



Mumbai Urban Transport Project-2A (P113028)

SOUTH ASIA | India | Transport & ICT Global Practice |
IBRD/IDA | Specific Investment Loan | FY 2010 | Seq No: 16 | ARCHIVED on 29-Dec-2016 | ISR26661 |

Implementing Agencies: MRVC

Key Dates

Key Project Dates

Bank Approval Date:29-Jun-2010

Effectiveness Date:08-Oct-2010

Planned Mid Term Review Date:17-Jun-2013

Actual Mid-Term Review Date:17-Jun-2013

Original Closing Date:15-Jun-2015

Revised Closing Date:31-Dec-2016

Project Development Objectives

Project Development Objective (from Project Appraisal Document)

To improve the passenger carrying capacity, operational efficiency, level of comfort of, and the institutional capacity of entities involved in, the suburban rail system of Mumbai Metropolitan area.

Has the Project Development Objective been changed since Board Approval of the Project Objective?

No

Components

Name

Component 1. Rolling Stock Fleet Increase:(Cost \$569.80 M)

Component 2. DC to AC Conversion:(Cost \$144.40 M)

Component 3. EMU Maintenance Facilities and Stabling Lines (counterpart funded):(Cost \$90.21 M)

Component 4. Technical Assistance:(Cost \$36.60 M)

Component 5. (not part of LA/PAD): Project Management

Overall Ratings

Name	Previous Rating	Current Rating
Progress towards achievement of PDO	● Satisfactory	● Satisfactory
Overall Implementation Progress (IP)	● Satisfactory	● Satisfactory



Overall Risk Rating

● Moderate

● Moderate

Implementation Status and Key Decisions

This ISR is the result of the last implementation support mission at Mumbai during the period – November 28 – December 2, 2016 to review the implementation progress of the project. The key progress noted during the mission is summarized below:

Component I:

1. EMU Rolling Stock Fleet Increase – The supply of electrics for 72 train sets was received at ICF by June 20, 2016, which is the World Bank funded portion of the component. Final manufacturing at ICF, funded by the counterpart funds, has also progressed well with only 8 trains left for manufacturing and expected to be completed by February 2017 at the previously agreed rate of 4 trains per month. So far 61 trains have been commissioned and are in service with 3 more in different stages of pre-commissioning.

2. High Speed Bogie Contract: A termination notice has been sent to the contractor due to non-response to MRVC's request for prototype testing.

Component II: DC-AC Conversion

1. Traction Conversion: The works of DC to AC conversion have been completed on Central Railway and conversion to 25kV has been done on the entire Central Railways including harbor branch on April 10, 2016.

2. Supply and Installation of Digital Axle Counters: DAC works have been completed on all 19 stations.

Component III: EMU Maintenance Facilities and Stabling Line (counter-part funded):

1. Maintenance Facilities

Western Railway: The civil works at Mumbai Central have been completed and work at Mahalaxmi is expected to be completed by December 2016.

Central Railway: All works have been completed expect for a minor work at Kurla Inspection bay.

Extension of facilities at Virar Card Shed: All works are satisfactorily completed

2. Stabling Lines

For Central Railway, 17 of the 29 stabling lines have been handed over. Commissioning of 12 lines is pending. Target completion date is January 2017. For Western Railway, 26 of the 42 stabling lines have been completed and commissioned. 9 lines are planned for December 2016 and the remaining 7 lines are proposed to be carried forward to MUTP3.

Component IV: Capacity Building and Associated Measure:

All TA studies have been completed successfully. The only remaining activity is the trespass control works which is now planned to be completed by the end of March 2017. The study on impact assessment of Trespassing reduction measures is ongoing and expected to be completed by June 2017.



Risks

Systematic Operations Risk-rating Tool

Risk Category	Rating at Approval	Previous Rating	Current Rating
Political and Governance	--	● Low	● Low
Macroeconomic	--	● Low	● Low



Sector Strategies and Policies	--	● Moderate	● Moderate
Technical Design of Project or Program	--	● Moderate	● Moderate
Institutional Capacity for Implementation and Sustainability	--	● Moderate	● Moderate
Fiduciary	--	● Moderate	● Moderate
Environment and Social	--	● Moderate	● Moderate
Stakeholders	--	● Low	● Low
Other	--	● Low	● Low
Overall	--	● Moderate	● Moderate

Results

Project Development Objective Indicators

► Vehicle km per day during morning peak hours (8-11 a.m.) - WR (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	436,500.00	542,159.00	560,265.00	615,400.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

The actual figure for December 1, 2016 is as of end-November 2016, when 14 out of 72 trains are yet to be put into operation. While further improvement is expected when the remaining trains will be in service, it is unlikely that the indicator will be achieved at the end of the project period. This is due to the delay of completion of projects under MUTP2B (counter-part funded), such as 5th and 6th line Thane-Diva, 6th line between BCT-Borivali, 5th and 6th between CST-Kurla, extension of Harbour line between BCT-Borivali, 5th and 6th line between CST-Kurla, extension of Harbour line between Andheri – Goregaon, which would enable separation of long distance trains from suburban trains, thereby increasing the frequency and vehicle-km of the suburban trains.

► Vehicle km per day during morning peak hours (8-11 a.m.) - CR (ML) (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	447,578.00	550,464.00	550,464.00	693,453.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

The actual figure for December 1, 2016 is as of end-November 2016, when 14 out of 72 trains are yet to be put into operation. While further improvement is expected when the remaining trains will be in service, it is unlikely that the indicator will be achieved at the end of the project period. This is due to the delay of completion of projects under MUTP2B (counter-part funded), such as 5th and 6th line Thane-Diva, 6th line between BCT-Borivali, 5th and 6th between CST-Kurla, extension of Harbour line



between BCT-Borivali, 5th and 6th line between CST-Kurla, extension of Harbour line between Andheri – Goregaon, which would enable separation of long distance trains from suburban trains, thereby increasing the frequency and vehicle-km of the suburban trains.

► Vehicle km per day during morning peak hours (8-11 a.m.) - CR (Harbor) (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	151,001.00	243,262.00	303,105.00	266,243.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

► Reduction in overcrowding (passengers per 12-car train) - WR (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	5,400.00	5,409.00	5,257.00	4,000.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

It is unlikely that the target for WR will be achieved at the end of the project period. There are two external factors that substantially affected the indicators: (i) Travel demand has increased by 10% since the start of the project and (ii) Several projects outside MUTP2A were assumed to be completed by the end of MUTP2A such as 135 km metro line and MUTP2B, which did not realize. These projects would have enabled the separation of long distance trains from suburban trains, thereby increasing the frequency of the suburban trains to reduce the overcrowding indicators per train. Non completion of these projects has put unexpected demand pressure on existing suburban system. Therefore, instead of reduction in overcrowding in trains, level of crowding has further increased though all the input to MUTP-2A are achieved.

► Reduction in overcrowding (passengers per 12-car train) - CR (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	4,800.00	4,901.00	4,340.00	4,000.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

It is unlikely that the target for WR will be achieved at the end of the project period. There are two external factors that



substantially affected the indicators: (i) Travel demand has increased by 10% since the start of the project and (ii) Several projects outside MUTP2A were assumed to be completed by the end of MUTP2A such as 135 km metro line and MUTP2B, which did not realize. These projects would have enabled the separation of long distance trains from suburban trains, thereby increasing the frequency of the suburban trains to reduce the overcrowding indicators per train. Non completion of these projects has put unexpected demand pressure on existing suburban system. Therefore, instead of reduction in overcrowding in trains, level of crowding has further increased though all the input to MUTP-2A are achieved.

► Reduction in overcrowding (passengers per 12-car train) - Harbor (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	4,200.00	3,924.00	3,924.00	4,000.00
Date	01-Apr-2009	01-Aug-2016	01-Aug-2016	31-Dec-2016

► Action plan on revenue improvement prepared (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Plan not prepared	Completed and Action plan prepared	Completed and Action plan prepared	Action plan prepared
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Study has been completed and action plan prepared

► Action plan on trespassing and safety prepared (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Plan not prepared	Action plan prepared.	Action plan prepared.	Action plan prepared
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Study has been completed and action plan prepared



▶ Average energy consumption per 12-car train-km (kWh/t/km) (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	17.62	13.79	12.48	12.76
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

The target has been achieved

▶ Reduction in journey times # transit times in minutes reduced for Harbor local from CSTM to Panvel. (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	77.00	77.00	77.00	75.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Some older trains are still running in the system. Since the journey time is determined by the slowest train in the system, it has not been possible to reduce the journey time in the published time table.

▲ Reduction in journey times # transit times in minutes reduced for CR Local CSTM to Thane (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	56.00	56.00	56.00	53.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▲ Reduction in journey times # transit times in minutes reduced from CR through CSTM to Kalyan (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	59.00	59.00	59.00	54.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016



▲ Reduction in journey times # transit times in minutes reduced from WR Local Churchgate to Borivali (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	65.00	64.00	64.00	62.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▲ Reduction in journey times # transit times in minutes reduced from WR through Churchgate to Virar (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	81.00	81.00	81.00	75.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Overall Comments

Some older trains are still running in the system. Since the journey time is determined by the slowest train in the system, it has not been possible to reduce the journey time in the published time table.

Intermediate Results Indicators

▶ Impact assessment of trespassing reduction measures completed (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Not prepared	Not yet started	Study Ongoing	Study completed
Date	01-Jan-2013	01-Aug-2016	01-Dec-2016	31-Dec-2016



► Ridership per day Western Railway (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	3,298.00	3,508.00	3,498.00	3,486.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Targets were achieved even before the MUTP2A works were completed, which is another evidence showing there is more than anticipated demand for the suburban system.

▲ Ridership per day Central Railway (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	3,592.00	4,049.00	4,027.00	3,797.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

► Continued MRVC ISO Certification (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	MRVC Certified	Certification is continuous	Certification is continuous	ISO 14001 and ISO 18001 Certification
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Ongoing process



► TA for IR strategy (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Not prepared	Final report submitted	Final report submitted	TA Completed
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Completed and target achieved

► Study for Mumbai suburban development plan (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Not prepared	Final report under review	Study Completed	Study completed
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Completed and target achieved.

► Study on potential for ISO 14001 at CR and WR (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Not done	Study completed	Study completed	Study completed
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Completed and target achieved.



▶ Additional track (TKM) (Kilometers, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	93.00	181.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

The target is not achieved as no additional tracks were planned under MUTP2A but were planned under MUTP and MUTP2B. Additional tracks under MUTP have been completed, however, all additional tracks under MUTP2B will not be completed by the end of MUTP2A.

▶ Punctuality - percentage of trains reaching less than 5 minutes late to destination Western Railway (Percentage, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	98.20	94.26	96.67	98.50
Date	01-Apr-2009	31-Dec-2014	01-Dec-2016	31-Dec-2016

Comments

The targets are unlikely to be achieved as the ongoing works under MUTP2A & 2B are executed while regular train service is provided affecting punctuality of the train service.

▲ Punctuality - Percentage of trains reaching less than 5 minutes late to destination Central Railway (Percentage, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	93.20	86.44	84.30	94.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016



▶ Length of trains (percent of 12 car trains) CR local (Percentage, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	56.00	100.00	100.00	100.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

All enabling works for running of 12 car trains are completed and all trains will be running with 12-car.

▲ Length of trains (percent of 12 car trains) Corridor: CR Local (Percentage, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	56.00	100.00	100.00	100.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▲ Length of trains (percent of 12 car trains) Corridor: CR Through (Percentage, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	61.00	100.00	100.00	100.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▲ Length of trains (percent of 12 car trains) Corridor: WR Local (Percentage, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	57.00	100.00	100.00	100.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016



▲ Length of trains (percent of 12 car trains) Corridor: WR Through (Percentage, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	71.00	100.00	100.00	100.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▶ Trains per hour during peak hour Central Local (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	14.40	15.66	15.00	18.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

The indicators for CR are unlikely to be achieved through local lines. This is due to delay in completion of projects outside MUTP2A.

▲ Trains per hour during peak hour Harbor Local (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	16.40	18.00	16.48	18.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▲ Trains per hour during peak hour CR Through (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	14.40	18.00	18.00	18.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016



▲ Trains per hour during peak hour WR Local (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	17.00	18.00	18.00	18.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▲ Trains per hour during peak hour WR Through (Number, Custom Breakdown)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	16.00	17.33	18.00	18.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

▶ DC to AC conversion (Track km) (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	569.00	1,235.00	1,577.00	1,577.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Works completed and target achieved

▶ EMU Fleet size (12-car rakes in service) (Number, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	190.00	230.00	246.00	258.00
Date	01-Apr-2009	01-Aug-2016	01-Dec-2016	31-Dec-2016

Comments

Remaining 12 trains will be put into service by mid-February 2017



Overall Comments

Data on Financial Performance

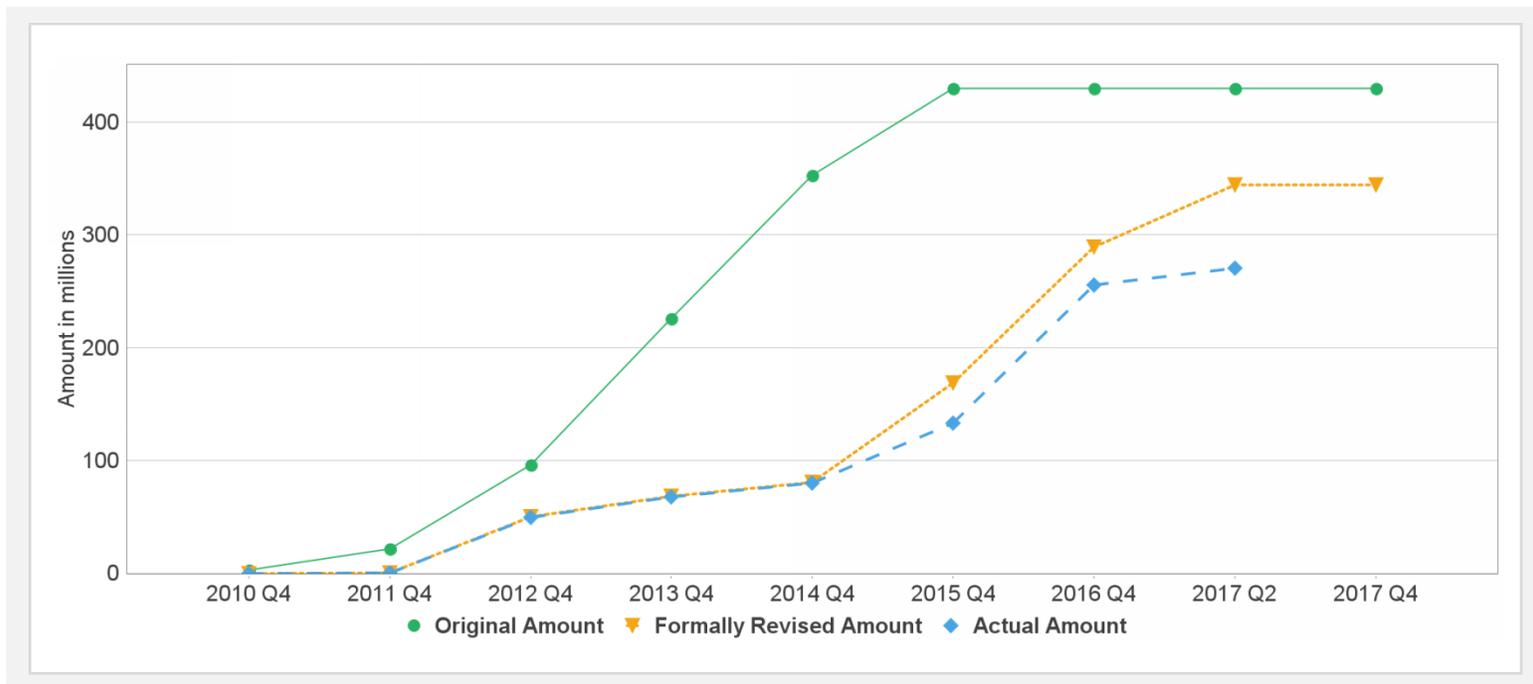
Disbursements (by loan)

Project	Loan/Credit/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	Disbursed
P113028	IBRD-79410	Effective	USD	430.00	309.00	121.00	271.68	37.32	88%

Key Dates (by loan)

Project	Loan/Credit/TF	Status	Approval Date	Signing Date	Effectiveness Date	Orig. Closing Date	Rev. Closing Date
P113028	IBRD-79410	Effective	29-Jun-2010	23-Jul-2010	08-Oct-2010	15-Jun-2015	31-Dec-2016

Cumulative Disbursements



Restructuring History

Level Approved on 09-Aug-2011 ,Level Approved on 08-May-2013 ,Level 2 Approved on 09-Oct-2014 ,Level 2 Approved on 23-Mar-2016



Related Project(s)

There are no related projects.
