growth of nonfarm businesses; (b) to create more jobs, the economy will need to move toward export markets; and (c) improved productivity and efficiency of Dar es Salaam are necessary to help generate businesses and create jobs in the formal and informal sectors. Moreover, a recent World Bank

report<sup>1</sup> found that a fragmented disconnected urban form was a material factor; increasing the accessibility costs for employers and job-seekers and thus lowering efficiency. To this end, mass transit investments that can significantly improve urban accessibility are an important building block to increasing urban productivity.

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

5. **A public transport-oriented National Transport Policy (NTP).** The urban transport objective as stated in the Government of Tanzania's (GoT) Draft NTP of 2016 is to establish and increase smooth traffic flow and carrying capacity of the public transport to move passengers quickly, efficiently, and safely at minimum cost in large cities. The policy statement requires the GoT to develop an integrated transport system in cities; discourage the use of private vehicles by promoting the use of high-occupancy public transport; and provide enough space in cities to cater for infrastructure facilities to support public transport. The Draft NTP of 2016 is expected to be formally approved by the Government by June 2017 and at that point will effectively replace the NTP of 2003.

6. **Public transport is dominant but traditionally not of high quality.** The establishment of a bus rapid transit (BRT) system in Dar es Salaam City is an important element toward implementing the NTP. While public transport is currently the main mode of travel in Dar es Salaam, it has been traditionally supplied by a system of loosely regulated minibuses known as Daladalas (over 7,500 minibuses along 213 routes) entrepreneurially operated, competing with each other in congested traffic for passengers and of varying quality.<sup>2</sup> The introduction of the BRT system significantly increases the quality of public transport available: featuring modern high-capacity buses operating in segregated lanes. Phase 1 of the BRT financed under the Second Central Transport Corridor Project (CTCP2) supported by the World Bank<sup>3</sup> has reduced travel time on the 15.6 km of the Kimara-Kivukoni corridor from over two hours to 45–50 minutes and, despite some teething issues (as also detailed in annex 2), is generally regarded as an important beneficial upgrade to the city.

7. **An extensive BRT system has been planned and is being implemented.** The six phases of the Dar es Salaam BRT system involve the development of a total of 140.1 km of BRT corridors to be implemented sequentially from the first to the sixth phases (a schematic of the current and proposed system is provided in annex 2). The conceptual design of the network was completed in 2007. The development of the entire system was incorporated in the 'Dar es Salaam Urban Transport Master Plan'<sup>4</sup> of 2008 guiding developments up to 2030. The design of the second and third phases of the BRT system was supported under the CTCP2 and the infrastructure for the second phase is being supported through funding by the

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<sup>1</sup> Lall, Somik Vinay, J. Vernon Henderson, and Anthony J. Venables. 2017. "Africa's Cities: Opening Doors to the World." World Bank, Washington, DC..

<sup>2</sup> Analysis conducted in 2006 (Report on Statistical Indicators of Public Transport Performance in Africa, 2010, the International Association of Public Transport/African Association of Public Transport) indicated that while only 8 percent of daily trips were made by private cars, public transport and non-motorized transport (NMT) played a dominant role with 43 percent and 45 percent of daily trips, respectively. A 2011 survey reported the share of different modes to be as follows: cars - 9.8 percent, public minibus (locally called Daladalas) - 57.8 percent, and NMT modal - 32.4 percent.

<sup>3</sup> Project Number P103633.

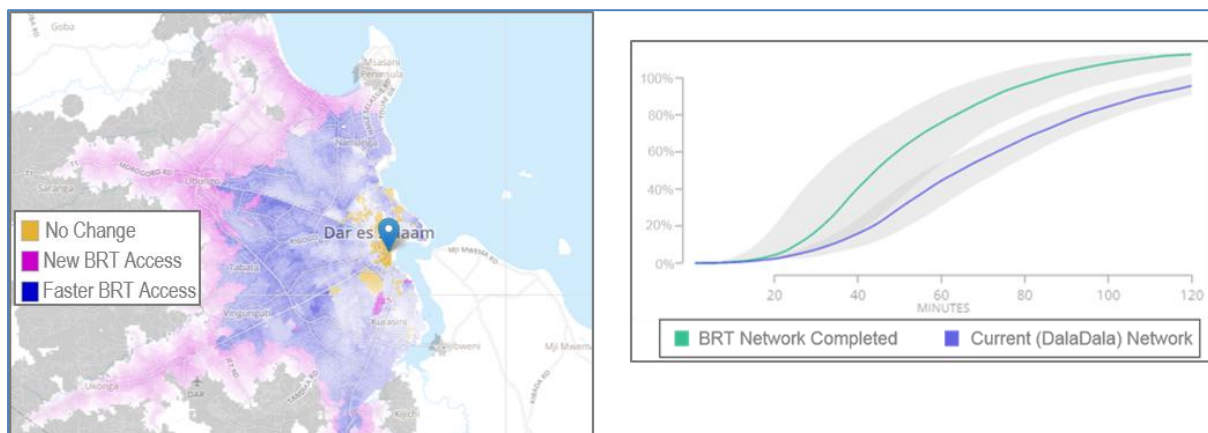
<sup>4</sup> The Dar es Salaam Transport Policy and System Development Master Plan, June 2008, supported by Japan International Cooperation Agency (JICA).

African Development Bank (AfDB) in partnership with the Africa Growing Together Fund. The implementation of the third and fourth BRT phases is to be supported by the Dar es Salaam Urban Transport Improvement Project (DUTP).

8. **The BRT system affects accessibility and urban efficiency.** The BRT investments are also consistent with a vision to increase urban productivity by focusing on accessibility. Outside the urban core where the majority of the formal jobs are concentrated, Dar es Salaam is a collection of small, fragmented, and disconnected neighborhoods. Due to the limited urban access to the core and limited employment centers, many workers live in informal housing in the central core.<sup>5</sup> Living outside of this core translates into a series of obstacles for most residents, but particularly for the most vulnerable; two trips per day of 15 km each (to the edge of the BRT system) will take more than four hours, and a household of the lowest quintile will have to allocate more than 50 percent of its monthly income for travel.

9. Figure 1 shows that access to opportunities is currently limited to the center of the city and increases significantly with the implementation of the BRT system—potentially easing the pressure on the central core and allowing both jobs and housing to concentrate at other high-accessibility locations across the city. With the entire investment in the BRT network, the number of people who will be able to access the center of the city in 60 minutes using public transport is expected to increase from 42 percent to 73 percent—the 31 percentage points correspond to a 73 percent increase in the number of people with access.

**Figure 1. Impact of the Dar es Salaam BRT System on Accessibility of People to the Center of the City**



Source: Bank staff simulation through the OTPA tool developed by the World Bank.

10. **There is also a longer-term climate imperative.** As incomes increase, leading to more private vehicle use, the mass transit investments can also help avoid a lock-in into a high-carbon automobile-oriented city in the medium term. Indeed, the number of cars in Dar es Salaam City has been reported<sup>6</sup> to have doubled between 2002 and 2008 from 19 to 43 cars per 1,000 inhabitants. While some increase in motorization is inevitable with rising incomes, international evidence suggests that the built environment and accessibility significantly influence vehicle ownership and usage.<sup>7</sup> In particular, an investment strategy

<sup>5</sup> The informal district of Tandale is an example, attractive not for its services and amenities but despite its lack of them. Its central location puts people close to where most jobs and economic opportunities are found.

<sup>6</sup> Report on Statistical Indicators of Public Transport Performance in Africa, 2010, the International Association of Public Transport/African Association of Public Transport.

<sup>7</sup> Kockelman, K., and R. Cervero. 1997. *Travel Demand and the 3Ds: Density, Diversity and Design*. Berkeley: University of California.

that prioritizes higher public transport accessibility has been proven to decrease the likelihood of owning vehicles.<sup>8</sup> Ultimately, an accessible compact city oriented about mass transit is more likely to be able to convince residents, who have a choice, to delay buying a vehicle and to use it less.

**11. The governance challenge.** The governance structure of the Dar es Salaam local government is challenging. There are five municipalities, each led by a Mayor and an apex coordinating body called Dar es Salaam City Council (DCC). Each municipality has its own authority and reports directly to the President's Office, Regional Administration and Local Government (PO-RALG), and therefore the DCC does not have direct authority over the municipality activities. The governance of the transportation sector is equally fragmented with 14 agencies - each with some responsibilities on the same network. The Dar Rapid Transit agency (DART), an executive agency under PO-RALG, is responsible for contracting and managing the BRT operations. The Dar es Salaam Metropolitan Development Project (DMDP, P-123134), financed by IDA, is supporting the strengthening of the city governance structure. The Transport Master Plan of 2008 recommended formation of the Dar es Salaam Urban Transport Authority (DUTA) to strengthen the institutional arrangement for a sustainable transportation system in Dar es Salaam City. A recent World Bank report<sup>9</sup> emphasizes the critical importance of having a lead institution such as DUTA for developing an integrated and comprehensive urban transport systems.

**12. Traffic safety is a priority.** Tanzania is among the countries with the highest traffic fatalities in Africa. While Africa possesses only two percent of the world's vehicles, it contributes 16 percent to the global deaths. Seven countries in Africa, namely Nigeria, the Democratic Republic of Congo, Ethiopia, Kenya, South Africa, Tanzania, and Uganda, are responsible for 64 percent of all road deaths in the continent. In 2013, there were 4,002 road traffic fatalities as reported by the police, though the World Health Organization<sup>10</sup> estimated the fatality figure to be 16,211. Tanzania has a Road Safety Policy of 2009, but the process of enacting a national law for road safety remains ongoing. The vulnerable road users—pedestrians, cyclists, and drivers of motorized two- and three-wheelers—constitute more than half (64 percent) of road users killed on the roads, with pedestrians alone being 31 percent. It is estimated that traffic accidents cost up to 3.4 percent of the country's GDP on a yearly basis.

**13. Ubungo intersection is a key bottleneck to BRT operations and access to the port.** There are three BRT trunk corridors—BRT phase 1 along Morogoro Road, a branch of BRT phase 4 along Sam Nujoma Road, and BRT phase 5 along Nelson Mandela Road—intersecting at Ubungo. Also, the Ubungo intersection is the main gateway to and from Dar es Salaam City to up-country and neighboring countries. It is among eight intersections identified in the 'Dar es Salaam Transport Master Plan' and 'the freight corridor master plan'<sup>11</sup> for grade separation for enhancing mobility in Dar es Salaam City. Other critical intersections with commitments for grade separation include (a) the Tanzania Zambia Railway Authority (TAZARA) intersection where works are ongoing through JICA support

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<sup>8</sup> Van Eggermond, M, A. Erath, and K. W. Axhausen. 2016. *Vehicle Ownership and Usage in Switzerland: the Role of Micro and Macro-accessibility*.

<sup>9</sup> Institutional Labyrinth - Designing a way out for improving urban transport services: lessons from the current practice. Ajay Kumar and O.P. Agarwal, World Bank; 2013

<sup>10</sup> World Health Organization. 2013. *Global Status Report on Road Safety*.

<sup>11</sup> "Comprehensive Transport and Trade system Development Master Plan in the United Republic of Tanzania: Building an Integrated Freight Transport Network," March 2013, Ministry of Transport, financed by JICA.

and (b) two intersections of the Chang’ombe/Kawawa and Nelson Mandela/Kilwa Road junctions that are being supported by the AfDB as part of the BRT phase 2 trunk corridor.

### **C. Higher Level Objectives to which the Project Contributes**

14. The DUTP is consistent with the national development strategy in Tanzania. The new national FYDP of FY2017–21 of June 2016 is based on Tanzania’s Development Vision 2025. This strategy aims to transform Tanzania into a middle-income country by 2025. The FYDP has highly prioritized interventions that address the traffic congestion of Dar es Salaam City, including those supported by the project. The strategy notes that the private sector is constrained by poor infrastructure and an inadequate business environment and recommends, among others, improving the infrastructure for road and railway transport, ports and harbors and facilitating transit traffic. The project is addressing the traffic congestion, through scale-up of the BRT system, and the improved accessibility plays a central role in reshaping the growth of the rapidly sprawling city by influencing mixed land use of high density along the BRT corridors.

15. The DUTP is aligned with the World Bank Group’s Tanzania Country Assistance Strategy (CAS) of FY12–15 and the CAS Progress Report (Report No. 80313-TZ) discussed by the Board of Executive Directors in July 2014. The activities under the proposed project were identified in the CAS lending program under the proposed scale-up of the CTCP2 through provision of an Additional Financing. The improvement of the urban and the central corridor transportation system is described under the ‘Productive Investments for Growth of Labor-Intensive Industries and Job Creation’ strategic cluster of the CAS Progress Report. Its outcomes are also aligned to the ‘Increased Access to and Quality of Transport Services’ CAS outcome. The DUTP will also support the realization of the World Bank Group’s twin goals of ending extreme poverty and boosting shared prosperity, as it facilitates economic growth, trade facilitation, and access to jobs.

16. The proposed interventions in the DUTP are also consistent with both the Urban Transport Strategy and the more recent transport strategy of the World Bank,<sup>12</sup> which stipulates that “in order to improve efficiency of transport, the needs of each mode must be addressed - the road system, NMT, public passenger transport, and mass transit with special attention on the role of private sector.” The project is also aligned with the World Bank’s ‘The Africa Climate Business Plan for Accelerating Climate Resilient and Low Carbon Development’ report,<sup>13</sup> which committed the World Bank to “provide technical and financial support to develop climate-friendly urban transport solutions such as BRTs.” Finally, the project is aligned with the World Bank strategy for harnessing sustainable urbanization in Africa.<sup>14</sup>

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<sup>12</sup> A World Bank Urban Transport Strategy Review of August 2002/Safe Clean and Affordable Transport for Development: The World Bank Group’s Transport Business Strategy for 2008–2012.

<sup>13</sup> The Africa Climate Business Plan: Accelerating Climate Resilient and Low Carbon Development. Report 101130, 21st Conference of Parties to the United Nations Convention, Paris, December 2015.

<sup>14</sup> *Harnessing Urbanization to end Poverty and Boost Prosperity in Africa – An Action Agenda to Transformation*. World Bank, Washington, DC; 2013.

## II. PROJECT DEVELOPMENT OBJECTIVES

### A. PDO

17. The Project Development Objective (PDO) is to improve transport mobility, accessibility,<sup>15</sup> safety, and quality of transport service delivery along the selected corridors in Dar es Salaam.

#### **Project Beneficiaries**

18. The primary project beneficiaries are the public transport users within the BRT phase 1, 3, and 4 trunk and feeder network covering Kinondoni, Ubungo, Temeke, and Ilala Municipalities as well as cyclists and pedestrians along the BRT trunk corridors. Within that group, the urban poor—defined as citizens below the food poverty line—will benefit from the project through the pilot transport subsidy that will help link a sample group to opportunities. The project will thereafter explore the linkage of access to opportunities for poverty alleviation. Also, private car owners using the reconstructed mixed traffic lanes along the BRT phases 3 and 4 trunk corridors and the improved Ubungo intersection will benefit from savings in travel time and operating costs. The residents of the Gongo la Mboto and Tegeta areas are also expected to have improved access to economic and social opportunities, for example, job centers. The secondary beneficiaries are all Dar es Salaam City residents in all five districts and up-country Tanzanians, as well as importers and exporters in landlocked countries of Malawi, Zambia, the Democratic Republic of Congo, Burundi, and Rwanda using the central and Dar corridors roads to and from Dar es Salaam.

#### **PDO Level Results Indicators**

19. The achievement of the PDO will be monitored through the following proposed key results indicators:

- (a) Average rush hour in-vehicle travel time by public transport passengers from Gongo la Mboto to Kivukoni
- (b) Average rush hour in-vehicle travel time by public transport passengers from Tegeta to Kivukoni
- (c) Average rush hour in-vehicle travel time by articulated freight trucks from Tabata Relini to Mbezi kwa Msuguri through Ubungo
- (d) Satisfactory rating by users for public transport services along the BRT corridors, disaggregated by gender
- (e) Percentage of population of Dar es Salaam residents with access to the city center within 60 minutes commuting period by public transport through BRT phase 1, 3, and 4 corridors
- (f) Annual average number of pedestrian fatalities along the BRT phase 1, 3, and 4 corridors

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<sup>15</sup> Transport mobility refers to the movement of people and goods throughout the urban area. Transport accessibility (access) refers to the ability to reach desired goods, services, activities, and destinations (collectively called opportunities) (Litman 2011. *Measuring Transportation: Traffic, Mobility and Accessibility*).

### III. PROJECT DESCRIPTION

#### A. Project Components

##### **Component A: Establishment of the Third and Fourth Phases of the Dar es Salaam BRT System (US\$287.1 million including US\$11 million contingencies)**

20. *Subcomponent A.1: Establishment of BRT Phase 3 Infrastructure (US\$148.2 million).* This subcomponent will support the development of physical infrastructure for the 23.6 km BRT phase 3 trunk corridor. The phase 3 corridor starts at Posta within the Central Business District (CBD) and passes along Maktaba Street, Bibi-Titi Street, and Nyerere Road past Julius Nyerere International Airport (JNIA) to the Gongo la Mboto area. Another branch starts at the Kariakoo BRT terminal along Uhuru Street to Buguruni and Nelson Mandela Road and joins Nyerere Road at the TAZARA junction.

21. The infrastructure will include the BRT trunk corridor, three terminals, one bus depot, three feeder-transfer stations, 25 BRT stations; and five pedestrian crossing bridges. The BRT trunk corridor will have a median exclusive lane for buses with a lane in each direction and overtaking lanes at stations and terminals. The trunk infrastructure will include five pedestrian crossing bridges at the Kisutu market, at the Buguruni-Rozana feeder terminal, at the JNIA terminal, at Banana, and at Gongo la Mboto. The two mixed traffic lanes will be reconstructed in both directions for the entire corridor (currently only available between the CBD and the airport), and bicycle lanes and pedestrian walkways will be constructed on both sides of the corridor at the outmost. The three terminals will be constructed at the Kariakoo hub terminal where all BRT phases integrate, opposite the JNIA, and at Gongo la Mboto. The project will also support the infrastructure for integrating the BRT corridor with the TAZARA central railway station, the JNIA, and vegetable/petty traders' markets along the corridor. The BRT bus depot will be constructed at Gongo la Mboto, and the three feeder-transfer stations will be located at Jet Club, Banana, and the Buguruni Rozana area. Park-and-ride facilities for private car owners are planned to be supported near the Jet Club feeder-transfer station and at the Gongo la Mboto terminal. Also, the petty traders and vegetable markets at Kisutu, Mchikichini, and Buguruni will be provided with a safe linkage to the BRT corridor.

22. *Subcomponent A.2: Establishment of BRT Phase 4 Infrastructure (US\$97.9 million).* The subcomponent will support the construction of the 25.9 km BRT phase 4 trunk corridor infrastructure. The corridor runs from the Maktaba/Bibi Titi Road junction at the CBD (where it connects with the BRT phase 3 corridor) through Ali Hassan Mwinyi Road to Morocco (existing BRT phase 1 terminal). From Morocco, it continues to Mwenge and ends at Tegeta. The trunk corridor has a branch at Mwenge connecting to the BRT phase 1 trunk route at the Ubungo terminal.

23. The 16.6 km road section, out of 25.9 km along the BRT phase 4 trunk corridor, was recently rehabilitated and provided with a reserve land at the median for BRT bus lanes. The recently rehabilitated sections are Mwenge to Tegeta (12.7 km) and Mwenge to Ubungo (3.9 km). The two-lane road section between Mwenge and Morocco was recently widened by adding two additional lanes. The section is to be further rehabilitated as part of the BRT corridor.

24. *Subcomponent A.3: Preparation for Operation of the BRT System (US\$8 million).* This subcomponent will support the development of a fare integration policy (between BRT

corridors and with other modes) and transaction advisory services for the selection of private sector operators through Public-Private Partnership (PPP) arrangements. The Transaction Advisers will update the financial analysis for BRT phases 1, 2, 3, and 4 and design the operation arrangements (including fare integration within the network) as different infrastructure phases are completed. Procurement for the operation include (a) two trunk bus operators for BRT phase 3; (b) one trunk bus operator for BRT phase 4; (c) scaling-up of the contract for operation of the fare collection system and station management; and (d) scaling-up of the fund management contract. As part of their key assignment, the Transaction Advisers will also help the existing Daladala (minibus) operators establish companies, cooperative, or franchises in line with the sector transformation efforts by the Surface and Marine Transport Regulatory Authority (SUMATRA). The design for operations will

- (a) Sensitize the local transport operators (trucks operators, up-country bus operators, and Daladala owners) to work with international bus manufacturers and bankers (local and international) to participate in the bidding for operation of BRT trunk bus services; and
- (b) Support transformation of the existing Daladala operators and help them establish a company, cooperative, or franchise that can become one of the operators of the BRT phase 3 and 4 system.

25. ***Subcomponent A.4: Upgrading of the Fare Collection System and Improving Traffic Management along the BRT Corridors (US\$18 million).*** The project will support the design and scaling-up of the automated fare collection system (AFCS), including the supply of smart cards and establishment of the intelligent transportation system (ITS) covering the BRT trunk corridors. The standards for AFCS and ITS upgrade will ensure an open and interoperable system with General Transit Feed Specification data format that are fully accessible to the Government. The support will include construction of a DART traffic control center at the Kariakoo terminal, installation of traffic control systems, the ITS, closed circuit television systems within the BRT corridor, installation of the AFCS along BRT phases 3 and 4, control center help desk, and linkage of the control center with the road safety database. The traffic operations center (TOC) will collect all ITS and operators' data and become the key function for collaboration with different entities. The ITS Master Plan will be prepared for the entire BRT system that will also be consistent with the national one. The traffic operations center could be used to monitor traffic conditions using cameras and other technology, providing traveler information on road conditions and coordinating congestion management and incident response with different agencies.

26. ***Subcomponent A.5: Implementation Support for Integrated Transit-Oriented Development along the BRT Corridors (US\$4 million).*** The subcomponent supports a series of implementation support activities to promote transit and pedestrian-oriented land development, known as transit-oriented development (TOD) and pedestrian-oriented development, respectively, as well as approaches for land value capture and tax increment financing to create a high-density commercial and residential center within the BRT corridors. The activities will include:

- (a) Preparation of Integrated Land Use and Transport Plans for BRT phase 3 and 4 corridors; and
- (b) Advisory and transaction support to guide the redevelopment of stations areas along the BRT phase 1 corridor using PPP mechanisms.

27. The principles of the Integrated Land Use and Transport Plans developed for the BRT phase 1 corridor will be applied to BRT phase 3 and 4 corridors. This will enable city authorities to manage land use demand along the corridor in a manner that will increase BRT ridership and decrease traffic congestion and sprawl while ensuring that an attractive and safe environment around transit stations is developed.

**Component B: Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System (US\$99.9 million including US\$2.4 million contingencies)**

28. *Subcomponent B.1: Upgrading the Safety of the Ubungo Intersection and Integration of the BRT Corridor with Ubungo Up-country Bus Terminal (US\$86 million)*

- (a) Construction of an interchange at the Ubungo intersection;
- (b) Rehabilitation of the Ubungo up-country bus terminal; and
- (c) Construction of a road linking the up-country bus terminal with the interchange for smooth entrance and departure of buses to and from up-country.

29. *Subcomponent B.2: Road Safety Strengthening along the BRT Corridor and Kimara-Mbezi Feeder Section (US\$11.5 million)*

- (a) Improvement of pedestrian and cyclist safety along the BRT phase 1 corridor by providing respective exclusive lanes between Kibo and Kimara;
- (b) Integration of the Kivukoni terminal with the ferry terminal for safe pedestrian and vehicle movements;
- (c) Improvement of infrastructure for enabling traffic flow (especially right-turning intersections) along the BRT corridor and the Kimara-Mbezi feeder line; and
- (d) Establishment of a performance-based maintenance contract for the BRT phase 1 corridor.

**Component C: Institutional Strengthening and Reform, ICT Innovation, Safety Net, and Transport Studies (US\$38 million)**

30. *Subcomponent C.1: Capacity Strengthening of Implementing Agencies (US\$21 million)*

- (a) Capacity strengthening to the Tanzania National Roads Agency (TANROADS), including technical assistance, equipment, training, and incremental operating costs;
- (b) Capacity strengthening to DART including technical assistance for managing the BRT system, equipment, training, and incremental operating costs; and
- (c) Capacity strengthening to SUMATRA for development of mass transit regulations and support to knowledge sharing with other mass transit regulators.

31. *Subcomponent C.2: Support to Restructuring of DART and Establishment of DUTA (US\$5 million)*

- (a) Technical assistance for restructuring of DART and
- (b) Technical assistance, equipment, training, and initial operating costs for DUTA.

32. ***Subcomponent C.3: Support to Road Safety Agencies (US\$2.5 million)***. This subcomponent will support the establishment of the Road Safety Authority (RSA) by providing
- (a) Technical assistance, equipment, training, and initial operating costs;
  - (b) Enhancement and further rollout of the road accident information system (RAIS); and
  - (c) Support to the Department of Road Safety and Environment of the Ministry of Works, Transport, and Communication (MoWTC) to conduct a road safety audit and monitoring along the BRT corridors in Dar es Salaam.
33. ***Subcomponent C.4: Piloting of Safety Nets and Impact Evaluation (US\$2.0 million)***
- (a) Design and implementation of a pilot program for providing public transport subsidy to the urban poor;
  - (b) Skills development (training) to Daladala drivers; and
  - (c) Design and implementation of impact evaluation (IE) programs for the development of the Dar es Salaam BRT system.
34. ***Subcomponent C.5: ICT Innovation and Open Data Pilot in the Public Transport System (US\$2.0 million)***
- (a) Introduction of open data in public transport in Dar es Salaam City through information and communication technology (ICT) innovation. The ICT innovation would include creation of public transport maps using ‘open transport’ principles;
  - (b) Establishment of public bus service and bicycle routes;
  - (c) Creation of a mobile phone-based system for public transport passengers to provide feedback on the quality of BRT services and enable the authorities to improve service delivery;
  - (d) Development of a gender-based violence reporting system (mobile phone based) to be mapped to enable authorities take action; and
  - (e) Development of an accident mapping system along the BRT corridors for advocacy purposes.
35. ***Subcomponent C.6: Improving Oversight Capacity of the MoWTC (US\$2.7 million)***
- (a) Supporting the training program of the MoWTC (Works) including long-term training courses to low and mid-level professional staff and
  - (b) Supporting the living allowances (stipend) to fresh graduate engineers to enable them to participate in the Structured Engineers Apprenticeship Program (SEAP). The support of the SEAP will be linked to the development and adoption of a sustainable funding mechanism by the Engineers Registration Board (ERB).
36. ***Subcomponent C.7: Transport Studies and BRT Communication Programs (US\$2.8 million)***
- (a) Updating of the conceptual design for the Dar es Salaam BRT system, detailed engineering design of phases 5 and 6, and preparation of the related environmental and social safeguards instruments;

- (b) Study for development of an analytical model for a fare subsidy policy in Dar es Salaam City; and
- (c) Support to communication programs for the preparation and operation of the Dar es Salaam BRT system.

## B. Project Financing

37. Most of the studies and project preparatory activities have been funded under the CTCP2. It is expected that any land acquisition and other costs related to the implementation of the Resettlement Action Plans (RAPs), estimated at US\$25.8 million, will be covered entirely by the GoT. The rest of the activities of the project equivalent to US\$425 million will be financed by IDA (100 percent), which is US\$225 million from an IDA Credit and US\$200 million equivalent from IDA Scale-up Facility Credit. The GoT has requested retroactive financing in the amount of US\$25 million to cover for advanced contracted activities.

## Project Cost and Financing

38. The lending instrument chosen for this project is an Investment Project Financing. The duration of the project is seven years, reflecting the complexity of the urban setting for implementation, the one-year ramp-up period for operations of the BRT system, and the complexity of the associated institutional reforms for long-term sustainability of the project. The project activities are as summarized in table 1, below, and detailed in Table 2.1.

**Table 1. Summary of project costs**

<b>Project Component</b>	<b>Project Cost (US\$, millions)</b>	<b>IDA (US\$, millions)</b>	<b>Percentage IDA Financing</b>
<b>A. Establishment of the Third and Fourth Phases of the Dar es Salaam BRT System</b>	<b>306.9</b>	<b>287.1</b>	<b>94</b>
A.1 Establishment of BRT Phase 3 Infrastructure	148.2	148.2	—
A.2 Establishment of BRT Phase 4 Infrastructure	97.9	97.9	—
RAP Implementation (GoT contribution)	19.8	—	—
A.3 Preparation for Operation of the BRT System	8.0	8.0	—
A.4 Upgrading of the Fare Collection System and Improving Traffic Management along the BRT Corridors	18.0	18.0	—
A.5 Implementation Support for Integrated Transit-Oriented Development along the BRT Corridors	4.0	4.0	—
Contingencies	11.0	11.0	—
<b>B. Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System</b>	<b>105.9</b>	<b>99.9</b>	<b>94</b>
B.1 Upgrading the Safety of the Ubungo Intersection and Integration of the BRT Corridor with Ubungo Up-country Bus Terminal	86.0	86.0	—
B.2 Road Safety Strengthening along the BRT Corridor and Kimara-Mbezi Feeder Section	11.5	11.5	—
RAP Implementation (GoT contribution)	6.0	—	—
Contingencies	2.4	2.4	—
<b>C. Institutional Strengthening and Reform, ICT Innovation, Safety Net, and Transport Studies</b>	<b>38.0</b>	<b>38.0</b>	<b>100</b>
C.1 Capacity Strengthening of Implementing Agencies	21.0	21.0	—
C.2 Support to Restructuring of DART and Establishment of DUTA	5.0	5.0	—
C.3 Support to Road Safety Agencies	2.5	2.5	—
C.4 Piloting of Safety Nets and Impact Evaluation	2.0	2.0	—

C.5 ICT Innovation and Open Data Pilot in the Public Transport System	2.0	2.0	—
C.6 Improving Oversight Capacity of the MoWTC	2.7	2.7	—
C.7 Transport Studies and BRT Communication Programs	2.8	2.8	—
<b>Total Funding</b>	<b>450.8</b>	<b>425.0</b>	<b>94</b>

### C. Lessons Learned and Reflected in the Project Design

39. The design of the DUTP has incorporated lessons learned from the establishment of the first phase of the Dar es Salaam BRT system that was supported under the CTCP2.

- (a) Delays in the implementation of the RAP due to lack of funding led to contractual disputes and termination of some the works contracts as the site was not available to the contractor. The procurement process for BRT phase 3 and 4 works is expected to start in May 2017 and March 2018, respectively. The compensation resources are expected to be released by the Government before the advertisement of tenders for works so that the RAP can be implemented before awarding of the works contracts.
- (b) The quality of engineering designs caused considerable delay during the BRT phase 1 implementation. Under the DUTP, an independent review of designs will be the first assignment by the supervision consultants. Any amendments will be provided to contractors before or during bidding process. Further, for designs that are ready, the advance procurement contracting and retroactive financing arrangement have been considered.
- (c) The challenge of delays in the PPP procurement of the operator(s) that led to complications of interim service operations in the BRT phase 1 will be addressed by recruiting Transaction Advisers and issue requests for qualifications for BRT phases 3 and 4 before commencement of BRT trunk corridor works and ensuring that the potential bus operators are shortlisted within one year of commencement of works. This will enable the PPP contract to be signed at least one year before completion of infrastructure works, and the timing for commencement of operations will be coincided with handing over of completed infrastructure.
- (d) The challenge of relocation and/or incorporation of Daladalas (minibuses) in the operation of the BRT system requires a different approach as BRT phases 3 and 4 will displace all key corridors entering the Dar es Salaam CBD. Therefore, the project proposes to support the consolidation of the Daladala owners and help the formation of companies, cooperatives, and franchises fully owned by existing Daladala owners. A Daladala owners company or cooperative that will be jointly established through the Daladala association will be considered, subject to fulfilment of qualification criteria for being awarded with a non-competitive<sup>16</sup> operation contract as one of the three operators of the BRT phases 3 and 4. The non-competitive contract will be awarded after completion of the competitive tendering process as the contracts will have same terms and conditions.

<sup>16</sup> The non-competitive contracting of a Daladala owners company will be for the same operation duration as the two competitively awarded operators. However, upon expiry of the initial contract duration, the Daladala owners company can only be contracted in subsequent periods through participation in competitive tendering process.

- (e) The challenges faced during the launching of the operation of the first phase of the BRT system showed that it is critical to incorporate road safety as part of the design when introducing such new systems. Therefore, the critical success factors included road safety audits and other road safety measures including training of drivers, communications, and awareness campaigns of BRT operations and last-mile investments to protect vulnerable users to improve walkability. Also, quality of public spaces and accessibility all need to be included as key activities planned to be carried out as part of the project.

40. The project design has ensured adequate cross-sectoral collaboration in order to maximize the development impacts. Therefore, apart from the Transport Unit, the design of DUTP included input from the ICT Unit of the Transport and ICT Global Practice; Social, Urban, Rural, and Resilience Global Practice; Development Impact Evaluation; and Social Protection and Labor Global Practice. This collaboration has enabled the transit and land use integration, ICT innovation, piloting of the transport subsidy to the poor, and IE to be incorporated as part of the project design.

#### **IV. IMPLEMENTATION**

##### **A. Institutional and Implementation Arrangements**

41. TANROADS is the overall implementing agency of the project. TANROADS manages the national road network (35,000 km) on behalf of the MoWTC and was established in 2000 and has since then proved itself as a capable organization. All aspects of project management, including procurement, contract management, financial management (FM), and social and environmental safeguards, will be fully executed or overseen by TANROADS. The implementation will be fully mainstreamed within TANROADS' organizational structure (see annex 3). The coordination of the project will be conducted by the Project Manager of the BRT unit reporting to the Director of projects. TANROADS will procure and manage all civil works and supervision contracts; maintain the Designated Account (DA), and implement the RAP and Environmental and Social Management Plan (ESMP). DART will be responsible for (i) procurement and management of contracts for capacity strengthening to DART and establishment of DUTA, (ii) ICT innovation, (iii) transaction advisory services; (iv) monitoring and evaluation; (v) managing capacity for public transport operations; (vi) preparation for BRT operations; (vii) provision of support to TANROADS in the implementation of the Safeguards Instruments; and (viii) establishment of the DART traffic control center.

42. The interagency coordination and oversight will be provided by a Steering Committee that will be co-chaired by the Permanent Secretary (PS) of the MoWTC and the PS of the PO-RALG. Members of the committee will include the City Director; Directors of Ilala, Temeke, Ubungu, Kigamboni, and Kinondoni municipalities; the Chief Executive of TANROADS; the Chief Executive of DART; the Director General of SUMATRA; and the Chief Executive of Tanzania Social Action Fund (TASAF). The Steering Committee will have biannual coordination meetings. TANROADS and DART will also table the presentation of project progress on infrastructure and preparations for operations, respectively, annually to the Regional Roads Board, under the chairmanship of the Regional Commissioner, to ensure continuing political buy-in by Dar es Salaam regional stakeholders.

43. The Chief Executive of TANROADS is the Accounting Officer for the project, assuming overall responsibility for accounting for the project funds. TANROADS will

manage the project's DA. Disbursements from the IDA Credit will be made based on quarterly interim financial reports (IFRs). Disbursements from the DA will be made based on certified invoices received from the other executing entity, DART. The credit will support TANROADS to cover incremental operating costs.

44. The TANROADS BRT team will be strengthened. A contract management firm will be recruited under the project that will provide key professional staff to support TANROADS regular staff in the implementation of the project. The staff will include a Highway Engineer, Contracts/Claims Specialist, Pavement and Materials Engineer, Structural Engineer, Quantity Surveyor, Architect, Electrical Engineer, Traffic Engineer, Procurement Specialist, Environmental Specialist, Social Specialist, FM Specialist, and other relevant disciplines. The specialists will be mainstreamed to support the implementation of the project through departments within their specialization. The firm will also be responsible for mentoring local counterparts. The contract with the firm will be awarded by June 30, 2017.

45. DART will be responsible for managing capacity building for public transport operations; preparation for BRT operations; and provide support to TANROADS in the implementation of the RAP and ESMP for Component A. DART will therefore manage the following:

- (a) All the PPP schemes under the project (BRT Bus Operator(s), Fare Collector, Fund Manager, BRT corridor opportunities, and so on);
- (b) The DART capacity-strengthening activities;
- (c) Establishment of DUTA, under close supervision of the PS, PO-RALG;
- (d) The development of PPPs for land use and transit integration along the BRT corridor by DART, the city council, and municipalities;
- (e) The piloting of social safety nets in public transport by TASAF;
- (f) M&E of the project; and
- (g) Coordination of the implementation of communication activities for the project.

46. DART was established by order under the Executive Agencies Act on May 25, 2007, and is currently under the PO-RALG. DART's organization structure is shown in annex 3.

## **B. Results Monitoring and Evaluation**

47. Monitoring of project performance will be carried out by an independent M&E team that will report on the progress toward achieving the objectives of the project against the indicators provided in the Results Framework and monitoring arrangements in annex 1. To link academia with the transport sector, a local university or research institution with capacity and experience will be selected to undertake project M&E. DART will use a competitive selection process to select the responsible university. The selected university will be issued with a contract and will work in close collaboration with the implementing agencies and beneficiary entities. The selected university will assign a team of experts and will provide both semiannual and annual reports.

48. **Project monitoring arrangements.** The Steering Committee will meet biannually to review and approve the consolidated progress reports. The purpose of the consolidated progress report is to provide the GoT and the World Bank with timely and updated

information on project implementation, covering, among others, (a) physical progress achieved against agreed implementation and disbursement indicators; (b) issues and problem areas, including comments on actions to address identified problems; and (c) work programs and cost estimates for the coming quarter, including revised estimates for the current quarter. A midterm review of the project will be carried out no later than June 30, 2020, to review overall progress and take necessary actions for restructuring the project, if appropriate.

### **C. Sustainability**

49. The sustainability of the public transport system in Dar es Salaam relies on strong institutional arrangement. The Transport Master Plan that was adopted in 2008 recommended establishment of one coordinating authority, DUTA. Since then, the PO-RALG has been drafting the concept paper for DUTA, but the process is yet to be completed. The project will take over from JICA and provide technical support to complete the government process by December 30, 2020, and provide initial cost for its establishment.

50. The management of the BRT operations by DART requires greater accountability of the decision-making process as the operations are of business and commercial nature that require capacity for managing the long-term commercial contracts. The right manpower skills may not be readily available locally and regionally, therefore, DART would require to be legally empowered to be able to attract specialized skills internationally in line with business demands that would also help to build local capacity. The project will support the finalization of the ‘DART Organization and Management Review Study’ and implementation of recommendations. The transformation of DART will enable the agency to operate at arm’s length from the Government with decentralized staffing, business/commercial decision making, and accountability system. DART is planned to be fully restructured by December 2020.

51. The road infrastructure will remain under the jurisdiction of TANROADS, which will be responsible for maintenance. The dedicated fuel levy under the Roads Fund Board remains at the center of sustainability of maintenance of roads infrastructure. The Roads Fund will be maintained for the whole duration of the project. As a demonstration of best practice in asset management, the project will support a five-year contract for piloting the performance-based management and maintenance contract for BRT phase 1 infrastructure (road, stations, terminals, and depot).

### **Role of Partners**

52. The project is being coordinated with the AfDB, JICA, and the Korea Eximbank. The AfDB is parallel financing the implementation of the BRT phase 2 system whose design was supported by the CTCP2. JICA is providing technical support for establishment of the DUTA and supporting the rehabilitation of mixed traffic lanes along the Mwenge—Morocco section and reserve a median that is going to be supported by DUTP as part of the BRT phase 4 bus lanes and stations infrastructure. The Korea Eximbank is supporting a new road project at the CBD that is parallel with the BRT phase 4 corridor. Project missions will be closely coordinated under this parallel financing arrangement, and donors will share information bilaterally and/or through the existing transport donor group.

## V. KEY RISKS

### A. Overall Risk Rating and Explanation of Key Risks

53. The overall risk rating is Substantial mainly due to potential challenges to the project related to inadequate capacity and lack of adequate institutional framework for managing competitive procurement process for the private operators of the BRT system. Lack of completion of the PPP competitive process for operations of the BRT phase 1, including rerouting of Daladalas can become a reputational risk to the Government and the World Bank. The operations of the BRT phases 1, 2, 3, and 4 will displace all existing Daladala routes entering the CBD. The existing Daladala operators will likely consider the success of operations of the BRT system as a serious threat to their business. The fragmented transport planning system and lack of clear understanding of the developmental impact of the BRT system to the city, in general, may pose a risk of having public and private stakeholders' projects being developed within the influence area of the BRT system that are not aligned/integrated to the BRT system. Further, other challenges relate to the inadequate capacity for ensuring high quality of technical design of infrastructure, inadequate supervision and contract management, inadequate institutional capacity for implementation of the project, and delays on the implementation of RAPs.

### Risk Management

54. To mitigate the reputational risk of inefficient operations of the BRT phase 1, the DUTP processing and delivery is proposed to be directly linked with achievement of the competitive selection for the BRT phase 1 operators; bus operators, fare collectors, and fund managers<sup>17</sup>. As only 400 out of 1,800 Daladala operators have been paid disturbance allowances for being rerouted from the BRT phase 1 network, the Government has committed in writing that it will smoothly and consultatively reroute the remaining 1,400 Daladalas before the feeder services of BRT phase 1 start operating. The request for qualifications launched in June 2016 for a second BRT bus operator failed to attract qualified bidders. The relaunching of the bidding process was temporarily stalled in January 2017 after the high court issued a court injunction for maintaining the 'status quo' following an application by the interim service provider (ISP) to stop the Government from launching competitive bidding for operation of the remaining BRT phase 1 buses. While the judicial process is ongoing, the Government has submitted a letter to the World Bank committing to relaunch the procurement process and conduct adequate market sounding (road show) and get the BRT phase 1 to become fully operational with two bus operators, a fare collector, and a fund manager.

55. In parallel with the implementation of the BRT infrastructure, the project will support the PPP procurement of operators of phases 3 and 4 of the BRT system to coincide with the commencement of operations with completion of the infrastructure. The support will include consolidation of the existing operators to form companies, cooperatives, or franchises. The

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<sup>17</sup> The project design has included a legal covenant for completion of competitive tendering process for BRT phase 1 fare collector and fund manager by September 30, 2017. A MoF letter dated January 31, 2017 reiterated the commitment and further promised conclude the competitive procurement of Bus Operator for remaining 165 buses (128 of 18-meter each and 27 of 12-meter each) by December 30, 2017; subject to conclusion of current legal process filed by the interim bus operator.

existing Daladala Owners Company, formed through their association, will be considered for a non-competitive contract award as one of the BRT operators if it can be able to meet basic operational requirements. The transformed operators companies will also be encouraged to participate in the competitive bidding process for BRT operations. These arrangements will guarantee that the Daladala operators are fully involved. The project also supports communications activities to support the development of strategic communications plans that promote continuous information sharing and dialogue with these stakeholders on the various options available for their participation in the project to ensure equity. This communication program will be developed by project effectiveness.

56. The capacity strengthening of implementing agencies (TANROADS and DART) is a critical part of the project design for high-quality implementation. TANROADS and DART launched the selection process on January 16, 2017 and the contracts are planned to be awarded by June 30, 2017. The project has also prioritized support for transformation and capacity strengthening of Dar es Salaam City's public transport institutions to help address the current fragmentation and lack of coordination in the transport planning process. The project will support the transformation of DART in line with the recommendations of the institutional analysis study. In addition, the PO-RALG will be supported in the establishment of the DUTA.

57. The risks related to compliance with environmental and social safeguards are mitigated by strengthening capacity of agencies, conducting road safety audit at all stages of implementation, and ensuring RAP funding is made available prior to advertisement of tenders for works. The capacity strengthening measures and road safety - including audits - activities are supported by the project. The potential challenges of delays in the implementation of RAP due to lack of funding will also be addressed. The GoT deposited the compensation resources for the Ubungo flyover to the Escrow account and funding for RAP implementation for the BRT phases 3 and 4 are to be deposited to the Escrow account before advertisement of bids for works. The project will also support technical assistance to strengthen the RAP implementation capacity by TANROADS. A local nongovernmental organization/consultant will also be recruited by TANROADS to help independently monitor the process. The works contracts will not be awarded until the RAP is implemented.

58. The existing multi-stakeholders, Regional Roads Board, will provide an additional oversight to ensure that the project is on track. The Regional Commissioner chairs the Board and members include City mayor, municipal mayors, district commissioners, members of parliaments, municipal and city directors, and TANROADS and DART's representatives. The Board will meet annually and, among others, be briefed on the project progress.

## **VI. APPRAISAL SUMMARY**

### **A. Economic and Financial Analysis**

59. **Rationale for public investment.** While service provision for public transport can be provided by a private operator, the provision of the urban infrastructure for both public and private transport remains the predominant responsibility of the public sector. This reflects the fact that many of the economic benefits of investing in urban transport infrastructure more generally, and public transport infrastructure more specifically, with regard to reduced congestion, pollution, and accident cost savings, are external costs and hence are not considered in the decisions of individuals or the private service provider. There is a similar case for public support to service provision in some cases, to ensure the provision of a service

that meets economic and social needs with regard to hours of operation and encourages a more sustainable urban transport system.

60. **Value added of World Bank support.** The World Bank has been consistent in promoting public transport and improved access as key development priorities for the Dar es Salaam region. Inadequate and unreliable infrastructure services increase input costs, reduce access, accentuate poverty, and lower productivity. In this case, the added value of the World Bank is the accumulated knowledge and experience that it brings in preparing and implementing similar large and complex multidisciplinary infrastructure projects, including BRTs, in complex urban contexts, while mobilizing private investment.

61. **Methodology.** The economic analysis is focused on the two major investment components: (a) the third and fourth phases of the Dar es Salaam BRT system, and (b) the introduction of a grade separated junction at Ubungo intersection. These two components account for over 80 percent of resources financed by the project. The two components are closely related to one another. However, the nature and scope of benefits and externalities are different; therefore, the two components are assessed separately. For the BRT component, a financial analysis is also carried out.

62. Based on the detailed financial and economic model developed for the Dar es Salaam BRT system (called DART), a partial equilibrium Cost-benefit Analysis (CBA) is carried out, in which costs and benefits are compared between the two scenarios with and without the phase 3 and phase 4 BRT system (see annex 5 for more details). Although a wide range of induced economic benefits, such as agglomeration economies, can be expected over the long term, the analysis is focused on relatively narrowly defined economic and social benefits:

- **Reduction of travel time.** This is the main economic benefit from the new BRT system. Because of efficient and streamlined BRT operations, BRT users can reduce their travel time significantly.
- **Operational cost savings of Daladalas.** Along the new BRT corridors, currently used minibuses will be replaced and rerouted. Thus, the operating costs that are currently incurred to Daladalas will be eliminated.
- **Auxiliary revenues.** The new BRT system is expected to bring various economic opportunities for DART and bus operators to generate extra revenues, for instance, from advertisement.
- **Reduction of pollution.** This is a major positive externality from the project. CO<sub>2</sub> emissions are expected to be reduced significantly, because per capita fuel efficiency of the new BRT buses will be much better than that of current minibuses and individual passenger cars.

63. **Results of the economic analysis of BRT phase 3 and 4.** Economic efficiency of investment was evaluated over a project life of 13 years (3 years for construction and 10 years for operations). The economic internal rate of return (EIRR) was estimated at 22.4 percent, well above the conventional threshold. While the total gross costs amount to TZS 1,325 billion, the total gross benefits are estimated at TZS 3,548 billion. Evaluated at a discount rate of 12 percent, the net present value (NPV) of the project is estimated at TZS 477.8 billion. Although the World Bank recently recommended to use a discount rate of six

percent, a higher discount rate is considered to be appropriate for high growth countries, such as Tanzania.

64. Sensitivity analysis was carried out under three scenarios: (a) 30 percent increase in infrastructure investment costs, (b) 20 percent reduction in daily ridership, and (c) both of the two cases. With infrastructure investment costs increased, the EIRR would be reduced to 18 percent. When the ridership is lower than expected, the Internal Rate of Return (IRR) was estimated at 19.2 percent. When both scenarios happen simultaneously, the IRR would be 15.1 percent with an NPV of TZS 172.9 billion at a discount rate of 12 percent. Still, the expected net benefits are significant, confirming robustness of economic viability of the BRT component.

65. **Financial analysis.** A project-level financial analysis was also carried out to examine the financial viability of the proposed BRT interventions. Because the Government shoulders capital spending in ground infrastructure, such as roadworks, stations, bus depot and terminals, these costs are not included in the financial analysis. Expected total revenues are forecasted consistently with a ridership estimate of 563,000 passengers per days. Fares vary from TZS 500 to TZS 900, depending on combination of trunk and feeder. In total, TZS 1,270 billion of fare revenues could be expected over 10 years of operations. With some auxiliary revenues, such as advertising added, TZS 1,177 billion of revenues would be generated. On the cost side, in addition to economic costs, DART and service providers will have to pay fuel tax (40 percent), corporate tax (30 percent), and dividends. In total, the total cash flow cost is estimated at TZS 1,125 billion over the project life. Then, the financial IRR is estimated at 11.6 percent.

66. **Results of the economic analysis of Ubungo Intersection.** The Ubungo intersection is a critical part of the BRT system in Dar es Salaam in the proposed BRT system. In the peak hour, traffic exceeds 5,000 vehicles per hour and is expected to continue growing. The project will reduce travel time significantly. On a current traffic basis, the control delay could reduce from 711 seconds to 12–45 seconds per vehicle. Reduced traffic congestion would also contribute to improve fuel efficiency. Evaluating these benefits over a project life of 20 years, the economic rate of return is estimated at 25.7 percent to 40.7 percent depending on engineering design of the intersection.

## B. Technical

67. The project fully supports the development of critical part of the network of the Dar es Salaam BRT system. The six phases of the BRT trunk system have a total of 140.1 km and the implementation plan was ranked in the order of priority based on transport demand and environmental factors. The six phases of BRT network are part of the city’s Transport Master Plan of 2008. The project scales up the network of the BRT system in Dar es Salaam City by developing (extending) adjoining trunk corridors to the recently completed BRT phase 1 system that is currently under operations. Apart from the BRT phase 3 and 4 corridors, the project also supports the improvement of the Ubungo intersection. This is a critical intersection where the trunk corridors of the BRT phase 1, 4, and 5 intersect and it is also critical for facilitating freight traffic accessing the Dar es Salaam port.

**Table 2. The Dar es Salaam BRT Corridor Network**

Phase	Description of the Trunk Corridor	Length, km
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1	Sokoine Street (DCC to Kivukoni), Morogoro Road (DDC to Kimara), Kawawa Road (Magomeni to Morocco), Msimbazi Street (fire station to Gerezani)	20.9
2	Kilwa Road, Kawawa Road (Magomeni to Chang'ombe)	19.3
3	Azikiwe Street, Bibititi Road, Uhuru Street, and Nyerere Road	23.6
4	Ali Hassan Mwinyi Road (CBD to Tegeta), Sam Nujoma Road (Mwenge to Ubungo)	25.9
5	Mandela Road	22.8
6	Old Bagamoyo Road	27.6
	<b>Total</b>	<b>140.1</b>

68. The Dar es Salaam BRT system is designed to provide fast, comfortable, and cost-effective services. The main characteristics of the trunk corridors include (a) segregated and exclusive bus lanes; (b) use of high-capacity buses; (c) high capacity - up to 48,000 passengers per hour direction; (d) high performance of board and alight system; (e) enclosed stations with central platform; and on level boarding, speeding up boarding time and bringing safety and comfort to the user; (f) pre-board fare collection; (g) average speeds over 20 km per hour; and (h) overtaking lanes at stations, that allow express services implementation, therefore improving service quality and speed.

69. Activities under Component A will support phases 3 and 4 of the Dar es Salaam BRT system. The project will support the design of the PPP structure for operations, and selection process for private sector investors for operation of the system. The BRT phases 3 and 4 are fully integrated with the BRT phases 1 and 2 at Ubungo, Morocco, Kariakoo, and Kivukoni terminals. The BRT phase 3 and 4 systems will have 23.6 and 25.9 km, respectively, of trunk corridors. The BRT phase 3 includes the following roads: Nyerere/Bibi Titi Mohamed Road (17.4 km), Uhuru Street including Shaurimoyo and Lindi Street (3.85 km), Maktaba/Azikiwe Street (0.95 km), and Nelson Mandela Road (0.6 km). The BRT phase 4 corridor is along the Ali Hassan Mwinyi road from the CBD through Morocco terminal to Tegeta with a branch at Mwenge to Ubungo. Other key infrastructures are summarized in table 3.

**Table 3. Dar es Salaam BRT System: Phases 3 and 4**

Feature	BRT Phase 3	BRT Phase 4
Trunk stations	25	15
BRT bus depot	1 (Gongo la Mboto)	1 (Tegeta)
BRT trunk terminals	2 (JNIA and Gongo la Mboto)	1 (Tegeta)
BRT trunk-feeder-transfer stations	3 (Buguruni Rozana, Jet corner, and Banana)	1 (Tegeta)
Pedestrian crossing flyovers	5	2

70. The component will further support the city to improve the management of traffic along the BRT phase 1, 2, 3, and 4 corridors, as well as design and pilot the implementation of TODs along the BRT phase 1, 3, and 4 corridors. The traffic management will include establishment of a traffic control center at Kariakoo with monitoring systems, including ITS technology. The city and municipality authorities will be supported to design a land use plan along the BRT corridors to maximize benefits of the system. After approval of the land use plan for TOD, Transaction Advisers will support the authorities to attract private sector investment in pilot areas of Kivukoni, Kariakoo, Ubungo, and Kimara.

71. The detailed engineering design for the BRT phase 3 is being updated and the selection of the detailed design consultants for the BRT phase 4 corridor is ongoing. The

detailed design for the BRT phase 3 trunk infrastructure was completed in January 2015. The BRT corridors are geometrically aligned with the existing roadway. The trunk corridor will typically have two lanes of exclusive BRT lanes at the middle, four lanes of mixed traffic lanes (two in each direction), followed by bicycle and pedestrian lanes at the outmost in each direction. BRT terminals and stations are also designed to be at the middle of the roadway with overtaking lanes at the station/terminal locations in both directions. The exclusive BRT bus lanes are paved using rigid pavement structure (ordinary Portland cement), while the mixed traffic lanes are of flexible (asphalt concrete) pavement structure. Boarding and alighting movements will be done at-level, reducing access and egress times to a high-platform BRT fleet. Stations and terminals, passenger areas, and platforms will therefore be designed to a matching standard height of 900 mm.

72. Apart from the engineering estimation, as part of the design, the cost estimates of the BRT phase 3 and 4 infrastructure works compares well with the BRT phase 1. The credibility of budget allocations for the BRT phase 3 and 4 infrastructure was tested by deriving the cost estimates using actual rates of the recently completed BRT phase 1, exclusive of claims, infrastructure (see table 2.3). The total cost estimates for phases 3 and 4 was found to be reasonably justifiable.

73. Road safety is enhanced by the inclusion of elevated pedestrian crossing overpasses (designed under universal access principles) at strategic locations, and by having two raised zebra crossing equipped with effective traffic calming measures (that is, speed humps) as a standard at each station. This type of intervention in combination with at-level buses and platforms ensures the safety of passengers, as well as convenient accessibility of BRT facilities by people with limited mobility and disability. The Supervision Consultant will commence services by conducting a design review in which they will incorporate lessons learned from the Global Road Safety Facility (GRSF) funded 'Road Safety Audit' and the Korea Green Growth Partnership-funded 'Pedestrian Mobility Study for Dar es Salaam' that reviewed the BRT phase 1 corridors.

74. Phases 3 and 4 of the Dar es Salaam BRT system are estimated to carry 395,000 and 168,000 passengers per day, respectively, after the first year (ramp-up period) of operation. About 60 percent of the BRT phase 4 is along the BRT phase 1 feeder system. Therefore, the cumulative ridership for the BRT phases 1 and 4 is 500,000 passengers per day. The combined ridership for phases 1, 3, and 4 is expected to be 895,000 passengers per day. The BRT phase 3 trunk system is planned to be operated by two private bus operators, while the BRT phase 4 will have one bus operator. The BRT bus operators for phase 3 will run a fleet of 123 trunk and 84 feeder buses and the operators for phase 4 will have 80 trunk and 60 feeder buses. The trunk buses will have a capacity of carrying 140–150 passengers and the feeder buses will each carry 80 passengers. The Transaction Advisers will update the demand forecasts before packaging.

75. The PPP process will be structured by DART, through Transaction Advisers, to attract initial private sector investment of about US\$70 million. Two private bus operators will be selected competitively and one bus operation contract is planned to be awarded non-competitively to a transformed Daladala company. The Transaction Advisers will design the bus operation packages to ensure full participation of the local transport operators (trucks, up-country bus, and Daladala companies) to ensure adequate local content. The local companies will need to be guided (through road shows) to develop linkage with international bus manufacturers and lenders (international and local). This will ensure adequate local content. The project will support (through DART) the current initiative by SUMATRA of

transforming Daladalas through encouraging formation of companies, cooperatives, or franchises and issuance of route licensing, competitively. The BRT routes will be operated exclusively, therefore, Daladalas will be rerouted before commencement of BRT operations. The Transaction Advisers will also lead negotiations with the competitively selected private fare collector and fund manager, for the BRT phase 1, with a view of scaling up their contracts to cover phases 3 and 4.

76. Activities under Component B will support the improvement of mobility through the Ubungo intersection and complementary road safety infrastructure for the BRT phase 1 system. The mobility through the Ubungo intersection will be improved through the construction of a two-level grade separated interchange, a new road link to the Ubungo up-country bus terminal and rehabilitation of the terminal. This will improve (a) the connectivity of Dar es Salaam port to the hinterland as the Ubungo intersection is currently the main gateway, (b) the operation of the BRT phases 1 and 4 whose trunk corridors cross the intersection, and (c) smooth operation of about 300–400 up-country buses daily crossing the intersection.

77. The implementation of the Ubungo intersection works is planned to start in April 2017. The Supervision Consultants started their assignment since September 2015 and the contractors' bids for implementation of works were received on August 18, 2016. The recommendations for award of the works contract was cleared by the World Bank in December 2016 and the contract is planned to be signed in March 2017. The implementation of the works is planned to start in April 2017 to enable the works to be completed by November 2019, after 30 months.

78. Complementary road safety infrastructure along the BRT phase 1 corridor is critical for safe operation of the system. The need for additional infrastructure is confirmed by the findings of the 'Pedestrian Mobility for Urban Growth Study' and 'Road Safety Assessment Study' of 2016, financed through the Korea Green Growth Partnership and GRSF, respectively. The safety infrastructure to be supported include the construction of two km of additional pedestrian and cycle lanes between Kibo and Kimara, rehabilitation of a section of Obama road, including providing a safe pedestrian integration of the ferry terminal with the Kivukoni BRT terminal. In addition, additional traffic management infrastructural measures will also be supported along the Kimara- Mbezi feeder section to minimize traffic congestion and enhance the safety of pedestrians and cyclists. The selection process of the consultant for designing of the interventions was launched on June 2, 2016, and the designs are expected to be completed by June 2017. The procurement of contractors will be launched thereafter and works implementation is planned to commence on January 2018 and completed by December 2019.

79. Activities under Component C will support the capacity strengthening of public transport institutions in Dar es Salaam. It will support strengthening of DART, TANROADS, and SUMATRA for implementation of the project and regulating operations of the BRT system by private sector operators. It will also support the transformation of DART to strengthen its capacity for managing BRT operations contracts and establishment of DUTA to coordinate and oversee transport planning in Dar es Salaam. In addition, the component will support the establishment of RSA to support implementation of the Road Safety Policy of 2009 and initial technical assistance and operation cost will be provided.

80. The component will also support the establishment of open data in the transport sector and pilot the provision of travel subsidy to the urban poor to widen the job search

opportunities. It will also support the strengthening of the oversight role of the MoWTC through provision of training and skills development for young graduates.

### **C. Financial Management**

81. TANROADS will be responsible for the fiduciary oversight of the project. The assessment revealed that there was adequate FM capacity in TANROADS to manage DUTP funds. The budgeting, funds flows, accounting, internal control, financial reporting, and audit arrangements were assessed as effective. TANROADS has had long experience in implementing other IDA projects, including the Transport Sector Support Project, the CTCP2, and the Southern Africa Trade and Transport Facilitation Project. The TANROADS FM Unit is led by a Chief Accountant/Head of Finance who reports to the Director of Business Support (DBS). For World Bank-financed projects, a Project Accountant and three assistant accountants support the Chief Accountant. All of them are professionally qualified accountants. There is also an effective Internal Audit Department (IAD) that audits the World Bank projects annually. A properly constituted Audit Committee provides the relevant oversight.

82. There is a comprehensive Financial Procedures Manual and accounting software, Epicor, that is being upgraded. TANROADS is in compliance with the World Bank FM requirements with the quarterly unaudited IFRs and annual audit reports submitted on time, reviewed, and found to be satisfactory. Unqualified (clean) audit opinions have been issued for these projects for FY14 and FY15. The TANROADS IAD flagged some ineligible expenditures in the CTCP2 relating to advances made to some of the contractors. The ineligible expenditures have been fully refunded to the World Bank. There are no outstanding audit issues. However, there were delays in submission of audit report for the CTCP2 and a performance audit report by the Controller and Auditor General (CAG) flagged certain governance and anticorruption issues in TANROADS.

83. The conclusion of the FM assessment is that the arrangements satisfy the World Bank's minimum requirements under OP/BP 10.00, and therefore is adequate to provide, with reasonable assurance, accurate and timely information on the status of the project required by IDA. the residual risk rating for TANROADS was assessed as Substantial,

### **D. Procurement**

84. Procurement activities under the project will be carried out in accordance with the World Bank's 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised in July 2014; 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised in July 2014; 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006 and revised in January 2011; and provisions stipulated in the Financing Agreement.

85. The Public Procurement Act, 2011, as amended through The Public Procurement (Amendment) Act, 2016, may be applied for procurements below the defined thresholds involving National Procurement Procedures. The Public Procurement Act, Act No. 7 of 2011 was reviewed by the World Bank and found to be consistent with the World Bank Procurement Guidelines, except for the provisions of Clause 54 of the Act, which permits application of national preference in bid evaluation under National Competitive Bidding

(NCB). No preference should be accorded to domestic suppliers and contractors under NCB for goods and works. Furthermore, in accordance with paragraph 1.16(e) of the Procurement Guidelines, each bidding document and contract financed by the project shall provide that (a) the bidders, suppliers, contractors, and subcontractors permit the World Bank, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract, and to have said accounts and records audited by auditors appointed by the World Bank and (b) the deliberate and material violation by the bidder, supplier, contractor, or subcontractor of such provision may amount to an obstructive practice as defined in paragraph 1.16(a)(v) of the Procurement Guidelines.

86. TANROADS and DART will be responsible for procurement activities and will also carry out the oversight function in procurement and contract management activities for their respective subcomponents.

87. A procurement capacity assessment for DART and TANROADS to implement the project procurement activities was carried out in October and November 2016, respectively. The assessment reviewed the organizational structure for implementing the project, functions, staff skills and experiences, adequacy for implementing the project, and the interaction between the project's staff responsible for procurement activities and the relevant departments within the agencies and other government agencies. The assessment for TANROADS revealed that the agency has the requisite structures and systems for carrying out procurement but has some deficiencies, including some staff having (a) limited knowledge in procurement under World Bank procedures; (b) inadequate knowledge in contract management; and (c) inadequate knowledge in handling claims. The mitigation measures proposed include training of staff in (a) procurement under World Bank procedures; (b) contract management; and (c) handling of contractual claims. The assessment for DART revealed that the agency has the requisite structures and systems for carrying out procurement but has limited staff with regard to numbers and knowledge and skills to match with the project's demands. DART will be required to strengthen its Procurement Management Unit before it can be mandated with the responsibilities of procurement of high-value and complex contracts, as well as large consultancy services contracts under the project.

#### **E. Social (including Safeguards)**

88. The project will generate significant positive social and environmental benefits, as well as some negative impacts requiring mitigation and compensation. The social benefits will accrue from opportunities for short-term employment during construction, but there will also be long-term benefits from increases in road safety and travel time saved along selected corridors supported by the project. Further, vehicle operating costs (VOCs) are expected to reduce with the proposed improvements and the provision of roadside amenities, including pedestrian walkways and crossings, and improvement of junctions and traffic signaling system, which will enhance road safety and benefit mainly the poor echelon of society.

89. The establishment of such infrastructure has land acquisition implications and therefore OP 4.12 - Involuntary Resettlement has been triggered. In some of the corridors, street vendors (informal traders) use the existing sidewalks to sell their wares that include vegetables, fruits, and other items, while in other places Daladala park as they wait for passengers. Thus, the implementation of the BRT infrastructure and other auxiliary facilities physical construction in such areas will affect these people's livelihood activities. Hence, appropriate measures will be taken under the project to minimize and compensate land acquisition, as well as non-land-based economic displacement of the people working along

the road corridors. Impacts of the BRT on the Daladala operators, which among others, includes their re-routing will be managed separately under Subcomponent A.3 (Preparation for Operation of the BRT System).

90. A RAP has been prepared for the BRT phase 3 to guide the process for compensation and other relevant measures that will ensure that livelihoods of the project-affected persons (PAPs) are restored to levels before the project or even improved. The RAP indicates that 244 households and entities are affected, with 1,014 PAPs, and of these only eight PAPs are partially affected and will not be displaced. The estimated RAP budget is over US\$7 million (TZS 18,131,851,831). The RAP will be updated before implementation, especially the valuation schedule including values of assets to be lost, and so on. Verification and validation of the affected households will also be conducted during implementation. The RAP was disclosed both in-country and at the InfoShop on December 16 and December 27, 2016, respectively. It is expected that the implementation of the RAP for BRT phase 4 will be conducted during the third year of implementation of the project. In all cases, no civil works will start until the compensation is fully paid for each contract segment.

91. Another RAP for the Ubungo intersection was prepared in June 2015 and disclosed both in-country and at the World Bank's InfoShop on December 16, 2015. This RAP indicated that 451 households with 2,370 people are affected by the Ubungo junction proposed improvements. Further, other entities that are affected include religious buildings and utility services such as electricity, water, gas pipelines, and fiber cables. In 2015, the budget estimates for this RAP was about US\$6 million, exclusive of relocation of utilities included as part of works. The verification and revaluation in October 2016 scaled down the scope of the construction area and confirmed 29 households with over 150 people to be affected and updated the budget to US\$800,000 (TZS 1.9 billion)<sup>18</sup>. The compensation process will be completed prior to commencement of civil works.

92. In addition, the project has prepared a Resettlement Policy Framework (RPF) to provide guidance for the preparation of site-specific resettlement or land acquisition plans, whatever is applicable for any land acquisition related to other infrastructure for which RAPs were not prepared before appraisal. This includes any improvements under Subcomponents A.2, A.4, and A.5, which include land use plans for road safety infrastructure and the BRT phase 4. The RPF was disclosed both in country and at the InfoShop on January 16, 2017.

93. Finally, the construction of the BRT phase 3 infrastructure and other related facilities, including the Ubungo intersection may negatively affect the health and safety of the community and the appropriate mitigation measures indicated in the Environmental and Social Impact Assessments (ESIAs)/ESMPs for both will be taken to address the construction-related social impacts. In addition, an Environmental and Social Management Framework (ESMF) will also provide guidance for the additional infrastructure. Details on these social aspects of the project are provided in annex 3.

94. **Gender and citizen's engagement.** As part of project preparation, the client carried out community consultations on both the ESIA and the RAP, which identified key gender mainstreaming and citizen engagement issues in the transport sector. The outcome of the consultations indicated the need to prepare gender-responsive actions, as well as indicators

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<sup>18</sup> Any savings in the allocated budget of US\$6 million for Ubungo flyover will still be maintained in the project until RAP implementation is fully completed.

that will focus on (a) ensuring men and women’s equitable participation in project-related public consultations, inclusion in employment and training programs related to both roadworks and transport services staffing—thus, promoting increased employment opportunities for women; (b) incorporating gender-responsive design features in urban transport infrastructure and services especially those to ensure safety and appropriateness to the needs of men, women, and children; (c) obtaining feedback on affordability of the transport services; and (d) strengthening the implementing agencies’ institutional capacities for gender mainstreaming.

95. The project recognizes the multiple roles and unique patterns of urban mobility for men and women and their particular transport needs for personal safety, whether using public transport or walking. The project will improve transport infrastructure and services to make travel easier and safer for women, thus increasing their access to employment opportunities in new transport-related jobs in construction, urban greenery, and operation and maintenance (O&M), as well as industrial jobs, and by reducing travel time from residential areas to workplaces.

96. The project includes components that will address gender issues through the provision of pedestrian infrastructure, including sidewalks, lighting, pedestrian crossings, and the improvement of public transport by scaling up the BRT system. Other benefits include reduced waiting times for transport due to improved traffic flows on corridors, the improvement of pedestrian facilities, and addressing of overcrowding and the lack of safety. The project has included some gender-responsive indicators in the results matrix, which will be refined during implementation, informed by a study on the different constraints men and women face in the transport sector with proposed actions that need to be put in place and the necessary mitigating measures.

97. To provide equitable benefits and opportunities, the project will ensure active participation of men and women in the Project Implementation Units and in the project Steering Committees; there will be technical assistance for both the DART and TANROADS to (a) monitor the implementation of gender mainstreaming guidelines; (b) obtain regular feedback on the services offered to gain insight into the different constraints that men and women face in the transport sector; and (c) propose actions that need to be put in place, such as gender training of transport staff, contractors, and consultants to ensure an understanding of women’s issues. The project will also consult various stakeholder groups in Dar es Salaam to ensure that men and women have access to information on road safety, project-related business opportunities, and public transport planning and management. Gender-disaggregated information will be collected as part of the routine tracking and monitoring system of the project. To reduce abuse and violence against women when using public transport, the project will support the establishment of a mobile phone-based gender harassment reporting system and mapping to enable authorities investigate and take appropriate action, as needed. The project will also support the advocacy and training of women to become BRT drivers, in this male dominated profession.

98. **Grievance Redress Mechanism (GRM).** The project will set up a GRM for people to report concerns or complaints if they feel unfairly treated or are affected by any of the subprojects. Citizens can register complaints about the construction of sidewalks, drainage, foot crossings, streetlights, and other development activities; resettlement; and any other perceived abuses of the project. The grievance committee, at the various levels, will address such complaints, including logging, tracking, and resolving grievances promptly during and after the implementation of the project. A social M&E survey will be conducted to evaluate

the impact on vulnerable groups among women. The surveys will use gender-disaggregated data to determine and verify citizen's perceptions of the project's activities and will serve as a tool to define gender or social issues. The recommendations will be used to deepen improvements in the transport sector.

#### **F. Environment (including Safeguards)**

99. The construction of BRT infrastructure (phases 3 and 4) through a major urban center, coupled with the proposed construction of a grade separated junction at the Ubungu intersection, are envisaged to generate potential significant and adverse environmental and social impacts to city dwellers. The Ubungu intersection, which is within the BRT corridor along the central corridor, serves all traffic into and out of Dar es Salaam and the hinterland and is therefore the most congested intersection in the country. The project has been assigned Environmental Assessment Risk Category A and triggers three World Bank environmental and social safeguard policies: Operational Policy and Bank Procedures (OP/BP) 4.01 on Environmental Assessment; OP/BP 4.12 on Involuntary Resettlement; and OP/BP 4.11 on Physical Cultural Resources. The project activities are unlikely to have effect on the physical or cultural resource sites of national and international importance. However, the OP/BP 4.11 was triggered to put in procedures for addressing any chance-find of physical or cultural resource such as burial and archaeological sites. The procedures will be incorporated in the works contracts and, during project implementation; the supervising engineers will ensure that the contractor implements appropriate measures. The measures include informing local authorities and the Antiquities Department; and preparing an appropriate mitigation plan, which will be approved before commencing any works in that area. Apart from the envisaged impacts during construction, which for the most part will also involve rehabilitation/expansion of existing roads within the current right-of-way, the project is expected to have moderate and reversible impacts during operation. Detailed descriptions of environmental and social compliance measures are provided in annex 3.

100. Overall, the project interventions have been designed to mitigate key transportation bottlenecks within Dar es Salaam City. The project is envisaged to improve traffic flow, reduce air pollution from vehicles, enhance market access and open up new business opportunities, reduce transport cost and time, and contribute to economic growth. Improvement of Ubungu, which is among the most congested intersections in Dar es Salaam, is considered critical for traffic mobility in the city, as well as for economic growth within the country. Potential environmental impacts may include traffic disruption and access restrictions; noise, gaseous and dust pollution, soil erosion and pollution of water sources from borrow pits and quarries; and occupational hazards, mainly during the construction phase.

101. To mitigate potential negative impacts from the implementation of the project, two separate ESIA's have been carried out for the Ubungu intersection and for the BRT phase 3. The ESIA's have identified potential impacts and provided recommendations for mitigating all impacts during all phases of project implementation. TANROADS will be responsible for the implementation of the ESMPs for both the Ubungu intersection and the BRT phase 3. The ESIA for Ubungu was disclosed in-country on January 20, 2015, and on January 21, 2015 in the World Bank's InfoShop, followed by disclosure of the ESIA for the BRT phase 3 on October 24, 2016. The ESMF was prepared and provides safeguards procedures for the implementation of BRT phase 4 and DART traffic control center under Component A (Subcomponents A.2 and A.4) and road safety infrastructure along BRT phase 1 under

Component B (Subcomponent B.2). The ESMF was disclosed in-country and at the InfoShop on January 16, 2017.

102. The safeguards capacity assessment shows that the implementing agency TANROADS has experience with World Bank-supported projects and specifically managing environmental and social risks. However, considering that the agency also manages several roads' projects in the country, the number of staff may not be adequate especially for the implementation of the RAPs, as well as following up on other aspects of the ESMPs including HIV/AIDs management, gender, and so on. Therefore, the current Environmental and Social Management Unit will require additional staff for this purpose to be hired within 12 months from the effectiveness date of the project. The World Bank Safeguards Specialists will participate in at least two implementation support missions per year.

### **G. Climate and Disaster Risk Screening**

103. The screening assessment has been carried out on exposure to climate and geophysical hazards and the potential risks identified. The assessment of the proposed physical components of the project, particularly corridor improvements, will need to take into account more variable precipitation conditions, and the potential for higher risk of flooding, flash flooding, and the resulting soil destabilization. Surface flooding has been identified as a high risk on the physical components of the project, and appropriate designs and standards used for these physical components, including the use of green infrastructure methods, will be incorporated. In addition, key project activities, namely the development of a drainage master plan and asset management system, will also support improved management, generally, to reduce risks associated with potential climate and geophysical hazards.

### **H. World Bank Grievance Redress**

104. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

## Annex 1: Results Framework and Monitoring

### TANZANIA: Dar es Salaam Urban Transport Improvement Project (P150937)

#### Results Framework

<b>Project Development Objectives</b>								
PDO Statement								
The Project Development Objective (PDO) is to improve transport mobility, accessibility, safety, and quality of transport service delivery along the selected corridors in Dar es Salaam.								
<b>These results are at</b>		Project Level						
<b>Project Development Objective Indicators</b>								
		<b>Cumulative Target Values</b>						
<b>Indicator Name</b>	<b>Baseline</b>	<b>YR1</b>	<b>YR2</b>	<b>YR3</b>	<b>YR4</b>	<b>YR5</b>	<b>YR6</b>	<b>End Target</b>
Average rush hour in-vehicle travel time by public transport passengers from Gongo la Mboto to Kivukoni (Minutes)	91	—	—	—	—	—	50	50
Average rush hour in-vehicle travel time by public transport from Tegeta to Kivukoni (Minutes)	105	—	—	—	—	—	55	55
Average rush hour in-vehicle travel time by articulated freight trucks from Tabata Relini to Mbezi Musuguri through Ubungu (Minutes)	95	—	—	—	35	35	35	35
Satisfactory rating by users for public transport services along the BRT corridors (Percentage)	15	—	—	—	—	—	80	80
Satisfactory rating by female public transport users of the BRT system (Percentage - Sub-Type: Breakdown)	10	—	—	—	—	—	80	80

Percentage of population of Dar es Salaam residents with access to the city center within 60 minutes commuting period by public transport through BRT phases 1, 3, and 4 corridors (Percentage)	42	42	50	50	50	50	68	68
Percentage of population of Dar es Salaam residents with access to the city center within 60 minutes commuting period using public transport through BRT phases 1 corridor (Percentage - Sub-Type: Breakdown)	42	42	50	50	50	50	50	50
Percentage of population of Dar es Salaam residents with access to the city center in 60 minutes commuting period using public transport through BRT phases 1 and 3 corridors (Percentage - Sub-Type: Breakdown)	42	42	50	50	50	50	61	61
Annual average number of pedestrian fatalities along the BRT phases 1, 3, and 4 corridors (Number)	114	—	—	—	—	—	75	75
Annual average number of pedestrian fatalities along the BRT phases 1 corridor (Number - Sub-Type: Breakdown)	33	—	—	—	—	—	24	24
Annual average number of pedestrian fatalities along the BRT phase 3 corridor (Number - Sub-Type: Breakdown)	35	—	—	—	—	—	21	21
Annual average number of pedestrian fatalities along the BRT phase 4 corridor (Number - Sub-Type: Breakdown)	46	—	—	—	—	—	30	30
<b>Intermediate Results Indicators</b>								
		<b>Cumulative Target Values</b>						
<b>Indicator Name</b>	<b>Baseline</b>	<b>YR1</b>	<b>YR2</b>	<b>YR3</b>	<b>YR4</b>	<b>YR5</b>	<b>YR6</b>	<b>End Target</b>
Completion of BRT phase 3 infrastructure works by value (Percentage)	0	—	20	60	90	100	100	100
Completion of BRT phase 4 infrastructure works by value (Percentage)	0	—	—	20	60	80	100	100

Average daily passenger ridership for BRT phase 1, 3, and 4 system (Number - Thousands)	140	140	400	400	400	550	600	895
Average daily passenger ridership for BRT phase 4 (Number - Thousands- Sub-Type: Supplemental)	—	—	—	—	—	—	—	168
Average daily passenger ridership for BRT phase 3 (Number - Thousands - Sub-Type: Supplemental)	—	—	—	—	—	150	200	395
Design of pilot TOD schemes completed and PPP tenders launched (Yes/No)	No	—	—	—	Yes	Yes	Yes	Yes
Percentage of completion of the Ubungo flyover and upcountry bus terminal works (Percentage)	0	10	50	80	100	100	100	100.00
DART traffic control center established (Yes/No)	No	—	—	—	—	Yes	Yes	Yes
DUTA fully established (Yes/No)	No	—	—	—	Yes	Yes	Yes	Yes
DART agency strengthened (Yes/No)	No	—	—	—	Yes	Yes	Yes	Yes
Number of graduate transport professionals received structured professional training (Number)	0	0	100	150	200	250	300	300
Percentage of project supported women graduate transport professionals enrolled in SEAP (Percentage - Sub-Type: Supplemental)	0	0	50	50	50	50	50	50
System for mapping gender harassment in public transport passengers developed for the BRT system (Yes/No)	No	—	—	—	Yes	Yes	Yes	Yes
System for citizen feedback on the quality of the operation of the BRT system developed (Yes/No)	No	—	—	—	Yes	Yes	Yes	Yes
Road safety assessment (including audits) carried out on the BRT corridor with focus on vulnerable road users (Yes/No)	No	—	—	—	—	—	Yes	Yes

### Indicator Description

#### Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Average rush hour in-vehicle travel time by public transport passengers from Gongo la Mbotto to Kivukoni	Average terminal-to-terminal travel time by the BRT from the Gongo la Mbotto terminal to the Kivukoni terminal during morning peak hours between 6:00 a.m. and 8:00 a.m. measured as in-vehicle travel time only. The indicator measures the 'improved transport mobility' aspect of the PDO.	Biannual	<p>Data to be obtained from the ITS. Since the BRT buses are equipped with a GPS, the information will be picked up, which will be the time difference between the time a bus depart from the Gongo la Mbotto terminal and the time it stops at the Kivukoni terminal for passengers to disembark. The indicator will be measured once BRT operations begin.</p> <p>The baseline data are measured before BRT construction starts from the existing minibuses (Daladala) carrying passengers from Gongo la Mbotto to Kivukoni in the morning peak period, between 6:00 a.m. and 8:00 a.m. The baseline also measures in-vehicle travel time only. The methodology will use moving observer/floating vehicles surveys with observers riding a Daladala for six runs (to be statistically valid and have a low value of variance) during the morning peak period and measuring travel time, time spent delayed (and location of delay), and the number of times the Daladala stops.</p>	DART
Average rush hour in-vehicle travel time by public transport from Tegeta to Kivukoni	Average terminal-to-terminal travel time by the BRT from the Tegeta terminal to the Kivukoni terminal during morning peak hours between 6:00 a.m. to 8:00 a.m. measured as in-vehicle travel time only. The indicator measures the 'improved transport mobility' aspect of the PDO.	Annual	<p>Data to be obtained from the ITS. Since the BRT buses are equipped with a GPS, the information will be picked up, which will be the time difference between the time a bus departs from the Tegeta terminal and the time it stops at the Kivukoni terminal for passengers to disembark. The indicator will be measured once BRT operations begin.</p> <p>The baseline data are measured from the existing minibus (Daladala) carrying passengers from Tegeta to Kivukoni in the morning peak period, between 6:00 a.m. and 8:00 a.m. The baseline also measures in-vehicle travel time only. The methodology will use moving observer/floating vehicles surveys with observers riding a Daladala for six runs (to be statistically valid and have a low value of variance) during the morning peak period and measuring travel time, time spent delayed (and location of delay), and the number of times the Daladala stops.</p>	DART

Average rush hour in-vehicle travel time by articulated freight trucks from Tabata Relini to Mbezi Musuguri through Ubungo	This indicator measures the time being saved by freight trucks, using a sample of articulated trucks (which can be considered as a typical representative of freight vehicles from the port), when the grade separation of the Ubungo intersection is completed. The traffic is expected to move smoothly and save travel time after the intervention by the project. The indicator measures the ‘improved transport mobility’ part of the PDO.	Annual	Average travel time will be measured by a survey team that will track a sample of articulated trucks from Dar es Salaam Port from the time they cross the Tabata Relini railway crossing junction and follow them while recording travel and stoppage time until the trucks cross the holding area at Mbezi Kwa Musuguri. The survey is to be conducted on working days, between Monday and Friday, during the evening peak hour between 4:00 p.m. and 8:00 p.m. The methodology will use moving observer/floating vehicles surveys with observers either riding in or following selected articulated trucks for six runs (to be statistically valid and have low value of variance) and measuring travel time, time spent delayed (and location of delay), and the number of times the truck stops.	TANROADS
Satisfactory rating by users for public transport services along the BRT corridors	Indicator measures the improvement of ‘quality of public transport services delivery’. As services improve, more public transport users will express satisfaction.	Annual	Public transport user surveys to be commissioned by DART. Sample size of 100 to 150 per terminal. The survey must ask the gender of respondents. User satisfaction could be measured using a 5-point Likert scale (1: unsatisfied; 2: moderately unsatisfied; 3: neutral; 4: moderately satisfied; 5: satisfied) in the questionnaire, asking whether the user is satisfied with the public transport service during the three recent months. Those who answer 4 or 5 will be counted as Satisfied. Survey instruments should be consistent for baseline and project years. Focus groups can be used to obtain a better understanding of user satisfaction. SMS or web-based (app) surveys could be used as complementary measuring tools.	DART
Satisfactory rating by female public transport users of the BRT system	The sub-indicator to measure the percentage of customer satisfaction by female public transport users along the BRT system.	Annual	This sub-indicator will be built from the public transport user survey described earlier. It will report female respondents’ answers.	DART
Percentage of population of Dar es Salaam residents with access to the city center within 60 minutes commuting period by public transport through BRT phase 1, 3, and 4 corridors	This indicator measures the ‘transport accessibility improvement’ part of the PDO. The project support is planned to provide residents of the suburban part of Dar es Salaam with more opportunities for jobs and services including schools, hospitals, and shopping that are located at the CBD. The three	Before and cumulatively when BRT phases 1, 3, and 4 becomes operational.	A global information system (GIS)-based spatial analysis will be conducted using the open source accessibility tool developed by the World Bank called Open Trip Planner Analyst (OTPA) to identify the number of services that can be accessed from Kimara along the BRT phase 1, from Gongo la Mboti along the BRT phase 3, and from Tegeta along the BRT phase 4 to the CBD. The average travel time for passengers will be measured using the GIS in BRT buses, when operational. The baseline data were derived from a similar survey that is based on existing	DART

	phases will have a cumulative effect of 63% increase of accessibility from the baseline.		minibus service.	
Percentage of population of Dar es Salaam residents with access to the city center within 60 minutes commuting period using public transport through BRT phases 1 corridor	This indicator measures the ‘transport accessibility improvement’ part of the PDO. The project support along BRT phase 1 is planned to provide residents of the suburban part of Dar es Salaam with more opportunities for jobs and services including schools, hospitals, and shopping that are located at the CBD. Introduction of BRT phase 1 is expected to increase accessibility by 21% from the baseline.	Before and after BRT phase 1 becomes operational.	A GIS-based spatial analysis will be conducted using the open source accessibility tool developed by the World Bank called OTPA to identify the number of services that can be accessed from Kimara along the BRT phase 1 to the CBD. The average travel time for passengers will be measured using GIS system in BRT buses when operational. The baseline data were derived from a similar survey that is based on existing minibus service.	DART
Percentage of population of Dar es Salaam residents with access to the city center in 60 minutes commuting period using public transport through BRT phases 1 and 3 corridors	This indicator measures the ‘transport accessibility improvement’ part of the PDO. The project support is planned to provide residents of the suburban part of Dar es Salaam with more opportunities for jobs and services including schools, hospitals, and shopping that are located at the CBD. The cumulative effect of introducing BRT phases 1 and 3 is expected to increase the accessibility by 48% from the baseline.	Before and after BRT phases 1 and 3 becomes operational.	A GIS-based spatial analysis will be conducted using the open source accessibility tool developed by the World Bank called OTPA to identify the number of services that can be accessed from Kimara along the BRT phase 1 and from Gongo la Mboti along the BRT phase 3 to the CBD. The average travel time for passengers will be measured using GIS system in BRT buses when operational. The baseline data were derived from a similar survey that is based on existing minibus service.	DART
Annual average number of pedestrian fatalities along the BRT phase 1, 3, and 4 corridors	This indicator measures the rolling average number of fatalities to pedestrians along the three BRT corridors to explore the impact of improvement of road safety while implementing the BRT system. The indicator measures the ‘improved transport safety’ part of the PDO.	Annual	The data of pedestrian fatalities along the three BRT trunk corridors are to be extracted from RAIS, geo-referenced, and disaggregated by road user and location within a buffer zone of 250 m. RAIS data will be corroborated by road safety audits. Baseline data are available from RAIS (and corroborated for the phase I corridor by the Road Safety Inspection Report dated August 2016). The fatalities are expected to be reduced by 35% along each corridor when the BRT becomes operational. The rolling average of pedestrians’ fatality data combined for all	Department of Safety and Environment of the MoWTC

			three corridors for three consecutive most recent years will be recorded and reported annually.	
Annual average number of pedestrian fatalities along the BRT phase 1 corridor	This indicator measures the three years rolling average number of fatalities to pedestrians along the three BRT phase 1 corridors to explore the impact of improvement of road safety while implementing the BRT system.	Annual	The number of pedestrian fatalities along the BRT phase 1 trunk corridor will be extracted from RAIS, geo-referenced, and disaggregated by road user and location within a buffer zone of 250 m. Baseline data are available from RAIS (and corroborated for the phase 1 corridor by the Road Safety Inspection Report dated August 2016). The average number for three most recent years will be recorded and reported.	Department of Safety and Environment of the MoWTC
Annual average number of pedestrian fatalities along the BRT phase 3 corridor	This indicator measures the three years rolling average number of fatalities to pedestrians along the three BRT phase 3 corridors to explore the impact of improvement of road safety while implementing the BRT system.	Annual	The number of pedestrian fatalities along the BRT phase 3 trunk corridor will be extracted from the RAIS, geo-referenced, and disaggregated by road user and location within a buffer zone of 250 m. Baseline data are available from RAIS (and corroborated for the phase 1 corridor by the Road Safety Inspection Report dated August 2016). The average number for three most recent years will be recorded and reported.	Department of Safety of Environment of the MoWTC
Annual average number of pedestrian fatalities along the BRT phase 4 corridor	This indicator measures the three years rolling average number of fatalities to pedestrians along the three BRT phase 4 corridors to explore the impact of improvement of road safety while implementing the BRT system.	Annual	The number of pedestrian fatalities along the BRT phase 4 trunk corridor will be extracted from RAIS, geo-referenced, and disaggregated by road user and location within a buffer zone of 250 m. The average number for three most recent years will be recorded and reported.	Department of Safety and Environment of the MoWTC

#### Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Completion of BRT phase 3 infrastructure works by value	Indicator measures the progress of implementation of BRT infrastructure works for the BRT phase 3 trunk corridor.	Biannual	The progress will be picked up from the percentage of certified works compared to the total contract sum (financial progress). This will be included in the Supervision Consultants monthly progress report and included in the TANROADS quarterly progress report.	TANROADS
Completion of BRT phase 4 infrastructure works by value	The indicator measures the status of progress of implementation of BRT phase 4 works	Biannual	The progress will be picked up from the percentage of certified works compared to the total contract sum (financial progress). This will be included in the Supervision Consultants monthly progress report and included in the TANROADS quarterly	TANROADS

			progress report.	
Average daily passenger ridership for BRT phase 1, 3, and 4 systems	The indicator measures the number of passengers per day using the BRT phase 1, 3, and 4 trunk and feeder services.	Annual	The indicator will report the number of passengers using the BRT network (phases 1, 3, and 4). The number will be reported when the BRT commences operations and has gone through a one-year ramp-up period to stabilize. The average ridership will be extracted from the number of smartcard or barcode ticket tapping by passengers for getting access to the stations, terminals, or feeder bus. The data will be extracted from the database of the AFCS and ITSs. Simple average ridership will be computed covering only working days (excluding Saturdays, Sundays, and holidays).	DART
Average daily passenger ridership for BRT phase 3	This indicator measures the average passenger ridership of the BRT phase 3 trunk and feeder systems. The indicator measures the operational effectiveness of the system.	Annual	The indicator will report the number of passengers using the BRT phase 3 trunk and feeder system. The target number will be reported when the BRT phase 3 becomes operational for at least one year (after the ramp-up period to stabilize). The average ridership will be extracted from the number of smartcard or barcode ticket tapping by passengers while accessing BRT phase 3 stations and terminals or entering feeder buses. The data will be extracted from the database of the AFCS and ITSs. Simple average ridership will be computed covering only working days (excluding Saturdays, Sundays, and holidays).	DART
Average daily passenger ridership for BRT phase 4	This indicator measures the passenger ridership of the BRT trunk and feeder systems. The indicator measures the operational effectiveness of the system.	Annual	The indicator will report the number of passengers using the BRT phase 4 trunk and feeder system. The target number will be reported when the BRT phase 4 becomes operational for at least one year (after ramp-up period to stabilize). The average ridership will be extracted from the number of smartcard or barcode ticket tapping by passengers while accessing BRT phase 4 stations and terminals or entering feeder buses. The data will be extracted from the database of the AFCS and ITSs. Simple average ridership will be computed covering only working days (excluding Saturdays, Sundays, and holidays).	DART
Design of pilot TOD schemes completed and PPP tenders launched	The indicator measures progress of implementation of the TOD subcomponent. The land use design along the BRT corridors will have to be completed and Transaction Advisers launched PPP tenders for pilot areas.	Annual	The status of progress will be reported by DART in the progress reports. The baseline remains NO since there is currently no land use planning along the BRT corridors that is integrated to the transit system. When the consultants for land use planning along the BRT phase 1, 3, and 4 corridors submit the final plan and when the Government launches a PPP transaction process for one of the pilot TOD hubs of Ubungo, Kariakoo, Kivukoni,	DART

			Kimara, Tegeta, or GongolaMboti, the rating will be reported as YES.	
Percentage of completion of the Ubungo flyover and upcountry bus terminal works	This measures the status of progress of implementation of intersection works.	Annual	The progress report by the contractor will indicate progress achieved in the construction of Ubungo flyover and improvement of up-country bus terminal and the linking road. The Supervision Consultant will evaluate the progress and approve payments as the works progresses. Therefore, the monthly progress report by the Consultant will indicate the percentage of financial progress achieved against the contract sum. TANROADS will extract the most recent figures and include it in the quarterly progress report.	TANROADS
DART traffic control center established	This measures the progress in the establishment of the traffic control center for DART, covering BRT phase 1, 3, and 4 corridors.	Annual	This is a before and after indicator. The DART control center is not available, and therefore the baseline is NO. DART will report the progress as YES when the physical works are completed, and the ITS system is installed and commissioned.	DART
DUTA fully established	The indicator measures the progress in the design of DUTA concept, approval of the concept by the Government, approval of establishment order or legislation by the authorities (Government or Parliament), and staffing of DUTA.	Annual	This is a before and after indicator, and therefore the baseline is NO since DUTA is nonexistent. When the Government completes the processes to legally establish DUTA and the authority/agency recruits key management staff (Chief Executive Officer and at least two Directors), the status will be reported as YES in the progress report.	PO-RALG
DART agency strengthened	This measures the progress in transforming DART in line with recommendations of the study reviewing the organization structure of DART.	Before and after	The baseline is NO and upon implementation of all key recommendations of the DART restructuring study, the PS of the PO-RALG will submit a written confirmation to the World Bank that will enable the status to be updated to YES.	PO-RALG
Number of graduate transport professionals received structured professional training	This measures the contribution of the project to skills development for local professionals.	Annual	The ERB of Tanzania will submit progress report showing the number of new graduate engineers enrolled under SEAP and the respective details of disbursement of their living allowance. The report will be reviewed and approved by the MoWTC and will be used as a basis for the number.	ERB
Percentage of project supported women graduate transport professionals enrolled in SEAP	This measures the gender balance in the professional training.	Annual	The abovementioned data are to be disaggregated by male and female.	ERB

System for mapping gender harassment in public transport passengers developed for the BRT system	This measures the progress in developing the gender harassment reporting system for BRT passengers.	Annual	This is a before and after indicator. The baseline remains NO until the system for mapping gender-based violence is developed and starts to receive data, and then the status of progress will be reported as YES.	DART
System for citizen feedback on the quality of the operation of the BRT system developed	This indicator measures the progress in developing the system for enabling public transport users to assess the quality of service provided based on three months' experience and report to authorities.	Annual	This is a before and after indicator. The baseline remains NO until the system for mapping gender-based violence is developed and starts to receive data, and then the status of progress will be reported as YES.	DART
Road safety assessment (including audits) carried out on the BRT corridor with focus on vulnerable road users	This indicator measures the status of implementation of high-quality pedestrian crossings along the BRT corridors supported under the project.	To be rated before implementation of the BRT (baseline) and after completion of implementation of the phases 1, 3, and 4.	Before the implementation of the project, most of the pedestrian crossings are considered to be unsafe, and therefore the baseline is NO. After completion of implementation of the BRT trunk corridor works, an independent road safety audit/inspection will be conducted for all pedestrian crossings and the corridors will be considered to be safe and rating upgraded to YES if it can attain a road safety rating equivalent to 3-star i-RAP rating.	The MoWTC is to oversee the process by reviewing the terms of reference and guiding the inspectors. TANROADS to implement the inspection studies and report the findings.

## Annex 2: Detailed Project Description

### TANZANIA: Dar es Salaam Urban Transport Improvement Project

1. **Background.** Dar es Salaam is Tanzania's largest city and a business hub of the country. The city has functioned as the capital of the country, with government and private sector offices and industries making it one of the fastest growing cities in the East African region. The population of the city and the import of vehicles are growing exponentially while the growth of infrastructures is stagnant. This has contributed to the traffic chaos in almost every corner of the city with the situation being worse during the morning and evening peak hours.

2. The evolution of the Daladala system as the main operators of the public transport in Dar es Salaam City started in 1983 when they were first officially licensed.<sup>19</sup> The Daladalas were licensed as subcontractors of the Government-owned 'Usafiri Dar es Salaam' (UDA) which had an exclusive license for operating public buses in the city. Before the UDA, the public transport operations were under the monopoly of a British private company—Dar es Salaam Motor Transport—from 1947 to 1974 when it was nationalized. The services by the UDA had significantly deteriorated and was meeting only about 60 percent of demand causing long queues at stations and overcrowded buses. The management of Daladalas was thereafter taken over by the Central Transport Licensing Authority in 1991 and thereafter, SUMATRA in 2004. In 2011, there were 6,600 Daladala buses operating along 482 routes in Dar es Salaam.<sup>20</sup> The city has, however, been urbanizing rapidly creating traffic flow challenges because of traffic congestion.

3. To alleviate the traffic congestion in the city, the GoT has embarked on a program for development of the transportation system that includes road widening schemes and establishment of a BRT network. DART plans to implement a total of six phases of BRT trunk corridors (Figure 2.1) as a step forward in upgrading the public transport system from the current minibuses (Daladala) to a high-quality bus-based mass transit system.

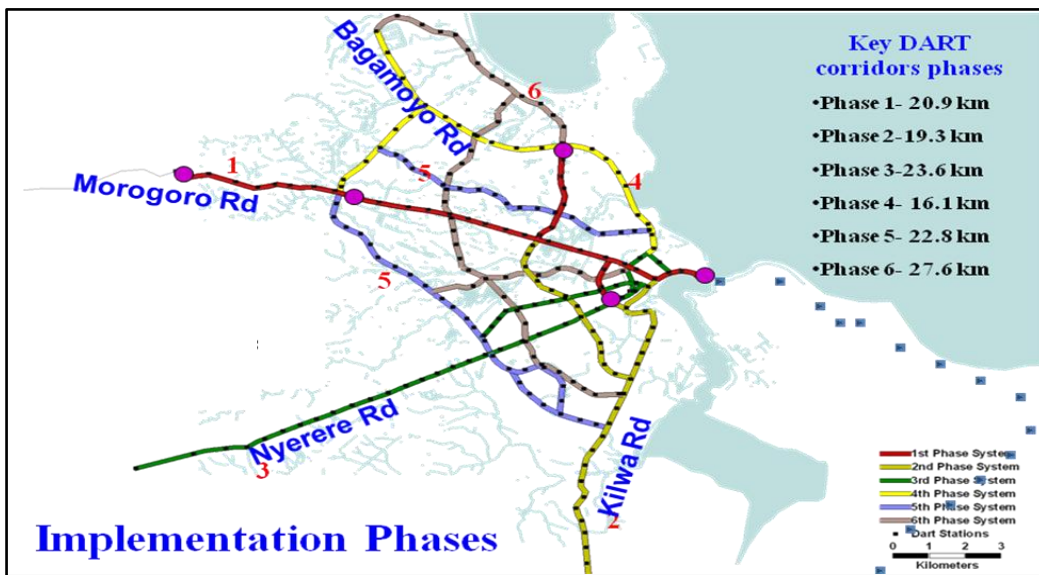
4. The first phase of the BRT system was implemented under IDA's CTCP2 (Figure 2.2). The first phase comprised 20.9 km of a trunk corridor with two lanes of ordinary portland cement concrete pavement for segregated exclusive bus lanes at the center (with overtaking lanes at stations), four lanes of asphalt concrete pavement-mixed traffic lanes, bicycle lanes, and pedestrian walkways. Other infrastructure pieces included five terminals, one bus depot, 27 stations, and four feeder-transfer stations. The system is being operated through a trunk feeder arrangement with a capacity of carrying about 400,000 passengers per day. The implementation of infrastructure for the second phase of the BRT system is ongoing through AfDB support.

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<sup>19</sup> 'Partnership to Improve Access and Quality of Public Transport – A Case Report: Dar es Salaam, Tanzania' by Prof. W. Kombe, Dr. A. Kyessi, Dr. J. Lupala & E. Mgonja. University of Lands and Architectural Studies, Tanzania.

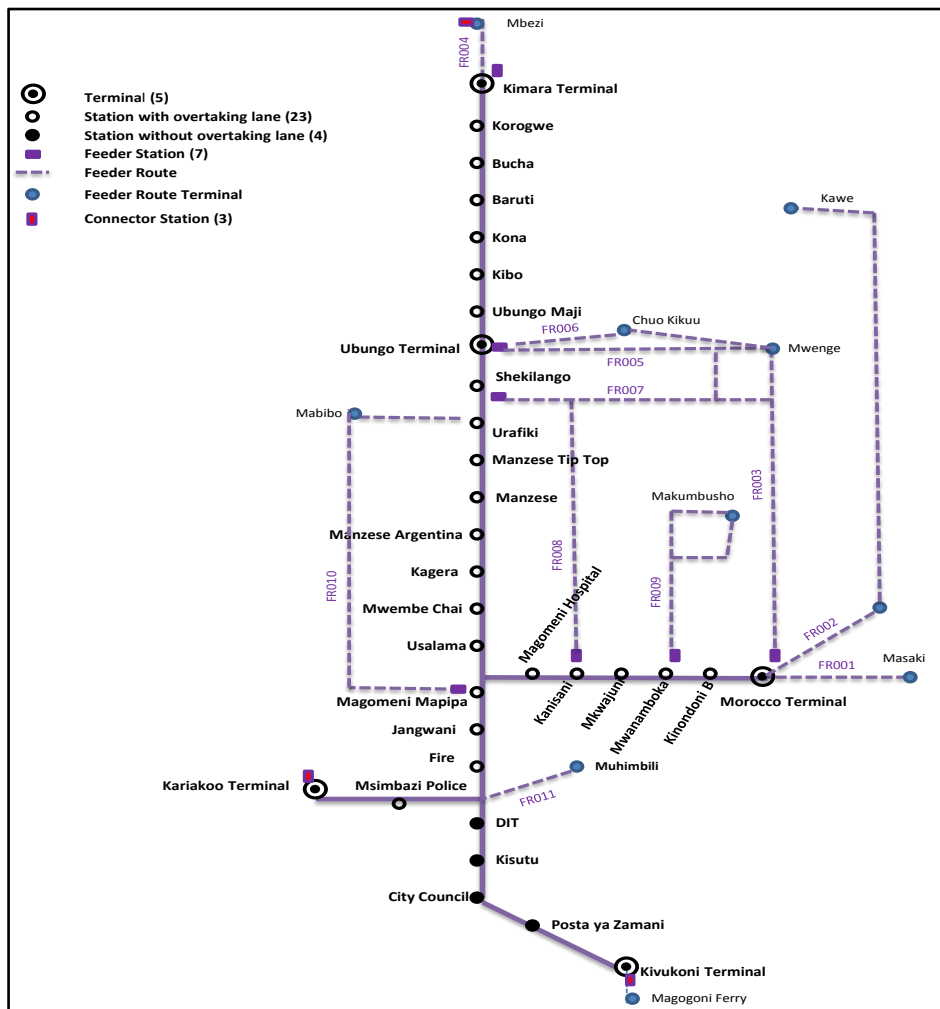
<sup>20</sup> 'Consultancy Service for Developing Mechanisms for Full Consultation and Engagement with Daladala Owners in the DART Project' by the National Institute of Transport, Tanzania. There was a reported reduction in number of Daladalas due to sector transformation by SUMATRA which influenced adaptation of larger buses (25 passenger seaters and above) for all routes entering the CBD thereby phasing out 16-seater minibuses.

Figure 2.1. Dar es Salaam BRT Network



Source: DART agency 2007.

Figure 2.2. Schematic Diagram of BRT Phase 1



Source: DART agency.

5. The rate of implementation of the first phase of the Dar es Salaam BRT infrastructure suffered significant delays due to procurement and social safeguards challenges. The

prequalification procurement process failed in September 2008 due to unavailability of qualified applicants. The works had to be repackaged to seven smaller lots, also splitting major building-related works from roadworks and re-tendered. The six small packages of buildings and utilities-related infrastructure were awarded by mid-2010. The main roadworks contract was awarded in February 2011; however, since the awarded bidder declined to sign the contract after pre-contract negotiations, works were negotiated with the fourth-ranked bidder and contract was signed in December 2011.

6. Apart from delays in procurement, the implementation of the project was also delayed by social safeguards. . The delays in RAP implementation caused two contracts for construction of one BRT terminal (Kariakoo) and one bus depot (Ubungu) to expire due to unavailability of sites. Also, two feeder-transfer stations were never acquired and the operational design had to be changed. The PAPs at the Kariakoo terminal site filed a court case in 2008 and secured an injunction that blocked the Government from accessing the site. The site, with 106 families in semidetached buildings, was cleared by the Government in March 2012 after the PAPs’ case was dismissed by the High Court, on technical grounds. The PAPs filed another civil suit and also sought an injunction, but the High Court provided a ruling in December 2013 that formally released the site to the Government for public use (BRT terminal), while the hearing of the main suit is ongoing. The PAP’s compensation funds were deposited to the escrow account and thereafter most of them showed up and collected the compensation. A Tanzanian practicing lawyer has, from FY13 to FY16, been representing the World Bank in court hearings, as an observer. The case is still pending judgement.

7. The main roadworks contract also faced a number of challenges. One of the main challenges was the quality of design, namely lack of working drawings for key areas, changes of design, a significant number of unmapped utilities, especially water and sewerage requiring relocation, and quality of supervision team. Table 2.1 presents a summary of challenges faced.

**Table 2.1. Summary of BRT Phase 1 Works and Implementation Challenges**

	<b>Key Activities</b>	<b>Issues</b>
1	Civil works - BRT roadworks	Initial contract awarded at US\$92 million; however, contractor unable to sign the contract. The BRT roadworks contract was signed on December 22, 2011, for TZS 240,878,713,651.61 (US\$177.4 million) with contract duration of three years. The works commenced on March 9, 2012. Final completion price: TZS 322,015,630,211.34 (US\$237.2 million)—33.7% above original contract. Works completed on November 7, 2015. Additional cost mainly due to variations, claims, and time prolongation.
2	Civil works - Kivukoni terminal building and feeder station	Contract signed on June 21, 2010, for TZS 5,010,626,700.5 (about US\$3.8 million). The contract commencement date was August 31, 2010, and the original completion date was August 30, 2011. Contract terminated in 2014 due to nonperformance when works were 90 percent completed. Works completed by another contractor. Final completion cost TZS 5,010,626,700.00. No change.
3	Civil works - utility power relocation	Contract signed on May 31, 2010, for about US\$4.2 million. The works were substantially completed in August 2011. Final completion cost 5,402,377,457.00 (about US\$4.2 million)
4	Civil works - the contract for feeder stations at Shekilango, Urafiki, Magomeni,	Contract signed on June 21, 2010, for TZS 4,413,191,323.00 (about US\$3.4 million). Works completed on four stations of Shekilango, Magomeni, Kinondoni A, and Mwinjuma sites. Total completion cost is TZS 1,876,310,607. The contractor was terminated and works were completed by

	Fire, Kinondoni A, and Mwinjuma	another contractor. The 'Fire' and 'Urafiki' feeder stations were excluded due to unavailability of land.
5	Civil works - Ubungo depot, feeder station, and up-country bus station	Contract signed on August 9, 2010, for TZS 14,673,909,781.65 (about US\$11.04 million). The contract expired before land could be made available for the project. The works were excluded from the project in line with a decision of 2014 of using only one BRT bus operator.
6	Civil works - Jangwani Depot	Contract was awarded and signed on December 24, 2010, in the amount of TZS 12,860,626,849.35 (about US\$9.8 million). Final completion contract of TZS 20,005,160,278. Variation of 55.6 percent due to design changes and the added Ubungo ticketing offices.
7	Civil works - Kariakoo terminal building and feeder station	Contract signed on August 8, 2010, for TZS 6,880,237,392 (about US\$4.83 million) with implementation duration of one year. The contract expired before land could be made available for the project.
		106 PAPs filed a court case in 2008 and secured a court injunction against being resettled. The PAPs' fourth court case was struck off on March 22, 2012, and the Government proceeded with demolition on March 23, 2012. A fifth case was thereafter filed, but on December 11, 2013, the injunction was lifted and land made available for project.
		Tendering was done and contract awarded at TZS 6,880,237,392. Final contract revised to TZS 10,292,220,478.00, inclusive of Jangwani river training works, Kivukoni pending works, and feeder stations.

8. **The preparation for operation of the BRT phase 1 has also been quite challenging.** The full operations of the BRT phase 1 is expected to have 177 trunk 18 m buses and 128 feeder 12 m buses. The station management and collection of fares are expected to be conducted using the AFCS and ITS. The Government planned to advertise for the works after having some trunk infrastructure in place to showcase to potential bidders. Therefore, the road show was conducted on June 3 and 4, 2014. However, the decision on the way forward between multiple versus single service provider was delayed up to October 2014 when the Government decided to have a single service provider. Since the main trunk line (Kimara-Kivukoni) was nearing completion, it was also decided to introduce 'interim services by local/existing operators'. The Transaction Advisers helped design the ISPs contract for operating 76 BRT buses—5 buses of trunk and 71 buses of feeder specifications. The contract was drafted such as not to jeopardize the competitive process for remaining fleet/services. The Government signed the interim service contract in April 2015 that excluded the Advisers suggested clauses prohibiting the ISP from (a) scope increase and (b) participating in the SP bidding. The signed contract required the ISP to use simple paper tickets.

9. **After signing the contract, the ISP-supplied BRT buses and systems beyond the contractual scope.** In September 2015, the ISP shipped 140 BRT buses—39 of trunk and 101 of feeder specifications—and an AFCS with ITS. The mismatch between contract and actual supply led to another stalemate until February 2016 when an addendum was signed that contractually legalized the entire bus fleet that was supplied. The ownership of the 'AFCS and ITS' was to be shifted to the Government subject to successful independent technical and financial due diligence.

10. The ISP took some time to set up systems and process licensing and the bus operations commenced on May 10, 2016. The services started with a five-day free period and thereafter continued with normal services covering the entire trunk route and one feeder link

(Kimara-Mbezi). The fares of TZS 650 for trunk, TZS 400 for feeder, TZS 800 for combined feeder and trunk, and TZS 200 for children were cleared by SUMATRA. See the ridership summary in the table.

**Table 2.2. Daily Passenger Ridership Data May–December 2016**

Date	May	June	July	Aug	Sept	Oct	Nov	Dec
1		120,217	153,109	152,069	146,145	116,068	157,108	120,937
2		122,984	132,507	138,603	159,547	78,002	156,078	130,705
3		126,818	89,809	147,073	122,846	152,078	92,532	116,624
4		109,199	164,209	140,107	84,407	141,449	89,620	94,808
5		71,268	169,364	148,793	163,853	146,357	129,616	135,036
6		133,957	93,555	117,248	153,255	145,976	76,463	127,668
7		119,711	93,722	72,879	152,255	148,250	174,709	126,752
8		116,953	140,126	93,205	156,686	111,683	165,926	132,624
9		121,970	117,900	151,066	164,836	71,868	169,009	101,217
10		127,848	80,013	123,361	131,557	150,574	176,187	114,174
11		109,195	151,020	119,413	83,034	142,363	174,341	82,702
12		58,020	142,041	143,118	86,561	134,490	153,588	98,248
13		129,825	142,587	112,605	162,725	135,424	99,927	134,463
14		124,901	141,173	68,439	156,709	86,538	193,956	132,979
15		118,553	148,535	148,881	158,024	98,099	178,766	127,246
16	78,005	124,547	122,731	148,852	159,828	62,818	187,117	132,395
17	90,855	122,928	77,910	144,725	121,040	102,683	122,595	119,172
18	100,402	109,306	157,473	143,993	78,642	129,984	188,118	92,291
19	102,219	64,675	150,054	145,616	159,591	108,768	155,265	137,027
20	104,642	105,584	151,960	113,663	150,761	126,139	82,253	129,562
21	84,221	121,666	145,151	66,747	148,984	132,461	174,762	135,127
22	54,544	121,293	150,033	147,436	144,506	100,695	166,758	140,354
23	101,285	120,697	119,378	143,248	145,129	59,821	102,107	142,793
24	108,994	130,668	70,623	143,233	121,673	136,345	125,260	127,367
25	108,512	111,905	155,025	145,075	83,266	128,121	129,980	80,925
26	111,770	76,422	222,813	148,559	163,228	126,807	118,773	90,260
27	117,300	141,172	145,014	113,757	156,890	134,671	84,884	114,895
28	96,397	142,253	143,125	65,716	141,915	140,735	132,667	—
29	63,977	144,489	151,006	149,606	145,936	108,533	123,173	—
30	120,791	144,797	121,013	146,922	155,184	72,471	124,457	—
31	117,074	—	74,720	153,080	—	149,513	—	—
<b>Total</b>	<b>1,560,988</b>	<b>3,493,821</b>	<b>4,117,699</b>	<b>3,997,088</b>	<b>4,159,013</b>	<b>3,679,784</b>	<b>4,205,994</b>	<b>3,218,352</b>

Source: DART agency.

11. The BRT phase 1 system is expected to displace 1,800 Daladalas (existing minibuses). The default mechanism that is in place is rerouting the Daladalas when the operations of the BRT are ready to commence. The Government conducted consultations with the Daladala sector and agreed on the following approaches: (a) Daladalas to be paid

disturbance allowance and get rerouted; (b) Daladallas to buy shares in UDA (a privatized former Government-owned operator); and (c) Daladallas to get compensation for their vehicles that will be scrapped. Therefore, apart from being rerouted, the ISP contract has a requirement for the operator to sell 30 percent of its shares to Daladallas as an incentive for being provided with long-term operating contract.

12. The competitive bidding for operation of the remaining BRT phase 1 bus fleet and other services is planned to be completed by June 30, 2017. The request for qualifications was launched in June 2016 for three packages: (a) supply and operation of 138 trunk buses of 18 m each and capacity of 140–150 passengers; (b) fare collection and station management vendor; and (c) fund manager.

13. **The challenges of contracting operations for BRT phase 1 calls for rethinking of the strategy for incorporating the Daladala operators in the BRT operations.** There is an extensive tradition internationally of transforming and incorporating the existing operators in the operation of new BRTs<sup>21</sup>. The experience of Lagos and in the cities of Mexico, Colombia, and South Africa are particularly relevant to the Dar es Salaam context. The details of the process used and the consequence on operations has been different across these (and other) experiences. That said, there are some insights common to most of the international experience. First, proactively incorporating existing operators reduces conflict associated with the introduction of the BRT and has the potential to enhance social outcomes. At the same time, transforming individual operators into modern companies is challenging and requires a sustained capacity-building effort. Finally, there is an imperative to ensure that any support to incumbents is transitory—in the long term, efficiency can only be ensured by a truly open and competitive concession process.

14. The DUTP will draw on the above experience to support the participation of existing Daladallas appropriately reconstituted into companies, in the operations of BRT phases 3 and 4. Toward this end, the project will build on the ongoing efforts by SUMATRA following a 2011 study<sup>22</sup> to encourage Daladala owners to form companies or cooperatives that can compete for route licenses. Technical assistance is to be provided to help the Daladala owners association to form a jointly owned company that, subject to fulfilment of key qualification criteria, will be considered to be non-competitively contracted as one of the three bus operators.

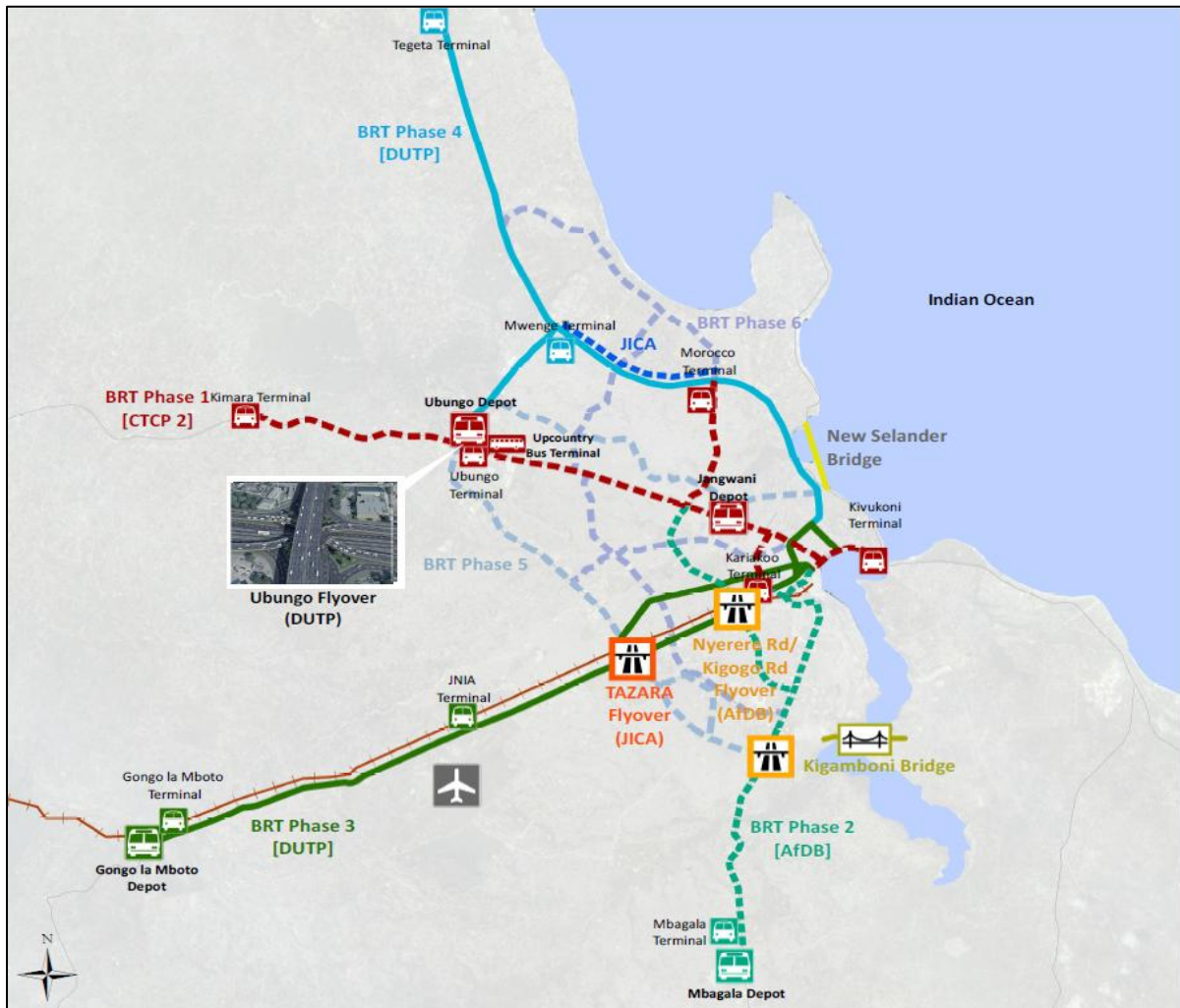
15. Apart from the establishment of BRT phases 3 and 4, the DUTP also supports the improvement of a major intersection (Ubungu) between the BRT phase 1 and 4 corridors; and institutional strengthening and transformation. The schematic illustration of DUTP infrastructure activities is shown in Figure 2.3.

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<sup>21</sup> 'International Experience in Bus Rapid Transit (BRT) Implementation: Synthesis of Lessons learned from Lagos, Johannesburg, Jakarta, Delhi, and Ahmedabad', 2012– Ajay Kumar, Samuel Zimmerman and O.P. Agarwal -SSATP, World Bank Report No. 69308

<sup>22</sup> 'Study on User Needs and Management of Public Transport Services in Dar es Salaam' – SUMATRA, April 2011

Figure 2.3. DUTP Activities



Source: GIS illustration by World Bank staff.

16. The project is organized around the following three components: (a) Establishment of the Third and Fourth Phase of the Dar es Salaam BRT System; (b) Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System; and (c) Institutional Strengthening and Reform, ICT Innovation, and Safety Net, and Transport Studies.

**Component A: Establishment of the Third and Fourth Phases of the Dar es Salaam BRT System (US\$287.1 million, including US\$11 million contingencies)**

17. The project will support the construction of (a) 23.6 km of the BRT phase 3 trunk corridor from the CBD through the JNIA to the Gongo la Mboto area along Nyerere and Uhuru Roads and (b) 25.9 km of the BRT phase 4 trunk corridor from Tegeta to the CBD through Ali Hassan Mwinyi Road including a branch line from Mwenge to Ubungo along Sam-Nujoma Road. The project will also support a competitive process for procurement of the operator(s) of the BRT system, urban planning, and land use integration.

18. **The establishment of the BRT phase 3 system will include construction of infrastructure along the 23.6 km corridor.** The infrastructure will include one BRT trunk corridor, three terminals, one bus depot, three feeder-transfer stations, 25 BRT stations, and

five pedestrian crossing bridges. The trunk corridor will comprise a middle BRT bus exclusive lanes with one lane in each direction but with overtaking lanes at stations and terminals. The trunk infrastructure will include five pedestrian bridges at the Kisutu market, opposite the JNIA, at Buguruni-Rozana, JNIA, and Gongo la Mboto. The two mixed traffic lanes will be reconstructed in both directions for the entire corridor (currently only available between the CBD and the airport), and bicycle lanes and pedestrian walkways will be constructed on both sides of the corridor at the outmost. The three terminals will be constructed within the existing Kariakoo hub terminal where all BRT phases integrate, opposite the JNIA, and at Gongo La Mboto. The project will also support the infrastructure for integrating the BRT corridor with the TAZARA central railway station, the JNIA, and vegetable/petty traders' markets along the corridor. The BRT bus depot will be constructed at Gongo la Mboto and the three feeder-transfer stations will be located at Jet Club, Banana, and the Buguruni Rozana area. Park-and-ride facilities for private car owners are planned to be built near the Jet Club feeder-transfer station and at the Gongo la Mboto terminal. Also, the petty traders and vegetable markets at Kisutu, Mchikichini, and Buguruni will be provided with a safe linkage to the BRT corridor.

19. The design of the BRT system has incorporated best practices in road safety considerations. Therefore, the BRT corridor has the following safety infrastructures: five pedestrian crossing bridges at areas with high pedestrian crossing traffic of Kisutu market; Buguruni Rozana feeder-transfer station; JNIA terminal (airport integration); Banana feeder-transfer station; and Gongo la Mboto terminal. Also, traffic calming (speed reduction) measures were introduced by having raised pedestrian crossings (two at each station), similar to the phase 1 corridor.

20. **The establishment of the BRT phase 4 system will include construction of infrastructure along the 25.9 km corridor.** The phase 4 corridor starts from the CBD along the Ali Hassan Mwinyi Road through the Morocco BRT terminal to Tegeta with a branch from Mwenge to Ubungo along Sam-Nujoma Road. The corridor is well integrated to BRT phase 1 at Ubungo and Morocco terminals and BRT phase 3 at the CBD. Apart from the already existing terminals connecting to the BRT phase 4 line, the corridor requires two additional terminals at Mwenge and Tegeta and a new bus depot at Tegeta. The conceptual design includes 15 stations.

21. The roadway from Mwenge to Tegeta and another from Mwenge to Ubungo were recently rehabilitated through JICA and GoT funding, respectively, and both have provided a middle reserve land for the BRT exclusive bus lanes. The section between Mwenge and Morocco was recently repaired by adding additional lane through GoT funding and is planned to be further rehabilitated through JICA funding. The reserved median reserve area for BRT infrastructure will be developed under the DUTP. The Korea Eximbank is also preparing a support for the CBD section at the Selander bridge crossing and approaches of 7 km that will run parallel to the BRT corridor. The designs for BRT phase 4 will be closely coordinated with JICA and the Korea Eximbank to ensure consistency. The consultant for detailed engineering design will update the conceptual design and thereafter conduct detailed engineering design and supervision. Once the conceptual design is updated, an independent firm will prepare the ESIA and RAP, as needed. The bidding process for construction will only commence (by the end of year 2) after completion of designs and disclosure of the ESIA and RAP.

22. The cost estimates for development of BRT phase 3 and 4 infrastructure was compared with the BRT phase 1 and found to be reasonable (table 2.3).

**Table 2.3. Derivation of Cost Estimates<sup>1</sup> for BRT Phase 3 and 4<sup>2</sup> Infrastructure from BRT Phase 1 Actual Costs**

	BRT Phase 1				BRT Phase 3		BRT Phase 4		
	Unit	Quantity	Amount	Rate, TZS	Rate, US\$	Quantity	Amount	Quantity	Amount
Roadworks	km	20.9	188,755,639,797	9,031,370,325	4,142,830	23.6	213,140,339,675	25.9	140,013,334,152
Bus Stations	no	27	56,958,494,888	2,109,573,885	967,694	25	52,739,347,118	15	31,643,608,271
Terminal and Pedestrian Bridge	no	3	21,042,972,106	7,014,324,035	3,217,580	3	21,042,972,106	1	7,014,324,035
Utilities (Spread @km)	km	20.9	23,132,760,484	1,106,830,645	507,720	23.6	26,121,203,226	50%	11,566,380,242
Depot	no	1	20,005,160,278	20,005,160,278	9,176,679	60%	12,003,096,167	50%	10,002,580,139
Kivukoni Terminal + Feeder	no	1	5,010,626,700	5,010,626,700	2,298,453	—	—	—	—
Kariakoo terminal and feeder	no	1	10,292,220,478	10,292,220,478	4,721,202	—	—	—	—
Feeder Stations	no	6	4,413,191,323	735,531,887	337,400	3	2,206,595,662	3	2,206,595,662
<b>Total, in TZS</b>		—	329,611,066,054	—	—	—	327,253,553,954		202,446,822,501
<b>Total, in US\$</b>		—	<b>151,197,737</b>	—	—	—	<b>150,116,309</b>		<b>92,865,515</b>

Note:

1. The U.S. dollar conversion was based on the current exchange rate of US\$1 to TZS 2,180.

2. For BRT trunk roadworks, the weighted average unit rate for BRT phase 4 was estimated to be 60 percent of the BRT phase 1 works due to the recent rehabilitation of mixed traffic lanes in 16.6 km out of 25.9 km.

23. When the phases 3 and 4 of the BRT system become operational, the whole BRT system (phases 1, 3, and 4) will be able to carry 895,000 per day. The phase 3 of the Dar es Salaam BRT system is planned to carry 395,000 trips per day and the phase 4 is expected to carry 168,000 passengers per day both through trunk and feeder arrangements; however, since more than 60 percent of BRT phase 4 lies along the BRT phase 1 feeder system, a combined phase 1 and 4 will carry 500,000 passengers a day. Apart from services through the trunk system, the BRT phases 3 and 4 will provide feeder services along 49.7 km through five feeder routes. The feeder routes for BRT phase 3 are as follows: Buguruni Rozana to Tabata (13 km), Jet Club-Vingunguti-Tabata (9 km), Jet Club-Buza (11.1 km), Banana-Kitunda (7 km), and Gongo la Mbotu-Pugu Kajiungeni (9.6 km). The trunk and feeder bus operations of the BRT phase 3 and 4 will be conducted by three BRT bus operators.

24. The BRT phase 1 operation contract for the AFCS and ITS will be scaled up to cover operations of the four phases. The fund manager's contract for BRT phase 1 will also be scaled up to cover phases 2, 3, and 4. DART, through support from the Transaction Advisers, will be the contracting authority for system operations. The BRT phase 3 will have two bus operators operating a total of 123 articulated trunk buses (each 18 m long with a capacity of carrying 140 passengers) and 84 feeder buses (each 12 m long with a capacity of carrying 80 passengers). The phase 4 will have 80 trunk and 60 feeder buses. The phase 3 of the BRT system will replace 89 Daladala routes.

25. The project will also support the establishment of a traffic control center that will cover the four BRT corridors. The control center is to be housed at the DART control center that will be constructed at Kariakoo. The support will include installation of traffic control systems, ITS, closed circuit television cameras within the BRT corridor, control center help desk, and linkage to the road safety database.

26. **Development of urban plans and land use designs.** To ensure maximum benefit of the public transport system, the project will support the development of urban plans and land use designs within the influence area of the BRT corridor. The project will provide the city with the following tools: (a) a transit-oriented Corridor Development Strategy and (b) Station Area Circulation and Accessibility Plans. The principles of the Corridor Development Strategy developed for the BRT phase 1 corridor<sup>23</sup> will be applied to the BRT phase 3 and 4 corridors. This will enable city authorities to manage land use demand along the corridor in a manner that will increase BRT ridership and decrease traffic congestion and sprawl. The Station Area Circulation and Accessibility Plans will identify the essential pedestrian infrastructure that will be supported by the project for secure pedestrian access to BRT station and terminals.

27. **Preparation of Integrated Land Use and Transport Plans for the BRT phase 3 and 4 corridors.** The establishment of the high-capacity public transit services in Dar es Salaam—such as the BRT—will significantly improve mobility and competitiveness of the city. It will also generate interest and investment in the land and properties along the corridor of the BRT by households, traders, and businesses that are seeking high-quality transport services and identify economic opportunity in the concentration of transport commuters and residents. These development pressures can create numerous positive outcomes such as an increase in building stock, land values, tax collections, and BRT ridership. However, they can

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<sup>23</sup> IDA's DMDP is currently supporting the development of a Corridor Development Strategy for BRT phase 1 corridor, including TOD guidelines for Dar es Salaam City.

also lead to unintended negative outcomes such as a decrease in housing affordability or an increase in pedestrian safety incidents and urban sprawl. It can even induce more traffic congestion if large buildings are located too close to BRT stations and street traders encroach the road space.

28. In response to these issues, the project intends to support the preparation of Integrated Land Use and Transport Plans that will enable city authorities to (a) guide the detailed development and mixed use densification of real estate along the BRT phase 3 corridor and (b) identify essential infrastructure that will ensure the safe pedestrian access to BRT stations and terminals. The plan will further include recommendations to better utilize the network of local roads that branch out from the BRT trunk line as well as management approaches to retain street vendors in safe locations away from the roadway and BRT platforms. Realization of this strategy will maximize the benefits of this significant transport investment. It can improve the financial sustainability of the BRT services by increasing farebox and tax receipts but also by identifying alternative business revenue sources that can be obligated to BRT operational costs. These examples might include joint land development activities, special development district or transport access impact fees, revenue or tax sharing agreements, and fiscal transfers.

29. Further, with the development of the BRT lines, an increase in the intensity of activities and developments and associated land value increases are expected along the BRT corridors. The corridors hold significant opportunities for the public and private sectors to invest in urban development to seek more effective use of the land along the corridor. It is important to consider, from this early stage, an integrated approach to land use and transport for the corridor to better guide its development. This will allow maximization of the benefits capitalizing on this BRT lines. This component, through integrated planning and technical support, will help maximize the benefits of the phase 1 BRT system and assist in developing priority nodes; encourage potential redevelopment opportunities and private sector investments along the corridor; and promote appropriate urban design measures, densification, and mix of uses.

30. As part of the preparation process, the consultant will need to (a) conduct baseline studies; (b) develop an integrated corridor development vision; and (c) establish and prioritize a list of development concepts and alternative options in consultation with the city and relevant stakeholders. The strategy should be developed through a participatory approach and according to the relevant statutory requirements for urban planning. It should incorporate concepts of TOD and pedestrian-oriented development and focus on last-mile connectivity and multimodal integration measures. The plan must additionally connect with the broader urban redevelopment objectives of metropolitan area as well as the TOD guidelines that will be prepared by the World Bank-funded DMDP.

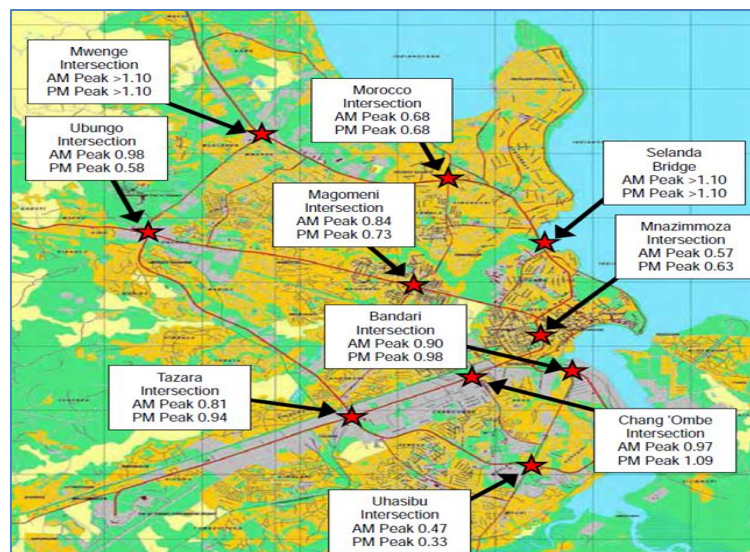
**Component B: Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System (US\$99.9 million, including US\$2.4 million contingencies)**

31. The project will support the construction of an interchange at the Ubungo intersection to improve the traffic flow. Apart from the interchange, the Ubungo up-country bus terminal will be improved and the BRT depot platform will also be constructed behind the up-country bus terminal and a new road connecting the Ubungo BRT depot to Sam Nujoma Road to integrate the up-country bus terminal/BRT depot with the BRT phase 1 corridor. Additional pedestrian and cyclist infrastructure will be introduced along the BRT phase 1 corridor for

about 2 km from Kibo to Kimara, and the traffic management measures will be supported along the Kimara-Mbezi feeder route for safety and congestion reduction. The component will also support the rehabilitation of a 500 m section of Obama Road and provide a safe passenger integration of the Kivukoni ferry terminal with the Kivukoni BRT terminal.

32. The project will support the construction of a flyover interchange at the Ubungo intersection. The junction is an important intersection of Morogoro Road (BRT phase 1 trunk corridor); Nelson Mandela Road (access to port and BRT phase 5 trunk corridor); and Sam Nujoma Road (BRT phase 4 trunk corridor). The separation of conflict points at this traffic bottleneck will improve the traffic flow for the freight cargo to and from the Dar es Salaam Port and along the BRT phase 1 and 4 corridors. This activity was identified as part of comprehensive metropolitan transport network analysis produced in 2007–2008 as part of the JICA-funded Dar es Salaam Transport Policy and Systems Development Master Plan. This analysis involved the collection of traffic volume counts at 30 intersections across the city and travel time surveys of the five arterial corridors. With this information, intersection sufficiency/volume to capacity calculations were prepared to prioritize the city’s intersections for redevelopment based on design constraints and traffic demand projections. Figure 2.4 illustrates the results of these surveys and analyses. Using a multicriteria analysis methodology, the 2007–2008 Transport Master Plan identified three locations as the most distressed and economically important for the port and commercial freight vehicles. These were the Mwenge, TAZARA, and Ubungo intersections.

**Figure 2.4. Traffic Analysis for Major Intersections in Dar es Salaam**



Source: Dar es Salaam Transport masterplan, 2008.

33. Under the BRT phase 1 corridor, the Ubungo intersection was designed as a signalized intersection with no right turns. However, this design had to be adjusted during implementation due to the high volume of articulated trucks turning right mainly from the Morogoro direction to Nelson Mandela Road along the direction of the port. However, as a result of rapid traffic increase, the 2008 Transport Master Plan recommended constructing a mixed traffic grade separated flyover interchange in the direction of the Nelson Mandela-Sam Nujoma Road axis.

34. The 2008 Transport Master Plan, JICA, has completed the improvements to the Mwenge intersection and has begun construction of a flyover for the TAZARA intersection,

which is expected to be completed in October 2018. The GoT has also completed construction and began service operations of the BRT Phase 1 corridor in 2016 as part of the World Bank-funded CTCP2.

35. The traffic survey conducted in February 2014 indicated a peak hour traffic volume of 6,704 vehicles. The conceptual design of the grade separated intersection was completed in July 2014 and the detailed engineering design of the interchange was completed in November 2014. The design of the interchange comprises three levels. The traffic directly along the BRT corridor and all left-turning traffic will remain at the ground level, including BRT phases 1 and 4. The right-turning traffic in all four directions will be elevated through ramps and to a signal-controlled intersection at the first floor. The direct traffic along the Nelson Mandela to Sam Nujoma Roads will use a flyover through the second level.

36. The proposed interchange is a two-level interchange. Bridges are used in the two levels. The structure is composed of cast-in-situ reinforced concrete T-beams and box girders at the lower level; the upper level is cast-in-situ reinforced concrete T-beams and precast reinforced concrete I-beams carrying a precast slab, and a cast-in-place slab is used.

37. A Supervision Consultant is on board since September 2015. The Ubungo package also includes rehabilitation of the Ubungo up-country bus terminal (and BRT depot) and a road that links the up-country bus terminal with the intersection. The consulting team reviewed the design and has provided necessary design modifications. The procurement for works commenced in January 2016 and contractors' bids were received on August 18, 2016. The contract is to be awarded in March 2017 and works to commence (mobilization) in April 2017. The duration of implementation is 2.5 years, and therefore, the works are expected to be completed by April 2020 if an allowance of six-months extension is provided to accommodate any unforeseen situations.

38. Apart from the interchange, the project will support the development of complementary infrastructure to support the BRT phase 1 network. These activities will include (a) improvement of the Ubungo up-country bus terminal, establishment of the BRT depot platform at the terminal, and construction of an access road connecting the terminal to Sam Nujoma Road; (b) construction of NMT facilities (pedestrian walkways and bicycle lanes) for approximately 2 km along the BRT phase 1 corridor from the Kibo station to the Kimara terminal; (c) establishment of traffic management measures along the Kimara-Mbezi feeder route to improve safety and reduce traffic congestion; and (d) rehabilitation of a 500 m section of Obama Road to provide safe access to passengers arriving, departing or transferring between the Kivukoni ferry terminal and Kivukoni BRT terminals.

39. **PPP advisory support for BRT phase 1 infrastructure and TOD concepts.** To further leverage the benefits of the BRT system, the project will help the Government solicit private sector investors to redevelop (a) Ubungo up-country bus terminal; (b) Kariakoo/Gerezani BRT terminal; (c) Kivukoni BRT terminal and fish market, as well as possibly other sites to be determined. This approach will attempt to take advantage of innovations in urban development that apply concepts of TOD, land value capture, and tax increment financing to create high-density commercial and residential centers within the phase 1 corridor that will additionally increase BRT ridership and farebox receipts. The project will also support the procurement of a long-term performance-based contract for the maintenance of the core infrastructure—routes and terminals—associated with the BRT phase 1 network.

40. This assistance will be provided by engaging a team of Transaction Advisers who will help (a) prepare detailed site development plan; (b) determine the economic, financial, and legal viability and feasibility of the PPP packages; (c) assist in the competitive procurement of investors and operators who will finance, construct, and lease the commercial and residential facilities according to the minimum development requirements established by the city in the site development plan and bidding documents; and (d) organize revenue sharing, tax incentive, or tax abatement agreements where applicable to make the PPP packages reasonably attractive to the private sector. This activity will build on the progress of the Public Private Infrastructure Advisory Facility that provided training to the PO-RALG and the Dar local authorities on the PPP for land development and income-generating activities and also prepared standard bidding documents. It will also provide an opportunity to implement the ideas developed by the Integrated Land Use and Transport Plans and TOD guidelines that will be prepared by the World Bank-funded DMDP.

**Component C: Institutional Strengthening and Reform, ICT Innovation, Safety Net, and Transport Studies (US\$38.0 million)**

41. The project will provide incremental support to implementing agencies, support to public transport institutional transformation, and support to designs of the remaining BRT phases. The project will also help the city develop an open data system for the public transport system. It will further support the IE of the BRT system; road safety, mapping of gender violence in public transport; and pilot the introduction of social safety nets for reduction of poverty to the urban poor in the public transport system.

42. **Capacity strengthening to DART and TANROADS.** The project will support provision of technical assistance and incremental operating costs to enable TANROADS and DART to professionally perform their roles. TANROADS will be strengthened by a contract management firm to be supported by the project that will provide full-time and on-call professionals to enhance the contract management of works contracts. DART will also be supported by a BRT management firm that will provide all required management and operational support to the agency. Apart from human resources, both DART and TANROADS will be provided with incremental operating costs for smooth project management. The training program for DART will include short courses, on-the-job training, and knowledge sharing or exchange program with other BRT operating cities.

43. **Transformation and setting-up of the public transport institutions in Dar es Salaam.** The project will initially provide technical assistance and exchange programs to DART with other successful BRT operator(s) to provide capacity building through knowledge exchange. The project will also support the transformation of DART (in line with the CTCP2-supported institutional transformation study) to become more autonomous and be able to manage the operations of the BRT system more commercially and autonomously. In line with recommendations of the Dar es Salaam Transport Master Plan, the project will support the PO-RALG in the establishment of the DUTA, which will oversee and coordinate and coordinate the transport planning and operation in Dar es Salaam City. When established, DUTA will also be supported to improve the traffic management along the main corridors in the city and manage the pedestrians and car parking management at the CBD. Other areas supported by the project include (a) the design of the remaining phases (5 and 6) of the BRT system in Dar es Salaam and (b) the capacity strengthening of SUMATRA for regulating mass transit systems such as the BRT.

44. **ICT innovation and open data in public transport.** The project will support the introduction of open data in public transport in Dar es Salaam City through ICT innovation. The ICT innovation initiative will include (a) creation of public transport maps using ‘open transport’ principles; (b) establishment of public bus service and bicycle routes; and (c) creation of a mobile phone system for user feedback on the quality of BRT services. The innovations will enable the citizens to engage with the Government and provide feedback on the quality of transport service delivery.

45. **IE of the BRT system.** An IE on selected research areas will be supported to get clear evidence on the impact of establishment of the BRT system. The IE will mainly focus on understanding the impact of the BRT system on the life of Dar es Salaam citizens within the influence areas of the project. This support will scale up the ongoing IE pilot.<sup>24</sup> The IE is planned to research on how the BRT system facilitates (a) access to jobs especially to the urban poor, (b) increase of land value, and (c) mode shift from private cars to use of public transport by the middle class.

46. **Road safety and communication support.** The project will strengthen the road safety measures along the BRT trunk corridors and strengthen the capacity of the RSA. The recommendations from the GRSF-funded BRT corridor road safety inspection assignment are to be implemented as follows: (a) infrastructure-related improvements have been included under Components A and B and (b) the institutional strengthening and the development of a communication program to address road safety along the BRT corridors. The RSA (planned to be established in 2017) will be provided with (a) operating costs for full establishment; (b) technical assistance for rolling out of RAIS; and (c) road safety training. The project also will support the communication plan to BRT system stakeholders and for sensitization of road safety.

47. **Gender issues.** The project will support the establishment of a web-based system for monitoring gender-based violence in the public transport system. A database based on mobile phone technology will be developed for collecting data related to gender-based violence, especially for women (and girls) in the public transport system. Thereafter, a web-based system will be developed to map the violence, which will not only enable authorities to take appropriate action, but the maps could also be used for advocacy and influencing gender policy decisions.

48. **Skills development and safety nets to the urban poor.** The project plans to introduce safety net and skills development support to local professionals and the urban poor in the context of transport sector. This new innovative initiative will be started on a pilot basis with a possibility to scale it up gradually. The first area of intervention will focus on supporting (a) internship programs for transport sector graduates and (b) vocational skills and entrepreneurship training to Daladala (public transport bus) drivers and conductors who will be affected by the introduction of the BRT phase 3. The graduate professionals will be embedded to work closely with the TANROADS BRT team, DART, BRT operators, contractors, and supervision consultants. This pilot will support the existing SEAP under the ERB. The ERB will guide and oversee the process and enable a pool of 300 new engineering graduates to be registered as professional engineers. Additional targeted skills to be supported will be on professional driving, mechanics, and training on basic skill on entrepreneurship

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<sup>24</sup> Experimental Evidence on Urban Transport and Mobility: Impact Evaluation of the Dar es Salaam BRT System (P158912) - Grant by i2i (DIME)

(running of small-scale business) linked with the transport sector. After successfully completing the skill training, the trainees will be provided with fare subsidy to cover job search costs.

49. The project will also, on a pilot basis, introduce transport-related safety net support to vulnerable urban poor families. Targeted poor families within the area of influence of the BRT system in the city will be selected and offered subsidized public transport fare cards for about six months. In particular, this will have a positive impact for poor families who are sending their children to schools and for those who have to travel to access marginal employment opportunities in distant places. The baseline data are to be established at the beginning of the project implementation and an IE will be designed and conducted to estimate the impact of different policy interventions. The findings of the IE will be used to inform the Government on the relevance of transport subsidy to the urban poor as part of its social protection policies. This component of the project is to be coordinated with TASAF interventions, namely the productive social safety net interventions in urban areas, and the beneficiary database of TASAF is to be used to identify poor families that can be supported through this component. The team will collaborate with the ‘Social Protection and Labor Global Practice’ team in the further design and implementation support for this component.

**Table 2.4. Preliminary Cost Estimates (US\$, millions) – IDA Financing**

<b>Project Cost by Component and Activity</b>	<b>Category</b>	<b>Cost (US\$, millions)</b>
<b>Component A: Establishment of the Third and Fourth Phase of the Dar es Salaam BRT System</b>		
<b><i>Subcomponent A.1: Establishment of BRT Phase 3 Infrastructure</i></b>		
1. Implementation of BRT phase 3 trunk corridor	Works	143.2
2. Design review and supervision of BRT phase 3 roadworks	Consultancy	3.0
3. Design review and supervision of BRT phase 3 buildings works	Consultancy	2.0
<b>Subtotal A.1</b>		<b>148.2</b>
<b><i>Subcomponent A.2: Establishment of BRT Phase 4 Infrastructure</i></b>		
1. Implementation of BRT phase 4 works	Works	92.9
2. Design and supervision of BRT works	Consultancy	4.5
3. ESIA and preparation of RAP for BRT phase 4	Consultancy	0.5
<b>Subtotal A.2</b>		<b>97.9</b>
<b><i>Subcomponent A.3: Preparation for Operations of the BRT System</i></b>		
1. Transaction advisory contracts for structuring of the operations, establishment of minibus (Daladala) cooperatives, companies, franchises, and procurement of operators for BRT phases 3 and 4	Consultancy	8.0
<b>Subtotal A.3</b>		<b>8.0</b>
<b><i>Subcomponent A.4: Upgrading of the Fare Collection System and Improving Traffic Management along the BRT Corridors</i></b>		
1. Traffic study, design, and construction supervision of corridorwide traffic signal system/ITS, including preparing an ITS master plan for the city and sub-plan for the corridors and design of the traffic control center	Consultancy	1.0
2. Design and supervision of construction of the traffic control center at Kariakoo	Consultancy	0.5
3. Construction of the traffic control center	Works	4.0
4. Supply and installation of the ITS along the BRT corridors and the traffic control center	Goods	9.5
5. Supply and installation of additional AFCSs along BRT phase 3 and 4 corridors including smart cards	Goods	3.0
<b>Subtotal A.4</b>		<b>18.0</b>
<b><i>Subcomponent A.5: Improvement Support for Integrated Transit-Oriented Development along the BRT Corridors</i></b>		
1. Design of land use integration with the BRT system along the BRT	Consultancy	1.5

<b>Project Cost by Component and Activity</b>	<b>Category</b>	<b>Cost (US\$, millions)</b>
corridors		
2. Transaction advisory services for structuring of a PPP deal and procurement of a private investor(s) for selected hubs	Consultancy	2.5
<b>Subtotal A.5</b>		<b>4.0</b>
<b>Subtotal A</b>		<b>276.1</b>
Contingencies		11.0
<b>Total A</b>		<b>287.1</b>
<b>Component B: Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System</b>		
<i><b>Subcomponent B.1: Upgrading the Safety of the Ubungo Intersection and Integration of the BRT Corridor with Ubungo Up-country Bus Terminal</b></i>		
1. Civil works for the Ubungo intersection, link road, and up-country bus terminal	Works	81.0
2. Design review and supervision of construction of the Ubungo intersection, link road, and up-country bus terminal	Consultancy	5.0
<b>Subtotal B.1</b>		<b>86.0</b>
<i><b>Subcomponent B.2: Road Safety Strengthening along the BRT Corridor and Kimara-Mbezi Feeder Section</b></i>		
1. Design and supervision of construction of NMT infrastructure (Kibo-Kimara), Kivukoni-Ferry terminal link, improvement of right-turning junctions, improvement of Kimara-Mbezi traffic, and road safety infrastructure	Consultancy	1.5
2. Construction of NMT infrastructure (Kibo-Kimara), Kivukoni-Ferry terminal link, improvement of right-turning junctions, improvement of Kimara-Mbezi traffic, and road safety infrastructure	Works	6.5
3. Contract for performance-based management and maintenance of the BRT corridor	Works	3.0
4. Supervision of performance-based maintenance of the BRT corridor	Consultancy	0.5
<b>Subtotal B.2</b>		<b>11.5</b>
<b>Subtotal B</b>		<b>96.0</b>
Contingencies		2.4
<b>Total B</b>		<b>99.9</b>
<b>Component C: Institutional Strengthening and Reform, ICT Innovation, Safety Net, and Transport Studies</b>		
<i><b>Subcomponent C.1: Capacity Strengthening of Implementing Agencies</b></i>		
1. Technical assistance and contract management support to TANROADS	Consultancy	8.0
2. Management partner to DART	Consultancy	4.5
3. Technical assistance to SUMATRA	Consultancy	0.3
4. Training to TANROADS	Training	1.0
5. Training to DART (exchange program)	Training	1.0
6. Training to SUMATRA (exchange program)	Training	0.2
7. Equipment to TANROADS	Goods	1.0
8. Operating costs to TANROADS	OC	2.0
9. Equipment to DART	Goods	1.0
10. Operating costs to DART	OC	2.0
<b>Subtotal C.1</b>		<b>21.0</b>
<i><b>Subcomponent C.2: Support to Restructuring of DART and Establishment of DUTA</b></i>		
1. DART transformation study	Consultancy	0.5
2. Support for implementation of DART reforms	Consultancy	1.5
3. Technical support for establishment of DUTA	Consultancy	2.0
4. Equipment for DUTA	Goods	0.5

<b>Project Cost by Component and Activity</b>	<b>Category</b>	<b>Cost (US\$, millions)</b>
5. Initial operating costs for DUTA	OC	0.5
<b>Subtotal C.2</b>		<b>5.0</b>
<b><i>Subcomponent C.3: Support to Road Safety Agencies</i></b>		
1. Technical assistance to RSA including enhancement to RAIS and road safety audit	Consultancy	1.0
2. Equipment	Goods	0.5
3. Training	Training	0.5
4. Initial operating costs	OC	0.5
<b>Subtotal C.3</b>		<b>2.5</b>
<b><i>Subcomponent C.4: Piloting of Transport Safety Nets and Impact Evaluation</i></b>		
1. Technical assistance for IE	Consultancy	0.5
2. Travel fare subsidy to the urban poor	Safety net	1.0
3. Skills development to Daladala drivers	Training	0.5
<b>Subtotal C.4</b>		<b>2.0</b>
<b><i>Subcomponent C.5: ICT Innovation and Open Data Pilot in the Public Transport System</i></b>		
1. Design and implementation of open data in public transport in Dar es Salaam	Consultancy	0.8
2. ICT innovation: development of mobile phone-based passenger feedback system, gender-based violence reporting system, and accident mapping system	Consultancy	0.7
3. ICT systems for (1) and (2)	Goods	0.5
<b>Subtotal C.5</b>		<b>2.0</b>
<b><i>Subcomponent C.6: Improving Oversight Capacity of the MoWTC</i></b>		
1. Skills development at MoWTC	Training	0.5
2. Support to SEAP	Training	2.2
<b>Subtotal C.6</b>		<b>2.7</b>
<b><i>Subcomponent C.7: Transport Studies and BRT Communication Programs</i></b>		
1. Design of BRT phases 5 and 6	Consultancy	1.0
2. M&E of the project	Consultancy	0.5
3. Development of analytical model for fare subsidy policy	Consultancy	0.3
4. BRT communication	Communication	1.0
<b>Subtotal C.7</b>		<b>2.8</b>
<b>Total C</b>		<b>38.0</b>
<b>Total Funding</b>		<b>425.0</b>

50. **Implementation schedule.** The main activities of the project are planned to be implemented between *March 2017* and *December 2021*. However, an allowance of six months is being provided for possible slippage due to working in complex urban environment. Therefore, works are going to be substantially completed by *June 30, 2022*. The launching of BRT operations will commence immediately after works completion, and the project will provide support for operations during the one-year ramp-up period up to *June 30, 2023*. Therefore, the project closing date is *December 31, 2023*. See Figure 2.5 for details.



## **Annex 3: Implementation Arrangements**

### **TANZANIA: Dar es Salaam Urban Transport Improvement Project**

#### **Project Institutional and Implementation Arrangements**

##### *Project Administration Mechanisms*

1. Like in several completed and ongoing transport sector projects in Tanzania, TANROADS is proposed to be the overall implementing agency for the project. It will have overall fiduciary and safeguards responsibility for project execution, while the other implementing entities will support the process and implement their respective components or subcomponents. Apart from overall oversight and implementation by TANROADS, another implementing agency is DART. DART will be responsible for (i) procurement and management of contracts for capacity strengthening to DART and establishment of DUTA, (ii) ICT innovation, (iii) transaction advisory services; (iv) monitoring and evaluation; (v) managing capacity for public transport operations; (vi) preparation for BRT operations; (vii) provision of support to TANROADS in the implementation of the Safeguards Instruments; and (viii) establishment of the DART traffic control center.

2. TANROADS will implement the project through a defined Project Implementation Team. The Project Implementation Team comprises full-time employees of TANROADS (complemented by consultants), including a project manager, an FM specialist, a procurement specialist, an environmental specialist, and a social specialist – leading a Resettlement Unit, and the technical expertise from the TANROADS BRT team. The overall responsibility for monitoring of the RAP and ESMP implementation will lie with TANROADS. TANROADS will directly monitor the implementation of the RAP and ESMP for Components A and B. The Environmental and Social Unit of TANROADS will ensure that the national regulations and the World Bank’s safeguards policies are fully complied with.

3. The responsibilities of TANROADS will include (a) the management of the DA; (b) FM and reporting on the overall project; (c) ensuring the execution of the audit of the project; (d) preparation of quarterly financial and biannual progress reports; (e) the management of the environmental and social safeguards aspects; and (f) oversight of the procurement and contract management activities of the other executing agencies. TANROADS has considerable experience with previous corridor projects and is fully conversant with World Bank procedures. TANROADS will prepare a Project Implementation Plan for the project, indicating the roles, responsibilities, and inputs from all stakeholder bodies, in form and substance acceptable to IDA as a condition of effectiveness of DUTP.

4. TANROADS will be entirely responsible for the project’s financial affairs of the DUTP. More specifically it will be fully responsible for overall project’s FM, disbursement, reporting, and auditing under the supervision of the DBS. This directorate has a team of qualified and experienced accountants including certified public accountants. In addition, TANROADS has a well manned and experienced Internal Audit Directorate that also includes certified public accountants. This unit will review the project’s financial affairs as part of their regular internal audit reviews.

5. The organization structures of TANROADS and DART are shown in figures 3.1 and 3.2 and the summary of responsibilities of different entities is provided in table 3.1.

Figure 3.1. TANROADS Organization Structure

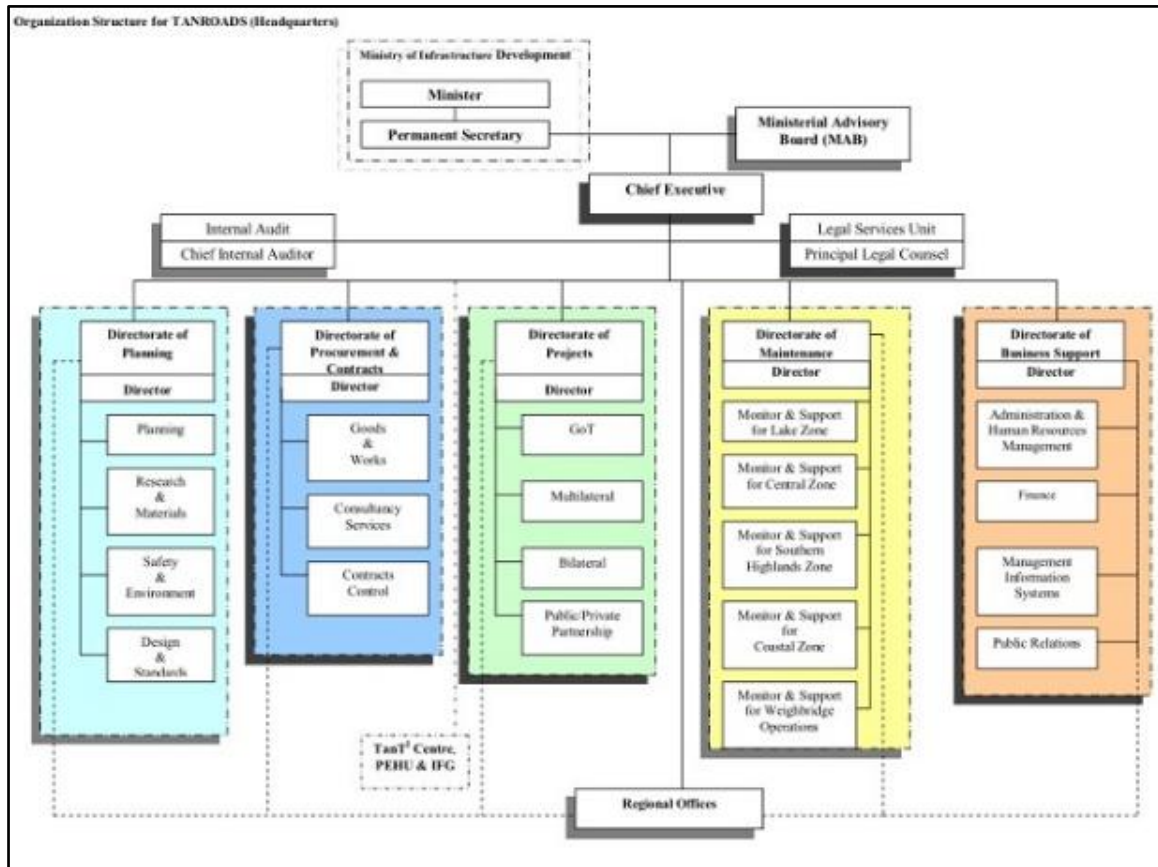
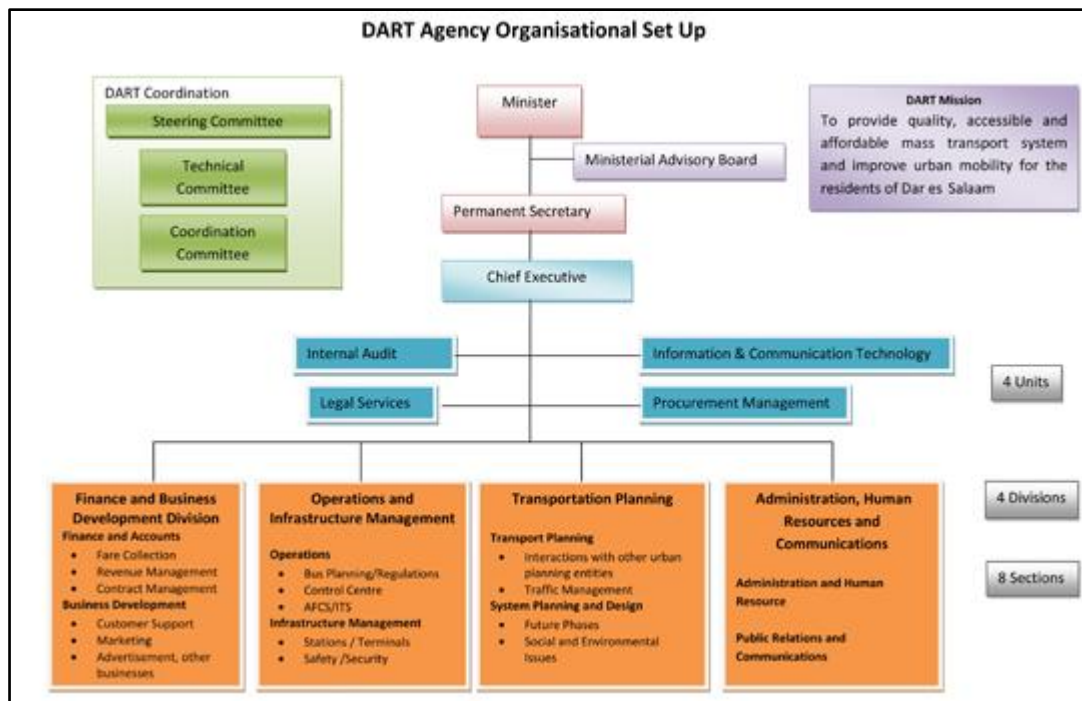


Figure 3.2. DART Organization Structure



**Table 3.1. Summary of Implementation Responsibilities of Implementing Agencies**

<b>Entity</b>	<b>Overall Responsibility</b>
Steering Committee	<ul style="list-style-type: none"> <li>• Provide project technical oversight.</li> <li>• Review of progress reports of the project and providing technical way-forward decisions and coordinating cross-sectoral/ministerial issues.</li> <li>• Conduct biannual meetings.</li> </ul>
Regional Roads Board	<ul style="list-style-type: none"> <li>• Provide project political oversight.</li> <li>• Review the progress report once annually as one of the agendas during the Regional Road Board meetings.</li> <li>• Concretize the political buy-in within the Dar es Salaam metropolitan region and help align local priorities to take full advantage of having a BRT system.</li> </ul>
TANROADS	<ul style="list-style-type: none"> <li>• Ultimate responsibility for compliance with the project requirements on safeguards, fiduciary, procurement guidelines, implementation actions, M&amp;E, and schedule.</li> <li>• Overall implementing agency of the project.</li> <li>• Directly responsible for procurement of all BRT works infrastructure, management of implementation of works, overall responsibility for social and environmental safeguards implementation, FM, and disbursement.</li> </ul>
DART	<ul style="list-style-type: none"> <li>• Ultimate responsibility for procurement of consultants and advisors for preparation of BRT operations (contracting of private BRT operators including Daladala companies), TODs, urban transport sector reforms, and will also be responsible for M&amp;E.</li> <li>• Provide non-technical support to TANROADS in the implementation of the RAP and ESMP for BRT 3 and 4.</li> </ul>
SUMATRA	<ul style="list-style-type: none"> <li>• Overall responsibility for transformation of Daladalas into formation of companies, cooperatives, or franchises.</li> <li>• Responsible for preparation of terms of reference for technical assistance to SUMATRA, fare integration policy study. TANROADS will conduct procurement processing.</li> </ul>
DCC	Confirm TOD terms of references and participate to guide the study and transaction advisory services
TASAF	<ul style="list-style-type: none"> <li>• Support DART by providing the database of the urban poor for analysis and design of the pilot BRT transport subsidy to the urban poor and the IE.</li> <li>• In charge for dissemination of results and advocacy.</li> </ul>
Ilala and Kinondoni Municipalities	Confirm TOD, terms of references, and participate to guide the study
ERB	<ul style="list-style-type: none"> <li>• Lead the process of selection of fresh graduate beneficiaries of the SEAP Grant under the project.</li> <li>• Conduct a study (to be procured through TANROADS) to determine the long-term funding mechanism for SEAP program and disseminate results.</li> </ul>
MoWTC	Provide oversight of the project as a parent Ministry of TANROADS and SUMATRA
PO-RALG	Provide oversight of the project as a parent Ministry of DART agency

## **Financial Management, Disbursements, and Procurement**

### **Financial Management**

6. The FM arrangements at TANROADS were assessed as adequate. Details of the findings of the assessment under the six FM elements of budgeting, funds flows, accounting, internal controls, financial reporting, and auditing are explained in the following paragraphs.

7. **Budgeting arrangements.** Preparation of the annual work plans and budgets is participatory and based on the Medium-Term Expenditure Framework. Budgets are approved before the new financial year begins and are monitored during project implementation using unaudited IFRs and quarterly physical progress reports. TANROADS is staffed with competent persons to carry out the preparation, review, and consolidation of the annual work plans and budgets. The staffing arrangements are adequate for preparation of the budget. The

upgraded accounting software Epicor 10.1 has the capability for proper project budgeting with 15 chart of accounts segments. The budget arrangements are assessed as adequate.

8. **Accounting arrangements.** The project shall maintain adequate financial records in accordance with accepted international accounting standards and practices. TANROADS has been using the Epicor 7 computerized accounting system to maintain projects books and accounts. However, this system was not capable of generating proper financial reports including the trial balance. The accounting system is in the process of being upgraded to the latest version- Epicor 10.1, which is more robust and capable of generating financial project reports including the quarterly IFRs, trial balances, and annual financial statements. A comprehensive FM procedure has been developed and is being used by the current World Bank-financed projects.

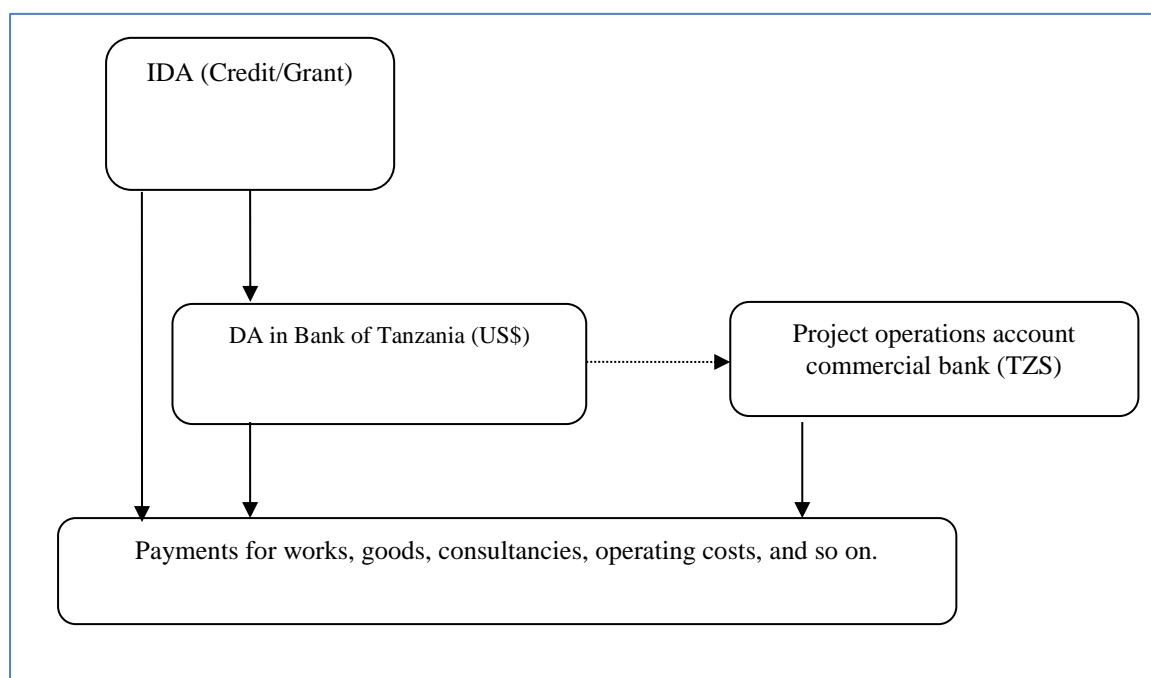
9. The Chief Accountant, who is also the Head of Finance, heads the accounting department. For World Bank-financed projects, a project accountant and three assistant accountants support the Chief Accountant. The existing team consists of professionally qualified and experienced staff who have been working for other IDA projects. They have also benefited from earlier training on World Bank financial and disbursement procedures but there is a need to train them on the more recent World Bank Financial Management and Disbursement Guidelines. However, given the increasing number of projects under TANROADS for IDA and other donors, the accounting capacity is overstretched which could adversely affect the FM support to the DUTP. TANROADS will therefore hire an FM consultant to enhance the accounting capacity for the DUTP.

10. **Internal control system.** The internal control system of TANROADS is assessed as satisfactory with adequate segregation of duties, accounting and arithmetic controls, approval and authorization, and other controls. The internal control system is documented in a comprehensive FM Procedures Manual which is deemed to be sufficient for the DUTP. TANROADS' Internal Audit function is headed by the Director of Internal Audit who functionally reports to the Audit Committee and administratively to the Chief Executive Officer. The Directorate comprises 17 staff, many of whom are graduates and professionally qualified. The directorate audits World Bank projects annually and prepares reports for the Chief Executive Officer and the Audit Committee. The Audit Committee is in place and functioning; it reviews the internal audit reports and internal control systems and also follows up on external audit report recommendations. Internal audit is yet to adopt a risk-based audit approach to carry out its work as the institutional risk management policy framework is yet to be developed. The audit function uses internal auditing standards as issued by the international Institute of Internal Auditors. An internal audit manual is in place to guide the work of internal auditors. The IAD was able to flag ineligible expenditures of TZS 1,916,959,366 and another of US\$44,900 relating to advances made to contractors under the CTCP2. The ineligible expenditures were refunded in full during the current financial year. However, there is a need to enhance the facilitation to the internal audit function with regard to additional computers, vehicle/transport, and staff training.

11. **Funds flow arrangements.** The project will maintain two sets of bank accounts under TANROADS: (a) a U.S. dollar DA and (b) a Tanzania Shilling (TZS) project bank account for the purposes of implementing the project. The DA will be opened at the Bank of Tanzania and the project account at a commercial bank acceptable to IDA. Signatories to both accounts are set in two categories. Category A (technical group) includes the Chief Executive, DBS, and Director of Projects. Category B (finance group) includes the Head of Finance and Accounts, Project Accountant, and Head Office Accountant. The signing

mandate is for any two signatories, one from each category. Transfers from IDA credit will be made into the DA on the basis of application for withdrawal of funds. The DA can be used to make U.S. dollars payments. Transfers will also be made from the DA to the TZS project account primarily to meet transactions in TZS. The project can also use other disbursement methods such as the direct payment, letters of commitment, and reimbursement. The DA and project account will be opened after the signing of the project but before it becomes effective. The project will adopt the IFR report-based disbursement method, which is currently being used for all other IDA projects in TANROADS. Details of the disbursement and banking arrangements will be captured in the Disbursement Letter which forms part of the Financing Agreement.

**Figure 3.3. Diagram showing Funds Flow Arrangements**



12. **Financial reporting arrangements.** The quarterly IFRs will be prepared at the end of each quarter and submitted to the World Bank not later than 45 days after the end of the quarter. The format and content of the IFRs will remain the same as the one currently in use by TANROADS. This has already been discussed and agreed with the Government. The IFRs will include Sources and Uses of Funds Statement, Uses of Funds by Project Activity/Component and DA Activity Statement. The annual financial statements will be prepared in accordance with International Public Sector Accounting Standards (IPSAS accruals). The IDA Financing Agreement will require the submission of audited financial statements to the World Bank within six months after the financial year end. The format is the same as that being used by the other World Bank- financed project in TANROADS which has already been agreed with the Government.

13. **External audit arrangements.** The CAG has the primary responsibility for auditing of all government projects. In some cases, at the discretion of the CAG, the audit may be subcontracted to a firm of private auditors, with the final report being issued by the Auditor General, based on the tests carried out by the subcontracted firm. The private firms to be subcontracted should be among those that are acceptable to IDA. The World Bank will also clear the terms of reference for the hire of the private audit firm. In case the audit is subcontracted to a firm of private auditors, IDA funding may be used to pay the cost of the

audit. The audits are done in accordance with International Standards on Auditing. The external audit terms of reference have been agreed with the Government. The audit report together with the management letter will be submitted to the World Bank not later than six months after the end of the financial year. TANROADS is required to make a public disclosure of the audited financial statements in a manner acceptable to the World Bank. Following the World Bank’s formal receipt of the audit report from TANROADS, the World Bank will make them available to the public in accordance with the World Bank policy on Access to Information.

14. The CAG conducted a value-for-money/performance audit of the roads sector in the year 2010 covering the Ministry of Infrastructure Development and TANROADS. Both the ministry and TANROADS are in the process of implementing the recommendations made by the CAG in this report. The report identified areas whereby there may not have been economy, efficiency, and effectiveness in road works, and which may have resulted in poor quality works, delays/period extension, and cost overruns. Cover overruns may have been caused by delays/extension of implementation period and miscalculations at the planning and design stage. There were also long delays before start of contracts, changes in scope of work (without redesigning, poor performance by contractors, inadequate coordination with local authorities, and long processing time for tax exemptions). The audit also raised queries on contract management and noted that sanctions were rarely invoked for dealing with extended delays, cost overruns, and problems in quality of the works. Even after the extensions were granted, some of the new deadlines were not respected by the contractors, who were left to determine their own work schedules. Contractors’ requests for extensions and cost overruns were not justified before being granted.

15. The DUTP is also providing capacity strengthening to TANROADS in addressing the above challenges which will be monitored as part of implementation support. To further mitigate these risks, the project will also conduct a technical audit to determine the impact on the fiduciary risks arising out of these GAC weaknesses.

16. **Governance and anticorruption.** The use of hotlines to report corruption and other forms of fraudulent activities is proposed given that they are not in use currently. There is also need for TANROADS to strengthen the current arrangements of the Integrity Committee which is meant to handle complaints.

**Table 3.2. FM Action Plan**

	<b>Action</b>	<b>Due Date</b>
1	Opening of DAs and project accounts and communicating the details of the bank account and signatories to IDA.	To be indicated in the Project Implementation plan
2	Upgrade of Epicor computer system from version 7 to 10.1.	Completed on October 31, 2016
3	Conduct design review of engineering designs	Within 12 months after project effectiveness
4	Train the accounts and internal audit staff on the more recent World Bank Financial Management and Disbursement Guidelines.	To be indicated in the Project Implementation plan
5	Hire an FM consultant to enhance project accounting capacity	To be indicated in the Project Implementation plan
6.	Provide facilitation to the IAD of TANROADS with regard to computers and transport	To be indicated in the Project Implementation plan

## **Disbursements**

17. Four disbursement methods are available for the project: (a) advance; (b)

reimbursement; (c) direct payment; and (d) special commitment. The primary World Bank disbursement method will be advances to a segregated U.S.-dollar DA opened at a commercial bank acceptable to the World Bank. Supporting documents required for World Bank disbursement under different disbursement methods are specified in the Disbursement Letter issued by the World Bank. The World Bank loan will disburse against eligible expenditures (taxes inclusive), as indicated in table 3.3.

**Table 3.3. Eligible expenditures**

<b>Category</b>	<b>Amount of the Loan Allocated (expressed in US\$)</b>	<b>Percentage of Expenditures to be Financed (inclusive of Taxes)</b>
(1) Goods, non-consulting services, works, consultants' services, Training, Fare Subsidies, Stipends, Initial Operating Costs and Operating Costs for all Parts of the Project	425,000,000	100%
<b>TOTAL</b>	425,000,000	—

18. **Retroactive financing.** Withdrawals up to an aggregate amount not to exceed US\$25 million equivalent may be made for payments for eligible expenditures incurred before the Loan Agreement signing date but on or after January 20, 2017.

## **Procurement**

19. **General.** Procurement under the proposed project will be carried out in accordance with the World Bank 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014; 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011, revised July 2014; 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, and revised in January 2011 and provisions stipulated in the Financing Agreement.

20. **Legal Framework.** The Public Procurement Act of 2011 as amended through the Public Procurement (Amendment) Act of 2016 will be applied for procurements below the defined thresholds involving National Procurement Procedures. The Public Procurement Act No. 7 of 2011 has been reviewed by the World Bank and found to be consistent with World Bank Procurement Guidelines, except for the provisions of Clause 54 of the act, which permits application of national preference in bid evaluation under NCB. There should be no preference accorded to domestic suppliers and contractors under NCB for goods and works. Furthermore, in accordance with paragraph 1.16 (e) of the Procurement Guidelines, each bidding document and contract financed out of the proceeds of the credit shall provide that (a) the bidders, suppliers, contractors and subcontractors permit the World Bank, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract, and to have said accounts and records audited by auditors appointed by the World Bank and (b) the deliberate and material violation by the bidder, supplier, contractor, or subcontractor of such provision may amount to an obstructive practice as defined in paragraph 1.16(a)(v) of the Procurement Guidelines.

21. **Procurement of civil works.** Civil works to be procured under this project will include those for (a) construction of the BRT phase 3 trunk corridor (23.6 km); (b)

construction of the BRT phase 4 trunk corridor (25.9 km); (c) construction of the Ubungo intersection and up-country bus terminal; (d) Road Safety Strengthening along the BRT phase 1 trunk corridor, and so on. Procurement will be done under International Competitive Bidding (ICB) or NCB procedures using the World Bank's Standard Bidding Documents for all ICB and National Standard Bidding Documents agreed with or satisfactory to the World Bank for all NCB. Small value works may be procured under Shopping Procedures. Direct Contracting may be used, where necessary, if agreed in the Procurement Plan in accordance with the provisions of paragraph 3.7 to 3.8 of the Procurement Guidelines.

22. **Procurement of goods.** Goods to be procured under this project will include those for (a) supply and installation of ITS system along the BRT corridors and the control center; (b) supply and installation of additional AFCS systems along the BRT phase 3 and 4 corridors including smart cards; (c) equipment for TANROADS, DART, and DUTA; (d) equipment for RSA; and (e) equipment to support ICT innovations in open data in public transport and analytics, and so on. Procurement will be done under ICB or NCB procedures using the World Bank's Standard Bidding Documents for all ICB and National Standard Bidding Documents agreed with or satisfactory to the World Bank. Small value goods may be procured under Shopping Procedures. Direct Contracting may be used, where necessary, if agreed in the procurement plan in accordance with the provisions of paragraph 3.7 to 3.8 of the Procurement Guidelines.

23. **Selection and employment of consultants.** Consultancy services to be procured under the project will include those for (a) design review and supervision of the BRT phase 3 road and building works; (b) design review and supervision of construction of the Ubungo intersection and up-country bus terminal; (c) transaction advisory services for structuring of the operations, establishment of a minibus (Daladala) cooperative company, and procurement of operators for the BRT phases 3 and 4; (d) transaction advisory services for structuring of a PPP deal and procurement of private investor(s) for selected hubs; and (e) technical assistance and contract management support to TANROADS, DART, and SUMATRA; and so on. The selection method will be Quality- and Cost-Based Selection (QCBS) method whenever possible. Contracts for specialized assignments estimated to cost less than US\$300,000 equivalent may be contracted through Selection based on the Consultants' Qualification method. The following additional methods may be used where appropriate: Quality Based Selection, Selection under a Fixed Budget (FBS), and Least-Cost Selection (LCS).

24. Short lists of consultants for services estimated to cost less than US\$300,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. However, if foreign firms express interest, they will not be excluded from consideration.

25. Single Source Selection may be employed with prior approval of the World Bank and will be in accordance with paragraphs 3.8 to 3.11 of the Consultant Guidelines. All services of Individual Consultants (ICs) will be procured under contracts in accordance with the provisions of paragraphs 5.1 to 5.6 of the Guidelines.

26. **Training and workshops.** Training and workshops will be based on capacity needs assessment. Detailed training plans and workshops activities will be prepared during project implementation and included in the project annual plan and budget for World Bank's review and approval.

27. **Procurement risk.** The procurement capacity assessment for DART and TANROADS to implement the project procurement activities was carried out in October and November, 2016 respectively. The assessment reviewed the organizational structure for implementing the project, functions, staff skills and experiences, adequacy for implementing the project, and the interaction between the project’s staff responsible for procurement activities and the relevant departments within the agencies and other government agencies.

28. The assessment for TANROADS revealed that the agency has the requisite structures and systems for carrying out procurement. However, TANROADS has some deficiencies, including some staff having (a) limited knowledge in procurement under World Bank procedures; (b) inadequate knowledge in contract management; and (c) inadequate knowledge in handling claims. The mitigation measures proposed include training of staff in (a) procurement under World Bank procedures, (b) contract management; and (c) handling of contractual claims.

29. The assessment for DART revealed that the agency has the requisite structures and systems for carrying out procurement but has limited staff with regard to numbers and knowledge and skills to match with the project’s demands. DART will be required to strengthen its Procurement Management Unit through recruitment of additional, qualified, and experienced staff and training of existing staff in procurement under World Bank procedures before it can be mandated with the responsibilities for procurement of high value and complex contracts, as well as large consultancy services contracts under the project. During the time capacity is being developed, DART should be allowed to procure only small-value contracts through shopping methods.

**Table 3.4. Procurement Risk Mitigation Measures**

	<b>Action</b>	<b>Mitigation Measures</b>	<b>Time Frame</b>	<b>Responsibility</b>
1.	Inadequate procurement staff in the Procurement Management Unit to manage procurement activities under the project	Recruit a Procurement Specialist in the Procurement Management Unit to enhance capacity in implementation of procurement activities under the project	To be indicated in the project implementation plan	DART
2.	Inadequate knowledge in procurement under World Bank procedures for some procurement staff	Train staff in basic procurement and advanced procurement of works, goods, and large value consultancy services	During project implementation	TANROADS/ DART
3.	Inadequate knowledge in contract management	Provide training in contract management to contract management staff	During project implementation	TANROADS/ DART
4.	Inadequate system for keeping of records	Implement an electronic system for keeping records	During project implementation	TANROADS/ DART

30. **Prior-review thresholds.** The Procurement Plan shall set forth those contracts which shall be subject to the World Bank’s prior review. All other contracts shall be subject to post review by the World Bank. A summary of prior review and procurement method thresholds for the project is indicated in table 3.2. All terms of reference for consultants’ services, regardless of contract value, shall also be subject to the World Bank’s prior review.

**Table 3.5. Thresholds for Procurement Methods**

<b>Expenditure Category</b>	<b>Contract Value Threshold (US\$)</b>	<b>Procurement/Selection Method</b>	<b>Contracts Subject to Prior Review</b>
<b>Works</b>	≥15,000,000	ICB	All
	<15,000,000	NCB	None (Post Review)
	<200,000	Shopping	None (Post review)
<b>Goods</b>	≥5,000,000	ICB	All
	<5,000,000 ≥ 4,000,000	NCB	All
	< 4,000,000	NCB	None (Post Review)
	<100,000	Shopping	None (Post review)
<b>Consulting Services - Firms<sup>1</sup></b>	≥ 2,000,000	QCBS/Other <sup>2</sup> (QBS/FBS/LCS)	All
	< 2,000,000 ≥300,000	QCBS/ (QCBS/QBS/FBS/LCS) Other <sup>3</sup>	None (Post Review)
	< 300,000	CQS/Other <sup>2</sup> (QCBS/QBS/FBS/LCS)	None (Post Review)
<b>ICs</b>	≥400,000	IC – Qualification	All
	<400,000	IC – Qualification	None (Post review)

*Notes:* CQS = Selection based on Consultants' Qualification.

General - terms of reference for all contracts shall be cleared by the World Bank.

(a) Short list for consultancy services for contract estimated to be less than US\$300,000 equivalent per contract may be composed entirely of National Consultants in accordance with the provision of paragraph 2.7 of the Consultant Guidelines. (b) Consultancy service for contracts estimated to cost US\$300,000 and above equivalent per contract shall be advertised in United Nations Development Business online and dgMarket in addition to advertising in national newspapers in accordance with the provisions of paragraph 2.5 of the Consultant Guidelines.

QBS, FBS, and LCS for the assignment meeting requirements of paragraphs 3.2, 3.5, and 3.6 respectively of the Consultant Guidelines.

31. **Record keeping.** The implementing entities will be responsible for records keeping and filing of procurement records for ease of retrieval of procurement information. In this respect, each contract shall have its own file and should contain all documents on the procurement process.

32. **Monitoring.** M&E of procurement performance will be carried out through Bank supervision and post procurement review missions.

33. **Procurement Plan.** The borrower has developed a Procurement Plan, dated December 20, 2016, for the first 18 months of the project implementation which provides the basis for the procurement methods. The Plan will also be available in the project's database and on the World Bank's external website. The Procurement Plan will be updated in agreement with the project team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

34. **Frequency of procurement supervision.** In addition to the prior review supervision to be carried out from the World Bank offices, the capacity assessment of the implementing entities recommends one supervision mission every six months to visit the field to carry out post review of procurement actions.

### *Environmental and Social (including Safeguards)*

35. The project area for the construction of BRT phase 3 and 4 infrastructure and the Ubungo intersection is characterized by developed residential buildings and high concentration of trade, social services, and manufacturing activities. To minimize negative impacts, proposals for possible alternatives for accomplishing the same objectives were considered both for construction of BRT phase 3 and 4 infrastructure and the Ubungo intersection. In principle, these included an analysis of the location, timing, inputs, materials, and design as well as the 'do-nothing' option. As the proposed BRT project aims at using the existing road corridor as much as possible, the key or preferred alternative was a design priority that would fit the BRT lane within the existing and only available corridor for traffic from the CBD to the airport. Therefore, modifications of the design have been considered to minimize impacts on the existing environment. Geometric design has also been improved to accommodate safety and stability measures.

36. Most of the impacts will be largely felt during the construction of the infrastructure and these will include: displacement of people and properties including formal and informal traders on the right of way because of land acquisition; relocation of public utilities infrastructure and disruption of services; poor air quality from dust and emissions around the construction site and material hauling routes; increased noise pollution and vibrations because of compaction at construction and quarry sites; disruption of traffic and accidents, and so on.

37. Separate ESIA, ESMP, and RAP have been prepared for BRT phase 3 and Ubungo intersection to identify, assess, and mitigate the potential environmental and social impacts during all phases of the project. The ESIA and ESMP have been prepared by the implementing agency TANROADS on the basis of the environmental criteria as defined in the Environmental Code of Practice for Road Works and the national ESIA guidelines together with the requirements of World Bank's Safeguards Policy on Environmental Assessment (OP/BP 4.01). Also, the ESMF and the RPF have been prepared for BRT phase 4 activities and DART traffic control center and road safety infrastructure along the BRT phase 1 corridor, whose designs are yet to be completed.

38. TANROADS and its contractors shall work in close cooperation with the sub-wards, wards, municipals, and regional- and national-level authorities within the construction corridor to ensure that the BRT project is executed in a smooth manner. The structures for undertaking various responsibilities during road pre-construction, construction, and operation phases have been presented as specified in the ESMPs of the ESIA. The costs of various mitigation measures have been included in the total costs of the project in the bills of quantities as specified in the standard specifications for road works.

39. Institutional arrangements for environmental and social management are included in relevant safeguards documents. Overall responsibility for the implementation of the ESMP and the RAP is with TANROADS, specifically under its social and environmental unit, which is part of the Directorate of Planning. This unit will be responsible for quarterly monitoring and reporting on the progress of the implementation of ESMP measures throughout the project period. Reporting on environmental and social management shall include issues and concerns raised by stakeholders and key potential interested parties and PAPs during the planning of the project and how they have been addressed. Most of the issues raised and proposed measures to address these issues have been incorporated into

the ESMPs and the RAPs. The environmental and social management reports will be part of the bi-annual project progress reports.

40. In addition, TANROADS will prepare a stakeholders' engagement plan and a detailed stakeholders' identification and analysis will be conducted to include other emerging stakeholders and their roles and responsibilities in the project implementation. Other key stakeholders including DART, SUMATRA, and the media will be involved throughout project implementation. In addition to the consultations which were done during project preparation, the public will be able to continue accessing safeguards instruments, the ESIA and the RAP, which have been disclosed at the TANROADS website and the World Bank InfoShop, as well as in continuous consultations, as required.

41. Each of the prepared and disclosed safeguards instruments has an embedded GRM which will be implemented, monitored for its functionality and reported on regularly. In addition, the wider project GRM as well as the World Bank Grievance Redress Services are in place for use by both communities and individuals in the project area.

42. The capacity assessment for environmental and social risk management showed that besides this project, TANROADS is managing several road projects all over the country. Therefore, to effectively implement and monitor environmental and social management during implementation, additional (environmental and social) technical support will be supported by the project. It is important to establish an RAP implementation sub-unit in the current Environmental and Social Management Unit to manage the day-to-day RAPs implementation and reporting, labor and community safety, labor influx, and so on, to manage the potential impacts of this huge infrastructure development undertaking. In addition, capacity for follow up in both DART and the MoWTC will be built by the project. This includes the hiring of experienced RAPs implementation specialists, and so on, as applicable within 12 months of project effectiveness.

### ***Monitoring & Evaluation***

43. The overall responsible agency for M&E of the project is DART. The Directorate of Operations and Infrastructure Management will take responsibility for consolidating all data received from different agencies and undertaking quality assurance process to ensure credibility of data.

44. The progress of infrastructure works will be reported monthly by the supervision consultants. This will be consolidated quarterly and annually based on the cumulative data reported. BRT operations data will be collected by the operators and DART will extract the data from the ITS and consolidated reports. Travel-time surveys and satisfaction ratings will be collected by the university or research institution employed by DART and consolidated in the progress reports. Accident data will be collected by the MoWTC and shared with DART on a quarterly basis.

## **Annex 4: Implementation Support Plan**

### **TANZANIA: Dar es Salaam Urban Transport Improvement Project**

#### **Strategy and Approach for Implementation Support**

1. Implementation support will focus on actions that are critical for the project's success. In particular, emphasis will be placed on execution of reforms; progress on setting up new entities; quality of works; technical compliance; timely payment to contractors, suppliers, and consultants; timely award of contracts; and adherence to implementation schedules. Continuous supervision will be encouraged given that most of the World Bank's task team members are based in the Tanzania country office. Therefore, this will enable continuous and cost-effective supervision of the project.
2. Upstream reporting, auditing and accountability, and technical compliance measures to ensure early detection and remedy of problems through ongoing oversight of the project implementation activities will be emphasized. For civil works contracts, there will be ad hoc site visits, and speedy review of project implementation progress reports prepared by the engineering supervision firms that will perform the day-to-day independent certification of the quality of work and supervise the compliance with contract terms.
3. Procurement documents subject to prior review will be carefully reviewed by both the technical expert(s) and the Senior Procurement Specialist within the team to ensure that they comply with the project's technical requirements and the World Bank's procurement and consultant guidelines.
4. The FM Specialist will carry out periodic reviews of the project's implementing agency's FM systems and controls and where necessary will conduct reviews of statements of expenditure and monitor the availability and adequacy of the counterpart funds as reported in the quarterly Financial Monitoring Reports/IFRs. These reviews will be utilized for improving the implementing agencies' systems and performance in these areas.
5. Before each supervision mission, the project implementing agencies will submit to the World Bank, a detailed consolidated project implementation progress report which will provide the status of the project activities and identify all implementation issues that the project faces. These reports, combined with site visits, will be the basis for reaching an agreement with the client on the activities for the upcoming period and resolution of implementation issues facing the project.
6. The task team will undertake supervision as follows:
  - (a) Where necessary, provide technical, procurement, and FM support to the project's implementing agencies from the country-based team;
  - (b) Continuous implementation support including monthly (at the start-up and) quarterly formal supervision, including visits to the project sites. The review teams will comprise a highway engineer, an urban transport specialist, an urban development specialist, procurement specialist, FM specialist, communications specialist,

environmental specialist, social development specialist, transport specialists (public transport), an ICT specialist, business information technology specialist, and the task team leader;

- (c) Annual full-fledged supervision missions involving all the key task team members; and
- (d) The communications specialist on the team will prepare a brief on the implementation status of the project and post it on the external country office website semiannually.

### Implementation Support Plan

7. On the side of the GoT, the capacity of the implementation agencies is augmented by technical assistance and consultant services, particularly in the areas of designs, supervision, project coordination, M&E, and user surveys. The annual M&E reports produced by the M&E consultants (an accredited university in Tanzania) will be discussed at workshops with stakeholders, both during their preparation and on finalization. This will be particularly important for engaging the BRT system operators as part of reforms in the urban public transport systems.

### Budget

8. The above activities would require both the World Bank and the GoT's management to allocate adequate resources for their staff to be able to carry out comprehensive project supervision. Inadequate resources will hamper the implementation of the proposed intensive follow-up and monitoring required for mitigating the potential risks identified.

**Table 4.1. Implementation Support Strategy by the World Bank Team**

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First 12 months	Technical review of bidding documents, terms of reference, proposals and bid, and technical evaluation reports and review of technical reports (feasibility and design study reports)	Civil engineering, urban transport, institutional, urban transport, ICT/ITS, FM, procurement, an independent technical/procurement and communication specialists	45 staff weeks of World Bank staff and 26 staff weeks of short-term consultant (STC).  Approximately US\$250,000	No partner involved but the information will be shared with other development partners involved in urban transport in Tanzania
12–48 months	Technical review of bidding documents, proposals and supervision of works, and technical reports	Civil engineering, urban transport, institutional, urban transport, ICT/ITS, FM, procurement, an independent technical/procurement specialist and communication	Annually, 30 staff weeks of World Bank staff and 18 staff weeks of STC.  Approximately US\$190,000 per year	
Other	Technical review of bidding documents, proposals, and	Civil engineering, urban transport, institutional, ICT/ITS, FM,	Annually, 30 staff weeks of World Bank staff and 18 staff weeks of STC.	

<b>Time</b>	<b>Focus</b>	<b>Skills Needed</b>	<b>Resource Estimate</b>	<b>Partner Role</b>
	supervision of works and technical reports	procurement, an independent technical/procurement specialist and communication	Approximately US\$190,000 per year	

**Table 4.2. Skills for Implementation Support**

<b>Skills Needed</b>	<b>Number of Staff Weeks/annum</b>	<b>Number of Site Visits/annum</b>	<b>Comments</b>
Team leadership	26	4	Country office staff
Co-team leadership	26	4	Washington staff
Civil engineering	10	4 (local)	Country office staff
Urban transport	8	2	STC (International)
Enterprise architect	10	4	STC (International)
ITS	10	4	Washington staff
ITS business processes	5	4	Washington staff
IE Specialist	6	2	Washington staff
Procurement	5	2	Country office staff
Social development	2	2	Country office staff
M&E	2	2	STC (local)
FM	5	2	Country office staff
Environmental	3	2	Country office staff
Urban planning	6	2	STC (International)
Communications	2	4	Country office staff

## Annex 5: Economic and Financial Analyses

### TANZANIA: Dar es Salaam Urban Transport Improvement Project

1. **Tanzania has been experiencing robust growth in recent years.** As the economy grows, urbanization, currently relatively low by regional standards, is expected to accelerate. At present, about 16 million or 30 percent of the total population lives in urban areas in Tanzania. Nearly 31 percent of the urban population is concentrated in Dar es Salaam, the main city and commercial capital in the country. The population in Dar es Salaam has increased rapidly from 2.7 million in 2004 to 4.8 million in 2014, at a growth rate of 5.7 percent.

2. **Urbanization is expected to continue accelerating in Tanzania.** According to the UN-Habitat estimate, the urbanization rate is expected to increase from 31 percent to 53 percent in 2050. The population in Dar es Salaam is expected to grow to 6.2 million by 2025 (see table 5.1), with a growth rate of 3.9–4.1 percent, much higher than the country’s average urban population growth rate (2.3 percent over the next 30 years). To ensure efficient transportation in rapidly growing urban areas, such as Dar es Salaam, it is essential to improve public transport and ensure greater sustainability in the transport system as a whole, before congestion builds to unsustainable levels.

3. The efficient movement of goods and people is essential to economic growth, and public mass transit can play an important role in reducing people’s travel time. Economic benefits from reduced travel time are substantial. The phase 1 of the BRT reduced travel time from 2 hours to 45–50 minutes along one of the main trunk lines between Kimara and Kivukoni, and the phase 1 system is used by about 150,000 passengers every day. Since public mass transit is generally greener than individual passenger cars and traditional minibuses (Daladalas), significant environmental externalities can also be expected.

**Table 5.1. Population and Population Growth of Dar es Salaam**

	2000	2005	2010	2014	2020	2025
Population (million)	2.2	2.9	3.8	4.8	5.1	6.2
Annual population growth (%)	4.4	5.7	5.7	5.7	4.1	3.9

4. **Rationale for public investment.** While service provision for public transport can be provided by a private operator, the provision of the urban infrastructure for both public and private transport remains the predominant responsibility of the public sector. This reflects the fact that many of the economic benefits of investing in urban transport infrastructure more generally, and public transport infrastructure more specifically, with regard to reduced congestion, pollution, and accident cost savings, are external costs and hence are not considered in the decisions of individuals or the private service provider. There is a similar case for public support to service provision in some cases, to ensure the provision of a service that meets economic and social needs with regard to hours of operation and encourage a more sustainable urban transport system.

5. **Value added of World Bank support.** The World Bank has been consistent in promoting public transport and improved access as key development priorities for the Dar es Salaam region. Inadequate and unreliable infrastructure services increase input costs, reduce

access, accentuate poverty, and lower productivity. In this case, the added value of the World Bank is the accumulated knowledge and experience that it brings in preparing and implementing similar large and complex multidisciplinary infrastructure projects, including BRTs, in complex urban contexts, while mobilizing private investment.

6. **The economic analysis.** The project is composed of (a) phases 3 and 4 of the Dar es Salaam BRT system; (b) Ubungo intersection improvement and other complementary infrastructure for the phase 1 system; and (c) institutional strengthening, ICT innovation, and safety net. The following economic analysis is focused on the two major investment components: (a) the phases 3 and 4 of the Dar es Salaam BRT system and (b) the introduction of a grade separated junction at the Ubungo intersection. These two components account for over 80 percent of resources financed by the project.

7. The economic analysis has been carried out separately for the two components. While the BRT assessment will focus on travel time savings for users as well as externalities, the analysis of the Ubungo intersection takes into account broader road user benefits, such as time savings for general traffic. From the engineering point of view, the two components are closely related to one another. The phases 3 and 4 will be integrated with the phase 1 and 2 systems at Ubungo and other terminals. Especially, the improvement of the Ubungo intersection is crucial and necessary for BRT phase 1, 4, and 5 systems to operate smoothly. However, not only BRT buses but also other general traffic can benefit from the intersection improvement. The two interventions are relevant but different. For the BRT investment, a financial analysis is also carried out based on the same data.

### **Dar es Salaam BRT System Phases 3 and 4: Economic Analysis**

8. The BRT phase 3 trunk corridor supported by the project extends 23.6 km from the CBD through the JNIA to the Gongo la Mboto area along the Nyerere and Uhuru Roads. Phase 3 follows successful construction of phase 1, which runs from Kimara to Kivukoni and Kariakoo via Morogoro Road. BRT phase 4 infrastructure represents 25.9 km of trunk corridor that runs from the Maktaba/Bibi Titi Road junction at the CBD through Morocco, ending at Tegeta.

9. In general, BRT systems have been acknowledged as a cost-effective option to transport a large number of people efficiently in a large urban setting. The existing minibuses (Daladalas) are inefficient in both operational and fuel efficiency terms and will be replaced with BRT buses. Moreover, BRT systems are usually expected to encourage diversion from private passenger cars, reducing the concomitant external costs, such as congestion, environmental pollution, accidents, and so on. In addition to these direct benefits, BRT systems can induce further land developments along the systems, stimulating economic growth and agglomeration.

10. Based on the detailed financial and economic model developed for the Dar es Salaam BRT system (called DART), a partial equilibrium CBA is carried out, in which costs and benefits are compared between the two scenarios with and without the phase 3 and phase 4 BRT system. Although a wide range of induced economic benefits, such as agglomeration economies, can be expected over the long term, the analysis is focused on relatively narrowly defined economic and social benefits that are expected to realize in the short term and can be measured easily:

- **Reduction of travel time.** This is a main economic benefit from the new BRT system. Because of efficient and streamlined BRT operations, BRT users can reduce their travel time significantly.
- **Operational cost savings of Daladalas.** Along the new BRT corridors, currently used minibuses will be replaced and rerouted. Thus, the operating costs that are currently incurred to Daladalas will be eliminated.
- **Auxiliary revenues.** The new BRT system is expected to bring various economic opportunities for DART and bus operators to generate extra revenues, for instance, from advertisement.
- **Reduction of pollution.** This is a major positive externality from the project. CO<sub>2</sub> emissions are expected to be reduced significantly, because per capita fuel efficiency of new BRT buses will be much better than that of current minibuses and individual passenger cars.

11. There are other factors that are important but not taken into account in the current economic analysis. First of all, the new BRT system will generate new revenue from passenger fares, but this is not considered because bus users are already paying passenger fees to Daladalas. The difference in fares can be an extra revenue to the new bus operators, reflecting the value of a reduction of travel time, which has already been taken into account as a benefit. To avoid double counting, therefore, BRT fare revenue is not considered in the economic analysis, while it is considered in the financial analysis.

12. There are other externalities. For instance, other pollutants, such as PM, SO<sub>x</sub>, and NO<sub>x</sub>, may also increase or decrease because of the project. However, these are not quantified or monetized due to a lack of data.

13. Improved safety is another major benefit from the new BRT system, though not easy to monetize given available data. In general, public mass transit systems are safer than individual passenger cars and two-wheelers. In addition, new BRT buses are considered much safer than Daladalas, because BRT busses drive on separate lanes, which decreases the likelihood of accidents with other vehicles. Passengers will also get on and off at designated terminals and stations, which decreases the risk of accidents with passing vehicles. Daladala users get on and off the vehicles on the side or in the middle of the road. Because BRT operations are more streamlined, travel distance by passengers will be reduced. This is also expected to contribute to improving road safety.

14. **Reduction of travel time.** In total, the additional two BRT systems are expected to carry 563,000 per day. The demand for BRT system phases 3 and 4 is estimated at 395,000 and 168,000 per day, respectively (see Table 5. 2). Precise estimates are difficult and dependent on how the city would be evolving with regard to spatial distribution of population and other economic activities. For simplicity, it is assumed that these estimates are constant over an operational period of 10 years under the current evaluation. This may underestimate the actual future demand, because the BRT demand would likely increase at least by the population growth rate, which is projected to be 1.8 percent over the next 20 years. However, based on the

experience of phase 1, the expected demand would not be realized at the beginning but gradually increase over time. In addition, the phase 4 will be partly overlapped with the phase 1 system. About 60 percent of the phase 4 demand would likely lie along the BRT phase 1 feeder system. These factors are expected to cancel out each other. Essentially, the robustness of the assessment will be checked by sensitivity analysis.

15. Based on the phase 1 experience, 89 percent of the total demand is for trunk service only passengers, and one percent is for feeder only users. The rest is associated with the demand for a combination of trunk and feeder services. About 85 percent of this is using feeder and trunk. About 15 percent are assumed to use trunk once and feeder buses twice.

16. Due to the new BRT system, people’s travel time is expected to be reduced by 65 minutes on average. In the phase 1 BRT system, the average travel time over the Kimara-Kivukoni corridor was reduced from over 2 hours to 50 minutes. The similar magnitude of benefits is expected under the phase 3 and 4 systems. With a conversion factor of 318 days per year used, the total number of passengers would be 179 million per annum, and the time that could be saved is estimated at about 194 million hours per year.

17. In the recent study conducted by DART (through a Consultant) in 2011, the value of time in Tanzania was estimated at US\$0.33 per hour. With inflation taken into account, the value is adjusted to be US\$0.44 or TZS 967.6 per hour in 2017 terms.<sup>25</sup> An average of five percent growth is used. The total amount of benefits from travel time saved is estimated at approximately TZS 188 billion.

**Table 5. 2. Passenger Demand Expected**

	Daily Ridership			Annual Passengers (1,000)
	Phase 3	Phase 4	Total	
<b>Total</b>	<b>395,000</b>	<b>168,000</b>	<b>563,000</b>	<b>179,034</b>
Of which:				
Trunk only	351,550	149,520	501,070	159,340
Feeder only	3,950	1,680	5,630	1,790
Feeder + trunk users	39,500	16,800	56,300	17,903
Of which, F+T	33,575	14,280	47,855	15,218
F+T+F	5,925	2,520	8,445	2,686

18. **Operational cost savings of Daladalas.** When the new BRT systems become operational, current minibuses would be eliminated and rerouted from the BRT corridors. In the phase 1, about 1,800 minibuses were affected. For phase 3, 51 minibus routes are identified to be affected. The average number of Daladalas operating is 36 buses per route. Hence, for phase 3, 1,836 minibuses are expected to be eliminated (see table 5.3). There is no detailed assessment on which routes would be affected by the phase 4. It is assumed that the number of Daladalas to be rerouted is proportional to expected BRT ridership of each phase. In theory, this must hold. Otherwise, the same level of transport services cannot be maintained. In total, 2,617 Daladalas are estimated to be removed eventually.

<sup>25</sup> In the current analysis, the assumed exchange rate is TZS 2,188 per U.S. dollar.

19. Current minibus operations are largely inefficient. Based on the recent minibus survey, the annual operating costs are estimated at TZS 49.4 million per Daladala. Fuel levies and value added tax are excluded to derive economic costs. Each Daladala consumes 40 liter of gasoline per day and operates for 300 days per year. The fuel price is TZS 1,745 per liter. Thus, the total fuel cost is about TZS 12.6 million per vehicle, exclusive of fuel levies and excises. This accounts for one-quarter of the total Daladala operating costs. The vast majority of Daladala operating costs are associated with drivers' salaries and labor costs, which amount to about TZS 30 million per Daladala.

20. In theory, these Daladala operating costs would be eliminated once the new BRT systems become effective, which is expected in 2020. In reality, there is a risk that the Daladala restructuring might be delayed, and a transition period of at least one year is necessary to ensure continuity of public transport services. It is assumed that current minibus services would be removed at the beginning of 2021. Then, about TZS 129 billion of operating costs could be saved per year.

**Table 5.3. Number of Daladalas to Be Rerouted**

	No. of Daladalas to Be Rerouted	Expected Daily Ridership
Phase 1	1,800	332,000
Phase 3	1,836	395,000
Phase 4	781	168,000

**Table 5.4. Annual Operating Costs of Daladala (TZS Million per Daladala)**

	Including Tax	Excluding Tax
Fuel costs <sup>1</sup>	20.94	12.56
Service oil <sup>2</sup>	2.94	2.49
Tire costs <sup>2</sup>	3.78	3.20
Inspection, insurance, and so on <sup>2</sup>	2.1	1.78
Operating labor costs <sup>2</sup>	34.65	29.36
Total	64.41	49.40

Note: <sup>1</sup> Fuel levies and excise duties account to 40 percent of the total fuel costs.

<sup>2</sup> Value added tax is 18 percent.

21. **Auxiliary revenues.** The new BRT system will bring new opportunities to generate extra revenues, for instance, from advertisement. It is assumed that these auxiliary revenues are proportional to the total fare revenue. Under the assumption that the bus fares are TZS 700 for trunk only, TZS 500 for Feeder only, TZS 800 for F+T, and TZS 900 for F+T+F users, the total gross fare revenue is estimated at TZS 127 billion per annum (Table 5.5). Bus operators and fare collection service providers will earn 1 percent of this, that is, TZS 1.27 million each. This is merely a small fraction of the total benefits but normally has potential to expand over time, when large-scale infrastructure investment, such as BRT, is considered.

**Table 5.5. Estimated Ridership, Fare, and Annual Fare Revenue for Phases 3 and 4**

	Daily Ridership	Annual Passengers (1,000)	Fare (TZS per person)	Annual Fare Revenue (TZS, millions)
Total	563,000	179,034		127,025
Of which:				
Trunk only	501,070	159,340	700	111,538
Feeder only	5,630	1,790	500	895
Feeder + trunk users	56,300	17,903		
Of which, F+T	47,855	15,218	800	12,174
F+T+F	8,445	2,686	900	2,417

22. **Reduction of pollution.** Finally, the reduction of air pollution is examined as an external benefit from the BRT project. As discussed earlier, many mass transit systems contribute to reducing not only CO<sub>2</sub> emissions but also other pollutants, such as PM, SO<sub>x</sub>, and NO<sub>x</sub>. Given limited local data, however, the analysis is focused on relative fuel efficiency of new BRT buses and only CO<sub>2</sub> emissions from them.

23. The change in CO<sub>2</sub> emissions costs are related to the change in vehicle miles travelled and fuel efficiency. Overall, fuel efficiency is likely to improve since the number of bus fleets that used under the new BRT system is much lower than the existing Daladala system, although fuel efficiency of each new BRT bus (that is, 1.5 km and 2.5 km per liter for a trunk and feeder bus, respectively) may not be better than that of a Daladala bus. The new BRT system will also contribute to increasing the speed of the bus flow, improving fuel efficiency of buses. More emission reductions would be expected if people are induced to shift their transport mode from individual passenger cars to the new BRT system.

24. The annual emission from the new BRT system would likely be halved. Average daily mileage is assumed to 240 km for trunk buses and 200 km for feeder buses. Thus, the total mileages of trunk and feeder buses are estimated at about 15.5 million km and 9.2 million km per year, respectively (table 5.6). Based on average fuel efficiency, a trunk bus consumes 0.66 liter per km, and a feeder bus 0.4 liter per km (table 5.7). With a CO<sub>2</sub> emission coefficient of 2.7 kg per liter, the total emission from the new BRT system would be 37,500 tons per year.

25. On the other hand, the current Daladala buses are estimated to emit 84,787 tons of CO<sub>2</sub> per year based on the annual average fuel consumption (that is, 12,000 liter per bus). Therefore, about 47,000 tons of CO<sub>2</sub> could be reduced every year. Using the World Bank recommended social carbon price, US\$30 per ton (World Bank 2014), the value of CO<sub>2</sub> reduction is estimated at US\$1.42 million or TZS 3,104 million per annum. Note that CO<sub>2</sub> emissions will increase temporarily in 2020, during which both BRT buses and Daladalas are assumed to coexist. Our model assumes a transition period of one year, as discussed earlier.

**Table 5.6. Estimated Bus Mileage**

	No. of Buses Added			Km per Bus per Day	Bus-km (1,000) per Year
	Phase 3	Phase 4	Total		
Trunk buses	123	80	203	240	15,493
Feeder buses	84	60	144	200	9,158

**Table 5.7. Estimated CO<sub>2</sub> Emission Reduction**

	Fuel Consumption (Liter/km)	Annual Bus-km (1,000)	Fuel Consumption (Liter/bus)	Number of Daladala's Removed	Annual CO <sub>2</sub> Emission (Ton/Year)
Trunk bus	0.66	15,493	—	—	27,608
Feeder bus	0.40	9,158	—	—	9,891
Daladala	—	—	12,000	2,617	84,787
Difference	—	—	—	—	-47,287

26. On the cost side, the new BRT system will bring about capital costs and operating costs.

27. **Capital investment costs.** Capital costs include the one-time costs to the transit funding agency of acquiring right-of way, construction of the BRT corridors, terminal stations and depots, and installing supporting systems, such as fare collections, security, and passenger information systems. On the infrastructure side, the BRT corridors, terminals, and depots are constructed (see table 5.8). The total infrastructure investment costs are estimated at TZS 529.7 billion (table 5.9). To this, a physical contingency of five percent is added. Then, the overall infrastructure investment costs are distributed equally over a three-year construction period of the project (2017–2019).

**Table 5.8. Major Infrastructure Investment Components for the BRT System**

	Phase 3	Phase 4
Roadworks (km)	23.6	25.9
Trunk stations	25	15
BRT bus depot	1 (Gongo la Mboto)	1 (Tegeta)
BRT trunk terminals	2 (JNIA and Gongo la Mboto)	1 (Tegeta)
BRT trunk-feeder-transfer stations	3 (Buguruni Rozana, Jet corner, and Banana)	1 (Tegeta)
Pedestrian crossing flyovers	5	2

**Table 5.9. Estimated Ground Infrastructure Investment Costs (TZS, millions)**

	Phase 3	Phase 4
Roadworks (km)	213,140	140,013
Trunk stations	52,739	31,644
Feeder station	2,207	2,207
Terminal and pedestrian bridges	21,043	7,014
Utilities (spread at km)	26,121	11,566
Bus depot	12,003	10,003
Total	327,254	202,447

28. In addition to ground infrastructure investment, new bus fleets will be purchased, and fare collection systems need to be installed. It is planned that 203 trunk buses and 144 feeder buses are introduced to the actual operations. With a five percent margin added, in total 366 buses will be purchased in total (table 5.10). Each trunk bus costs US\$144,000, and each feeder bus US\$89,000. In total, TZS 97 billion will be spent for bus purchase.

29. A fare collection system will be installed to bus entrances and terminal gates. Each equipment will cost €6,900 per bus and €11,200 per gate. Therefore, the total cost is estimated at TZS 10.9 billion. On the user side, it is assumed that 70 percent of the total users would use smartcards. Taking into account a safety margin for extra needs, three times as many cards as this will be prepared. Thus, in total, about 1 million of smartcards will be purchased. Since each smartcard costs US\$0.86, this costs TZS 1.9 billion (see table 5.11).

30. With other relevant systems and equipment included, capital investment costs other than ground infrastructure amount to about TZS 113 billion. It is assumed that all these costs but smartcards would be incurred one year before the BRT service commencement (that is, beginning of 2019). Smartcards will be purchased at the end of 2019, once all capital investment works are completed.

**Table 5.10. Numbers of New Buses Purchased**

	No. of Buses Added			Reserve (5%)	Total
	Phase 3	Phase 4	Total		
Trunk buses	123	80	203	11	214
Feeder buses	84	60	144	8	152

**Table 5.11. Capital Investment Costs of Buses, Fare Collection Systems, and Other Minor Infrastructure**

	No. of Units	Unit Cost (US\$)	Total (US\$, millions)	Total (TZS, millions)
Bus and bus equipment			44.34	97,025
Trunk	214	144,000	30.82	
Feeder	152	89,000	13.53	
Fare collection system			4.97	10,877
Per bus	347	7,176	2.49	
Per gate	213	11,648	2.48	
Smartcard Point of Sale (POS)	1,030,059	0.86	0.89	1,946
Other systems and equipment			1.38	3,010
Stations POS			0.54	
User information displays	130	923	0.12	
Loud speaker system	130	1,000	0.13	
Backup energy	31	1,071	0.03	
CCTV/digital video recorder (DVR) equipment	65	3,995	0.26	
Control center equipment	1	244,408	0.24	
CCTV POS	1	39,332	0.04	
SAE control/ support software POS	366	1,500	0.55	
Total				112,857

31. **BRT O&M costs.** The total operating cost of the new BRT is estimated at TZS 60.5 billion per year (see table 5.12). This includes bus service operating costs, O&M costs of fare collection, O&M costs of other station systems, and equipment and DART operating costs. Bus service operating costs are primarily composed of staff salaries (table 5.13), other benefits (that is, TZS 40 million per staff and year), vehicle license and insurance fees (table 5.14), and mileage-dependent operating costs, such as fuel and lubricant and tire costs (table 5.15), with

indirect operating costs (3.9 percent of the total operating costs assumed) and back office expenditures (10 percent of the total operating costs) added.

**Table 5.12. Summary of BRT Operating Costs per Year**

	<b>TZS, millions</b>
Bus service operating expenditures	42,596
O&M expenditures fare collection	6,369
Operating expenditures infra (other systems and equipment)	8,918
Operating expenses incurred by DART	2,627
Of which, fund management costs	548
<b>Total</b>	<b>60,510</b>

**Table 5.13. Average Salaries by Type of Worker**

	<b>Required Staff per Bus</b>	<b>Monthly Salary (TZS)</b>
Trunk bus driver	2.16	876
Traffic control	0.1175	1,056
Mechanics	0.4225	804
Administrative personnel	0.1	948
Directors and partners	0.005	21,000

**Table 5.14. Vehicle License Fees and Insurance Costs**

	<b>TZS per Bus</b>
Vehicle license fee (per year)	290,000
Road transport license fee (per year)	37,000
Garage depot maintenance (per year)	4,522,376
Vehicle cleaning costs (per day)	634
Vehicle insurance fees (% of vehicle value)	30%
Vehicle registration fee	150,000
Vehicle Inspection fee	5,000

**Table 5.15. km Dependent Operating Costs**

	<b>TZS 1,000 per km</b>	
	<b>Trunk Bus</b>	<b>Feeder Bus</b>
Fuel cost	676.2	409.8
Lubricant cost	33.8	20.5
Tire cost	95.4	57.3
Parts and replacements	306.3	105.0
Other maintenance costs	45.1	25.3

32. Fare collection expenditure is calculated under the assumption that 23 persons would be employed at a monthly salary of TZS 1.928 million (table 5.16). The same level of annual benefits is assumed (that is, TZS 40 million per person). As other operating costs, 1.5 percent of the total fare revenue is assumed to be incurred. In addition, another 1.5 percent is assumed for fare collection system maintenance. In total, TZS 6.37 billion would be incurred per annum.

33. Infrastructure maintenance costs, mainly incurred to bus stations and terminals, are also estimated based on required staff and maintenance costs. This amounts to about TZS 9–9.5 billion per year (table 5.17). DART operating costs amount to TZS 2.1 billion per annum (table

5.18). This is assumed to be incurred from the beginning of the project (that is, 2017). Other BRT O&M costs will be incurred once the bus services become operational (that is, 2020).

**Table 5.16. Annual Fare Collection O&M Costs**

	<b>TZS Million per Year</b>
Staff cost	613.0
Other operating costs	1,905.4
System maintenance costs	1,905.4
Card renewal costs	1,946.2
<b>Total</b>	<b>6,370.0</b>

**Table 5.17. Summary of Other Infrastructure O&M Costs**

	<b>TZS Million per Year</b>
Salary	
Staff at stations	4,026.3
Other personnel at stations	469.2
Benefits and social security contributions	
Staff at stations	97.5
Other personnel at stations	604.6
Maintenance and replacement costs systems and equipment	617.5
Station maintenance costs	2,086.5
System operation and management costs	814.7
User support system operation costs	48.2
Office lease costs	154.1
Start-up costs (one time)	585.0
<b>Total</b>	<b>9,503.4</b>

**Table 5.18. Annual DART Operating Costs**

	<b>TZS, millions</b>
Staff salary	1,289.4
Staff benefits	2.0
Social security contributions	193.0
Administrative expenses	193.0
Equipment	168.0
Office lease	154.0
BRT police unit	80.0
<b>Total</b>	<b>2,079.4</b>

34. **The result of the economic analysis.** Based on the abovementioned assumptions and estimates, economic efficiency of investment is evaluated over a project life of 13 years, that is, three years for construction (2017–2019) and 10 years for operations (2020–2029). The EIRR is estimated at 22.4 percent, well above the conventional threshold. While the total gross costs amount to TZS 1,325 billion, the total gross benefits are estimated at TZS 3,548 billion (see table 5.19). Evaluated at a discount rate of 12 percent, the NPV of the project is estimated at TZS 477.8 billion. Although the World Bank recently recommended to use a discount rate of six

percent, a higher discount rate is considered to be appropriate for high growth countries, such as Tanzania.

**Table 5.19. Summary of CBA (TZS, billions)**

	Gross	NPV (12%)
Costs	1,325	885.6
Ground infrastructure costs	556.2	498.7
Other capital costs (buses, fare collection systems)	112.9	89.8
Bus service operating costs	491.5	202.7
Fare collection O&M costs	75.9	31.1
Other infrastructure O&M costs	107.6	44.5
Major maintenance costs of other infrastructure	0.6	0.3
DART operating costs	37.8	18.6
Benefits	3,548.6	1,363.5
Auxiliary revenues	30.5	12.5
Savings of Daladala operating costs	1,422.1	546.4
Travel time savings	2,064.4	793.2
Reduction of CO <sub>2</sub> emission cost	31.7	11.4
Net present value (TZS, billions)	—	477.8
IRR (%)	—	22.4%

35. **Sensitivity.** The result is found robust against different assumptions. Sensitivity analysis is carried out under three scenarios: (a) 30 percent increase in infrastructure investment costs; (b) 20 percent reduction in daily ridership; and (c) both of the two cases. When the investment costs increase, the IRR would be reduced to 18 percent, while expected economic benefits are the same (table 5.20). When the actual ridership is lower than expected, the economic benefits would decline significantly. However, the costs would also slightly decline, because some of the costs elements are assumed to be dependent on the ridership. The IRR is estimated at 19.2 percent. When the two scenarios happen simultaneously, the IRR would be reduced to 15.1 percent with an NPV of TZS 172.9 billion at a discount rate of 12 percent. Still, the expected net benefits are significant, confirming robustness of economic viability of the project.

**Table 5.20. Sensitivity Analysis**

	NPV (TZS, billions)	IRR (%)
Baseline	477.8	22.4%
30% increase in investment costs	328.2	18.0%
20% reduction in bus ridership	322.6	19.2%
Both of the above	172.9	15.1%

### **Dar es Salaam BRT System Phases 3 and 4: Financial analysis**

36. Based on the same assumptions and estimates as elaborated earlier, a financial analysis is carried out. This aims at assessing the financial viability of the BRT bus service operators and fare collection service providers. Since the Government shoulders capital spending in ground infrastructure, such as roadworks, stations, and bus depots and terminals, these costs (about TZS

556 billion) are not included in the financial analysis. Other costs are assumed to be borne by DART and service providers.

37. Major adjustments are needed for revenues and taxes. In theory, financial unit costs can be different from economic ones, for instance, labor costs. However, no sufficient data are available to distinguish them in Tanzania. Thus, no adjustment is taken in this regard.

38. Expected total revenues are forecasted consistently with the above-estimated ridership, that is, 563,000 passengers per day. The fares vary from TZS 500 to TZS 900, depending on combination of trunk and feeder buses (see Table 5.5). In total, TZS 1,270 billion would be expected over 10 years of operations. However, some discounts would be provided. With some auxiliary revenues, such as advertising, added, TZS 1,177 billion of revenues would be generated by the new BRT services (table 5.21). Service providers will receive 80 percent of the total fund collected to run the BRT system, and DART will receive 20 percent of the fund for supervising the system and maintaining the infrastructure assets.

39. On the cost side, bus service operating costs need to be adjusted, because fuel prices include 40 percent of tax. This will be fairly a large expense to bus operators. In addition, DART and service providers will have to pay corporate tax based on net profits. A corporate tax rate of 30 percent is assumed throughout the projections. Dividends are calculated based on the projected financial statements and its withholding tax rate is 10 percent. In total, the total cash flow cost is estimated at TZS 1,125 billion over the project life.

40. The financial IRR is estimated at 11.6 percent. This is interpreted to mean that large-scale transport infrastructure investment, such as mass transit, brings about more economic benefits than financial revenues. It is important to ensure financial viability with a long-term horizon. The fare settings and ridership to be realized are key elements.

**Table 5.21. Financial Costs and Revenues over the Project Life**

	<b>Total (TZS, billions)</b>
<b>Revenues</b>	<b>1,177.1</b>
Gross fare revenues	1,270.2
Gratuities discount	-118.6
Auxiliary revenues	
Bus service providers	12.7
Fare collection servicers	12.7
<b>Costs</b>	<b>1,125.9</b>
Other capital costs (buses, fare system)	112.9
Bus service operating costs	411.4
Fuel tax (40%) adjustment	
Trunk bus	73.3
Feeder bus	26.3
Fare collection O&M costs	63.2
Other infrastructure O&M costs	89.8
Major maintenance of infrastructure	0.6
Corporate tax (30%)	109.4

Dividends paid	215.1
Dividends withholding tax (10%)	23.9

### Ubungo intersection: Economic analysis

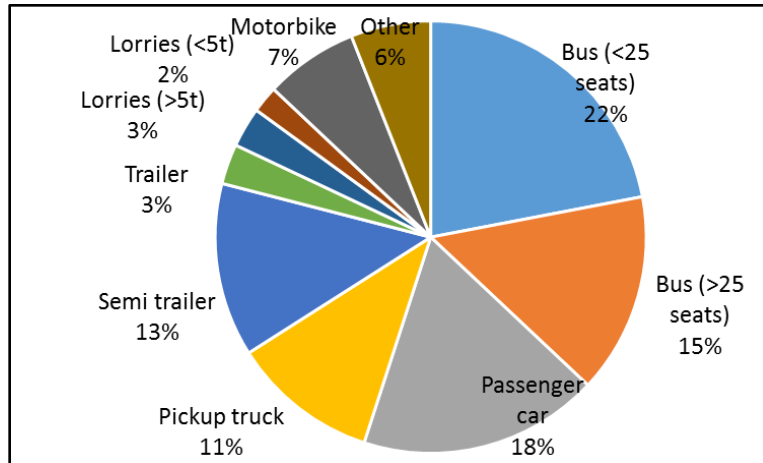
41. The Ubungo intersection is a critical part of the BRT system in Dar es Salaam. In the proposed BRT system, two BRT lines are planned to cross the intersection of Ubungo: One goes through Morogoro Road, and the other goes through Nelson Mandela and San Nujoma Roads. However, economic benefits from the intersection improvement are expected to be distributed more widely than the BRT system. According to a traffic survey conducted in 2014, 3,000 to 4,000 vehicles are passing the intersection every hour. In the peak hour, traffic exceeds 5,000 vehicles per hour (see table 5.22). Heavy traffic is becoming an increasingly serious burden for freight operators as well as many commuters, especially passenger cars and bus users (see Figure 5.1). At Kimara-Buguruni direction, for instance, about 40 percent of the traffic entering the intersection is small- and medium-size buses. About 30 percent are passenger cars and pickup trucks. Average travel speed through the intersection is currently merely 1 km per hour, with an average control delay of 711 seconds or about 12 minutes per vehicle. Thus, not only BRT buses but also other passenger cars and trucks would likely benefit from reduced congestion because of the project.

42. To evaluate the economic viability of the component, a conventional CBA is undertaken comparing the investment and maintenance costs and economic benefits, such as travel time reduction as well as reduction of VOCs. Improved road safety is another major economic benefit that is expected from the planned investment. Emissions are also expected to be reduced. However, these are not taken into account because of the lack of detailed data precisely at the project location. The following assessment is thus considered conservative.

**Table 5.22. Peak Hour Traffic Volume**

Day	Reference date	Peak hour	Volume
Monday	10-Feb-2014	11:15-12:15	6,704
Tuesday	11-Feb-2014	6:30-7:30	5,632
Wednesday	12-Feb-2014	10:15-11:15	4,807
Thursday	13-Feb-2014	15:45-16:45	4,409
Friday	14-Feb-2014	15:45-16:45	4,601
Saturday	15-Feb-2014	12:00-13:00	4,952
Sunday	16-Feb-2014	17:00-18:00	4,353

**Figure 5.1. Traffic Composition at Kimara-Buguruni Direction**



43. **Total investment costs.** The required investment costs vary across different designs, essentially depending on land areas to be acquired and construction period. The total project costs are mainly composed of three parts: (a) structural works (reinforced concrete for substructure and superstructure, excavation, and backfilling), (b) road works, and (c) land acquisition for building. There are four alternatives proposed in the preliminary design report. The estimated total investment costs are provided in table 5.23.

**Table 5.23. Estimated Total Investment Costs**

	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Description	Grade separated intersection, constructing the road in the direction of Sam Nujoma Road and Nelson Mandela Road in two elevated levels. The first level is about 7 m above the ground level at the point of intersection, which is the direction from Sam Nujoma Road to Nelson Mandela. The second level is about 7 m above the first level, which is the direction from Nelson Mandela to Sam Nujoma Road. These two elevated roads are connected with Morogoro Road with a set of on and off ramps.	Grade intersection for left and right turn traffic from all directions, constructing the road on three levels. The bottom level is in the direction of Morogoro Road, which is a tunnel with a level of 7 m under the ground level at the lowest level. This tunnel will serve the through traffic in addition to the BRT system. The upper level is elevated about 7 m above the ground level in the direction of Nelson Mandela and Sam Nujoma Roads. This bridge will serve the through traffic in this direction. At the grade level it will serve the turning movements traffic.	Intersection constructed on two levels. The first level is the grade level that accommodates through and left turn traffic to Morogoro Road. Other traffic will be served by the elevated roundabout.
Investment cost (TZS, millions)	61,043.3	51,163.6	49,146.8
Structure and road works	36,095.7	27,018.8	24,782.7
Land acquisition	24,947.6	24,144.8	24,364.0

44. **Construction period.** The construction period differs depending on complexity of technical design. It is assumed that the above estimated structure and road work costs are distributed over the first two years, according to the estimated construction period presented in table 5.24.

**Table 5.24. Estimated Construction Period**

Alternative	Construction Period
Alternative 1	19 months
Alternative 2 and 2 modified	24 months
Alternative 3	15 months

Note: Alternative 2 modified is same alternative 2 structure elevated to start at existing level ground.

45. **Land acquisition.** The areas of land to be acquired are different depending on design (see table 5.25). For land acquisition costs, a constant unit cost is assumed to be US\$300 per square meter, which reflects economic opportunity costs of land. It is assumed that land acquisition is implemented over the first two years of the project.

**Table 5.25. Land Acquisition**

Alternative	Land Area to Be Acquired (m2)
Alternative 1	51,677
Alternative 2	50,014
Alternative 2 modified	49,681
Alternative 3	50,468

46. **O&M costs.** Operations and maintenance costs are assumed to be in the magnitude of 15 percent of construction cost, considering 10 percent as a maintenance cost for the intersection body (concrete) and intersection road sections and five percent as an operating cost of the intersection. These are consistent to the average value of best practice in the same types of projects in Africa. O&M costs would be required after the two-year construction period. Taking into account the average inflation rate over the last 10 years in Tanzania, it is assumed that O&M costs increase annually at 14 percent from year 3 onward.

47. **Project life.** The project life is assumed to be 20 years after the construction.

48. **Expected economic benefits.** The main economic benefits expected from the intersection improvement include (a) savings in time for users of the intersection roads (current users and potential generated and diverted traffic); (b) reduction in VOCs for users of the intersection roads (current users and potential generated and diverted traffic); and (c) reductions in the social and economic costs of accidents.

49. **Traffic forecast.** The future traffic volumes are projected based on the growth rates presented in table 5.26. Given the country's strong growth at 6–8 percent over the past decade, the traffic volume is also expected to continue growing vigorously. There are about one million vehicles registered in the country. More than 90,000 vehicles are newly registered every year. About 80 percent are registered in urban areas, out of which Dar es Salaam accounts for about 70 percent. Motorization is expected to be accelerated, as the people's income level increases

particularly in urban areas. In addition, based on an Origin – Destination (OD) survey carried out around the intersection, it is assumed that the traffic in each movement direction will be increased by 30 percent as a result of constructing the project. This is the induced demand because of smooth traffic flows and less travel time through the intersection.

**Table 5.26. Assumed Traffic Annual Growth Rates (%)**

	Years 1–5	Years 6–10	Year 11 Onward
Passenger vehicle	7.8	6.6	6.6
Freight vehicles	5.9	6.0	6.0

50. **Expected time savings.** The project is expected to reduce travel time significantly. Transport engineering software, Synchro, estimates that given the above-predicted traffic increase, the control delay would increase from 711 seconds (about 12 minutes) to 2,560 seconds (about 42 minutes) without any intervention (see table 5.27). Different intersection designs would have different absorption capacity of the traffic, hence leading to different delays. Under Alternative 1, the control delay would be reduced to 22 seconds after the project. Even with the increased future traffic, the control delay would be able to be contained less than 3 minutes. Under Alternative 2, the control delay would be declined to 12 seconds after the project and 87 seconds with the future traffic.

**Table 5.27. Expected Time Reduction by Alternative Design**

	Do Nothing		Alternative 1		Alternative 2		Alternative 3	
	Current	Future	Current	Future	Current	Future	Current	Future
Control delay (second per vehicle)	711	2560	22	163	12	87	44.9	—
Intersection capacity utilization (%)	167.1	477.4	38.5	82	30.9	68	39.6	—
Average speed (km/hour)	1	0.1	7	0.1	11	1	1	—

51. **Value of time.** Value of time varies among road users. Thus, a value of time for each vehicle type is estimated based on the latest household interview survey carried out in 2007. To reflect changes in the average monthly income of vehicle users between 2007 and 2014, per capita GDP is used from the national accounts statistics. The value of time differs from TZS 1,420 to TZS 21,557, depending on type of vehicle (table 5.28). The total time saving benefits are calculated by multiplying the traffic volume with the value of time and expected time reduction.

**Table 5.28. Value of Time in Tanzania (2014 Prices, TZS per Hour)**

	Passenger Car	Bus	Truck	Trailer
Average monthly income	839,256	276,521	285,865	176,139
Monthly working hours	186	186	186	186
Average hourly income	4,512	1,487	1,537	947
Adjustment factor	0.5	0.5	0.5	0.5
Average hourly income after adjustment	2,256	743	768	473
Vehicle occupancy	1.9	29	3	3

Time value by vehicle in 2014	4,287	21,557	2,305	1,420
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52. **VOCs.** Given the reduction in congestion and delay from the improved intersection, VOCs are expected to be reduced. The reduction is calculated based on the total number of vehicles crossing the intersection and average speed for crossing the intersection (see table 5.29). Due to the project, the vehicle traffic would be changed and average crossing time would also be changed. The VOC for each vehicle category is updated using current unit costs, such as fuel and lubricant prices, crew wages, prices of new vehicles, and repair and maintenance costs, for 2014. The intersection project is expected to lead to a reduction in VOCs, mainly due to the increased speed, which would reduce fuel consumption of vehicle. As seen in the table, fuel cost constitutes about 60–70 percent of VOCs.

**Table 5.29. Vehicle Operating Costs in Tanzania (2014 prices, TZS per Vehicle-km)**

Vehicle Category	Motor Cycle	Car	4WD Jeep	Pickups	Minibus	Bus	Medium Truck	Heavy Truck
Capital cost	12.15	41.99	67.50	38.42	40.50	41.66	37.97	18.50
Tire cost	9.00	22.50	32.63	20.25	25.31	78.75	78.75	123.75
Fuel cost	74.00	277.50	315.00	262.50	315.00	630.00	450.00	630.00
Oil cost	2.25	4.50	6.08	8.10	10.80	15.19	11.25	13.16
Maintenance cost and spare parts	6.75	23.22	37.35	17.08	22.50	23.14	20.98	18.84
Crew cost	0.00	0.00	90.00	69.23	101.25	57.86	56.25	26.16
Total VOCs	104.15	369.71	548.55	415.58	515.36	846.59	655.20	830.41

53. **The results and sensitivity analysis.** The IRR is calculated based on the investment and maintenance costs, as well as economic benefits, including travel time and VOC reductions. The economic rate of return is estimated at 25.7 percent to 40.7 percent, depending on engineering design (table 5.30). A significant part is explained by benefits from travel time reduction.

**Table 5.30. Baseline CBAs (TZS, millions)**

	NPV (TZS, millions)				NPV (12%)	IRR (%)
	Investment Cost	Maintenance Costs	Savings of VOC	Travel Time Savings		
Alternative 1	50,055	492,841	278,532	476,463	49,596	25.7%
Alternative 2	41,954	368,907	307,203	509,627	99,886	37.8%
Alternative 3	40,300	338,377	353,703	512,146	120,164	40.7%

54. With Alternative 2 modified, three different scenarios are examined to test sensitivity of the results: (a) 20 percent increase in capital investment costs; (b) 20 percent reduction in expected traffic; and (c) both of them. The IRR is reduced to 16–25 percent, down from 31 percent (see table 5.31). Still, even under the worst case scenario (c), the IRR would be greater than a conventional threshold, with an NPV of about TZS 13 billion or US\$5.9 million.

**Table 5.31. Sensitivity Analysis**

	<b>IRR</b>	<b>NPV (Discount Rate 12%) (TZS, millions)</b>
(0) Base scenario Alternative 2 modified	31%	69,330
(a) 20% increase in capital investment costs	25%	51,696
(b) 20% reduction in future traffic	20%	21,369
(c) Both (a) and (b)	16%	13,046

## **Annex 6: Synergies with Other Projects in Dar es Salaam City**

### **TANZANIA: Dar es Salaam Urban Transport Improvement Project**

1. The DUTP and the World Bank's Tanzania portfolio, more broadly, are designed to achieve the development priorities established by the GoT, along with the World Bank's twin goals of eliminating extreme poverty and promoting shared prosperity.
2. The Tanzania Development Vision 2025 aspires for a middle-income status with high-quality livelihood; peace, stability, and unity; good governance; a well-educated and learning society; and a competitive economy capable of producing sustainable growth and shared benefit. The emphasis of Tanzania's 2016–2021 FYDP is to transform the country into a semi-industrialized economy.
3. The World Bank's CAS FY12–15 points to infrastructure, slow reforms in the business environment, low agricultural productivity, low service delivery, and governance issues as key constraints to the achievement of development goals. In response, the CAS focuses on four strategic objectives and eleven outcomes:

#### **Objective 1: Promote Inclusive and Sustainable Private Sector-led Growth**

- (a) Improved business environment and financial intermediation
- (b) Improved productivity and commercialization of agriculture
- (c) Enhanced sustainability and improvement management of natural resources

#### **Objective 2: Build Infrastructure and Deliver Services**

- (a) Increased access, quality, and sustainability of electricity
- (b) Increased access to and quality of transport services
- (c) Increased access to and quality of water and sanitation services
- (d) Improved management and delivery of urban services

#### **Objective 3: Strengthen Human Capital and Safety Nets**

- (a) Improved access to and quality of education
- (b) Improved access to and quality of health care delivery
- (c) Improved access to safety nets

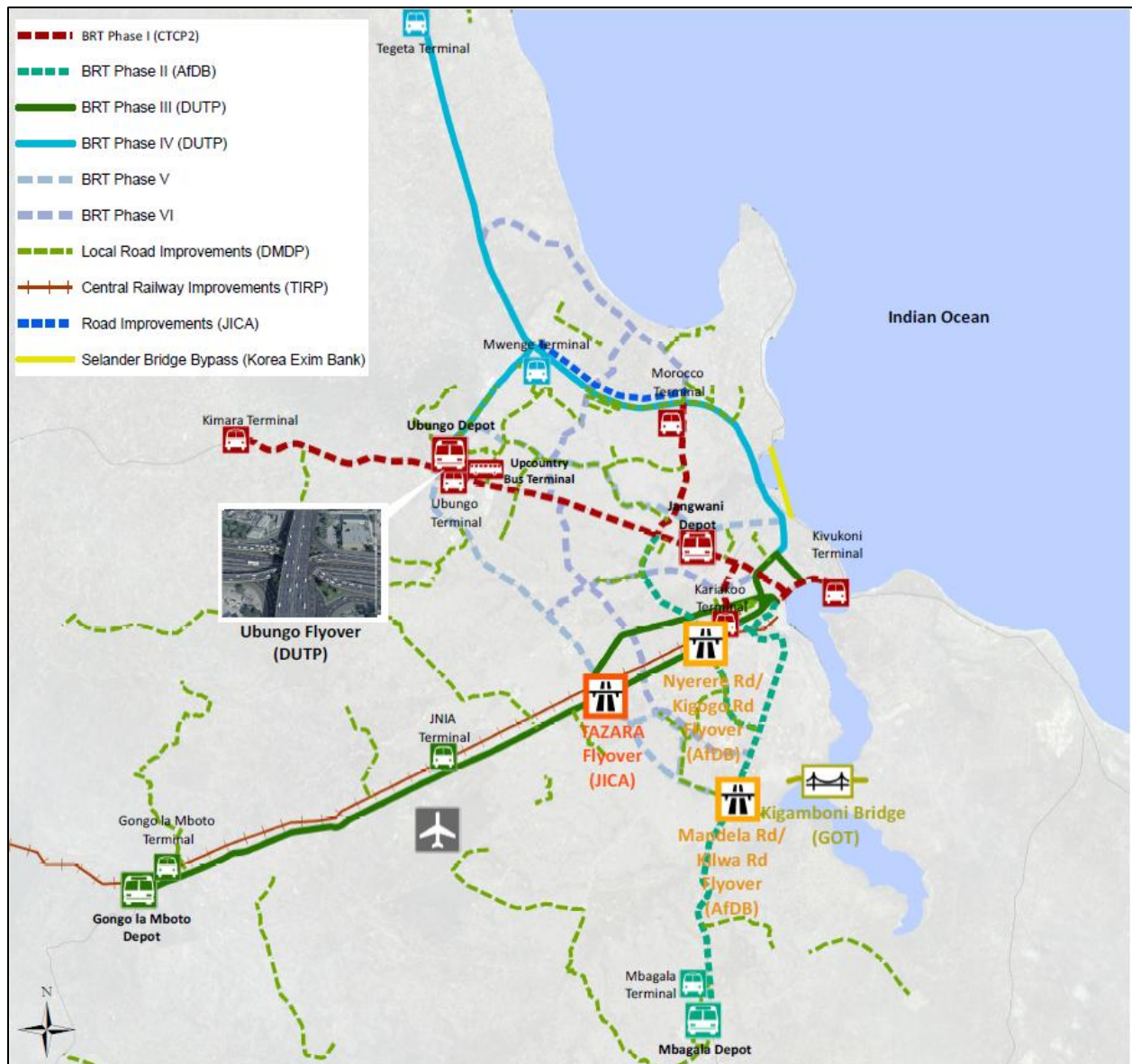
#### **Objective 4: Crosscutting: Promote Accountability and Governance**

- (a) Improved accountability and efficiency of public management

4. In response to these shared goals and noted constraints, the World Bank has developed a diverse portfolio in Tanzania, with numerous investments that offer synergies and opportunities for cross-sectoral collaboration.

5. The illustration of key initiatives supported by the GoT, the World Bank, and other development partners in Dar es Salaam City is summarized in Figure 6.1.

**Figure 6.1. Synergy of DUTP Activities with Other Major GoT and Development Partners-Funded Projects in Dar es Salaam**



Source: GIS mapping of projects by the World Bank staff.