DART
DAR RAPID TRANSIT

Regional Workshop to Promote Soot-Free Bus and Sustainable Public Transport in Accra
Institute of Environmental Studies Amasaman- Accra, Ghana

Bringing Bus Rapid Transit to Tanzania

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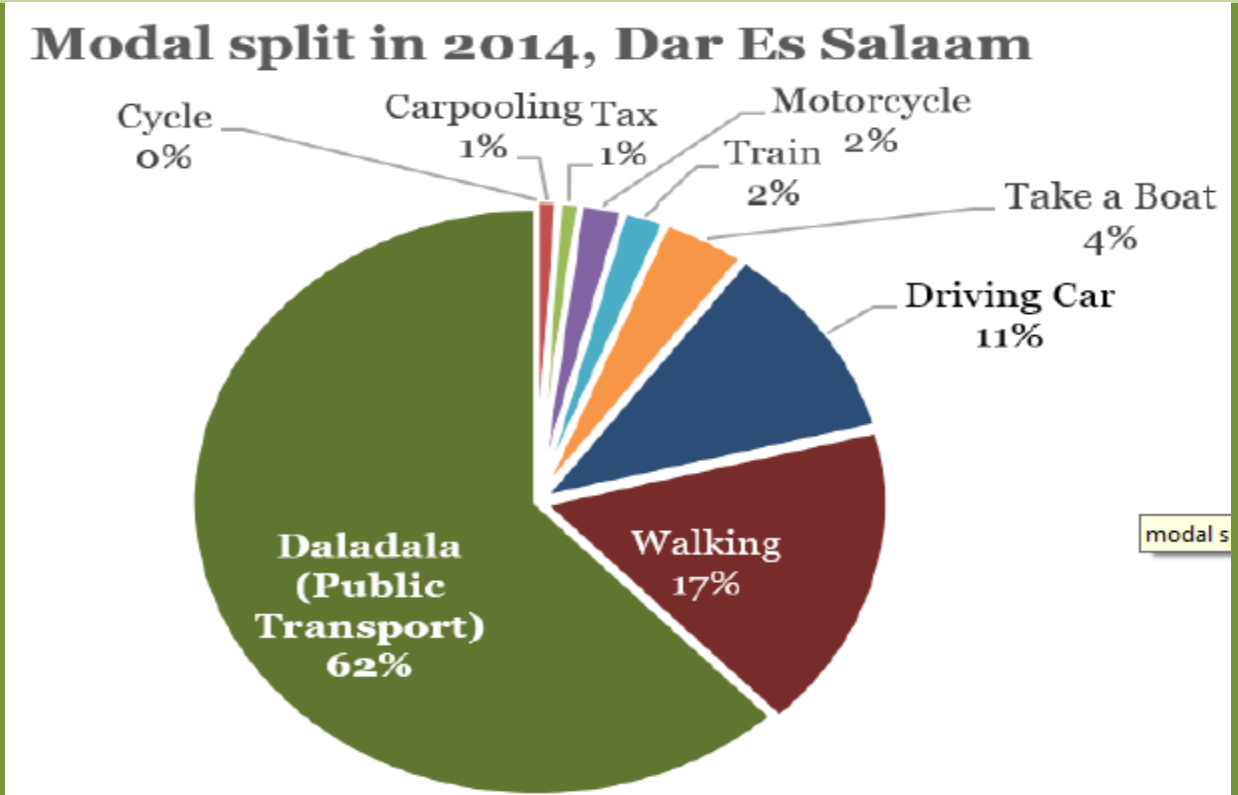
1. DAR ES SALAM CITY PROFILE

- One of the fastest growing cities in the world. Average annual growth from 2002 to 2012 was 7.7 percent
- The city's population is estimated to be over 5 million and expected to be a mega city with more than 10 million by 2030.
- The Dar es Salaam metropolitan area covers a large part of the Dar es Salaam region with a total area of 1,391 square kilometres and a population density of 3,133 per square kilometre.
- Economic growth in Dar es Salaam is estimated at 10% per annum, above the country average
- Vehicular Growth is around 19% per annum (2002-2015)

2. MODES OF TRANSPORT

- Average Annual Vehicular Growth is around 19% per annum (2002-2015)
- Modes of Transport
  - ✓ Dala dala
  - ✓ Bodaboda
  - ✓ Bajaji
  - ✓ Private Car



3. URBAN TRANSPORT CHALLENGES

Rapid Growth of Population

Insufficient Infrastructure

Expansion of Urban Areas

Emission from Vehicles

Congestion and traffic jams

Inadequate Traffic Management

Air quality and Health issues

4. MASS TRANSIT OPTIONS

Bus Rapid Transit

Light Rail Transit

Underground metro

Urban rail

Selection Of BRT

i. Metro System 

- High Cost and Operational Challenges
- Higher implementation and operational cost

ii. Improved Bus System 

- Low Cost
- Low Operational Risk
- Availability of Affordable Technology
- Encourage Participation of Local Entrepreneurs

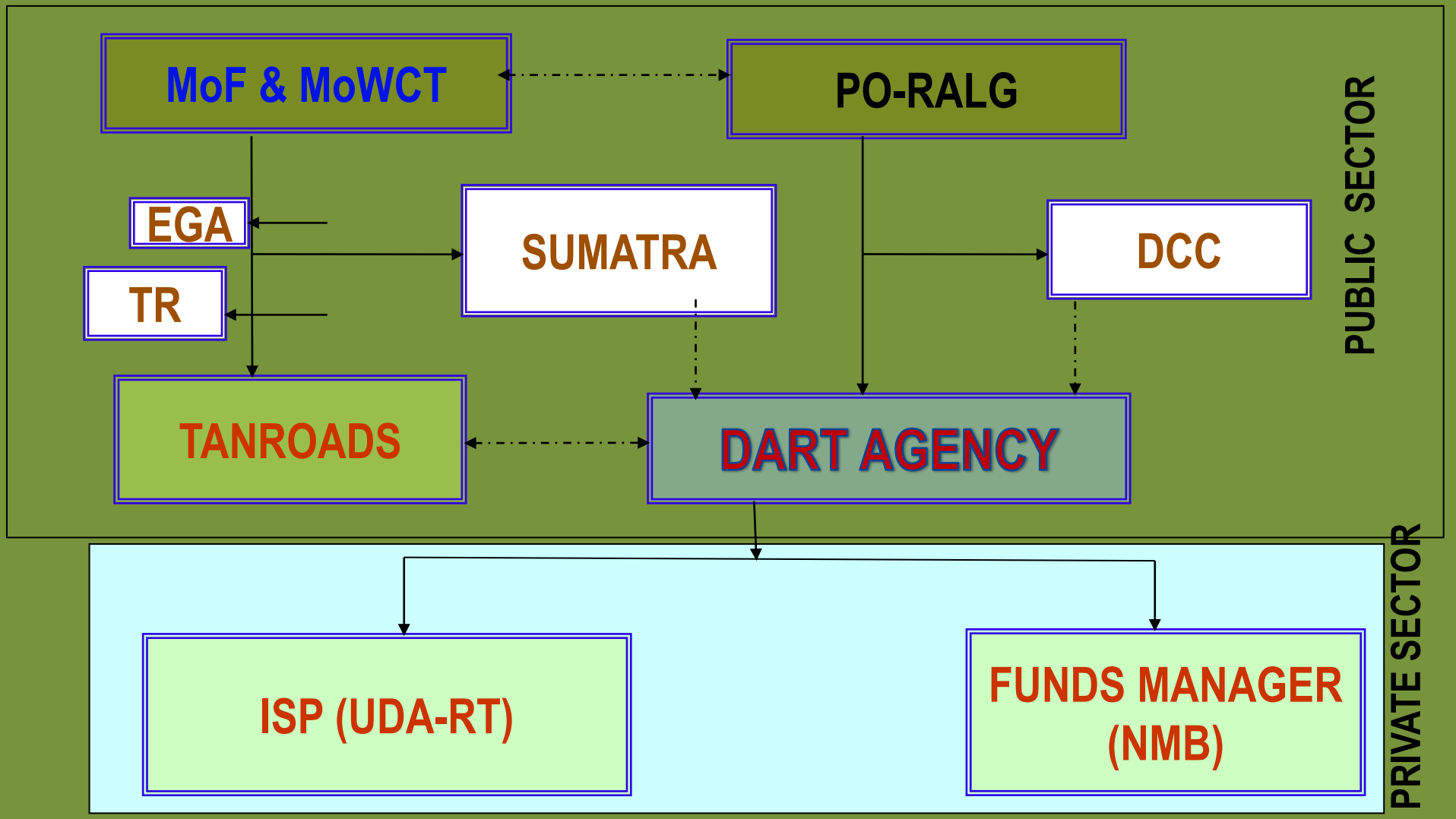
5. DEVELOPMENT OF BRT IN DAR ES SALAAM

- Concept was Visualized in 2002 and Detailed Study was completed 2005 - 2007.
- 6 Corridors were Selected and Construction Proposed in 6 Phases; DART Agency was established 2007.

Interim Services

- Infrastructure was completed before obtaining a Service provider.
- Infrastructure was being misused, invaded by petty traders, local motorcycles, local buses.
- Government decided to have Interim Services while normal procurement by PPP continued.
- Local operators formed a company to be service provider (ISP).
- Interim Services became Operational on 10 May, 2016 covering 20.9km Trunk Routes and One Feeder Route with 140 buses, 39 (18 metre articulated buses), 76 (12 metre hybrid buses), and 25 (12 metre feeder buses).

DART KEY IMPLEMENTING ACTORS

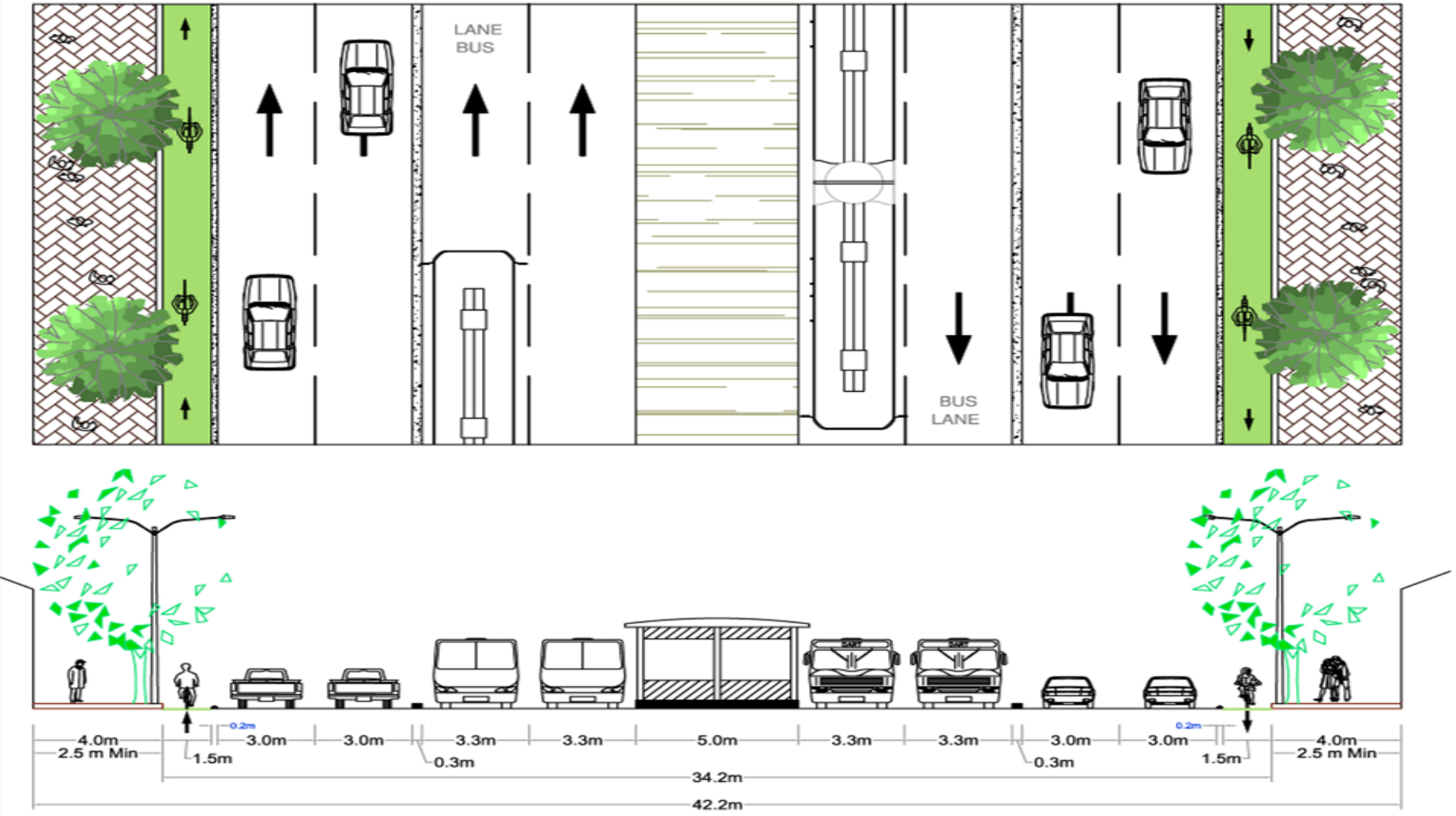


THE SYSTEM DEVELOPMENT IS FINANCED BY A WB LOAN MANAGED BY MINISTRY OF FINANCE

MAIN DART CHARACTERISTICS

- **Fully dedicated right of way** (busway)
- **Alignment in the center of the road** (to avoid typical curb-side delays)
- **Stations with off-board fare collection** (to reduce boarding and alighting delay related to paying the driver)
- **Station platforms level with the bus floor** (to reduce boarding and alighting delay caused by steps)
- **Redesigned intersections** (to avoid intersection signal delay)

Typical cross section



Modern Transport System

Infrastructure (Public)

Corridor (roadways, bicycle and pedestrian paths)

Stations/Terminals

Depot

Pedestrian bridges

Control room

Fare Collection (Private)

Fare collection system

Equipment (Turnstiles, Ticket Office Machines)

Smart Cards, mobile top ups

Bar coded paper tickets

Bus Operations (Private)

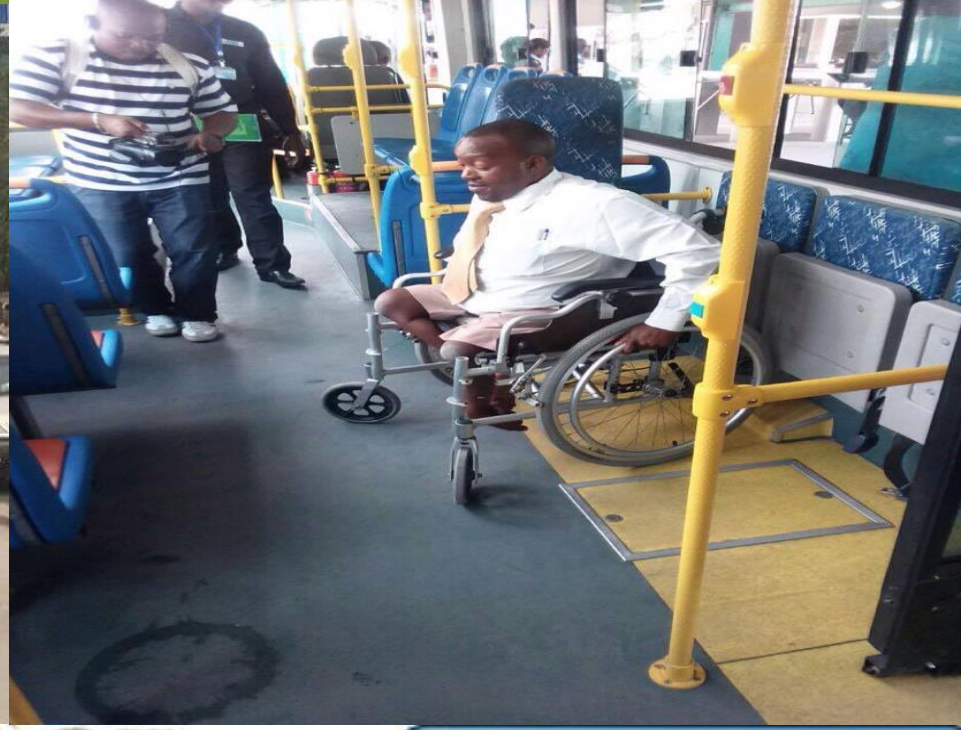
Buses, articulated 18m, standard 12m, hybrid 12m

Bus Operations

Cleaner fuel, Euro III standard

Intelligent Transportation System


28
T 131 DGW

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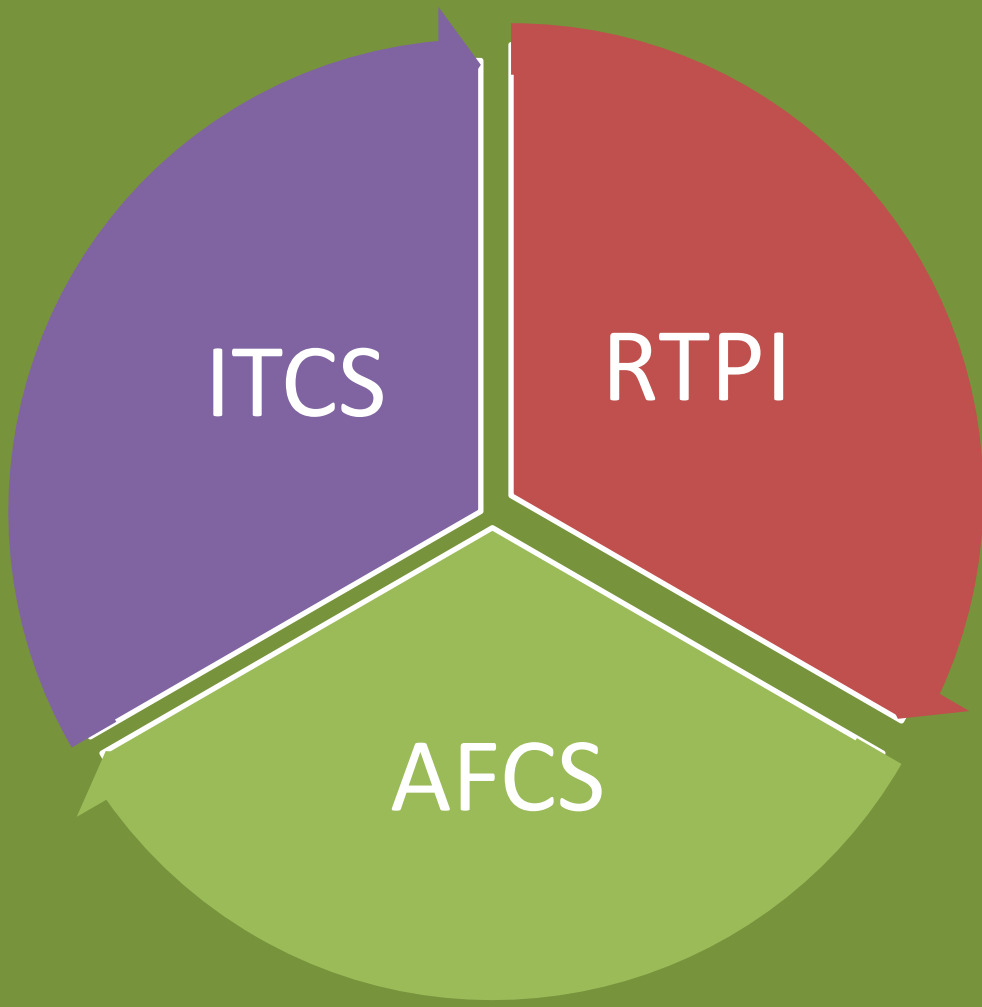
DART

One Single Software Platform

Three main building blocks uber one umbrella



ITS

Intelligent Transport System

Systems Capability

Real Time Visibility and Tracking of buses

1. automatic vehicle location
2. Various view, selection and search options
3. Monitoring of the performed services (status, deviations, etc.)

Daily Planning

1. Route Planning
2. Bus Scheduling

Operations

Optimization as and when required

RTPI

Real Time Passenger Information

Stations

- Displayed in digital screens at stations
- Announcements

On board

- Digital displays
- Announcements

Control Center

- Automatic Vehicle Location
- Various view, selection and search options
- Monitoring of the performed services (status, deviations, etc.)

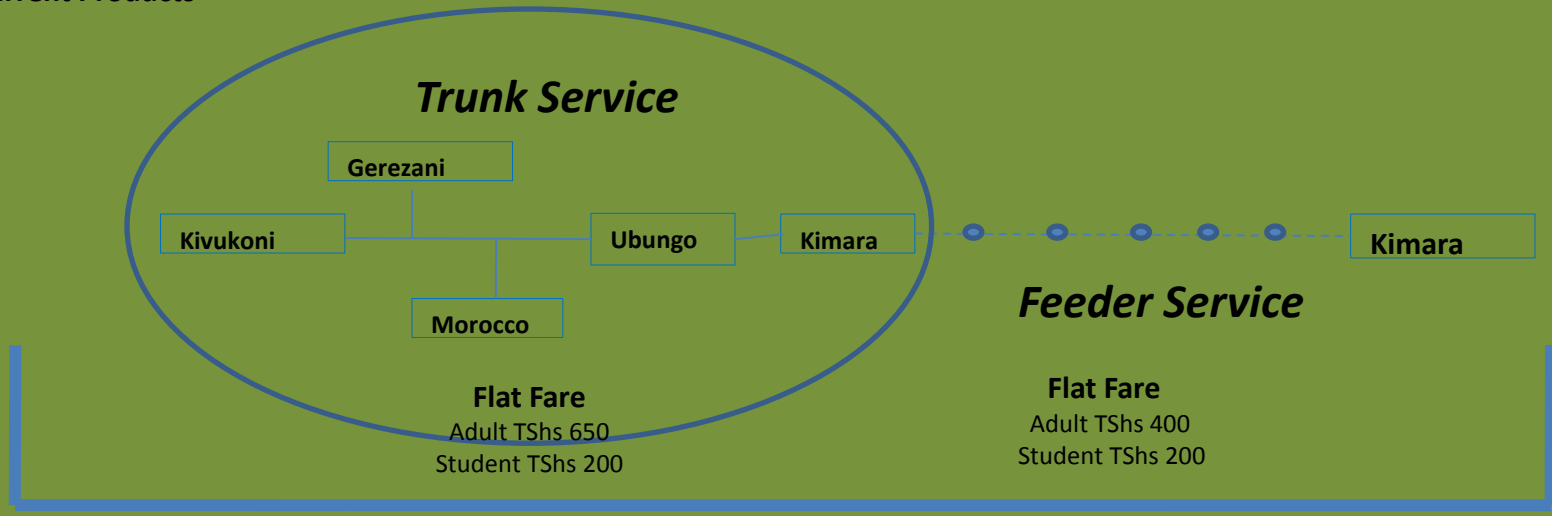
AFCS

Automatic Fare collection, clearing and settlement system

Ticketing Solution for Buses

- ❖ Barcode Tickets
- ❖ Contactless Cards

Current Products

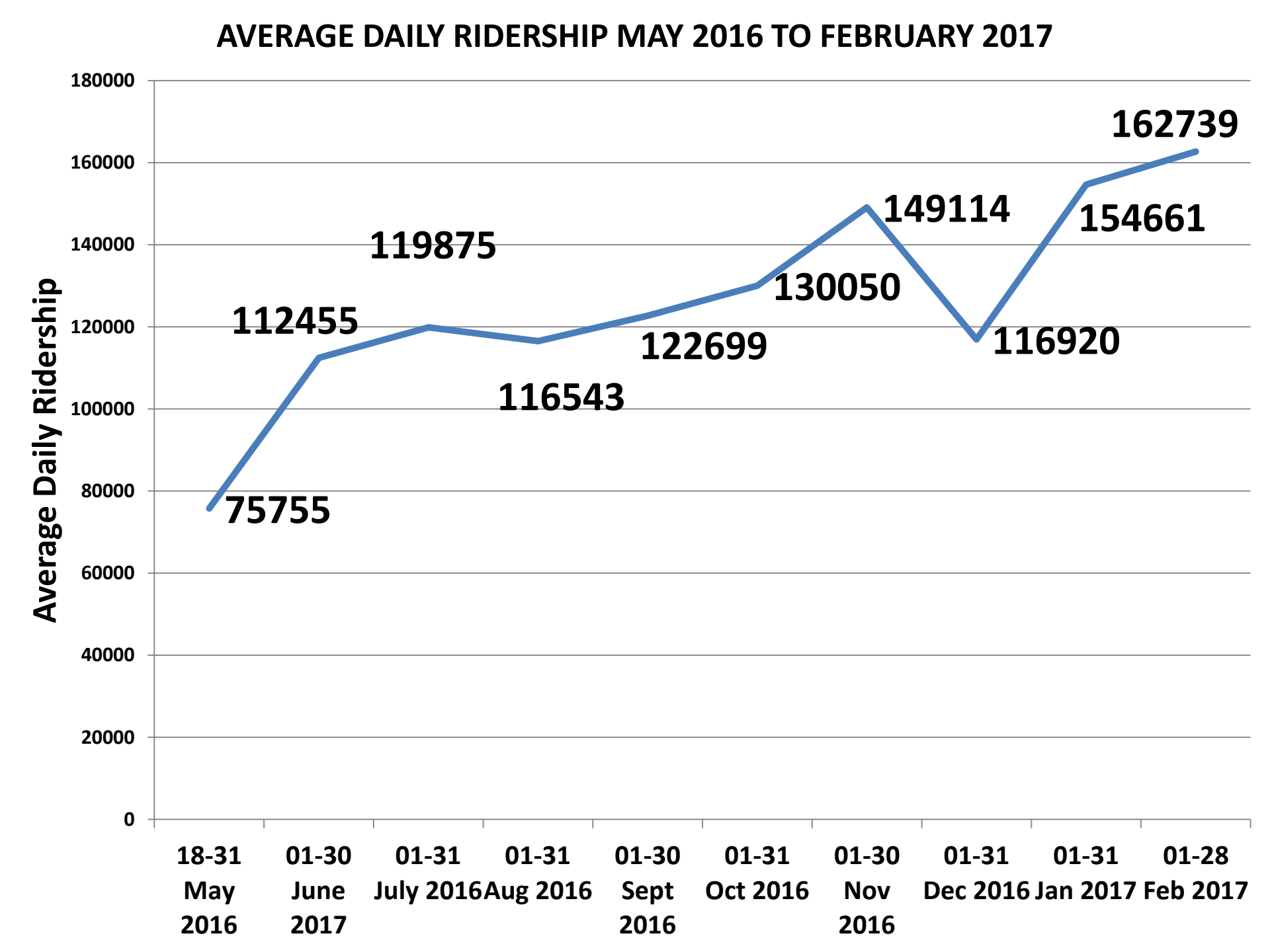


Integrated Fare : Adult TShs 800 and Student TShs 200

Future Products

1. Zonal Fares i.e prorated according to distance travelled
2. Intermodal Services i.e Use of one card for BRT and Ferries

DART System Control Center


AVERAGE DAILY RIDERSHIP MAY 2016 TO FEBRUARY 2017
Average Daily Ridership
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
75755
112455
119875
116543
122699
130050
149114
116920
154661
162739
18-31 May 2016
01-30 June 2017
01-31 July 2016
01-31 Aug 2016
01-30 Sept 2016
01-31 Oct 2016
01-30 Nov 2016
01-31 Dec 2016
01-31 Jan 2017
01-28 Feb 2017

6. ACHIEVEMENTS

1. Bus operations commenced on 10th May 2016. Many enjoying the services.
2. Overwhelming public response.
3. Users of the DART system are experiencing savings in time and money.
   - Example 1: Typical 2 hour trip between Kimara and Kivukoni takes 45 minutes by DART bus.
   - Example 2: Fuel costs typically Tshs.20,000 for a return trip between Kimara and Kivukoni. A return fare costs Tshs.1,300. Huge saving especially for daily commuters.

ACHIEVEMENTS

4. DART buses more comfortable and larger.
5. DART system has beautified the city with its infrastructure and the buses.
6. DART buses engines have environmentally friendly emissions.
7. Modern technology ITS/AFCS improved efficiencies e.g. Smart Cards.
8. Created employment to 972 people.
9. Spill over effects of the project such as created business opportunities e.g. private parking areas near the terminals.

ACHIEVEMENTS

10. DART system addresses disabled, pregnant women and the elderly.
11. Students travel more comfortably.
12. Financial institutions (foreign & local) attracted by DART project.
13. Optic fibre made primary connection over wireless link has improved efficiency in the fare collection system.
14. Support from Police improved safety and security.

7. CHALLENGES

1. DART System is new to Tanzania

- New to key stakeholders including the public, the private sector investor and the Government.

Examples:

- Invasion of the busways by pedestrians, private cars, daladalas and bodabodas – accidents;
- Invasion of petty traders into DART infrastructure;
- Scrambling to enter buses and get seats; inadequate queuing;
- Inadequate local expertise on the Intelligent; Transport System (ITS) and Automated Fare Collection System (AFCS);
- Scheduling and peak hour congestion.
- Traffic intersections

CHALLENGES

2. Resettlement Action Plan (RAP)-Cancellation of some works, Court cases
3. Construction contracts-Quality of designs, Unmapped utilities.

8. LESSONS LEARNT FROM PHASE 1

1. Procurement of Service Providers should commence early.
2. Resettlement Action Plan be implemented and completed before start of construction.
3. Build capacity of both public and private sectors.

9. WAY FORWARD

1. Continuously impart knowledge on DART system for better usage of the system.
2. Complete installation of the ITS/AFCS including Passenger Information System and Control center .
3. Continue Awareness campaigns and enforcement by Police to curb accidents and crime.
4. Improve existing legislation to address offenders on BRT corridors.
5. Establish a Call centre.

WAY FORWARD

6. Evaluate the impacts of BRT (travel times, modal shift, employment, welfare, property values, road safety, trade).
7. Strengthen DART's capacity.
8. Develop other phases. Take lessons learnt from Phase 1 to other phases. To procure Consultants, Contractors, PPP (bus operator, fare collector, fund manager).
9. Continued cooperation with stakeholders – PORALG, PMO, AG,MOF, Treasury Registrar, SUMATRA, TANROADS, eGA, TTCL, TEMESA, TBA, POLICE, Dala dala Associations.
10. Generate revenue sources from BRT corridor – park & ride, advertisements, shopping malls, etc.
11. Address Project Affected Persons e.g. dala dalas etc.

Special Thanks
to
UN Environment and Ghana Environmental Protection Agency
For a regional workshop on Promoting Soot-free and Sustainable Public Transport in Accra

YOUR WELL COME TO DART - TANZANIA

Asante Sana