INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Twentieth Implementation Support Mission
(March 27 – April 7, 2017)

Aide Memoire

I. Introduction

1. A World Bank mission visited demo projects and held discussions on the Project to review overall project progress and performance. The Mission met with the Project Management Unit (PMU) within the MoUD, visited Naya Raipur, Pimpri-Chinchwad, Hubli-Dharwad, Mysore and held discussions with Indore AICTSL officials in Delhi and Mysore KSRTC officials through video-conferencing. During the meetings, the mission had an opportunity to interact with the MoUD and state officials, city Project Implementing Units (PIU) as well as various consultants, contractors and NGO’s assisting the PIUs with project preparation and implementation. The mission would like to express its appreciation for the hospitality extended and the useful discussions arranged during the field visits.

2. The main mission objectives included the following:

   - Review of Technical Assistance activities under the Capacity Building Component;
   - Review Progress on City Demonstration Projects in Pimpri Chinchwad, Naya Raipur, Hubli-Dharwad, Indore and Mysore ITS & PBS:
     - Review overall project implementation progress and likely timelines for launch
     - Review progress with land acquisition and resettlement issues in Pimpri-Chinchwad and Hubli-Dharwad; environment aspects;
     - Review progress of awarded packages and completion timelines.
   - Review commitments and likely savings/ cancellations/ reallocation.

3. Draft AM of the Mission was shared with the National Project Director Mr. M.K. Sinha, OSD (UT & MRTS), MoUD and National Project Manager, Mr. I.C. Sharma and his team on 11 April, 2017. Mr. Bhaskar Dasgupta, Director DEA, was tied up with the Spring Meetings and will be debriefed upon return. The summary of Mission highlights includes the following:

   - **Overall Project** - The project IBRD and GEF grant disbursements stand at 55 and 66 percent respectively with only one year remaining to Project closing. The progress on the Hubli-Dharwad and Pimpri-Chinchwad city demonstration projects needs to be accelerated to ensure timely project launch before Project Closing on March 31, 2017. Project implementation progress rating is being downgraded to ‘Moderately Unsatisfactory’ and the likelihood of achievement of PDO is also downgraded to ‘Moderately Unsatisfactory’ in view of the emerging uncertainty on the timely launch of the BRT corridors in these cities.
   - **Component IB** - The technical assistance and training activities are substantially complete.
   - **Pimpri-Chinchwad** – The works on Empire Estate grade separator on Corridor 4 are well advanced and expected to be completed by May 2017, however, the launch of the Corridor remains uncertain owing to the pending LA R&R issues.

---

1The mission comprised of Nupur Gupta (Sr. Transport Specialist and Task Team Leader), I. U. B. Reddy (Sr. Social Development Specialist), Satyanarayan Panda (Procurement Specialist), Gaurav D. Joshi (Sr. Environmental Specialist), Raman Krishnan (Sr. ICT Specialist), Reenu Aneja (Transport Specialist), Sujit Das (Consultant - Transport Engineer), Gerhard Menckhoff (Consultant - BRT), Brendan Finn (Consultant – Public Transport), Alpana Saxena (Financial Management Consultant) and Genevieve M. Dutta (Program Assistant).
• **Naya Raipur** – NRDA continues to hold back the full launch of the BRT Lite and run the interim bus service for government officials, both of which are resulting in a low ridership on the BRT. There is an urgent need for NRDA to initiate the full service as per the proposed service design, complete the remaining works on the Teli banda station and new exit point at Old Secretariat pick up point, and launch a well-designed promotion and outreach effort.

• **Hubli-Dharwad** – HDBRTS is proposed to be launched by November 2017. Land acquisition is now complete except for the Dargah portion. However, several sections on the BRT corridor remain encumbered and not available for taking up the road works owing to ongoing water and underground drainage works. This along with the grade separators along the corridor need very close monitoring as they could end up delaying the launch of the BRT. In the meantime, the service plan needs to be updated, the traffic signal and intersection designs finalised and implemented, and ITS installed and commissioned.

• **Indore** - In Indore the ITS design is being finalized and implementation is proposed to be completed by December 2017.

• **Mysore ITS** – The ITS Project in Mysore is fully stabilized. KSRTC needs to focus on expediting its promotion and outreach effort so users can be informed about the system.

• **Mysore PBS** – PBS system tests have been concluded and it is proposed to be launched soon.

### II. Key Project Data

<table>
<thead>
<tr>
<th>Key Project Data</th>
<th>Current Ratings and Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Date</td>
<td>Dec 08, 2009</td>
</tr>
<tr>
<td>Effectiveness Date</td>
<td>May 05, 2010</td>
</tr>
<tr>
<td>Closing Date</td>
<td>March 31, 2018</td>
</tr>
<tr>
<td>GEF Grant</td>
<td>US$ 18.45 mn, US$ 105.23 mn</td>
</tr>
<tr>
<td>Project Management</td>
<td></td>
</tr>
<tr>
<td>Problem Flags</td>
<td></td>
</tr>
<tr>
<td>Disbursed Amount</td>
<td></td>
</tr>
<tr>
<td>GEF</td>
<td>US$ 12.15 mn</td>
</tr>
<tr>
<td>IBRD</td>
<td>US$ 58.26 mn</td>
</tr>
<tr>
<td>Development Objectives</td>
<td>Development Objectives</td>
</tr>
<tr>
<td>Implementation Progress</td>
<td>Implementation Progress</td>
</tr>
<tr>
<td>Project Management</td>
<td>Project Management</td>
</tr>
<tr>
<td>Safeguards</td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td></td>
</tr>
<tr>
<td>Financial Management</td>
<td>Financial Management</td>
</tr>
<tr>
<td>Problem Flags</td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>Four</td>
</tr>
</tbody>
</table>

**HS=Highly Satisfactory; S=Satisfactory; MS=Moderately Satisfactory; MU=Moderately Unsatisfactory; U=Unsatisfactory; HU=Highly Unsatisfactory; NA=Not Applicable; NR=Not Rated**

### III. Key Agreed Actions

4. The following actions have been discussed and agreed:

<table>
<thead>
<tr>
<th>Actions to be Completed</th>
<th>By when</th>
<th>By whom</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule AG audit for FY 2016-17, Submission of GOI Entrustment to AG office</td>
<td>Apr 15</td>
<td>PMUs – Mysore PBS</td>
<td></td>
</tr>
<tr>
<td>Corrections in the IUFRs for the Dec 2016 Quarter</td>
<td>May 15</td>
<td>PMU-PIUs</td>
<td></td>
</tr>
<tr>
<td>Submit Progress Reports; Contract wise physical &amp; financial progress</td>
<td>May 5, June 5, July 5</td>
<td>PMU &amp; PIUs</td>
<td></td>
</tr>
<tr>
<td>Submit Progress Updates on PCMC Action Plan for Safeguards</td>
<td>Apr 10</td>
<td>PMU/PCMC</td>
<td></td>
</tr>
<tr>
<td>Component IB (i) Initiate procurement of balance work on Impact Evaluation TA</td>
<td>Apr 30</td>
<td>MoUD/PMU</td>
<td></td>
</tr>
<tr>
<td>(ii) GHG Emissions Study for Mysore PBS submitted; Revised Reports for</td>
<td>May 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actions to be Completed</td>
<td>By when</td>
<td>By whom</td>
<td>Status</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>SUTP cities (iii) Initiate Procurement of Accessibility Study</td>
<td>Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr 2: Submit pilot test report for traffic signal at Dange Chowk</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr 1: Submit final intersection geometries and traffic signal designs</td>
<td>Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr 1: Submit Action Plan for addressing Traffic Safety Audit &amp; MVA Access Improvement Recommendations</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr 1: Submit action plan for completing all works including segregation, ramps, lighting etc.</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr 4: Submit BRT Implementation Schedule</td>
<td>May 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit Service Plan for Corr 1&amp;4; Revised plans for Corr 2&amp;3</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit Plan for Connection between Corridor 1&amp;3 and 1&amp;4</td>
<td>April 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITS PMC to provide detailed timeline for ITS operational acceptance</td>
<td>April 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit Bi-Monthly ITS M&amp;E Report</td>
<td>Bi-Monthly</td>
<td>PCMC</td>
<td></td>
</tr>
<tr>
<td>Approach paper on off board fare collection/ Bus bunching</td>
<td>Apr 30/ May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend PMC contract for Corridor 3 &amp; 4</td>
<td>Immediate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final decision on retaining 2 ramps in Empire Estate</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure time bound completion of Empire Estate contract</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit a note on proposed action plan and time frame for remaining LA R&amp;R actions</td>
<td>Apr 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shifting of remaining eligible PAPs from transit camp to permanent houses</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete submission of Tripartite agreement to the court for direction on shifting of industrial units in MIDC land</td>
<td>Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete the process of shifting PAPs residing along the corridor 4</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete payment of compensation for remaining eligible land owners of Advance Possession</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit Full Launch Plan</td>
<td>May 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit strategy for expanding ridership of BRT lite</td>
<td>Apr 21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progress Report on improving Pedestrian access at both ends of BRT Lite terminal at Railway Stn</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Define itemized schedule and action plan to complete works at and around Old Sect</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete construction of Telibandha station</td>
<td>June 30</td>
<td>NRDA</td>
<td></td>
</tr>
<tr>
<td>Actions to be Completed</td>
<td>By when</td>
<td>By whom</td>
<td>Status</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Submit Plan for common Smart Card between Raipur and Naya Raipur</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit final Business Plan w/ staffing plan</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit revised BRT Lite full launch schedule</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch a Communications &amp; Outreach Plan for BRT Lite</td>
<td>Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allotment and shifting of 3 shopkeepers present at Old Mantralaya Entry Point</td>
<td>ASAP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit a draft Note on safeguard impacts and mitigation measures in the revised alignment of Exit Route at Old Mantralaya</td>
<td>April 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close monitoring of removal of encumbrances on BRT Corridor</td>
<td>Continuous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly Progress Report on construction packages</td>
<td>Monthly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit up-to-date base maps for signal designs</td>
<td>Apr 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit intersection traffic engineering and signal design plans for 10 locations</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit implementation schedule for BRT Launch</td>
<td>May 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit BRT Service Plan</td>
<td>Apr 14</td>
<td></td>
<td>HDBRTS</td>
</tr>
<tr>
<td>Submit revised Implementation Schedule for ITS/ complete pilot</td>
<td>Apr 30/ Jun 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit SOP Recommendations and SLA for BRT Operator</td>
<td>Apr 15/ May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend Comm &amp; Outreach support</td>
<td>Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalise the process for shifting affected religious structures</td>
<td>Apr 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Analysis of compensation under new Act and negotiated amounts</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Review &amp; Disclose Action Taken Report of Env Audit Report</td>
<td>Immediate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete mitigation measures@ Rayapur Lake</td>
<td>May 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete plantation of 9500 trees</td>
<td>Jun-Aug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalise Open data sharing policy</td>
<td>May 31</td>
<td></td>
<td>KSRTC</td>
</tr>
<tr>
<td>Initiate Communications &amp; Outreach plan</td>
<td>May 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete M&amp;E scope extension</td>
<td>Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete driving simulator installation &amp; commissioning</td>
<td>Jun 30/ Nov 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit operational acceptance plan for ITS/ Complete Phase 1</td>
<td>Apr 30/ Jul 31</td>
<td></td>
<td>AICTSL</td>
</tr>
<tr>
<td>Submit Revised Inception Report for Service Plan Study</td>
<td>Apr 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch PBS</td>
<td>Apr 30</td>
<td>MCC/ DULT</td>
<td></td>
</tr>
</tbody>
</table>

IV. Project Development Objectives

5. The project’s development objective (PDO) is to promote environmentally sustainable urban transport in India and to improve the usage of environment-friendly transport modes
through demonstration projects in selected cities. The key overall indicators to measure performance in achieving the project development objective are:

- Number of environmentally friendly urban transport practices and approaches provided by the project that are adopted by cities.
- Mode shares in Pimpri-Chinchwad, Hubli-Dharwad and Naya Raipur become more sustainable by project end.
- A significant amount of co-benefits are achieved as forecast transport CO2 emissions in the demonstration cities are lower than their “business-as-usual” or “without-project” forecasts.

6. The main activities under Component IB are complete or in final stages. The Leaders in Urban Transport Planning training, introduced in CEPT University as well as those taking place in Singapore, Seoul and Dubai have covered 360 officials working in the area of urban transport. The technical assistance activities in regard to assistance with implementation of reforms and urban transport planning have produced useful Guidance Documents which have been released formally in the recent Urban Mobility India conference in Ahmedabad by MoUD. Guidance documents have been developed in following cutting edge areas and select cities have received hand holding support: (i) creation of UMTA and UTF (8 cities), (ii) Transit-oriented development, (iii) NMT Master planning and (iv) Public Bike Sharing (6 cities), (v) Traffic Management and Information Centers and (vi) National Urban Transport Helplines (5 cities), (vii) contracting of private operators in city bus services (3 cities) etc. These documents are expected to result in an improved planning process for urban transport and adoption of good practices and approaches in Indian cities as they plan and implement the Smart Cities and AMRUT initiatives.

7. Among the city demonstration projects, the Mysore ITS has been successfully implemented making it the first Indian city to have operationalized ITS on its city wide bus fleet. It has become a demonstration for other cities planning and implementing ITS systems. BRT operations are ongoing on Corridor 2 and 3 in Pimpri-Chinchwad, Corridor 1 is proposed for launch in 2017, and Corridor 4 could be launched by end 2017 but will require focused efforts to complete the land acquisition and resettlement. However, the success of the launched system has resulted in Pune finally approving the extension of the BRT corridor within their city limits and the public transport mode share for the city has already improved significantly. In Naya Raipur, the BRT Lite pilot is ongoing and the full service launch is delayed owing to issues of lack of skills and resources in the SPV and NRDA to focus on improving the operations and parallely undertaking promotion and outreach activities. The public transport mode share is already at a significant level owing to the cities initiative to launch a bus service early on; In Indore, the procurement is complete and with roughly a year required to implement the ITS, it is likely to be implemented by Project Closing; HDBRTS is experiencing delays in construction owing several factors including limited availability of encumbrance free sections along the corridor, and efforts are on to complete construction by end 2017 and launch the BRT; Mysore PBS tests have been successful and launch is expected soon. The achievement of PDO is possible but becoming uncertain within the extended closing timelines as achievement of improvements in public transport mode share for Hubli and GHG emission targets becomes harder and is accordingly rated ‘Moderately Unsatisfactory’.

V. Current Implementation Progress

8. **Overall Status**: The Mission rates the overall project progress as *Moderately Unsatisfactory*. The capacity building component is performing well, the procurements for the city demo projects are complete, land acquisition and resettlement is also substantially complete with some remaining issues. Of the six demo projects one (Mysore ITS) is fully launched, one (Pimpri-Chinchwad) is partially launched and two (Naya Raipur & Mysore PBS) are in advanced
stages of launch and remaining two (Hubli-Dharwad & Pimpri-Chinchwad) will require time for completion. As the proposed timelines for launch of both the BRT corridor in Hubli-Dharwad and Corridor 4 in Pimpri-Chinchwad are end 2017, and given the ongoing delay with handover of encumbrance-free sites, the project disbursement of 52% the overall progress is rated MU.

<table>
<thead>
<tr>
<th>Status of Contract Award and Procurement in Numbers and Value in US$mn for IBRD</th>
<th>Awarded</th>
<th>Under Procurement</th>
<th>To be Initiated</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCMC</td>
<td>2</td>
<td>34</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NRDA</td>
<td>3</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>HDBRTS</td>
<td>13</td>
<td>54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18</td>
<td>102</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

96% 0% 4% 100%

9. The status of disbursement under the loan and grant is provided below. There is a 6 month lag from the revised projections.

**Disbursement Status (US$ million)**

Component 1B
Implementation Progress: Moderately Satisfactory

10. Component 1B covers a very large set of technical assistance activities in cutting edge areas in urban transport planning and implementation. Several of the activities are now complete.

**Status of Activities under Component IB**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Committed Amount (Rs. Million.)</th>
<th>Status Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Development of a structure and an operations manual for UMTA; Business Plan for Urban Transport Fund</td>
<td>24,150,000</td>
<td>Completed - Guidance document released by MoUD</td>
</tr>
<tr>
<td>2</td>
<td>Development of a standard</td>
<td>20,070,000</td>
<td>Completed - Guidance document</td>
</tr>
<tr>
<td>No.</td>
<td>Project Description</td>
<td>Budget (INR)</td>
<td>Status/Notes</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>Development of a model NMT action plan, bike sharing plan and TOD Guidelines</td>
<td>27,830,000</td>
<td>Completed - Guidance document released by MoUD</td>
</tr>
<tr>
<td>4</td>
<td>Development of a Research Program</td>
<td>5,530,000</td>
<td>Final operations manual approved by MoUD but no further action on operationalization.</td>
</tr>
<tr>
<td>5</td>
<td>GHG Emissions reduction assessment</td>
<td>28,650,000</td>
<td>Consultants reworking models and results. Mysore PBS added to scope.</td>
</tr>
<tr>
<td>6</td>
<td>Leaders Program</td>
<td>135,000,000</td>
<td>360 officials trained</td>
</tr>
<tr>
<td>7</td>
<td>Impact Evaluation Study for the Bus Procurement under JnNURM</td>
<td>33,300,000</td>
<td>Activity excessively delayed; serious quality issues; notice issued to consultants for termination</td>
</tr>
<tr>
<td>8</td>
<td>Model Contract Agreements with Private Bus Operators &amp; Guidelines for City Bus Services</td>
<td>5,400,000</td>
<td>Completed - Guidance document released by MoUD</td>
</tr>
<tr>
<td>9</td>
<td>Preparation of GEF5 Project</td>
<td>11,230,000</td>
<td>Substantially Complete</td>
</tr>
<tr>
<td>10</td>
<td>National Communications Campaign on Sustainable Urban Transport</td>
<td></td>
<td>Activity under review</td>
</tr>
<tr>
<td>11</td>
<td>Accessibility Study</td>
<td>25,000,000</td>
<td>Procurement pending; Activity under review</td>
</tr>
<tr>
<td>12</td>
<td>Workshops</td>
<td>30,000,000</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

11. In summary:
   - Guidance Documents covering seven topics have been formally released.
   - The Research Program design and operations manual has been finalized and approved, however, MoUD is yet to formally initiate the Research Program.
   - The Impact Evaluation Study on the Bus Funding scheme is stalled. PMU has issued notice to Consultants owing to excessive delays and serious quality issues. No progress on hiring of experts for the analysis and recommendations.
   - The GHG emissions study is behind schedule; consultants are reworking the model with more realistic assumptions; the Mysore PBS project has been included in the scope of the consultants.
   - The procurement of the Accessibility Study is not moving forward.

As there are funds remaining with MoUD for Component IB, it is proposed to finalise the requirements for LUTP trainings in the final year and reallocate the GEF grant funds to cities which may require them.

**Component IA**

12. Activities under this component are supported / funded by UNDP. These mainly include:
   - Business Plan for IUT - Completed
   - 10 Urban Transport Planning Manuals - Completed
   - 10 Training Toolkits - Completed
   - Dissemination Activity - Ongoing
   - Development of the National Urban Transport Knowledge Management Centre – Completed and formally launched

13. The Urban Transport Knowledge Management Centre was formally launched in the Urban Mobility India Conference on Nov 8, 2016. The data population for all the 50 cities for which CMPs are available has been completed. The license agreement is between MoUD and
SAP. However, the team in IUT is not in place to take over the KMC from UMTC. The Bank remains concerned about the following outstanding issues:

- **Revenue or Business Model** in place for operating the KMC i.e. what will it cost on an annual basis to sustain the KMC operation including for data updation. The Bank understands that this exercise has still not been undertaken.
- **Data updation.** The model for regular data updation has not been discussed or finalized. Without this critical activity the KMC could well lose its utility. The Mission was informed that MoUD will take a final call on this by probably linking it to its existing urban schemes.
- **Responsible Entity.** Who will operate, update and maintain the KMC. With the closing the UNDP component, the salaries of IUT staff would also be affected.

### Component 2: City Demonstration Projects

**Implementation Progress: Moderately Unsatisfactory**

<table>
<thead>
<tr>
<th>Project Rating: Implementation Progress</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri</td>
<td>MU</td>
</tr>
<tr>
<td>Naya Raipur</td>
<td>MS</td>
</tr>
<tr>
<td>Hubli-Dharwad</td>
<td>MU</td>
</tr>
<tr>
<td>Mysore ITS</td>
<td>S</td>
</tr>
<tr>
<td>Mysore PBS</td>
<td>MS</td>
</tr>
<tr>
<td>Indore</td>
<td>MS</td>
</tr>
<tr>
<td><strong>Overall Project</strong></td>
<td>MU</td>
</tr>
</tbody>
</table>

(i) **Pimpri-Chinchwad:** Physical progress of all works contracts together in about 8 km long BRT Corridor 3 is about 92% of the estimated Cost of Works. BRTS has been commissioned in this Corridor in November 2015. Construction of exclusive BRT Corridor is remaining for a length of 260 m for want of land availability. Works on Passenger Facilities connecting Corridor 3 with 1 are yet to start due to an ongoing Investigation. Progress in the Bank-financed Contract I (Interchange at Nashik Phata) is satisfactory. The works for exclusive BRT Corridor in this contract was completed in November 2013. Remaining Ramp 2 under this contract (delayed due to non-availability of land and subsequent design changes) is likely to be completed by May 2017.

Physical progress of all works contracts together a long BRT Corridor 4 is about 80% of the Cost of Works. Land for construction of the Corridor is yet to be available for about 660 m of length. Thus, completion of full length of BRT Corridor is uncertain at this time. Progress in the Bank-financed Contract III (Empire Estate Flyover) has improved. The progress in this contract is about 84% of the Value of Works excluding two Ramps which were on hold. The Contractor has targeted to complete all works except the two Ramps by May 2017, which is optimistic considering its performance history and specifically during the recent months. PCMC has asked the Contractor to submit its program for implementing the works for the two remaining Ramps completion of which might take about a year. Timely completion of land acquisition and resettlement actions is critical for the launch of this corridor.

(ii) **Naya Raipur:** Works progress in the contract for Construction of BRT Bus Shelters, Pick-up Points, BRT Workshop Depot and Control Centre is about 94% of likely Completion Cost. Works progress in the contract for Non-Motorized Transport Infrastructure (Construction of Cycle Tracks, Walkways, etc) is about 99.5% of likely Completion Cost. Some works of
Cement Concrete Pavement, Mild Steel Railings, Pedestrian Crossings and Pathways, and Shops of total INR 11.3 million have been undertaken under three separate contracts, starting 07 October 2016 with progress of 99% of total value of works. A new contract for Telibanda station has been initiated and this is likely to take until June 2017 for completion. The BRT Lite services have been running between Raipur and Naya Raipur since Feb 2017, however only 15 buses are currently operational. Full service launch and completion of works at Telibandha and Old Secretariat and promotion and outreach efforts are required.

(iii) Mysore: The ITS system for Mysore city bus is performing well.

(iv) Indore: ITS vendor is on board, designs are being finalized and orders placed for some of the equipment. Likely completion timelines are December 2017.

(iv) Hubli-Dharwad: About Indian Rupees (INR) 1,198 million worth of works (about 55%) out of total likely about INR 2,185 million of works (being financed by the Bank) has been carried out in 10 contracts of Depots, Workshops, Terminals, Bus Stations, Foot Overbridges, Walkways, etc being implemented by Hubli Dharwad BRTS Company Limited (HDBRTSCo). Progress of individual contract varies between 88% and 9%, with recently-started contracts having low progress. There has been better progress since last Mission (overall 20% in about 5 months during November-March) in comparison to only 4% in earlier 3.5 months. There are some issues related to finalizing location of facilities, availability of land, relocation of utilities, traffic diversion allowing the construction works (including on availability of space following construction of Mixed Traffic Lanes on Hubli-Dharwad Highway BRT Corridor) and issuance of drawings, which are affecting smooth progress of works. Besides resolving all these issues, HDBRTSCo needs to specifically monitor mobilization, work plan and performance of recently-started contracts PW-02 and PW-09 as well as PW-08 and PW-10. It’s presently expected that all works being implemented by HDBRTSCo may be completed by end-2017.

2. Road works along about 19 kms long Hubli-Dharwad BRT Corridor are being implemented through Karnataka Road Development Corporation Limited (KRDCL), not financed by the Bank. KRDCL is now implementing remaining about 8 kms of 4-laning works (exclusive BRT Corridor), construction of Mixed Traffic Lanes, Three Grade Separators and Two Road over Rail Bridges (RoBs) along the Corridor of total worth about INR 2804 million under Four contracts. All four contracts are ongoing, progress varying between 54% and Nil. Overall progress (INR 611 million) is 22% of total contract amounts. Progress of works is highly hampered due to non-availability of work sites due to various encumbrances like Domestic Water Supply line, Underground Drainage line, Non-availability of land, Bulk Water Supply line, Gas pipeline, Temple, Building, electric poles, etc. Although all works are now targeted to be completed by end-2017, there appear to be no likelihood of completion of the BRT Corridor by end-2017.

(vi) Mysore PBS: The second trial run has been successfully completed with all 44 docking stations, and the full launch is expected in April.

Details of the discussions with each of these cities are provided in Annex 2-7.

VI. Key Implementation Issues, Risks and Priority Actions

The key issues that need careful attention and close monitoring are:

14. Pimpri-Chinchwad - Land Acquisition and resettlement impacts. The continuing non-availability of 660 meters of land in two stretches due to land acquisition will seriously affect the launch of corridor-4. In case of 60 meters MIDC land, the tripartite agreement (PCMC, MIDC and owners of industrial units) is now endorsed by MIDC and expected to be submitted to the
court for its direction on the rehabilitation of industrial units. On the other hand, the remaining 600 meters of land cannot be handed over to the contractor as the land owners have challenged the compensation award on the grounds that the award is not consistent with new land acquisition act provisions and the court has ordered to maintain the status quo. The other issues that need attention is payment of compensation or TDR/FSI for the remaining 91 land owners who have given advance possession of their lands for construction and shifting of remaining about 20 families from Transit to permanent housing.

15. **Pimpri-Chinchwad – Ramps on Flyover contract on Corridor 4 (Kalewadi Phata-Dehu Alandi Road):** The Empire Estate grade separator has two ramps on either side for traffic wanting to turn either right or left on the Mumbai Pune Expressway. These are important connections and the alternative would be to cross over to the other side and then take a U-turn, come back and then turn right or left, not only using up valuable time but also creating further congestion upstream. However, it appears that the residents of Empire Estate have objected to the ascending and descending ramps which it is felt would create undue congestion within the residential complex and inconvenience to the residents. Technically speaking, these ramps are unlikely to create congestion for the residents. Suitable safeguards can also be employed to ensure proper traffic management measures and minimization of noise and other negative externalities. PCMC had sought the technical opinion of IIT Mumbai on the need for constructing the ramps and have received an affirmative response. Following elections PCMC asked the Contractor to submit its program for implementing the works for the two remaining Ramps completion of which might take about a year.

16. **Pimpri-Chinchwad – Launch of Corridor 4.** Largely because of land acquisition issues, and also because of problems with the construction of the Empire Estate flyover, the completion of Corridor 4 has been delayed by many years. The urgency of resolving the land issues is highlighted in another part of the aide-memoire. In addition to obtaining the land required for the full construction of the corridor, and considering that the Empire Estate flyover is now almost completed, PMPML and PCMC should aim to start BRT services by September 2017 (awaiting the resolution of the last land acquisition problems), by providing detours or temporary road connections between those BRT sections that have been completed. Also, more attention should be given to a transfer connection between Corridors 4 and 1 (Empire Estate), as well bus service plans for that corridor. It was agreed that PCMC and PMPML devise a comprehensive action program with the objective of starting BRT operations on Corridor 4 before the end of the current year.

17. **Pimpri-Chinchwad – BRT Safe Access and Operational Performance:** Two BRT corridors have been launched in Pimpri-Chinchwad – Corridor 2 in September, 2015 and Corridor 3 in November, 2015. There are several issues that require attention to improve the overall performance of the system and the experience of the users, and these have been highlighted by in previous missions. These are in the areas of (i) Traffic signal phasing which is resulting in lack of priority to the BRT and therefore longer wait times (ii) major intersections with poor geometry making passenger access unsafe (iii) issues of bus bunching (iv) large gaps in bus docking, (v) poor pavement quality and road markings in several sections and issues of cleanliness around stations and (vi) need for fare rationalization, launch of e-ticketing and off board fare collection, etc. Traffic flow at most intersections is chaotic, and conditions for pedestrians (including passenger access to BRT stations) are deplorable. Suggestions of previous Bank missions have generally not been implemented. The geometric design of intersections favors motor vehicles at the expense of pedestrians. Large radii at corners and the scarcity of refuge islands encourage the quick movement of cars and two-wheelers and contribute to the risk of pedestrian accidents. Signal cycles are too long and differ from previous agreements between PCMC and the World Bank (90 seconds as a rule, up to 120 sec at very busy intersections, much less during off-peak hours). This slows down the BRT travel speed, creates long queues of mixed traffic, contributes
to the bunching of BRT buses, and implies long waiting times for pedestrians wanting to cross the street (one of the reasons why pedestrians disobey the red light). The resolution of these requires the concerted efforts of different departments (engineering and electrical) within PCMC, PMPML and the Traffic Police to work together. The Mission please to note that signal designs had been prepared for Corridor 1 and a Traffic Engineer had been hired to develop signal designs for Corridor 2, 3 and 4. The mission again met and discussed with Traffic Police the need for undertaking a pilot of the proposed shorter signal phasing and documentation of the performance in the before and during pilot scenario for decision making. The MoU with ASRTU has still not materialized and therefore there has been no progress on the review of bus bunching and off board fare collection etc. PMPML also agreed to revert on the issues raised by the mission.

18. **Hubli-Dharwad – Land Acquisition & Resettlement Progress:** Private land acquisitions is substantially completed except a small parcel (0.50 acres) belonging to Dargha. Recently Honorable Court vacated the contempt of court related to shifting affected shops in Dharuwad. Thus, the remaining two challenges will be finding a satisfactory resolution of shifting of Dargh and other 5 temples and 4 court cases related to small parcels of lands in Bhairavdeva Kuppa and Lakhanballi villages. The total land not available for construction due to land acquisition and resettlement is only 3.2 Kms (about 9% of total length of 34.5 Kms on both sides). However, total land not available for construction due to all other encumbrances such as water and drainage lines and land acquisition is 15.47 Km (about 45%). Additional details on land acquisition and resettlement aspects is provided in Annex 2.

19. **Works Contract implementation progress:** The progress on the awarded works packages is at 55% and has picked up for Bank funded packages. The rate of work is at approximately 5 percent per month up from less than 2 percent previously. However, this needs to be progressed faster as the key infrastructure for BRT operation are to be available on time and equipped with necessary ITS etc. The critical packages which need special attention for timely launch of BRT are package # 1, 2, 3, 5, 6, and 8 covering key stations, depots and terminals. The exact location and design of BRT station 1 in Hubli has now been resolved albeit sub optimally. The bigger issue emerging is the *proposed flyover at Rani Chennama* Circle which is affecting the location of the Station 3. The Mission strongly advised against the suggestion of the NH Division to push the median station inside the OCBS as that will seriously impact the BRT performance. HDBRTS has taken up this matter with NH Division.

20. **Construction and completion of Mixed Traffic Lanes (MTL) on both sides of Hubli-Dharwad Highway:** is the most critical which is currently lagging at roughly 30 percent progress. Several other works like 4-laning (BRT Corridor), Grade Separator(s), Bus Station(s), Foot Over Bridge, etc or parts thereof cannot be undertaken until the vehicular traffic is diverted to the MTL. Construction and commissioning of the BRT Corridor along the middle of Hubli-Dharwad Highway is thus dependent upon completion of the MTL works. But, MTL works are highly hampered due to non-availability of work sites due to various encumbrances like Domestic Water Supply line, Underground Drainage line, Bulk Water Supply line and non-availability of land. At present, 45% of the contract length is not available to the Contractor. There’s need for HDBRTSCo to vigorously pursue with various authorities for making the work sites encumbrance-free as this could become the biggest bottleneck for launch of the BRT. The Dharwad city and Hubli city sections need to be prioritized for handover ahead of the monsoons. Based on current assessment the BRTS cannot be completed before end 2017.

21. **Naya Raipur - Launch of BRT Lite:** The launch of the full service BRT Lite service continues to be delayed. While most of the works are complete, the new exit at old Secretariat pick-up point is to be quickly designed and implemented, and the station at Telibandha is yet to be completed. There continue to be issues with the newly installed ITS. Only 15 of the 30 buses are currently plying and NRDA continues to run charter buses for government officials. Finally,
the promotion and outreach activities planned with the launch of the service have been held back. The mission again urged NRDA to proceed with the full launch of the service along with its promotion and in parallel progress the balance civil works. It was noted that NRDA had not acted on earlier advice to fully man the SPV responsible for the BRT operations, and this was impacting the response times and decision making around the service.

22. **Social & Environment Mitigation completion.** As a result of change in the exist route of Old Mantralya station, NRDA has avoided the previously identified displacement of 4 families, but will now impact 5-6 small shops. The new exit will also require attention and mapping of environment risks and mitigation. The mission advised NRDA to submit a daft Note on details of impacts and mitigation measures in line with ESMF principles and provisions for Bank’s review by April 20, 2017.

**VII. Safeguards – Environment and Social Management**

Safeguards Rating: **Unsatisfactory**

<table>
<thead>
<tr>
<th>Project Rating: Safeguards</th>
<th>Social</th>
<th>Env</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri</td>
<td>U</td>
<td>MS</td>
</tr>
<tr>
<td>Naya Raipur</td>
<td>S</td>
<td>MS</td>
</tr>
<tr>
<td>Hubli-Dharwad</td>
<td>S</td>
<td>MU</td>
</tr>
<tr>
<td><strong>Overall Project</strong></td>
<td>U</td>
<td></td>
</tr>
</tbody>
</table>

**Environment Management**

23. The project performance on environmental aspects continues to be rated as Moderately Satisfactory due to a mixed picture on environmental aspects. City-wise summaries follow with details in respective city-wise Annexes.

24. **Naya Raipur:** Currently, the project performance on environmental aspects is rated Satisfactory. For the new proposal for exit route for buses from the Old Secretariat, a short note would be required describing the proposed intervention, and any environmental impacts and their management. Currently, identified issues do not appear to be very significant, but would require careful handling as the proposal is to create a new road through a colony of buildings under construction. These could include safe movement across the alignment, shielding of receptors located close to the alignment from excessive noise, and removal/retention of trees close to the road. This needs to be confirmed quickly so that any required mitigation measures can be implemented within the remaining project duration. The depot for BRT buses now has the necessary pollution control equipment water washing plant and the oil and grease separator, for it to start servicing the buses. The NMT contractor’s plant and camp site is being vacated and would be dismantled. Systematic and safe disposal would be required for material removed from that location, including the concrete batching plant.

25. **Hubli Dharwad.** The current performance of the project on environmental aspects is Moderately Unsatisfactory as there are several lapses in the implementation of EMP provisions pertaining to the mitigation as per the EMP, deficiencies in facilities for workers. The mitigation for the loss of water storage capacity at Rayapur tank needs to be expeditiously undertaken as the project is coming to close and the original measure of compensating with increased volume in near by Navalur tank is not yet in place as absent this measure, the project is not in compliance with the EMP for the project. The mission was informed about the proposal where the expansion
of the Rayapur tank to accommodate the volume is being considered. This needs to be undertaken urgently, no later than May 31, 2017, to avoid unworkable period of the rainy season.

26. At the Dharwad depot, as the construction work for the compound wall comes to face the residential quarters, installation of the noise barrier needs to be expedited in line with the agreed design. The project has planted approximately 24,800 saplings until now. It has also saved more than 380 trees from those originally planned to be cut for the entire project - at the edge of the project road and infrastructure sites. However, due to the low survival rate (28% against an overall target of 80%) of the saplings planted in the 1st year, overall standing sapling count is just over 17,220 saplings. The campsites require significant improvements for several packages. Facilities for the workers need to be improved for camps constructed by the RoB Contractor, the MTL contractor and Packages 8 & 10. These are currently not in conformance with the EMP. In addition, material storage at the RoB camp needs to improve with lowering of the heaps of friable material to prevent dust pollution and inconvenience for nearby residents and labourers employed by the contractor.

It was agreed that the Action Taken Report for the Environmental Audit, currently being reviewed by DULT, will be disclosed on the website of HDBRTS Company immediately. The detailed plans, developed in consultation with stakeholders like Forest Department officials, for landscaping strategy could be advantageously used to improve the measures to be undertaken at Rayapur lake.

27. **Pimpri Chinchwad.** The project performance on environmental aspects is rated as Moderately Satisfactory. The cleaning up of the Pavana river bed is well underway and can be easily completed before the onset of the rainy season. However, the sides still have construction debris that will need to be disposed of, presumably in the same plot where the material from the bed is currently accumulated. In this plot, this dismantled material should be properly graded and sloped to prevent accumulation of water, which can become a public health hazard/nuisance. In the interim period, proper storage of this material is required.

28. The contractor informed that their proposed noise barrier material has failed and there is a need to get the substitute material in time so that it can be installed on the flyover along corridor 4 expeditiously. On the bank opposite to the Empire Estate, close to the retaining wall, improved safety measures are required to prevent any accidents – involving the local people as there are dwellings nearby, or labourers working on the approach.

29. **Mysore PBS.** The mission noted that there are no major environmental issues for the public bike sharing system. It was informed that the previous resistance to the installation of cycle stations in 3-4 locations was due to some misunderstanding and does not affect the system operation as such. It was also informed that, more recently, more stations are being demanded and there is no safeguards concerns being raised.

**Social Management**

30. **Pimpri-Chinchwad:** The key challenges faced by PCMC are difficulties in handover of 660 meters of road length in corridor-4 due to land acquisition and resettlement issues. In case of 60 meter MIDC land, the tripartite agreement (MIDC, PCMC and Industrial units) is expected to be submitted to the court shortly for its direction on the rehabilitation of the units. Since the shifting of industrial units and construction of road may take about 9-12 months, the possibility of using adjacent alternative route will be considered to launch the corridor-4, until this process is completed. In case of remaining 600 meters, the land owners have challenged land acquisition award which will be heard during the first week of April, 2017 and accordingly based on the
outcome of the court verdict, PCMC will strategize how to secure the land. In addition, there are about 20-25 families residing on this 600 meters stretch and it will take at least 6 months to provide an alternative EWS housing to these people. To overcome this situation, the mission suggested that PCMC should consider in offering these people either rental allowance or temporary allotment of houses until the formal allotment of EWS houses is made and thus enabling to get these people vacate house to facilitate hand over of the remaining lands to the contractor. PCMC will verify and provide a list of people residing on this stretch to the Bank immediately for information and PCMC will up with those people for early shifting from the corridor.

31. In case of those 174 land owners whose lands are taken on advance possession, 73 have received compensation including TDR/FSI by 21 land owners. Out of the remaining, another 11 landowners will be receiving compensation within a week and another 13 within a month. In case of remaining 52 landowners whose ownership papers are not in order will be paid compensation through land acquisition act and this process is to be completed in about a month time after approval by the District Collector. In case of remaining 15 who have opted for TDR/FSI, have to wait for some more time due to certain policy changes.

32. PCMC has confirmed that a decision to make eligible for EWS houses in case those who own another house has been made and the eligibility letters to these families will be issued immediately. Similarly, PCMC will propose similar eligibility to those residing in Transit after seeking approval from the council during the next meeting.

The safeguards management for OP 4.12 Involuntary Resettlement is retained at “Unsatisfactory” since there is partial compliance in shifting people from Transit to permanent resettlement site, i.e., 60% of 144 families and compensation payment or TDR/FSI to 48% of 174 land owners whose lands are taken through advance possession and the remaining PAPs are yet to receive compensation/alternative houses. More details are provided in Annex 3B.

33. Hubli-Dharwad: Land acquisition is completed substantially except 0.50 acre of Dharga land and 559 out of 638 land owners have received compensation (87%). In addition, 98% of 606 non-title holders have received compensation for structures and R&R assistance. The remaining key implementation actions includes: (i) shifting of remaining 6 affected temples including Dargah; (ii) handing over of remaining 3.2 kms of road stretches (9% of total road stretch) encumbered due to land acquisition and resettlement issues; and, (iii) payment of compensation and resettlement to the remaining 90 PAPs. The mission was also informed that the contempt petition of Dharwad shopkeepers has been removed by the court, paving the way for removal of affected shops. As regards shifting of Dharga and other temples, HDBRTS informed that they had a discussion with the Chief Minister and a local and state level meetings are planned to discuss with owners of all 6 religious structures and take a final decision based on the outcome of these meetings. The issue of income Tax deduction is resolved as a result of recent notification by Ministry of Finance and announcement of exemption from tax on the compensation paid under land acquisition act in the recent central budget. Accordingly, there will be no income tax deductions from April 01. 2017 onwards. Since there are no known policy non-compliances, the OP 4.12 Involuntary Resettlement is upgraded to “Satisfactory”. More details are provided in Annex. 2.

34. Naya Raipur: Due to change in the exist route of old Mantralaya station, the previously identified displacement of 4 families and other impacts are avoided. However, 5-6 additional shops will be affected, in additional to a Government building belonging to the Hospital. The 3 small shops present in the entry route will be soon be shifted to 3 constructed shops within the bus station premises. The mission noticed that NRDA has completed the construction of 3 shops within the premises and ready for allotment. NRDA reconfirmed that these three shops will be
allotted to those 3 shops present in the entry route. As regards new impacts in the revised exist route, the mission clarified to NRDA that they should engage with the affected shopkeepers to ascertain their current socio-economic profile and propose suitable livelihood measures. The mitigation measures should include but not limited to compensation for affected structures and economic rehabilitations assistance including transitional support in line with ESMF principles and provisions. The mission interacted with one of the affected shopkeepers and learnt that these shop keepers were deriving livelihood for very long time for more than 20 years and the shops are automobile repair and spare parts, storing place snack and tea shops. As regards employment under contractors, 53% of 95,302 unskilled man days of employment has gone to local people and out of these 35% are women. The total employment created up to February, 2017 is 1, 47,047 man days consist of skilled, semi-skilled and unskilled employment. The rating for OP 4.12 Involuntary resettlement is rated as “satisfactory” since no know policy non-compliances are noticed.

35. Results Framework Indicators and Monitoring. Following the restructuring of the project in November, 2015, two indictors related to land acquisition and resettlement were incorporated in the results Framework Matrix. The progress in implementation of these indicators is summarized below.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Baseline</th>
<th>End of project Target</th>
<th>Current status (March 31, 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCMC: Percentage of Displaced families that are resettled in alternative houses</td>
<td>224*</td>
<td>100.00%</td>
<td>88.00% (197 PAFs)</td>
</tr>
<tr>
<td>HDBRTS: Percentage of PAPs received compensation and R&amp;R assistance</td>
<td>1,255*</td>
<td>100.00%</td>
<td>93.00% (1165 PAPs)</td>
</tr>
</tbody>
</table>

*Current target and subject to change

VIII. Procurement, Expenditures and Disbursement Plans

32. Procurement. As the projects are now moved to STEP (Systematic Tracking of Exchanges in Procurement), all the revised Procurement Plans and procurement documents are to be submitted through STEP. Bank is also mandated to give clearance for prior review cases through STEP. For both the projects, Ms Rana Amani from PMU, SUTP is the Point of contact for STEP. All the project officials from state units are requested to send the details to the PMU, who in turn will submit the documents through the system for Bank clearance.

- MoUD as implementing agency has already finalized all consultancy contracts at their level. They need to monitor these contracts for timely completion and wherever extension to the contracts are required to take care of extended project period, the same may be processed.
- For PCMC, all the civil contracts are already awarded. However Gammon India contract is still under execution.
- For Mysore PBS, MCC has awarded contract for public Bike Sharing Project (PBS), which is proposed for launch soon.
- KSRTC has awarded the contract for two driver simulators, one for HDBRTCO and another for themselves. The contract is under execution.
- For Naya Raipur, all the civil works are complete. They have proposed to take up some additional civil works with the excess fund due to exchange rate fluctuation. Close monitoring from project officials side is required for timely completion of small pending activities well before project closure.
- HDBRTS has awarded the contract for ITS and the station doors and the venders are on board. Meanwhile, the works packages and consultancies need to be expedited.
• Similarly, AICTSL has concluded the procurement of ITS for Indore city and agency is on board.

33. For PPR 17, the list of contracts for post review is received and review of contract is done during mission. The PPR report is going to be shared with the project officials before June 2017 for their comments and compliance.

34. There is not much procurement left in the project, considering the progress; the overall procurement rating is retained as satisfactory with details as follows:

<table>
<thead>
<tr>
<th>Project Rating: Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri Chinchwad</td>
</tr>
<tr>
<td>Naya Raipur</td>
</tr>
<tr>
<td>Hubli-Dharwad</td>
</tr>
<tr>
<td>Mysore ITS</td>
</tr>
<tr>
<td>Indore</td>
</tr>
<tr>
<td>Mysore PBS</td>
</tr>
<tr>
<td>PMU-MoUD</td>
</tr>
<tr>
<td><strong>Overall Project</strong></td>
</tr>
</tbody>
</table>

**Financial Management**

36. As of April 04, 2017, the disbursement profile (including advances) stood at 52.30% against IBRD and 64.17% against GEF financing. The IUFR submission (last submitted till December 31, 2016) is timely.

37. The overall rating of the project is retained at MS.

<table>
<thead>
<tr>
<th>PIU</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri</td>
<td>MS</td>
</tr>
<tr>
<td>Naya Raipur</td>
<td>MS</td>
</tr>
<tr>
<td>Hubli</td>
<td>MS</td>
</tr>
<tr>
<td>Mysore ITS</td>
<td>S</td>
</tr>
<tr>
<td>Mysore PBS</td>
<td>MS</td>
</tr>
<tr>
<td>Indore</td>
<td>MS</td>
</tr>
<tr>
<td>PMU-MoUD</td>
<td>MS</td>
</tr>
<tr>
<td><strong>Overall Project</strong></td>
<td><strong>MS</strong></td>
</tr>
</tbody>
</table>

X. **Project Management**

38. *Project Management & Staffing*. The overall slow progress of the city demonstration projects is symptomatic of weak project management and staffing of PIUs. Major issues around land acquisition & resettlement, contract management, project management and slow works progress continue.

39. The PMC procurement has been concluded and the previous PMC Mott Macdonald has remobilized since January 2017. The absence of the PMC in the last four months has had a
negative impact on the project progress. The rating for Project Management is accordingly retained at MU and will be reviewed in the next mission.

40. **IBRD & GEF Commitments, Savings & Reallocations.** The Mission discussed with PMU and the cities the fund commitments and likely savings or gaps which might require cancellation and or reallocation of funds. The discussions suggest that there maybe $1-2 mn IBRD savings in PCMC and NRDA. For GEF, there are likely to be savings with MoUD, PCMC and NRDA and deficits with HDBRTS and AICTSL. It is proposed to reallocate the GEF grant accordingly.

41. **Annual Meet.** It is suggested to organize an Annual Meet of the project cities to discuss and share their experiences. The last annual meet was organized in 2013 and as most cities are well advanced in their projects it is a good time to organize the next meet. It is proposed to hold the next Annual Meet in May 2017 in Pimpri-Chinchwad, where we have a functioning BRT system.

**XII. Next Mission for Bank’s Implementation support**

42. The next mission is proposed to take place **July 17-31, 2017.**
Annex 1

INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

List of Officials Met

1. Mr. M.K. Sinha, OSD (UT & MRTS), MoUD
2. Mr. R.K. Singh, Director (UT), MoUD
3. Mr. I. C. Sharma, National Project Manager, SUTP Project Management Unit, MoUD
4. Mr. Sudesh Kumar, Task Team Leader, Mott MacDonald (PMC SUTP)

5. Mr. Dinesh Waghmare, Commissioner, Pimpri Chinchwad Municipal Corporation
6. Mr. Rajan Patil, Joint City Engineer, Pimpri Chinchwad Municipal Corporation
7. Mr. Shrikant Savane, Executive Engineer (Civil), Pimpri Chinchwad Municipal Corporation
8. Mr. Sandesh Chavan, Executive Engineer (Electrical), Pimpri Chinchwad Municipal Corporation
9. Ms. Sushma Kohle, CEO, (BRT Operations) PMPML

10. Mr. Rajat Kumar, Chief Executive Officer, NRDA
11. Mr. Salil Srivastava, Chief Engineer, NRDA
12. Mr. L.K. Panigrahi, Chief Project Manager, NRDA PIU
13. Mr. Anant Ram Gupta, Executive Engineer, NRDA

14. Mr. Darpan Jain, Commissioner, Directorate of Urban Land Transport, Govt. of Karnataka
15. Mr. Hiremath, Managing Director HDBRTS

16. Mr. M J Ravi Kumar, Mayor, Mysore City Corporation
17. Ms. Rathna Lakshman, Deputy Mayor, Mysore City Corporation
18. Mr. B. V. Manjunath, Corporator, Mysore City Corporation
19. Mr. N. Murali Krishna, Special Officer, DULT, Karnataka

20. Mr. Vishwanath, GM Traffic, KSRTC
21. Mr. Gururaj, KSRTC

22. Rahul Shrotiya, Manager AICTSL
1. A World Bank mission visited Hubli-Dharwad on March 30-31, 2017 to discuss the implementation of the Hubli-Dharwad BRT project. The meetings were chaired by Mr. Darpan Jain, IAS, Commissioner Directorate of Urban Land Transport (DULT) and by Mr. M.G. Hiremath, IAS, Managing Director, HDBRTS Company, and were attended by their staff, representatives of the PMU and the national-level Project Management Consultants, and several consultants.

2. **BRT Project:** The HDBRTS Project aims at improving bus services in the Hubli and Dharwad twin cities including the implementation of a 22.3 km BRT line, consisting of the 11.8 km long corridor between the two cities and extensions into their central districts. BRT operations are expected to commence by mid-2017. Proposed project components include:
   - Segregated central bus lanes with median bus stops.
   - Trunk and feeder services; off-board fare collection system, with integrated ticketing of trunk and feeder services.
   - The trunk fleet will initially consist of 100 standard (12m) and 30 articulated buses, with a floor height of 900 mm above ground level.
   - Level boarding and alighting.
   - ITS for BRTS and ATCS for traffic management along the corridor.
   - Comprehensive development of the city transport infrastructure including depots, workshops, terminals both for BRT and feeder buses; ITS for BRT and traffic management; and last-mile connectivity.
   - Interchange facilities between the BRT and suburban & city services.

**Technical Discussions**

3. **Traffic Signal Designs:** The BRT corridor will have traffic signals at 29 intersections and 10 mid-block locations (for pedestrian access), i.e. on the average there will be traffic signals every 560 meters. The placement of signals and the timing of the signal phases will affect both traffic safety and the efficiency of mixed-traffic flow and BRT operations. If done well, it will contribute substantially to the success of the entire scheme; if not, it may detract from the perception that the BRT project has been a useful investment. (In addition, 14 non-BRT intersections will be signalized in the central districts of Hubli and Dharwad).

4. The Centre for Development of Advanced Computing (C-DAC) was contracted to carry out the detail design of both the physical layout and the phasing/timing of the signals, and subsequently be responsible for supplying and installing the signals. The November 2016 mission had an opportunity to discuss their initial conceptual work with representatives of DULT, CEPT, HDBRTS, and C-DAC. In this context, the mission wishes to highlight two elements which are specific to BRT and should be factored in when preparing the designs:
   - how best to control right-turns by mixed traffic across the segregated busway; and
   - how to minimize signal delays to BRT buses and avoid bus bunching at intersections, as this could severely undercut the objective of achieving reliable bus services and high commercial bus speeds.
5. In September 2016, C-DAC submitted preliminary designs for five typical junctions. These were discussed with the Banks November 2016 mission, as documented in the previous aide-memoire. In early March 2017, C-DAC submitted designs for two additional junctions to which the World Bank provided its comments on March 17. In an email to HDBRTSCO sent on March 30, C-DAC pointed out that the base maps received (which are based on CEPT’s designs) did not reflect reality on the ground, and that they were awaiting updated base maps before proceeding further with the signal designs. C-DAC also requested that HDBRTSCO confirm in writing whether the technical comments that the Bank had sent on March 17 should be incorporated in the signal designs.

6. During the mission’s field visit (March 30) of those two junctions, together with representatives of HDBRTSCO, C-DAC, DULT and CEPT, it was agreed that virtually all recommendations contained in the March 17 Bank response should be incorporated in C-DAC’s designs. In principle, this was confirmed (March 31) with the C-DAC’s chief scientist in charge of this project. Below is a listing of the technical items conceptually agreed with the present and the previous missions March 2017 and November 2016):

- In principle, signal cycles should be in the range of 60 or 70 seconds (off-peak) to 90 seconds (peak).
- As a general rule on signal phasing, the BRT will operate in parallel with the straight mixed-traffic flow, and will be stopped when right turning vehicles from the main road are allowed to move.
- All-red phases, during which only pedestrians would be allowed to move, would be avoided wherever possible, in order to give additional time to the phases when the BRT buses move.
- Instead, pedestrians would walk during the phases when mixed-traffic moves in parallel (which may require the placement of pedestrian refuge islands).
- Consideration would be given to provide a single (rather than two) crosswalk across the main corridor – on the side where a nearby BRT station is located.
- Signal poles would be placed at the edges of the sidewalk (rather than the middle where they would obstruct pedestrian movement. In some cases, this implies the continuation of the 75 cm landscaping strip in the intersections zone, especially downstream side of the junction. (the pole foundations would be placed in the landscaping strip, between the curb and the drainage structure).
- Wherever possible, the space-consuming control boxes would be placed in the 5 m wide median rather than the sidewalk, in a way that pedestrian space would not be obstructed.
- The time given to left-turns of mixed traffic should be restricted where they conflict with the movement of pedestrians trying to reach a nearby BRT station.

7. The mission also reconfirmed that some non-signal elements commonly included in traffic engineering designs should be included in the final designs, such as refuge islands, pedestrian barriers, lane markings, straight or turning arrows to be painted on the pavement, zebra crossings, table-top crossings, curb cuts to accommodate wheelchairs, bollards, traffic signs, the widths of carriageways and sidewalks, the presence of right-turn lanes from the main road, and – where required – proposed minor modifications of the geometric design of the intersection. All this had been recommended by previous missions, but C-DAC’s March 30 email pointed out that these elements did not form part of their Terms-of-Reference. **The mission repeats its previous recommendation** that C-DAC be instructed *no later than April 15*, to include these traffic engineering elements in their junction designs

8. It was discussed during previous missions, how best to control mixed-traffic right turns across the BRT busway. The prevailing Indian practice is to control that movement by turning on
and off a right arrow attached to the straight-movement signal. Considering the potentially dangerous conflict between fast BRT buses and right-turning vehicles, the mission is of the view that the right-turn movement ought to be controlled explicitly, using separate signals giving red, amber and green indications just for the right turns. (This is common practice in Europe and the Americas, as documented among others in the *US Manual of Uniform Traffic Control Devices – Figure 4D-9: Typical Positions and Arrangements of Shared Signal Faces for Protected Only Mode Left Turns*). This would require the placement of additional signal heads on the main-street approaches. C-DAC expressed its willingness to design the right-turn signaling by either standard, once it receives instructions from its client. The mission recommends that DULT / HDBRTSCO instruct C-DAC in writing, no later than April 14, whether international or Indian practices are to be used.

9. The signal designs have proceeded slowly so far, most recently because correct base maps had not been provided. Unless instructions are given to accelerate this work, it is most unlikely that the new signals would operate in 2017, or even 2018. To expedite the design process and on the basis of the discussions during the mission wrap-up meeting, the mission recommends the following time line:

- CEPT/HDBRTS to provide up-to-date base maps for signal designs: April 7, 2017
- C-DAC to provide signal designs for 10 intersections: April 30, 2017
- C-DAC to provide corrected version of first 10 intersection designs May 15, 2017
- C-DAC to provide signal designs for second batch of intersections May 15, 2017
- C-DAC to submit final designs and specifications for 29 junctions May 31, 2017
- C-DAC to submit final designs and specifications for 10 mid-blocks May 31, 2017
- C-DAC to submit final designs for 14 non-BRT locations June 7, 2017

10. BRT in Central Hubli: The previous mission was advised that the Highway Department was planning the construction of an elevated road across Rani Chennama Circle, and that therefore the already contracted busway and BRT station construction could be affected. However, no specific plans existed on how that flyover would be inserted into the existing street system – and the key BRT section from Hosur Cross to the railway station, via Chennama. It was therefore concluded that a possible elevated road viaduct should be designed taking account of a properly designed busway (rather than the other way around). Considering that neither the layout of the flyover nor its implementation timeline had yet been fixed, it was concluded that the construction of the busway and stations should proceed as planned, rather than compromising the BRT design. The mission was informed that the construction at this site could not proceed owing to the pending matter of advertisement rights on an existing FoB which would be affected. The mission recommends to start building the busway and BRT stations as planned and advise the PMU/World Bank of the proposed implementation timetable, by May 1, 2017. It is clear that BRT operation cannot begin before this key section (and the Chennama terminal) have been built.

11. BRT Service Plan: CEPT is still planning to establish the data base for evaluating possible BRT service plans. These will consist of alternative combinations of (a) bus size, (b) limited-stop (c) all-stop and (d) super-express services, and (e) terminal points (such as Chennama and Railway Station/CTB in Hubli). The mission received a note prepared by CEPT, outlining the proposed method for evaluating alternative service plan options, covering surveys, modelling and a second workshop planned for late April / early May with technical staff of DULT, HDBRTSCO and NWKRTC. The mission agrees with the gist of that note and repeats its earlier recommendation that service plan options be defined as soon as possible and sent to the PMU and World Bank, by April 14, 2017. It expects that, in any case, these options will have to prepared before the planned April/May workshop.
Intelligent Transport & Traffic Management System

12. In order to demonstrate continued progress and achieve system acceptance by Dec 2017, the Bank mission advised the stakeholders to form a Working Group and discuss outstanding issues every week followed by a face-to-face meeting once every two weeks. The working group should include HDBRTS, ITS PMC, ITS Vendor, and NWKSRTC.

13. The Bank mission advised the ITS vendor to carry out a proof-of-concept testing by demonstrating a pilot at the sub-system level without waiting for all the BRT infrastructure elements to be ready. The ITS Vendor should utilize cloud-based services to demonstrate functionality and complete the pilot by end of June 2017.

14. Following issues related to the ITS implementation need immediate attention:
   - Interfaces of on-board ITS installed in TATA, VOLVO, and LEYLAND buses need to be fully studied by the ITS vendor so that these interfaces may be integrated with ITS Control Center.
   - The issue with KPIT interfaces pre-installed on the TATA buses need to be resolved at the earliest. The Bank mission urged the client to discuss ways of de-installing the KPIT units before delivery so that the ITS vendor could install their Vehicle Tracking units to facilitate easier integration.
   - ITS vendor needs to be informed about the completion dates of OFC (Fiber) conduits, drawings of Signaling locations, list of citywide POS stations, fare rules and policies for pilot, and the last mile connectivity outside of BRT corridor.

15. The Bank mission urged the ITS vendor to develop a detailed project plan until Systems Acceptance including the proof-of-concept testing to be completed by June. It was agreed that the payment schedule will still be as per the tender document and contract.

16. Following implementation issues were discussed and resolved:
   - Opening for Manhole cover will be expanded to 800X800 mm as requested by ITS vendor.
   - The Control Room will be located at Hosur Interchange Depot. The server room will be expanded by shifting the UPS room to the lower floor. Furthermore, gallery space will be allocated at the far end of the control room by reducing number of operator consoles. The gallery space will be on a raised floor with steps to move towards the video wall.

17. The following issues are still pending and need to be addressed by April 15 2017:
   - After installation of UPS and battery equipment at the Bus shelter, there is practically no space for maintenance and this is deemed a safety hazard. The Bank mission discussed a couple of options including:
     - Placing the batteries and UPS below commuter seating area at the station
     - Using an enclosure with ventilation along either side of the Bus Way at the base of the ramp to store the batteries and UPS. The Bank mission urged the client to pick the option that ensures easy maintenance, is vandalism-proof, and does not pose a safety hazard for commuters.
     - Resize the 6KVA/10KVA UPS and battery requirements assuming the need for powering only critical elements during outages.

18. It was agreed that the civil works contractor would make available a dedicated power supply and air conditioning in the Server room at the Hubli Depot by April 15 2017.
19. The station door vendor confirmed that the distance at which the station doors will open upon successful docking can be configured to ensure the separation between station platform and bus floor is minimized.

20. The Bank mission encouraged the PMC to deliver the final Standard Operating Procedures (SOP) and SLA for fare collection policy and financial appraisal and revenue scenarios with NWKSRTC by end of May 2017. However, the draft SLA and SOP should be developed by April 15th so that the ITS vendor could use the draft business and fare policies to start testing the fare collection system and incorporate the final changes by end of May.

21. Considering the criticality of ensuring business continuity, the Bank mission advised the ITS vendor against changing its project team at least until March 2018.

**Technical Assistance Activities**

22. *HD City Plan.* A presentation was made by the Consultants on the Data Collection Report which seems to be shaping up well. The mission was informed that a presentation had also been organized for the Technical Committee in Bangalore in the same week in which all key stakeholder had participated. Detailed comments have been provided by the Bank, which in particular noted that (i) the mapping of jobs was a critical input that needed to be addressed, (ii) the transit network and GTFS data in order to be able to conduct accessibility analysis of the transport and land use interventions, (iii) the mapping of the NMT network and (iv) better profiling of the real estate market. The provisional masterplan has also been approved and comments are to be solicited from the public. It was agreed that this would be a great opportunity for the work being done under the City Plan to now be available to supplement the masterplanning exercise. However, for this to be possible the consultants would need to expedite analysis and the next deliverables and be able to match the timelines of the masterplan and the various stakeholders. The mission emphasized that the coordination between the various stakeholders i.e. HDMC, HDUDA and HDBRTS, needed to be strengthened and advised the consultants to ensure direct interactions with these agencies. A variety of initiatives such 24x7 and Smart City are ongoing and their integration into this planning exercise is important for it to be successful effort.

23. *SOP Study.* The SoP consultants had completed a comprehensive mapping of all the existing critical processes at NWKRTC in the last mission. The reports from the next step covering international experience and recommendations for streamlining and improving the process flows through ITS are awaited and are critical input into the design of the system by the ITS vendor. The consultants informed that they would be able to submit the recommendations by April 15, 2017. The Mission advised that the reports for various functional areas be submitted in a phased manner to optimize on the time, rather than hold up completed sections for a single submission. DULT/ HDBRTS agreed to coordinate accordingly.

24. *Communications & Outreach.* The implementation delays are affecting the public image of the project. Media reports over the last few months have been increasingly focusing on project delays and disruptions to public life in the twin cities. It is important that HDBRTSCo take proactive steps to enhance its strategic outreach to stakeholders if it is to ensure there is no further erosion of its public credibility.

25. As construction activities in the city intensify, traffic disruptions to and other associated inconveniences to the general public will also increase. In order to ensure that these initial negative impacts do not colour the people’s perception of the BRT Project it is important to also intensify public outreach highlighting the potential benefits of the Project and its positive impact on the livability of the twin cities.
26. **Communications & Outreach Consultancy:** In this context, it is important that HDBRTSCo continues to have the services of a professional Communications Agency to coordinate and implement at scale outreach activities in the construction, pre-launch, launch and post-launch phases. It is suggested that the Consultancy for Communications & Outreach either be extended or new agency hired to ensure that public outreach in this critical phase of implementation can be resumed as soon as possible.

27. **Media Outreach:** Media coverage of the BRT Project had been growing non-favorable over the past months. It is imperative that HDBRTSCo management lead an intensive programme of regular media briefings including site visits for reporters and special briefings for the editors of key publications. It is also suggested that the regular media briefing sessions by the Managing Director HDBRTSCo be conducted in collaboration with the HDMC Municipal Commissioner to reinforce the criticality of the project to the twin cities.

28. **Strategic Outreach to Critical Stakeholders:** Important local groups such as the HDMC Corporators, city Chambers of Commerce, the Engineers’ Associations etc, should be briefed regularly on the progress and benefits of the Project. The monthly Newsletter should also now be sent out to a broader set of stakeholders.

29. **Social Media Channels:** HDBRTSCo needs to set up and regularly use social media channels like Facebook and Twitter to expand its outreach. These channels can also be used to put out weekly progress updates. In order to ensure that these channels are vibrant platforms for ongoing engagement with the city public, it is suggested that HDBRTSCo hire a young communications consultant who can manage these channels on a daily basis.

**Works being implemented by HDBRTSCo (financed by the Bank)**

1. **About 55% (in monetary terms) of the works has been carried out** under 10 ongoing contracts being implemented by HDBRTSCo. Progress of the ongoing contracts overall is 20% of total contract amount in last 5 months (November 2016 to March 2017) since the last Bank Mission in November 2016, in comparison to only 4% in earlier 3.5 months. Although such progress (about 4% per month) is much better than earlier, about 8% overall progress per month (assuming about 9 to 15 months completion period of the contracts) is what’s expected. The Table at the end gives the overall status of all works contracts.

2. There are some issues related to finalizing location of facilities, availability of land, relocation of utilities, and traffic diversion allowing the construction works (including on availability of space following construction of Mixed Traffic Lanes on Hubli-Dharwad Highway BRT Corridor), which are affecting smooth progress of works. Besides resolving all these issues, HDBRTSCo needs to specifically monitor mobilization, work plan and performance of recently-started contracts PW-02 and PW-09 as well as PW-08. PW-08 contract has improved its performance and implemented INR 96 million worth of works in about 5 months (November-March) since last Mission - it requires implementing another about INR 304 million of works to complete the contract.

2. **Contractual Works Completion Period has expired for all contracts except for recently-started PW-02 and PW-09. HDBRTSCo has not allowed Extension of Time (EoT) resulting the contracts to be ‘at large’. This places HDBRTSCo at risk. HDBRTSCo may allow ‘conditional’ EoT, if so considered, as the case may be. It’s presently expected that all works being implemented by HDBRTSCo may be completed by end-2017.**
4. The Project Management Consultant (PMC)’s Services have been extended by HDBRTSCo until end-June 2017. Almost all contracts of HDBRTSCo and the Mixed Traffic Lanes (MTL) contract of Karnataka Road Development Corporation Limited (KRDC) (which the same PMC is handling) will continue beyond June 2017. HDBRTSCo needs to consider how an effective supervision and quality control arrangement can be continued beyond June 2017.

5. **PW-01**: This contract for Construction of 4 numbers of BRTS Bus Stations (BS) including Concrete Pavement at those locations and 1 km long Pedestrian Walkway between Hosur Cross and Hubli Railway Station started on 04 April 2015 with 12 months works completion period. Progress is about 29% of likely increased contract amount. The Contractor had completed 700 m of Pedestrian Walkways, and the remaining 300 m cannot be made due to non-availability of land. The Contractor is laying underground low-tension electric cables (entrusted to the Contractor as variation to the original contract) and can be completed on completion of road works by the Public Works Department (PWD). The works for BS-01 (at Pinto’s Circle / Ambedkar Statue) has started in February 2017. The Contractor has also been entrusted (through variation) to enlarge and remodel the Ambedkar Statue island. The Contractor has started the works at BS-02 (HDMC site) in February 2017 after HDBRTSCo completed the Diversion and Footpath works. The substructure for BS-01 and BS-02 has been changed from Concrete to Steel in order to accelerate the works. The Contractor has targeted completion of BS-01 and BS-02 by October 2017. The location for BS-03 at Rani Chennamma Circle cannot be decided in view of a proposal of construction of a Flyover at this Circle. The Contractor is carrying out false ceiling works at BS-04, but cannot install the roof sheeting anticipating damages by vehicles or otherwise because of space constraint until the MTLs are done for vehicular movement.

6. **PW-02**: The contract for Construction of Terminal at Mitra Samaj in Dharwad started on 31 December 2016 with Works Completion Period of 12 months. The progress has been about 13% of likely contract completion cost. It’s understood that about 200 sqm of private land could not be acquired until now. Some drawings including drawings for electrical works are yet to be received from the Design Consultant. However, the Contractor’s progress is not hampered at this time due to non-availability of information or drawing. The Contractor is confident that it can complete all works by December 2017 as scheduled.

7. **PW-03A and PW-03B**: The contracts for Construction of 4 Foot Over Bridges (FoBs) in each contract, being implemented by the same Contractor, started on 06 November 2015 with 9 months works completion period. ‘Good for Construction’ drawings were issued in February 2016. Works initially progressed very slowly due to non-availability of unencumbered sites as well as slow working by the Contractor. The process for issuance of Excise Duty exemption Certificate for procurement of Steel materials also took a few months. Present progress (including procurement of materials) of both the contracts is around 37% of likely completion cost. The PMC opined that the Contractor should increase one more working team including skilled manpower in order to accelerate the works. The Contractor had claimed extension of works completion period until June 2017.

8. Under PW-03A, no suitable location for the FoB near Rani Chennamma Circle could be identified in view of a proposal of constructing a Flyover at this Circle. Substructure works are in progress for all 3 remaining FoBs (at Hosur Interchange, Prerana College, Unakal Lake). The Contractor expects to complete all works for these 3 FoBs by June 2017.

9. Under PW-03B, the FoB at SDM Medical College (which was dropped earlier) has revived and the Contractor is now awaiting receipt of the drawings for foundation works from the Design Consultant. Substructure works are ongoing for the Left and Right Structures for the FoB at Navanagar, works for the Central Structure can be taken up after the traffic can be diverted. Substructure works and erection of superstructure are ongoing for the FoB at Rayapur. At the site at Dharwad Court Circle, works of Right Structure cannot be taken up due to non-availability of
land, works for the Central Structure can be taken up after the traffic can be diverted, and the Contractor is awaiting drawing (by relocating the Lift) from the Design Consultant for the Left Structure. All works (except at Dharwad Court Circle) under this contract are likely to be completed by September 2017.

10. **PW-04**: This contract comprising Drains, Walkways, Street Lights, Bollards, Sitting Benches, etc for a total length of 3 km in Dharwad, Navanagar and Hubli (following changes in the scope of works) had started on 10 November 2014 with 9 months completion period. The Contractor had completed all Drain works (including at Hubli) and Walkways & new Street Light Pole foundations on one side in Navanagar. After initial progress, works under this contract got practically halted due to non-availability of unencumbered sites. The Walkways and Street Lighting works on the other side in Navanagar can be carried out after underground cables are laid. Following interaction with Hubli Electric Supply Company (HESCom), HDBRTSCo asked the Contractor to carry out the works of laying underground low tension electricity cables (now 75% done) and relocation of Transformer as variation to this contract. In 1.3 km in Dharwad, Walkways cannot be laid until the road works & utility ducts are laid under another project and have been dropped from this contract. The Contractor, PMC and HDBRTSCo need to jointly work out the likely value of works on completion and what works are remaining. The Contractor expressed that now that all the issues have been resolved and the scope of works reduced, it would complete all remaining works by May 2017.

11. **PW-05**: This contract comprising Construction of 13 Bus Stations (BS) at middle of the BRT Corridor width, had started on 15 October 2014 with 12 months completion period. The Mission was reported that more than 20% variation (increase) in contract amount is expected due to works for diversion roads, increase in mild steel and conversion from mild steel to stainless steel. Physical progress of this contract has been about 69% of the likely increased contract amount. **Progress is held up at Unakal Village (BS-10) due to hindrances like electric pole & underground drainage line and non-availability of land for traffic diversion.** The Contractor has completed the roof and false ceiling works at remaining 12 BSs. Following receipt of drawings for ITS conduit works in February 2017, it has completed the conduit works and flooring at 2 BSs (KIMS and Rayapura). The Contractor is required to complete ITS conduit, Flooring, Stainless Steel works, Electrical Fittings (about 50% done), Stucco finishing of vertical faces, Art works, Advertisement Boards, Ticketing Booths, Sitting Benches and all Finishing works at all BSs. Details for Advertisement Boards are yet to be provided to the Contractor. The Contractor informed its target of completing all remaining works for the 12 BSs by July 2017.

12. The Mission noted that fixing of the last piece of roof sheeting at outside edges may deform the geometry. **This requires high quality workmanship as well as some sort of support to maintain the geometry.** This is applicable also for all BSs under PW-01 and PW-06. In addition, the Roof structure of the BSs is extending beyond the BS Platform towards the Bus Corridor by about 1.7 meters and the clear height of the lowest point of the roof truss above the road pavement is about 4.3 meters, thus susceptible to damage caused by movement of vehicle with tall load if enters the exclusive BRTS Corridor. The Mission suggests **putting retro-reflective paint and red flasher light (or, alternatives) at the approach sides of the roof for cautioning approaching vehicles.** In addition, HDBRTSCo may consider erecting permanent sturdy physical barrier (or, alternative) at the entry locations of the exclusive BRTS Corridor in order not to allow any vehicle with tall load to enter the exclusive Corridor. These are also applicable for all BSs under PW-01 and PW-06.

13. **PW-06** comprising Construction of 11 Bus Stations (BS) in the middle of the BRT Corridor width, had started on 15 September 2014 with 12 months completion period. Two more BS (at NTTF and at Jubilee Circle) were added to this contract, totaling 13 BS. Physical progress (including procurement of materials) of this contract is reported to be about 88% of increased
contract amount. Roof and false ceiling works are complete for 6 BSs (IOCL, NGEF, Navlur Station, SDM Hospital, Sattur and Lakhman Halli) and false ceiling works are ongoing at Vidyagiri and Gandhinagar Cross. The Contractor is required to complete ITS conduit (completed at Sattur and Lakhman Halli), Flooring, Stainless Steel works, Electrical Fittings (at Vidyagiri and Gandhinagar Cross), Stucco finishing of vertical faces, Art works, Advertisement Boards, Ticketing Booths and all Finishing works at these 8 BSs. The Contractor’s present target of completing the first 6 (listed above) is by May 2017 and the next 2 (listed above) by July 2017. At the remaining 5 locations (Toll Naka, Bagalkot, NTTF, Court Circle and Jubilee Circle) in Dharwad city, structure up to roof beam is complete and the Roof Structure (extending beyond the BS Platform towards the Bus Corridor) can be erected with barricading which is possible after the carriageway is widened under MTL works contract of KRDCCL pending for land acquisition. The Contractor has claimed extension of Works Completion Period until 30 November 2017.

14. **PW-08** comprising Depot and Divisional Workshop in Hubli and the Depot in Dharwad of about INR 565 million started on 20 December 2013 with 15 months completion period, has been progressing very slowly. There has been upward variation in the contract amount due to increased earthworks in excavation at Hubli Depot and Divisional Workshop, additional shed for parking of buses at Hubli and Dharwad Depots, and increase in concrete quantities at Divisional Workshop, leading to a revised contract amount of about INR 617 million.

15. There was no authorized Project Manager (PM) of the Contractor stationed at site during March-October 2016. It was reported that a new PM is stationed at site since November 2016, who was however not available at site during the Mission’s visit on March 30-31, 2017. The contract has improved its performance and implemented INR 96 million worth of works during the 5 months (November-March) since the last Mission, bringing the total value of works implemented until March 28, 2017 at INR 313 million (51% of increased contract amount), in comparison to INR 82 million of works carried out during the prior 15 months period from August 2015 to October 2016. The **contract requires implementing another about INR 304 million of works**. The main works remaining are Road works, Electrical works, HVAC, Fire fighting, some Civil works and all Finishing works. Both HDBRTSCo and the PMC opined that the Contractor is required to augment its skilled labourers. HDBRTSCo needs to make an early decision about the storm water drainage arrangement at Hubli Depot - whether covered drain or piped.

16. The Contractor has submitted a Work Plan for the period 1st April 2017 onward, which is not resource-based. The **Contractor’s representative appeared to be not fully seized of all remaining works**. He expressed that the completion cost is likely to be less than what’s estimated (INR 617 million). The **Contractor needs to review & list all remaining works and confirm the same with the PMC & HDBRTSCo**. The Contractor is also required to make Resource-based Work Plan. These would help the Contractor in arranging all required resources (materials and manpower) in a timely manner as well as systematically implementing various items of works simultaneously towards early completion of the contract. The Contractor expressed its target of end-July 2017 for completion of all works, which appears unrealistic. It appears doubtful that the Contractor has given thought that it’s required to complete about INR 300 million worth of works (half of which is civil works, road works and finishing works) in 4 months period (April-July) it’s targeting.

17. **PW-09**: The contract for Re-construction of OCBS (Old Central Bus Station) at Dharwad was terminated on 2nd July 2016 due to poor performance of the contract. HDBRTSCo has entered into a contract with another Contractor for carrying out the remaining works of INR 148 million, which has started on 26 December 2016 with 9 months completion period.
18. The Contractor appeared to be well-mobilized and has progressed about 9% of the contract works in monetary terms. It requires to work simultaneously in all fronts like Civil works, Structural steel works, Road works, Electrical works, Water supply, Sewerage, Drainage, Fire fighting, HVAC, etc. The PMC opined that the Contractor is required to augment skilled labourers like bar benders and carpenters. The design / location of the Electrical Room is required to be modified by the Design Consultant to suit the site condition. Both the PMC and the Contractor expressed confidence about completing all contract works within the scheduled period by September 2017.

19. PW-10 for Construction of Hosur Interchange of about INR 417 million started on 15 May 2014 with 18 months completion period. There’s likely net increase in contract amount of about INR 100 million resulting from increased earthworks in excavation, increased concrete quantities, increased reinforcement steel and structural steel, increase in HVAC and electrical works, increase in cost of Depot Manager Block and increase in stainless steel works together with some savings from the original bills of quantities. The Contractor has reported to have carried out INR 154 million worth of works during 5 months (November-March) since last Mission, leading to completion of INR 404 million of works (78% of increased contract amount) until March 28, 2017.

20. The Contractor is required to carry out another about INR 113 million of works comprising mainly road works, structural steel works, electrical, fire fighting & plumbing works and finishing works. The Contractor has made reasonable progress of Mushroom Columns (83 in total), 49 of which has already been erected, 2 are ready for erection and fabrication ongoing for 3. In order to complete the contract works early, HDBRTSCo has allowed design with simpler fabrication works for remaining 29 mushroom columns. The Contractor would start fabrication of those shortly and hopes to erect all 29 by end-May 2017. 3,500 cum of PQC works is remaining. The Contractor has laid a maximum of 1,200 cum of PQC in a month until now. It’s sharing the Concrete Plant with another contract for construction of Grade Separators under KRDCL. The Contractor needs to give attention to the PQC works also. HDBRTSCo and the PMC opined that the Contractor needs to augment its skilled manpower for internal finishing and plumbing works.

21. The Contractor expects to complete the contract works in all respects by end-July 2017, which has a fair likelihood.

22. Project Management Consultant (PMC)’s Services. Original contract period for the PMC’s Services had expired in February 2016. The PMC’s services have been extended until June 2017. The extension includes services for MTL works contract under KRDCL as well as mobilization of 7 additional technical personnel. It’s understood that the PMC’s team is presently short of one Team Leader and one Quantity Surveyor. KRDCL informed that there have been inordinate delays in certifying payments by PMC for the MTL works contract.

Works being implemented through Karnataka Road Development Corporation Limited (KRDCL) (not financed by the Bank)

23. Complete length of about 19 km long BRT corridor along Hubli-Dharwad Highway is being implemented through KRDCL (which includes construction of 3 Grade Separators and 2 Road Over Rail Bridges), except the Bus Stations and Foot Over Bridges (FoB) therein.

24. 4-laning works of Hubli-Dharwad Highway (the BRT Corridor) had started in September 2012. Effectively, the 4-laned Highway will become the exclusive BRT corridor after completion of the full width of the Highway comprising both exclusive BRT corridor and Mixed Traffic Lanes (MTL) being constructed under a separate contract. Concrete Pavement could not
be laid in length of about 1.9 km due to proposed Grade Separators, in about 1 km for RoBs at Navalur and in about 1.6 km (Gateway Hotel to Sena College) due to land and utilities issues. Widening of pavements to 4-lanes in Hubli and Dharwar city areas could not be done because of non-availability of encumbrance-free land due to difficulties in relocating existing utilities pending acquisition of land required for construction of full-width Road. This contract has been closed. Remaining works have been taken up under a separate contract described in the following paragraph and Grade Separators & RoBs have been taken up under separate contracts as described hereafter.

25. Works contract for **Remainig 4-laning works of Hubli-Dharwad Highway** (exclusive BRT Corridor) in 7.55 kms length between Gateway Hotel & Sena College and in Hubli & Dharwad city areas has started on 01 July 2016. No permanent work has started yet. Permanent works under this contract can be started after the vehicular traffic is diverted to MTL being constructed (by the same Contractor) under a separate contract. 1.45 kms on left and 1.825 kms on right were handed to the Contractor on 1st July 2016, but the works could not be started because the vehicular traffic could not be diverted. The Contractor has planned to start (on 31 March 2017) permanent works in Km 1.45-2.20 where both sides MTL works are done, although there exist hindrances in the form of Advertisement Boards and Street Light Poles. The Contractor also hopes to start permanent works in Km 12.71-13.00 after the MTL works are completed on left side in a week’s time. The Contractor for this contract as well as for the MTL works contract being the same, the Contractor is required to implement the MTL works in a way to facilitate implementation of 4-laning works under this contract.

26. The Contract for **Construction of Mixed Traffic Lanes (MTL) on Hubli-Dharwad Highway (SH-73) for a length of 17.52 kms** started on 23 March 2015 with 18 months completion period. KRCL has formally handed to the Contractor 1st Milestone stretches (4.32 kms on Left and 5.51 km on Right) on 23 March 2015, 2nd Milestone stretches (4.87 kms on Left and 3.07 kms on Right) on 22 August 2015, 3rd Milestone stretches (2.765 kms on Left and 3.11 kms on Right) on 03 May 2016, and the remaining 5.57 kms on Left and 5.834 kms on Right on 16 January 2017. Presence of Bulk Water Supply Main on Left, Underground Sewer Pipes, Electrical Poles, Structures and non-availability of land & final drawings for Retaining Walls were hampering progress of the works in the handed stretches. In addition, domestic water supply pipelines are being realigned on both sides. A total length of 7.055 kms on Left and 8.415 kms on Right are still encumbered because of presence of Domestic Water Supply Lines, Bulk Water Supply Line, Underground Drainage (Sewer) Line and non-availability of Land. The Contractor has also moved slow even in the encumbrance-free stretches. Until now, the Contractor has started works in 9.00 kms on Left and 10.92 kms on Right. The Contractor has carried out works worth 23% of the contract amount. KRCL and the PMC opined that the Contractor is required to augment skilled labourers and number of transit mixers for concrete works. Works Completion Period of the contract has been extended until 31st December 2017.

27. Contract for **Construction of Three Grade Separators** started on 05 November 2014 with 14 months completion period. July 2015 Mission was informed that Encumbrance-free site for the Grade Separator at Navanagar was handed to the Contractor on 02 February 2015 and the ‘Good for Construction’ drawings were issued to the Contractor on 05 May 2015, after which the Contractor had started the works at this site from 21 May 2015. All works are complete except approaches at splayed portion. Site for the Grade Separator at Unakal Lake was handed to the Contractor on 14 September 2015. Due to presence of private properties, buildings, temples and electric poles, construction of the Diversions for vehicular traffic movement at Unakal Lake site got delayed. On diverting the vehicular traffic to the newly-constructed Diversions on clearance from the Traffic Police, the Contractor could start the permanent works from 12 June 2016. Superstructure works are in progress in 5 of the 9 spans and substructure works up to Pier Cap completed at 2 locations. Gas pipeline affecting construction of Abutments and Approaches on both sides is yet to be relocated. In addition, a Temple is required to be shifted to allow vehicular
traffic facilitating construction of Abutment on Hubli side. Although 413 numbers of RE Wall panels are cast, Approach works could not be started as mentioned above. The site for Grade Separator at Unakal Cross was handed to the Contractor on 28 April 2016. Following construction of Diversion and diverting the vehicular traffic thereto, foundation works followed by substructure works are ongoing at 10 locations out of 18 structure locations. The works at remaining 8 locations (on Hubli side) can be taken up after diverting the vehicular traffic onto the MTL being constructed under separate contract. The Mission was informed that all works can be completed by October 2017 provided the MTL works are completed in the stretch by mid-April 2017. Building to be demolished and electric poles to be relocated for construction of diversion (for vehicular traffic movement) facilitating construction of Approach on Dharwad side.

Although 377 numbers of RE Wall panels are cast, Approach works cannot be taken up as mentioned above. The Contractor has claimed extension of Works Completion Period until 31 October 2017.

28. 2-lane wide Road over Rail Bridge (RoB) and their Approaches are proposed to be constructed on both sides of the existing 2-lane RoB near Navalur. The works contract has started on 23 May 2016 with 14 months completion period. The Contractor started permanent works following relocation of Bulk Water Main, removal of Structures and modification of design of the Approaches. The scope of works includes construction of vehicular underpass and cattle underpass on Dharwad side below the existing approach to the existing RoB as well as construction of Bus Station on the existing RoB (drawings for which yet to be received by the Contractor). All Piling works are complete. Pile Cap and Pier works are ongoing. Underpass works are ongoing, fabrication of girders is ongoing. About 4,000 RE panels (of total requirement of 10,400 numbers) have been cast, and RE wall erection ongoing. Physical progress has been about 17% of contract amount in monetary terms. The Contractor has submitted its Erection Scheme for railway spans to the Railways for clearance. The Contractor is optimistic to complete all works by August 2017 provided Railways’ clearance is obtained early.

Environment

The mission was informed that while there is no progress with the Irrigation Department on the Navalur tank improvement, there has been recent assurance by HDBRTS Company that the Rayapur tank itself will be expanded to accommodate the loss in storage volume due to the project. The mission visited the site and looked at the current proposal for increasing the volume of the tank by moving out one of the roads on the periphery of the tank. It was also discussed that the proposal for its development as an urban green space could be taken up simultaneously with it. It was agreed that this will be completed by May 31, 2017 in advance of the rainy season. The installation of noise barrier at the Dharwad Depot site needs to be expedited as the construction of the compound wall opposite the residential quarters behind the site is now nearing completion.

The mission noted that plantation plan has been recalibrated to take into account the lessons learnt over the past several years of planting over 24,800 saplings under the project. The low survival rate of just under 50% for the first 3 years is a concern that needs to be properly handled. The mission also noted that the survival rate for plantation undertaken by Forest Department is much closer to 80% and urged HDBRTS Company to ensure that the final target for the plantation is achieved. However, this faces a challenge as the about 9,500 saplings that need to be planted in the completed project sites – corridor and infrastructure are still not planted. This could pose a risk if credible arrangements are not made for undertaking this important aspect.

The mission also noted shortcomings in the campsites of various contractors’ facilities – labour accommodation and plant sites. The main camp of the MTL contractor is located far from the corridor. However, there are several locations where temporary arrangements for lodging labourers has been made along the corridor. In other contract packages such as packages 8 and
10, safe working conditions need to be maintained, and hazards such as live wires without proper isolation, sub-standard and polluting generator sets, need to be eliminated. These are not complying with the requirement of the EMP in terms of facilities to be provided for labourers. Similarly, the RoB site is also not as per the EMP. This latter site also has large heaps of sand and other friable material that could become an issue as temperature rises in the summer. The mission urged HDBRTS Company to ensure that such deviations are eliminated immediately.

The mission urged DULT to complete its review of the Action Taken Report for the environmental audit undertaken in June 2016 so that it can be disclosed on the HDBRTS Company website. It also urged timely availability of the detailed design for Rayapur from the Landscape Strategy consultant so that the development of Rayapur as a ‘green urban space’ could be achieved while the mitigation would be undertaken. It also requested that the entire landscape strategy report be finalized early so that relevant activities at infrastructure sites can be undertaken during the current project duration.

**Social**

30. The key progress noticed since last supervision mission in November, 2016 includes compensation payment to 30 additional land owners, R&R assistance payment to another 100 non-title holders, an expenditure of about INR 300 Million and vacating of contempt court case in case of Dharwad Shop owners association. The overall land acquisition is now 98%, of 36 acres of private land acquisition and 87% of 559 land owners in case of receipt of compensation amounts. As regards payment of R&R assistance it is 98% of 606 families. The overall progress in land acquisition and R&R Implementation as of March 31, 2017, is summarized below.

<table>
<thead>
<tr>
<th>No</th>
<th>Activity</th>
<th>Current Target</th>
<th>Progress</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Private Land acquisition (in acres)</td>
<td>37.20</td>
<td>36.38 (97.79%)</td>
<td>Including 0.02 acres for Dharwad bus station. Another 37 acres of Government land is involved.</td>
</tr>
<tr>
<td>2</td>
<td>No. of land owners received compensation</td>
<td>638</td>
<td>559 (87.626%)</td>
<td>Details of compensation deposited in the courts is not available</td>
</tr>
<tr>
<td>3</td>
<td>No. of Non-title holders/ Tenants received assistance</td>
<td>617</td>
<td>606 (98.21%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Assistance for relocation/reconstruction of religious structures</td>
<td>17</td>
<td>11 (64.70%)</td>
<td>Resistance from 6 structures.</td>
</tr>
<tr>
<td>5</td>
<td>Financial Progress (INR. In Millions)</td>
<td>3,240</td>
<td>3029.50 (93.00%)</td>
<td></td>
</tr>
</tbody>
</table>

31. **Land Acquisition.** While most of land acquisition is completed except one land parcel belonging to Dharga and payment of compensation to about 90 land owners. About 70% of land owners received compensation under consent award and the rest through normal compensation award. The comparison of compensation paid under consent award with compensation due under new act is continued to be delayed due to preoccupation of completing land acquisition and is now expected to be completed in next couple of months. As on date 54 land owners (about 10%) have taken the advantage of buying an alternative properties to avail stamp duty exemption for registration of new properties. There are three court cases related to non-payment of compensation for acquisition of land in road margins, where the court has ordered to maintain status quo and one additional PAP has also approached the court on ownership of land for which
he has a sale deed on purchase of land in the road margin from the previous land owner. The missions was informed that in all 21 acres of land under road margin was acquired and only loss for assets has been compensated. HDBRTS needs to pay attention on how these small parcels should be made available to contractor for timely completion of construction.

32. **R&R Impacts.** As on date 98% of 617 non-title holders including tenants were paid R&R assistance. As regards physical displacement 18 title holders and 3 non-title holders are displaced and have made self-relocation arrangements. In case of title holders, in addition to transitional and subsistence allowances, support in the form of free building permissions and reconnection charges for domestic electricity and water supply have been waived off. Among the affected non-title holder’s shopkeepers, mostly shifted to adjacent other Government lands. Among affected squatter families 15 are women (about 15%). The mission advised HDBRTS to gather the information related to how people have arranged refund of income tax deductions, progress in availing of stamp duty exemptions, land acquisition by use, time taken for land acquisition, detail of self-resettlement arrangements, details of people availing benefits under government schemes, etc. The mission interacted with the house owner who is resisting to shift at Lakhanhalli on the grounds that he has no alternative house and the compensation for land is being paid. The mission suggested to look into the possibility of assistance to get a house under any ongoing Government scheme.

33. **Impacts associated with Dharwad bus Terminal.** The mission was informed that all affected people (25 tenants, 5 squatters, 3 licensed shops, 1 land owner and 1 lease holder) have received compensation and made alternative arrangements for reestablishing their livelihoods. The mission was also informed that all 3 licensed shopkeepers were allotted alternative locations in adjacent roads to enable them to continue with their businesses. The mission interacted with one of the squatter shopkeeper who mentioned that he has received his assistance and has restarted his business and expected to improve his earning in the coming months.

34. **Impact on Religious Structures.** As many as 17 religious structures will be affected either fully or partially. As on date 11 structures (65%) are fully shifted and alternative arrangements have been made for their relocation. In case of some of the structures, the compensation awards are made but the owners are not coming forward to take compensation on the ground that they should be offered similar consideration as to be followed in case of Dharga. The mission was informed that consultations are being held with representatives of Dargha and temples and the issue has been also discussed with Chief Minister. It is now proposed to hold another meeting with representatives of all remaining 6 religious structures and then hold a final meeting at Bangalore with higher authorities along with Chief Minister to find an amicable solutions regarding shifting of Dharga and other religious structures.

35. **BRT Implementation Schedule:** The Mission reviewed the sub activities and their likely completion dates and noted that many of the activities timelines were off track and needed to be revisited for a realistic assessment.

1. Complete all land acquisition – Behind schedule (June 2016) – May 2017
2. Shifting of Utilities – Behind schedule (June, 2016) – June 2017
3. Balance work on BRT corridor – October 2017
4. Construction on mixed traffic lanes - October 2017
5. Construction of all three flyovers – August 2017
6. Construction of ROB – August 2017
7. Construction of BRT bus stations – August 2017
8. Construction of Depots and Workshop - June, 2017 (Depots); July 2017 (Workshop)
9. Construction of OCBS and terminal – August 2017
10. Constructions of BRTS station and pedestrian infrastructure between Hosur to Railway station – August 2017
11. Construction of FoBs – June 2017
12. Dharwad Terminal – August 2017 (first level); Nov 2017 (second level)
13. Installation of ITS – July - October 2017
15. Delivery of articulated buses – Oct 2017

36. **Key Agreed Actions**

- CEPT/HDBRTS to provide up-to-date base maps for signal designs -- April 7
- HDBRTSCO / DULT to instruct C-DAC on the scope of its of work and on technical elements in the signal designs. – April 14
- C-DAC (through HDBRTS and DULT) to submit to the PMU/World Bank detailed traffic signal and traffic engineering designs for 10 sample intersections along the BRT corridor – April 30
- CEPT to define BRT service plan options and send them to the PMU/World Bank/ Final Service Plan – April 14/ May 31
- HDBRTSCO and DULT to advise the PMU/World Bank of the proposed timetable for BRT construction between Hosur Cross and the railway station - by May 1
- C-DAC (through HDBRTS and DULT) to send the PMU/World Bank detailed traffic signal and traffic engineering designs for the second batch of intersections -- May 1
- C-DAC (through HDBRTS and DULT) to send the PMU/World Bank final traffic signal and traffic engineering designs and specifications for 29 junctions and 10 mid-block locations -- May 31
- C-DAC (through HDBRTS and DULT) to send the PMU/World Bank final designs for 14 non-BRT locations -- June 7
- Establish Working Group for ITS (HDBRTS, ITS PMC, Vendor and NWKRSTC) - immediately
- ITS Vendor to submit detailed project plan and complete pilot – April 30/ June 30
- PMC to submit draft /final SOP and SLA for BRT Operator – April 15/ May 31
- Extend contract for Communications & Outreach consultants/ Rehire – Apr 15
- Revert on strategy for construction contract supervision post June 30 – May 31
- Develop concept design options for connectivity between BRT Terminal at Dharwad and CBT and OCBS – April 30
- Submit revised deliverable for HD City Plan
- Close monitoring of works contracts – Continuous
- Ensure timely handover of encumbrance free stretches on Corridor - Continuous
- Ensure engagement with media editors/ press releases on (i) HDBRTS progress (ii) Green BRTS Implementation plan, status and survival, (iii) Traffic diversions etc. - Continuous
- Address worker and traffic safety issues highlighted – Immediate
- Complete Review of Action taken on Env Audit Report & Disclose – Immediate
- Submit detailed design for development of Rayapur as ‘green urban space’ – Apr 15
- Finalise Landscape Strategy Report – April 30
- Complete pending land acquisition and compensation and R&R assistance for PAPs affected by Mixed Lanes – May 30
- Complete local and state level consultations with representatives of Dargha and other temples and finalize the process for shifting affected religious structures – April 30
- Comparative Analysis of compensation under new act and negotiated amounts – May 31
## Annex 2A
**SUTP: Hubli-Dharwad: Status of Civil Works Contracts under the World Bank Funding (28 March 2017)**

<table>
<thead>
<tr>
<th>Package</th>
<th>Name of Works</th>
<th>Contractor</th>
<th>Contract Amount (INR Millions)</th>
<th>Works Start Date</th>
<th>Original Works Completion Date</th>
<th>Extended Works Completion Date</th>
<th>Value of Works Done, as reported (INR Millions)</th>
<th>Physical Progress % of anticipated Contract Completion Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW-01</td>
<td>Bus Stations (4 numbers) and Pedestrian Infrastructure (Hosur Cross to Hubli Rly Stn)</td>
<td>Suprada Construction Company, Dharwad</td>
<td>86.5 + 11.5 (anticipated variations)</td>
<td>04Apr15</td>
<td>03Apr16</td>
<td>Contractor claimed extension until 15Sep16 and 12 months after all sites are handed</td>
<td>28.1</td>
<td>28.7%</td>
<td>Location at Rani Chennamma Circle cannot be finalized. Works at BS-04 cannot be completed until MTL works are done.</td>
</tr>
<tr>
<td>PW-02</td>
<td>Construction of BRTS Terminal at Mitra Samaj, Dharwad</td>
<td>Suprada Construction Company, Dharwad</td>
<td>125.9 + 3.5 (anticipated variations)</td>
<td>31Dec16</td>
<td>30Dec17</td>
<td></td>
<td>17.2</td>
<td>13.3%</td>
<td>About 200 sqm of private land yet to be available.</td>
</tr>
<tr>
<td>PW-03A</td>
<td>Foot Over Bridges (4 numbers)</td>
<td>Swarna Techno Construction Private Limited, Hubli</td>
<td>100.8 + 1.7 (anticipated variations)</td>
<td>06Nov15</td>
<td>05Aug16</td>
<td>Contractor claimed extension until 30Jun17</td>
<td>37.9</td>
<td>37.0%</td>
<td>Suitable location for FOB at Rani Chennamma Circle could not be decided.</td>
</tr>
<tr>
<td>PW-03B</td>
<td>Foot Over Bridges (4 numbers)</td>
<td>Swarna Techno Construction Private Limited, Hubli</td>
<td>118.2 + 2.0 (anticipated variations)</td>
<td>06Nov15</td>
<td>05Aug16</td>
<td>Contractor claimed extension until 30Jun17</td>
<td>44.3</td>
<td>36.9%</td>
<td>Works yet to start at 2 sites, awaiting drawings. There’s land issue in locating one stair. Works for stair at the median location at 2 sites can start after the traffic can be diverted.</td>
</tr>
<tr>
<td>PW-04</td>
<td>Non Motorized Transport (3.2 km long in Dharwad and at</td>
<td>Suprada Construction Company, Dharwad</td>
<td>124.2 - 18.0 (anticipated reduction)</td>
<td>10Nov14</td>
<td>09Aug15</td>
<td>30Jun16 (Contractor claimed extension until</td>
<td>62.5</td>
<td>58.9%</td>
<td></td>
</tr>
<tr>
<td>Package</td>
<td>Name of Works</td>
<td>Contractor</td>
<td>Contract Amount (INR Millions)</td>
<td>Works Start Date</td>
<td>Original Works Completion Date</td>
<td>Extended Works Completion Date</td>
<td>Value of Works Done, as reported (INR Millions)</td>
<td>Physical Progress % of anticipated Contract Completion Amount</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
<td>------------</td>
<td>--------------------------------</td>
<td>------------------</td>
<td>-------------------------------</td>
<td>------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>PW-05</td>
<td>Bus Stations (13 numbers)</td>
<td>Rajdeep Buildcon Private Limited, Ahmednagar, Maharashtra</td>
<td>140.7 + 30.0 (anticipated variations)</td>
<td>15Oct14</td>
<td>14Oct15</td>
<td>20Jun16 (Contractor claimed extension until 20Mar17)</td>
<td>118.0</td>
<td>69.1%</td>
<td>Progress is held up at Unakal Village (BS-10) due to hindrances like electric pole &amp; underground drainage line and non-availability of land for traffic diversion.</td>
</tr>
<tr>
<td>PW-06</td>
<td>Bus Stations (11 numbers) + 2 numbers added</td>
<td>Suprada Construction Company, Dharwad</td>
<td>115.8 + 28.8 (variations)</td>
<td>15Sep14</td>
<td>14Sep15</td>
<td>31Jul16 (Contractor claimed extension until 30Nov17)</td>
<td>126.8</td>
<td>87.7%</td>
<td>Works cannot progress for 5 BSs in Dharwad city until MTL works are done.</td>
</tr>
<tr>
<td>PW-07</td>
<td>Depots at Hubli &amp; Dharwad and Divisional Workshop at Hubli</td>
<td>Shreehari Associates Private Limited, Aurangabad, Maharashtra</td>
<td>564.6 + 51.9 (variation)</td>
<td>20Dec13</td>
<td>19Mar15</td>
<td>31Dec16 (Contractor has claimed extension until 30Jun17)</td>
<td>313.0</td>
<td>50.8%</td>
<td>Contractor needs to systematically review, arrange resources and simultaneously implement all remaining items of work</td>
</tr>
<tr>
<td>PW-08</td>
<td>OCBS (Old Central Bus Station) at Dharwad</td>
<td>Shreehari Associates Private Limited, Aurangabad, Maharashtra</td>
<td>148.7 + 19.4 (variation)</td>
<td>05Sep14</td>
<td>04Sep15</td>
<td>10Dec16</td>
<td>32.6</td>
<td>19.4%</td>
<td>Terminated on 02Jul16</td>
</tr>
</tbody>
</table>

PW-06
Bus Stations (11 numbers) + 2 numbers added

PW-07
Depots at Hubli & Dharwad and Divisional Workshop at Hubli

PW-08
OCBS (Old Central Bus Station) at Dharwad

PW-09
Depots at Hubli & Dharwad and Divisional Workshop at Hubli

PW-07
Dropped
<table>
<thead>
<tr>
<th>Package</th>
<th>Name of Works</th>
<th>Contractor</th>
<th>Contract Amount (INR Millions)</th>
<th>Works Start Date</th>
<th>Original Works Completion Date</th>
<th>Extended Works Completion Date</th>
<th>Value of Works Done, as reported (INR Millions)</th>
<th>Physical Progress % of anticipated Contract Completion Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>D S Contractors Pvt Ltd, Goa</td>
<td>148.0 (Remaining Works)</td>
<td>26Dec16</td>
<td>25Sep17</td>
<td></td>
<td>13.3</td>
<td>9.0%</td>
<td></td>
</tr>
<tr>
<td>PW-10</td>
<td>Hosur Interchange</td>
<td>Rajdeep Buildcon Private Limited, Ahmednagar, Maharashtra</td>
<td>416.5 + 100.0 (anticipated variations)</td>
<td>15May14</td>
<td>14Nov15</td>
<td>30Jun16 (Contractor claimed extension until 31Mar17)</td>
<td>403.8</td>
<td>78.2%</td>
<td></td>
</tr>
</tbody>
</table>
### Status of Works being / to be implemented through KRDCL and not financed by the Bank (28 March 2017)

<table>
<thead>
<tr>
<th>Name of Works</th>
<th>Contractor</th>
<th>Contract Amount (INR Millions)</th>
<th>Works Start Date</th>
<th>Works Completion Date</th>
<th>Extended Works Completion Date</th>
<th>Value of Works Done, as reported (INR Millions)</th>
<th>Physical Progress % of Contract Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-laning of Hubli-Dharwad Highway (about 19 km long) (exclusive BRT Corridor)</td>
<td>GVR Infrastructure, Hyderabad</td>
<td>1191</td>
<td>Apr11 (actual start in Sep12 to accommodate BRTS)</td>
<td></td>
<td></td>
<td>349</td>
<td>29.3%</td>
<td>Works could not be completed due to encumbrances and Structures to be constructed. <strong>Contract closed.</strong></td>
</tr>
<tr>
<td>Remaining works of 4-laning of Hubli-Dharwad Highway in 7.55 kms length (exclusive BRT Corridor)</td>
<td>RNS Infrastructures Limited, Hubli</td>
<td>496.2</td>
<td>01Jul16</td>
<td>30Jun17</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Works can be undertaken after Mixed Traffic Lanes (MTL) works are done in respective stretches. Works likely to start in a length of 750 m where both sides MTL works are done and in another 290 m where MTL works are done in another week or so.</td>
</tr>
<tr>
<td>Construction of Mixed Traffic Lanes (MTLs) on Hubli-Dharwad Highway (SH-73)</td>
<td>RNS Infrastructures Limited, Hubli</td>
<td>1469.3</td>
<td>23Mar15</td>
<td>22Sep16</td>
<td>31Dec17</td>
<td>338.3</td>
<td>23.0%</td>
<td><strong>Works cannot be taken up in a total length of 15.47 km (both sides added), means in about 44% length in the scope of 17.52 km, due to various encumbrances like Domestic Water Supply line, Underground Drainage line, Bulk Water Supply line and non-availability of land.</strong></td>
</tr>
<tr>
<td>Grade Separators at Navanagar, Unakal Lake and Unakal Cross</td>
<td>Rajdeep Buildcon Private Limited, Ahmednagar, Maharashtra</td>
<td>359.5</td>
<td>05Nov14</td>
<td>04Jan16</td>
<td>(Contractor claimed extension until 31Oct17)</td>
<td>192.5</td>
<td>53.5%</td>
<td>Gas pipeline and a temple to be shifted for construction of abutments and approaches at Unakal Lake site. Construction of about half-length of Grade Separator at Unakal Cross can...</td>
</tr>
<tr>
<td>Name of Works</td>
<td>Contractor</td>
<td>Contract Amount (INR Millions)</td>
<td>Works Start Date</td>
<td>Works Completion Date</td>
<td>Extended Works Completion Date</td>
<td>Value of Works Done, as reported (INR Millions)</td>
<td>Physical Progress % of Contract Amount</td>
<td>Remarks</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
<td>--------------------------------</td>
<td>------------------</td>
<td>----------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Two Road over Rail Bridges (RoBs) including Approaches</td>
<td>KMV Projects Limited, Hyderabad</td>
<td>483.3 - 3.9 (variation)</td>
<td>23May16</td>
<td>22Jul17</td>
<td>80.1</td>
<td>16.7%</td>
<td>Contractor has submitted its Erection Scheme to the Railways.</td>
<td>be taken up after MTLs are done. Building to be demolished and electric poles to be relocated for construction of diversion (for vehicular traffic movement) facilitating construction of one approach at Unakal Cross site.</td>
</tr>
</tbody>
</table>
Annex 3

INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Pimpri-Chinchwad

1. A World Bank Mission visited Pimpri-Chinchwad Municipal Corporation (PCMC) on March 28 and 29, 2017 to discuss the implementation of the Pimpri-Chinchwad component of SUTP. It met Dr. Dinesh Waghmare, Commissioner of PCMC and his staff and consultants, as well as representatives of PMPML, the Traffic Police, the National PMU, and ITDP which is providing assistance to the BRT Project. The mission also carried out site visits along Corridor 4 and a section of Corridor 1, and visited the new ITS control center at PMPML.

Proposed BRT Program in Pimpri-Chinchwad:

2. The following four BRT corridors are being implemented:

   (1) Old NH-4 (Mumbai-Pune road),
   (2) Aundh-Rawet road,
   (3) Nashik Phata to Wakad road,
   (4) Kalewadi to Dehu-Alandi road,

The first two corridors were sanctioned initially by JnNURM, and road construction has been completed since some time. Corridors 3 and 4 are implemented under the World-Bank supported SUTP. Out of the four corridors, BRT services are now operating along Corridors 2 and 3. Launch of Corridor 1 is not scheduled as yet though the main infrastructure already exists. Corridor 4 is much delayed, primarily due to contractor performance on Empire Estate and land acquisition issues – actions need to be defined urgently so BRT operations can start before the end of 2017.

World Bank Supported Project

Corridor 3 (Nashik Phata - Wakad): Construction Progress

1. This BRT Corridor of about 8 km length is being constructed under 8 works contracts, of which only Contract I (costing about 49% of total cost of 8 contracts) is being financed by the Bank. The Table hereafter presents the overall status of the 8 contracts in this corridor. **Overall progress is about 92% of likely total cost of eight contracts. BRTS has been commissioned in this Corridor in November 2015.** However, **there is no exclusive BRT Corridor for a length of 260 m,** where construction works are yet to be completed due to non-availability of land. Ramp 2 connecting the Nashik Phata Flyover in Corridor 3 and Mumbai-Pune Highway (NH4) is likely to be completed by May 2017. Construction of the Pedestrian Facility for travel between ground level on NH4 (Corridor 1) and Corridor 3 at higher level is uncertain because of an ongoing Investigation.

2. **Contract I: Interchange at Nashik Phata (Bank-financed):** Progress of this contract was satisfactory. **All works except Ramp 2 were completed in May 2014.** In view of non-availability of required additional land, alternative layout (by deleting footpath) was prepared for Ramp 2. Modified General Arrangement Drawing (GAD) incorporating Pedestrian Underpass as demanded by the local people on Right Side (Pune side) was approved / issued on 14 August 2015. On Left Side (Mumbai Side), in view of difficulty in acquiring private land, PCMC advised the Contractor on 04 April 2016 to construct 4.25 m wide (reduced from 5.5 m) Ramp,
after which construction works started on left side. The Contractor has completed all structural
works on both sides as well as approach ramp on right side. Works on approach ramp is in
progress on left side. Works Completion Period has been extended until 31 May 2017, and the
**Contractor expects to complete all works in all respects by 31 May 2017.**

3. The Contractor had made several Claims, which were not agreed to by PCMC and thus
Disputes arose. Dispute Adjudication Board (DAB) was not established under the Contract. The
Contractor then notified, in June 2014, for resolution of the disputes through Arbitration.
Arbitration Board was formed in February 2015. It’s understood that the **Contractor’s total
Claim is for an amount of INR 713.6 million** of which INR 499.1 million is towards ‘Idling of
Resources’ and INR 107.8 million is towards ‘Loss of Overhead and Profits’. The Contractor had
submitted its ‘Statement of Claims’ in August 2015. PCMC submitted its ‘Response’ in August
2016, and subsequently the Contractor has submitted its ‘Rejoinder’ in November 2016. It’s
understood that there’s no further progress on the arbitration proceedings since then.

4. Project Management Consultant (PMC)’s services had started on 15 July 2010 with 30 months
period, which ended on 14 January 2013. PMC’s services were extended in writing by PCMC
until 31 August 2015. Although the Agreement between PCMC and the PMC included a
Formulae for ‘Fees payable during Extended Period’, it’s understood that **no payment was made
to the PMC for its extended services from 15 January 2013 until 31 August 2015.** In such
situation, the PMC did not agree to provide services beyond 31 August 2015. Thus, there is no
PMC on ground effective 01 September 2015, and the PCMC officers are supervising the works
directly.

5. **Contract II**: All contract works complete.

6. **Contract III**: All works were completed except for 260 m length where required land on one
side was not available. New contract for the works in that 260 m length started on 4\(^{th}\) March
2016 with 9 months completion period, but the **required land is not in physical possession of
PCMC** until now and thus the works could not be started.

7. **Pedestrian Facilities for crossing of BRT Corridor 1 on Mumbai-Pune National Highway 4 (NH4)
as well as for travel between ground level on NH4 and Corridor 3 at higher level**: Unless
these are constructed, both Corridor 1 and Corridor 3 BRT cannot be satisfactorily utilized by the
public. The Works Contract for Construction of these Pedestrian Facilities started on 29\(^{th}\)
February 2016 with 12 months completion period, but an **Investigation into the Award of this
Contract is ongoing** on advice from the Chief Minister’s Office and thus no work has started yet
on this contract.

8. **Construction of Bus Stops**: 14 Bus Stops have been completed under two contracts, out of 15
planned.

9. **Dedication of Corridor**: The works for erecting Railing-type Separator to create completely
physically separated exclusive BRT Corridor disallowing any pedestrian to cross or walk through
the BRT Corridor, have been completed except for the 260 m length where the road works have
not been completed yet.

**Corridor 4**: (Kalewadi Phata-Dehu Alandi) – **Construction Progress**

10. This BRT Corridor of about 8 km length is being constructed in 8 works contracts, out of
which only Contract III (costing about 43% of total cost of 8 contracts) is being financed by the
Bank. The Table hereafter presents the overall status of the 8 contracts in this corridor. **Overall
progress is about 80% of total cost of 8 contracts. Land is yet to be available for about 660 m
length of the Corridor.** Progress in the Bank-financed Contract III (Empire Estate Flyover) is
about 84% of the Value of Works excluding two Ramps which were on hold; remaining works
are now targeted to be completed by May 2017 which is optimistic. PCMC has asked the Contractor to submit its program for implementing the works for the two Ramps.

11. **Contract I**: All works are complete.

12. **Contract II**: On availability of part of the land, the Contractor started the works in March 2016 and made some progress. **PCMC needs to arrange the remaining land in about 600 m length.** Completion of this contract works allowing commissioning of the BRTS services in this corridor is uncertain.

13. **Contract III: Empire Estate Flyover (Bank-financed):** Progress of this contract is unsatisfactory. Since start in April 2011, the progress until 28 March 2017 is about 76% (in monetary terms) of revised contract amount. Components 5 and 6, ascending and descending Ramps in Empire Estate stretch, costing INR 95.6 million, were on hold following objection by the Empire Estate community. The progress works out to about 84% of the Value of Works excluding Components 5 and 6. Progress by the Contractor has been very slow since beginning. Reportedly, the slow progress has been mainly due to inadequate cash flow for execution of the works.

14. The progress in last five months (November-March) has further slowed down (6% of Value of Works excluding Components 5 and 6) in comparison to the progress in earlier 4 months (6.4% during July-October 2016) and in 3 months earlier to that (8.8% during April-June 2016). The Project Manager (PM) of the Contractor left the site on 27 June 2016, and the present Authorized Representative of the Contractor is functioning based in Mumbai with 2-3 visits to the site per month. It’s understood that the Contractor is presently running the site with constrained cash flow, and it has a credit of about INR 60 million or so.

15. For **Approach to the Bridge across River Pawana** under **Component 1**, retaining wall works are almost complete; the Contractor is required to progress on earthworks and pavement works. All structure works are complete for **Bridge across River Pawana**. The issue of obstruction / opposition by a Land Owner at P17 in **Component 2** has been resolved and the works have progressed. For **Component 3 Road Over Rail Bridge (RoB)**, erection of girders is complete following clearance and availability of ‘Traffic & Power Block (Corridor Block)’ from the Railways, and deck works are ongoing. In **Component 4** (Empire Estate area), all structural works are complete. For **Component 7** (Loop), all foundations & substructure works and two superstructure spans completed; one superstructure span and reinforced earth (RE) wall together with earthworks & pavement works are remaining.

16. In addition to what mentioned in the preceding paragraph, major works remaining are Wearing Course, Noise Barrier, Painting (partly done) and Signs & Markings. Small lengths of Gap Slab and of Anti-crash Barrier are remaining to be completed. Fixing of Bearings is almost complete. **Preparation for installing Noise Barrier is lagging behind.** The Contractor is in the process of testing the samples for compliance with the requirements, following which approval of the Engineer will be required following which the Contractor will be able to place order for manufacturing. It’s doubtful whether installing the Noise Barrier can be completed within the present completion (except Components 5 and 6) target of end-May 2017.

17. Works Completion Period for the Contract has been extended until 31 May 2017. Although the Contractor expressed its target of completion (except Components 5 and 6) by end-May 2017 prior to the onset of monsoon from around 7th June or so, it appears optimistic considering the Contractor’s performance history & specially during recent months and its ongoing cash flow problem.
20. Indian Institute of Technology (IIT) Mumbai’s Report submitted to PCMC in May 2016 reiterated the Need of the Ascending and Descending Ramps (Components 5 and 6) in the Empire Estate area. On 7th March 2017, PCMC asked the Contractor to submit its program within 7 days for implementing these Ramp works. The Contractor is yet to submit the program. It however informed the Mission that it expects to submit the program in 1st week of April 2017 and it would take about a year to complete the works.

22. **Contract IV**: Works are complete except for 60 m length which land is not available for the road works.

23. **Contract V**: All works under this contract are complete.

24. **Project Management Consultant (PMC)’s Services**: The PMC’s services started from 06 April 2011 and original services period ended on 10 October 2013. PCMC has copied to the PMC the extensions given to the Empire Estate Flyover contract (Contract III), but no extension of the PMC’s services has been agreed/awarded by PCMC in writing. PMC has been paid for its services for the period until 10 October 2013. The PMC is continuing to provide the services without any formal extension of its contract and without receiving any payment for the period since 11 October 2013. It’s understood that the matter of formal extension of the PMC’s services and the payment therefore are in active consideration by the PCMC.

24. **Construction of Bus Stops**: Works under one Contract for 10 Bus Stops are complete, and the other Contract is ongoing.

25. **Dedication of Corridor**: The works for erecting Railing-type Separator to create completely physically separated exclusive BRT Corridor disallowing any pedestrian to cross or walk through the BRT Corridor, are ongoing.

**Technical Discussions on Rainbow BRT**

30. BRT bus operations started on Corridor 2 (Sangvi Phata – Kiliwale) on September 5, and on Corridor 3 on November 28, 2015. It goes to the credit of PCMC to have completed these BRT corridors, the first of which is one of the most heavily traveled in India. Previous missions inspected sections of the two corridors, and the Bank provided technical observations. Below are the current mission’s observations, repeating selected elements of the previously shared comments which have not yet been acted upon.

**BRT Corridor 3**

31. Passenger demand on Corridor 3, which started operations in late 2015, are disappointingly low. In part this is due to the low bus frequency (the average headway is 9 minutes) which makes it unattractive to many potential passengers to use that BRT line. Only 15 buses have been assigned to the two lines which use corridor for part of their run (they also run in mixed traffic). In part, it is also due to the absence of the originally planned BRT station, including passenger access) at the crossing with the old Pune-Mumbai highway (Nashik Phata flyover) the construction of which has been recommended by previous missions, and also elsewhere in the current aide-memoire. The mission recommends that PMPML and PCMC treat the low use of Corridor 3 with the urgency it deserves and develop, no later than May 31, 2017, a revised service plan for that corridor, as well as a timed action plan to (a) increase the bus frequency, (b) possibly increase the number of bus lines serving the corridor, (c) urgently address the issue of passenger access at the crossing with Corridor 1 and (d) any other operational and technical actions to drastically increase passenger demand on Corridor 3.
Road and Intersection Infrastructure – Corridor 2, 3 & 4

31. Previous missions noted that traffic flow at most intersections was chaotic, and conditions for pedestrians (including passenger access to BRT stations) were deplorable. The geometric design of intersections favors motor vehicles at the expense of pedestrians. Large radii at corners and the scarcity of refuge islands encourage the quick movement of cars and two-wheelers, but contribute to the risk of pedestrian accidents. The current mission was pleased to learn that PCMC, from its own resources, is about to contract a traffic engineering consultant to review geometric and signal designs on Corridors 2, 3 and 4 and propose improvements where necessary. It recommends that this work be expedited, and that PCMC send the draft designs for the 3 corridors to the PMU and Bank by May 31, 2017.

Traffic Signals and Other Traffic Engineering Elements – Corridor 2 & 3

32. Signal cycles are still too long and differ from previous agreements between PCMC, the Traffic Police and the World Bank (90 seconds as a rule, up to 120 seconds at busy intersections, much less during off-peak hours). This slows down the BRT travel speed, creates long queues of mixed traffic, contributes to the bunching of BRT buses, and implies long waiting times for pedestrians wanting to cross the street (one of the reasons why pedestrians disobey the red light). At a meeting with the Traffic Police arranged by PCMC on December 2, 2015, it had been agreed that the signal cycles would be reduced to 90-120 seconds to comply with previous agreements between the Bank team and the PCMC Electrical Department. However, the previous mission was told that the Traffic Police insisted that signal cycles up to 200 seconds “are necessary” to manage traffic demand. It was agreed with the Traffic Police that signal cycles of 120 seconds were going to be tested at Dange Chowk. This was tested for a day and then abandoned by the Police. Our advice to run this for at least a week and closely observe and document the queue lengths was not adhered to. A “before” survey has been conducted last month, with the current cycle length of 192 seconds. An “after” survey with a cycle length of 120 seconds will be conducted soon. The mission recommends that PCMC inform the PMU/World Bank of the results and evaluation of those tests, by May 31, 2017.

33. At some pedestrian signals giving access to BRT Stations, such as Aundh Hospital and several crossings north of Dange Chowk, the pedestrian demand is very low and does not warrant the stopping of motorized traffic during each signal cycle. Upon the suggestion of previous Bank missions, the PCMC Electrical Department installed a push-button actuated signal at Aundh hospital, as a pilot scheme. Complementary measures have now been agreed such as the deployment of wardens helping pedestrians to cross when the light (for motor traffic) turns red, and the placement of rumble strips upstream from the crossing. The mission recommends that PCMC advise the PMU and the Bank by May 31, 2017 what measures have been taken to improve the functioning of this pilot installation, and whether it intends to expand this approach to the pedestrian crossings north of Dange Chowk.

34. Bhosari Terminal: Traffic management elements and facilities for safe pedestrian movement are yet to be built at Bhosari Terminal. In the previous aide-memoires, the mission requested that geometric and signal designs be sent to the PMU/World Bank. PCMC responded that designs had been shared in September 2015 and that the terminal is functioning since a year. However, this response does not address the issue of putting in place traffic signals and other pedestrian-friendly traffic management elements, which had not been included in the September 2015 designs. The mission therefore repeats its previous recommendation that PCMC provide the
designs and implementation time line for the geometric improvements and the traffic signals by April 30, 2017 and send them to the PMU and World Bank for information.

Selected Aspects of BRT Operations on Corridor 2 & 3

35. **Docking of Buses:** Reportedly, buses dock quickly and without touching the horizontal rollers installed at each station door. However, the gaps between the bus and the station platform are far too great. A traffic safety audit conducted by IIT Bombay in September 2015 highlights the poor docking as an important safety issue: “The clearance between the platform and the bus is more than acceptable limit”. Based on a survey carried out in February 2016 by the monitoring consultants (IBI), 90.2% of all observed gaps exceeded the maximum safe distance of 10 cm, with an average distance of 15.09 cm; in May 2016 it was even worse, with an average distance of 16.24 cm. During the previous mission, the monitoring consultants commented that this represents a “risk for children, pregnant women & the aged”. In the meantime, a 10-day trial was carried out to improve bus docking with the aid of thermoplast lane markings. However, it is not known whether docking has actually improved. *The mission recommends* that PCMC and PMPML advise the PMU and the Bank by April 30, 2017 of the results of those trials, of the current docking distances, and of further actions planned to reduce the docking gap to an acceptable level.

36. **Bus Frequency:** The monitoring consultants reported in November 2016 that the frequency of buses plying on Corridor 2 was only half of what it was before BRT operations were initiated. Considering the buses are often overcrowded, the reduction of buses operating in the corridor surprises and should be great concern to all stakeholders. Data recently received from PMPML and PCMC indicate that the number of buses plying on Corridor 2 has remained constant since early November at about 108 buses during peak hours, and 15 buses on Corridor 3. No data were given on overcrowding. *The mission recommends* that PMPML, by May 31, 2017, provide information on bus overcrowding on Corridor 2, and on the measures it plans to take in order to improve the frequency of BRT services on Corridor 3 (where the average headway is 9 minutes).

37. **Bus Bunching:** During a field visit to Dange Chowk, the previous mission observed that BRT buses arrived at quite irregular intervals. Several missions had stressed this issue in the past, and suggested the contracting of a specialist in this regard. And the mission was informed that buses come from different routes and depots and enter in BRT corridor. As there is a huge traffic jam in non-BRT Corridor bus bunching happens. A Planning & scheduling software is proposed to be implemented in 6 months which can address the bunching issue. This suggests a lack of understanding on the part of PMPML, and overlooks the traffic jams in the non BRT section which cannot be resolved through the scheduling software and the traffic signal issues as well as the readily available ITS data which could help with this analysis. *The mission repeats its previous recommendation* that PMPML define a concept on how to address bus bunching in a deliberate way, and advise the PMU/World Bank by May 31, 2017 of its plans to address this problem now.

Technical Discussions on Corridor 4 and 1

The two corridors, 1 and 4, are yet to be launched. The mission held detailed discussions with both PCMC and PMPML on the preparedness and launch of the two corridors.

BRT Corridor 4
This corridor is an important element of the World Bank financed part of the Pimpri-Chinchwad SUTP program, and remains incomplete. Largely because of land acquisition issues, and also because of problems with the construction of the Empire Estate flyover, the completion of Corridor 4 has been delayed by many years. The urgency of resolving the land issues is highlighted in another part of the aide-memoire.

In addition to obtaining the land required for the full construction of the corridor, and considering that the Empire Estate flyover is now almost completed, PMPML and PCMC should aim to start BRT services by September 2017 (awaiting the resolution of the last land acquisition problems), by providing detours or temporary road connections between those BRT sections that have been completed. Also, more attention should be given to a transfer connection between Corridors 4 and 1 (Empire Estate), as well bus service plans for that corridor.

To sum up, the mission recommends that PCMC and PMPML devise a comprehensive action program with the objective of starting BRT operations on Corridor 4 before the end of the current year. The mission also recommends that this action program be sent to the PMU and the World Bank no later than May 31, 2017. The action program would include the following elements:

- Legal and other actions to acquire the missing land, including optimistic and pessimistic time lines
- Options to connect existing BRT stretches by detours or construction of temporary road links
- Actions required, include time line, to rehabilitate the existing BRT section east of Kalewadi, and elsewhere as may be required.
- Define plan to remove vehicle parking from the existing BRT facilities east of Kalewadi
- Urgent actions required, including time line to build passenger interchange between Corridors 4 and 1
- Service plan for BRT lines to serve the corridor, including estimate of passenger demand

**BRT Corridor 1 (Mumbai-Pune Expressway)**

38. During their November 2016 visit, the PMU and World Bank team were told that BRT operations on Corridor 1 would start in March 2017. However, little progress was made to attain that goal which is still at least half a year away. To assess the readiness of the corridor, the mission visited the section between Pimpri and Nigdi stations. The following paragraphs repeats some of its observations and recommendations presented in 2016:

- **Traffic Safety Audit:** About 3 years ago, IIT Bombay carried out a traffic safety audit for Corridor 1. Some of their recommendations have been implemented, others not yet. The previous mission recommended that PCMC prepare a specific status report on IIT’s recommendations, detailing (a) those that have been implemented, (b) those that it plans to implement in 2017, (c) those that it decided to drop from IIT’s recommendations, and (d) any modified or additional traffic safety improvements that have been or will be implemented. PCMC responded in October 2016 that “some of the recommendations by IIT-Bombay have been implemented (like speed table at bus stops, signboards etc). PCMC is in process of implementing the additional safety measures before launching BRTS”. It comes as a surprise that its March 2017 status report said exactly the same, verbatim. However, some of the additional safety measures are clearly not being considered (see next item) and their implementation by March 2017 is uncertain. The mission therefore repeats its previous recommendation that PCMC review the IIT proposals and send the PMU/World Bank the information on (a) to (d) by May 31, 2017, together with a timed action program for those safety improvements it plans to implement. Such an inventory of outstanding actions would
not only be of interest to the mission, but above all could help PCMC management to expedite (or cancel) the particular safety improvements.

- **High-Intensity Street Lights at Mid-Block Passenger Access Points to BRT Stations:** This was one of the best proposals of the IIT report and could substantially alleviate the accident risk of passengers crossing traffic in order to reach BRT stations after dark. In November 2016, however, only one of 24 proposed high-intensity street lights has been installed. The current mission was pleased to learn that 23 of the street lights have now been installed and would be switched on when the BRT starts operations.

- **Segregation between the Busway and Mixed-Traffic Lanes:** At many locations, the physical segregation is yet to be built between the BRT busway and the mixed-traffic lanes. PCMC advises that “the remaining works will be completed before the launch of services”. The mission repeats its previous commendation that PCMC provide a listing of all locations on Corridor 1, where the busway segregation has not yet been placed, and inform the PMU/World Bank by April 30, 2017, when the missing segregation will be built.

- **BRT Stations at Pimpri Chowk:** The mission visited again the BRT stations already built in the block between Pimpri Chowk and Finolex Junction. It fully agrees with the plan (intimated by PCMC in July 2016) to add a second set of ramps at the northern sides of the stations and build the footpaths needed to provide direct access to the BRT stations from (a) the pedestrian bridges across the expressway lanes of the Old Pune-Mumbai Highway and (b) the junctions at Pimpri Chowk. PCMC told the current mission that this was still the plan and will form part of a future construction contract. The mission recommends that the PCMC send the construction drawings for information and advise the PMU/World Bank by April 30, 2017, when the ramps and station accesses will be built.

- **Passenger Access to BRT Stations:** Passenger access to the BRT stations is still one of the great shortcomings on Corridor 1 – this has been highlighted by this and previous missions and is also reflected in the monitoring data collected by IBI. IIT Mumbai made some general recommendations on how to provide safer pedestrian access. While containing some interesting suggestions, however, that safety audit only made rudimentary proposals which are quite insufficient to assure modern access to the BRT stations. In the meantime, MVA completed access plans for all BRT stations and intersections on Corridor 1. The mission repeats its previous recommendation that PCMC provide by May 31, 2017 specific information on which of MVA’s proposals (a) have already been implemented, (b) will be implemented soon, and (c) will not be implemented in the foreseeable future.

- **Missing Access Footpaths to BRT Stations:** A case in point illustrating the up-to-now insufficient provision of passenger access to the future BRT stations is the frequently observed lack of footpaths between BRT station ramps and nearby intersections from where most passengers would approach the stations. PCMC advised the mission that the required civil works would be completed by June 2017. The mission recommends that PCMC send a list of the missing footpaths and confirm to the PMU/World Bank by May 31, 2017 that the works will be completed by June or, if not, provide a timetable for their completion.

- **Passenger Transfers between BRT Corridors 1&3 and 1&4:** With the expected launch of BRT services on Corridor 1, it is high time to complete the passenger transfer facilities with Corridor 3 at Nashik Phata, and with Corridor 4 at Empire Estate. The mission was advised that the construction of the FOBs connecting Corridors 1&3 has been stopped pending the results of a legal inquiry. The mission repeats its previous request that PCMC give greater
attention to these transfer connections (also between Corridor 1&4) and inform the PMU and the World Bank, \textit{by April 30, 2017}, of the planned schedule for completing those works.

- **BRT Station on top of Nashik Phata flyover:** Space has been provided on top of the flyover to build a BRT station serving Corridor 3 passengers who wish to transfer to the railway or Corridor 1 via the FOBs mentioned in the preceding paragraph. This transfer connection will be important to boost passenger demand on Corridor 3, which now runs much below earlier forecasts. \textit{The mission repeats its previous request} that PCMC inform the PMU and the World Bank, \textit{by April 30, 2017}, of the planned schedule for building that station.

- **Time-bound Action Plan to Complete BRT Corridor 1:** This corridor is the most visible thoroughfare in the Corporation area, has the highest public transport demand, and thus is already served by many bus lines which will become BRT services in the future. It is therefore crucial that all elements be well planned and executed in order to result in a successful BRT operation. PCMC wisely completed Corridor 2 first, which makes it possible to learn from that experience before launching similar services on Corridor 1. \textit{The mission recommends} that PCMC incorporate those lessons when completing the current BRT infrastructure on the Old Pune – Mumbai road and incorporate the advice available from its monitoring and access consultants, as well as ITDP, the Police Department, PMPML and some traffic safety proposals prepared by IIT Bombay. \textit{The mission repeats its previous recommendation} that PCMC update its action program to complete the remaining works – some of them mentioned in the paragraphs above – and send it to the PMU and the World Bank for their information, no later than \textit{May 31, 2017}.

- **Traffic Engineering Consultants:** In late 2016, PCMC contracted Messrs. Global Traffic Solutions to carry out signal designs at all intersections of Corridor 1. It was agreed that their work scope comprise full traffic engineering designs, in addition to signal installations and phasing, including provision of pedestrian refuge islands, other geometric traffic channelization, lane and other road markings, traffic signs, pedestrian crosswalks, bollards and pedestrian barriers, curb ramps and tabletop crossings, etc., as may be required to facilitate efficient and safe traffic flow and pedestrian movement. On March 17, PCMC sent the output of this work to the PMU and the World Bank who, while in general agreement, provided comments shortly thereafter. The mission was advised that the PCMC Engineering and Electrical Departments, as well as the traffic police, agree with the consultants’ designs. It was agreed that the Bank’s comments will be incorporated within a week. \textit{The mission recommends} that PCMC send the PMU and the World Bank, \textit{by April 15, 2017} the final traffic engineering designs of all Corridor 1 intersections.

\textbf{Intelligent Transport Management System:}

\textit{Overview of the ITS System}

3. The ITS began operation almost one year ago. The system is provided by NEC. Their contract is for the 790 buses designated as “BRT buses”. To date, 715 buses have been equipped. The vendor advises that the balance 75 buses would be equipped by end-April. The Contract provides for 117 BRT Stations to be equipped with ITS equipment. To date, 58 stations have been equipped, covering 100\% of the stations on the BRT lines that are already in operation.
4. The supply and installation of ITS equipment for the 610 buses designated as “non-BRT buses” is not part of their contract. However, they are required to receive the data from these buses and include it in the downstream applications, including the Control Centre.

Issues highlighted by the ITS Vendor

5. At present, the at-station equipment is a relatively simple arrangement, consisting of an LED TV display for ETA, supported by a simple server. The ETA data is transmitted over the GPRS system, at 20-second intervals. Vendor advised that there are some problems in successful transmission, such that about 10 of the 58 stations are impacted. No data was provided either on the frequency of occurrence or how long they lasted. The indication is that it is an intermittent issue with no discernible pattern, although some of the impacted stations may be near military areas. Although highlighting the issue as a problem, vendor was reluctant to describe the occurrences as “outages”. The ITS system should be able to identify whether a station has received the transmission, and therefore it should be a relatively straightforward matter to track both the distribution and the duration of occurrences.

6. All equipped buses are supposed to transmit their GPS data (and perhaps other control data) over the GPRS at 10 second intervals. There are some issues with transmission, reportedly due to the availability of the GPRS. Again, no data was available on the frequency of such occurrences, the distribution of successive failed transmissions (i.e. how long a bus might not update), or whether any patterns have been identified.

7. The ITS vendor indicated that there are failures of ITS equipment on about 5% of buses each day. No information was provided either on which equipment is failing or the nature of the failures. ITS Vendor states that most failures are due to tampering (malicious damage, inappropriate contact by drivers with DDU, bad practice by maintenance staff) or bad practice by Operators (e.g. power washing around the equipment that causes water ingress). Supporting data was not provided. ITS Vendor stated that equipment can only be repaired/replaced overnight when the bus is made available to them, but still that no bus goes into service the following day with defective ITS equipment. They say that 3% of equipment is repaired on the day, the others repaired later.

8. ITS Vendor states that there is a problem uploading data to the vehicles. They attribute this to many buses being parked at non-depot locations, resulting in transmission difficulties. There are two main circumstances in which data should be transmitted: (1) The full set of route files are transmitted occasionally, as broadcast to all buses, which may take 2-3 hours; (2) The daily schedule data is transmitted to the vehicle, which is a much smaller file and would have quick transmission time. If there are problems with the transmission, the file is not received correctly and needs to be reloaded. In such cases the data would have to be loaded manually, by SIM card.

9. ITS Vendor advises that to date there has not been analysis of schedule and running times to revise and optimise them.

ITS and related developments advised by PMPML

10. PMPML advised of three developments related to ITS: (1) rollout of MiCard; (2) development of a mobile app, which will commence in April; and (3) development of the ITS dashboard, expected by mid-April.
11. MiCard is a smart card fare collection product. It has initially been implemented for staff of PCMC and PMC, with about 9,500 issued. This allows an initial testing of the system, as well as encouraging staff to use the PMPML services. When this is proven, the next phase will commence in which pass holders (38 types currently) will be transferred to MiCard, covering a much larger number of people. When that is bedded in and any technical issues resolved, MiCard will be opened to the general public, with appropriate fare products.

Suggested strengthening of the ITS at PMPML

12. The Mission met with CEO BRT PMPML and her team, ITS PMC and M&E Consultant to discuss how the ITS can be most effectively operationalised, established and value achieved. CEO advised on the team and the allocation of key responsibilities; strengthening of staff in the field and back-office; pending studies on route rationalisation and fare structure; and planned training for call-centre personnel.

13. In a wide-ranging discussion, the Mission suggested a structured approach to embedding the ITS and achieving greatest value. This would have three related strands: (1) the organisational approach; (2) the way of working; and (3) resolving technical issues and further developing the technical capacity of the ITS.

14. The Bank mission encouraged PMPML to determine how the SLA needs to be measured so as to apply penalties and translate these SLAs into a Dashboard at the Control Center. The dashboard should also take into account inputs and requirements for M&E.

15. Furthermore, all complaints (e.g. Bus skipping) received from the commuters via the PMPML App and the Helpline should be consolidated and fed into the SLA dashboard.

16. Although the scope of work for ITS vendor has expanded to include integration of buses with KPIT tracking units, the Bank mission suggested to exclude the integration effort from the SLAs.

17. Based on the needs expressed by PMPML, the Bank mission urged ITS PMC (UMTC) to validate all Dashboard parameters as per the SLA.

18. The Bank mission discussed in detail the need to do a root-cause analysis of all symptoms associated with ITS and service issues. The mission also encouraged PMPML to share the daily operational reports with failures, loss of data, alerts etc. with the Bank.

19. The mission met with the ITS vendor and discussed in detail the need to maintain elaborate documentation and log of all errors and outages reported by the system along with timestamps. Again, the mission reiterated the need to systematically analyse the root cause of failures. The details of 5% failure rate per day in the tracking units needs to be logged to determine whether the cause is due to loss of connectivity or related to the device or operating conditions.

20. The mission urged PMPML to check with ITS PMC and vendor on how to restore or improve communication services at the Bus Shelters, on the Buses, and at the parking lots by using third-party baseline coverage data. Furthermore, PMPML was advised to consider a point-point microwave links where applicable to improve connectivity.
21. The Bank mission urged PMPML to reconstitute the Working Group and hold weekly meetings until all pending issues are resolved and the critical milestone of operational acceptance is achieved.

22. The traffic department within PMPML is understood to change the route and schedule parameters very frequently. However, the ITS vendor seems to be taking up to a month to effect the changes in the system. PMPML indicated that the long cycle time to implement the changes is leading to loss in ridership and would like to see the ITS vendor reduce the implementation time. The Bank mission urged the ITS PMC to document the vendor's workflow for implementing change and check if any intermediate steps can be pre-programmed to reduce the overall time to 1 week.

23. The Bank mission stressed the need to complete the System Acceptance testing as soon as possible and urged the ITS PMC to provide by April 15th a detailed timeline for System Operational Acceptance identifying issues, dependencies, and constraints.

24. In the immediate term, Operational Acceptance should be the focal issue. This needs to ensure not only that the individual components of the system “work” in technical terms, but also that they integrate correctly and the functionality meets the needs of the end-users. ITC PMC will need to support PMPML to develop a comprehensive framework for Operational Acceptance, with appropriate metrics, criteria, measurement methods and acceptance process. As this still has not been done almost one year after initial installation, it will be necessary to gain the agreement of the ITS Vendor on the process.

25. A draft format for monitoring the performance of the ITS is proposed in Annex 3-C.

Studies, Technical Assistance (TA) and Capacity Building:

Off-board Fare Collection: Late in 2015, PMPML (through PCMC) submitted draft terms of reference (TOR) to carry out a study of fare collection options. The Bank’s comments were discussed with PCMC and ITDP, and there was agreement that most suggested modifications would be incorporated in the revised text. However, PMPML advised in November 2016 that it was seeking assistance from ASRTU in this regard. In the meantime, the mission learned that the ASRTU assistance was not materializing. The mission strongly recommends that PMPML develop an approach for implementing off board fare collection on the BRT, perhaps on the basis of the study proposed two years ago, and by April 30, 2017 inform the PMU and World Bank of its proposal. At a first stage, off-board fare collection could be limited to the busiest stations on Corridors 1 and 2, while on the other stations (in Pimpri and Pune) the on-board fare collector would continue his current functions.

Bus Bunching: As already mentioned under the heading of “Selected Aspects of BRT Operations on Corridor 2”, one of the main issues of the Rainbow BRT is the bunching of buses. To some degree this may be due to the long mixed-traffic runs in Pune before reaching the busway in Pimpri, but there are other causes such as the excessively long traffic signal cycles mentioned earlier. Importantly, there may be several operational factors which are under the control of PMPML, such as bus dispatching rules and the appropriate use of the recently installed ITS system; these could be examined right now. As bus bunching severely affects the quality of BRT services, previous missions recommended that PMPML give urgent attention to this problem, and consider the contracting of one or several individual consultants to study that issue. Although these consultants could be funded under the GEF part of the project, PMPML advised in
November 2016 that it was seeking advice of ASRTU on that aspect; however, the ASRTU assistance is not materializing. The mission thus repeats its previous recommendation that PMPML define a concept on how to address bus bunching in a deliberate way, and advise the PMU/World Bank by May 31, 2017 of its plans to address this problem now, possible with the assistance of a GEF-funded consultant.

Monitoring and Evaluation: IBI Consultants presented the Draft of the 2nd Annual Report on the Pimpri-Chinchwad BRT operations in the previous mission. A wealth of operational information was collected for the four Corridors, for 2013, 2015 and 2016, the latter including “with-BRT” data collected in mid-2016 for Corridors 2 and 3. All other observations were for the “without-BRT” condition. The 2016 data are either for the entire metropolitan area or, regarding Corridor 2, are often mixed-in with the bus runs in Pune. Except for the commuter satisfaction levels and intersection-specific measurements, few data were shown on the BRT operations within Pimpri-Chinchwad – the only place where the Rainbow BRT runs in a segregated busway. Unfortunately, no monthly data were shown for 2016 (except a few table for March, April and May). The mission had recommended that IBI prepare a report with month-by-month data for BRT operations in Pimpri-Chinchwad since its October 2015 launch, and the year before, so operational and quality trends of the BRT can be better understood. Several errors, erroneous terminology, incorrect definitions and labels were noted during the presentation. A report has been submitted but without tabulation of incorporation of comments and the changes made. This should be shared with the Bank by April 15, 2017.

Traffic Engineering Cell in PCMC: Going beyond the issues faced by SUTP, Pimpri-Chinchwad has grown to a size that merits the creation of a professional traffic engineering cell. Previous missions encouraged PCMC to take the actions necessary for the creation and staffing of that cell. On November 4, 2016, the Municipal Commissioner gave instructions to create such a traffic engineering cell in PCMC. The mission repeats its previous recommendation that PCMC advise the PMU/World Bank by April 30, 2017 of the steps taken by that date to establish the cell, and the plan to staff it with professional traffic engineers and other technical personnel.

Discussions with PMPML

26. The mission met with CEO BRT, PMPML, and her team and held discussions on the performance of the two BRT corridors, the preparedness to launch two new corridors, and previously agreed actions. The mission was informed that the new MD, PMPML, took charge the day of the mission.

27. The issues of (i) deployment of buses on both Corridor 2 and 3; (ii) the proposed service plan for launching services on Corridor 1 and 4; and (iii) the poor performance of the ITS and lack of performance monitoring.

28. PMPML is in advanced discussions with ASRTU for technical support on a variety of activities including ETM deployment, Fare Rationalisation, ITMS BRT etc. The Mission agrees that this maybe a good arrangement for PMPML and to fast track pending matters.

29. Bus Procurement & Deployment. The mission was advised that the procurement of new buses and operators is being done through ASRTU and the plan is to deploy 550 AC buses on the BRT, 800 CNG buses and 200 Feeder buses. The procurements have been concluded and bus delivery is expected starting April 2017.
30. The Mission advised PMPML to review the deployment of buses on Corridor 2 and 3, in particular Corridor 3 which was grossly underutilized and where only 15 buses had been deployed since launch, contrary to the proposed service plan which had identified several new routes and suggested a bus deployment of 60-70 buses and a ridership of 70,000. The preparedness to launch services on Corridor 1 and corridor 4 was also discussed and PMPML agreed to submit their detailed service plan for all four corridors by April 30, 2017.

31. PMPML was advised expedite the following two long pending studies (i) a study on off board fare collection and (ii) bus bunching, which could add great value to the BRT operations.

**Environment Management**

73. The mission noted that the removal of construction material from the bed of Pavana river is almost done. However, from the banks, material still needs to be removed and brought to the plot adjacent to the abutment on the Empire Estate side, where it will need to be properly graded. Currently, that site is unlikely to allow proper drainage of water into the Pavana and poses a potential nuisance/health hazard, especially for the residents near by. The grading and finishing of the site to allow removal of all rainwater into the Pavana must be complete before the rainy season starts. It was agreed that this will completed and the site cleaned properly in by May 15, 2017. This will include proper grading and maintenance of slopes in the removed material, safe storage of debris which will be taken away, including to designated safe disposal sites where required. It was further agreed that since the temporary shelters provided are not going to be used in the future, these would be immediately dismantled to prevent any misuse.

74. On the opposite bank, the mission noted that the site had few delineators close to the deep excavation undertaken for the retaining wall construction. There are several houses close to the work area and the mission urged PCMC to ensure that the project area is properly demarcated to prevent any accidents.

75. The issue of installation of noise barriers was discussed with the PCMC officials, who confirmed that this will be installed before the project is completed. The mission advised that this should be expedited as the flyover portion in front of Empire Estate is almost complete.

**79. Key Agreed Actions**

- PCMC to send draft designs prepared by traffic engineering consultant for Corridors 2, 3 and 4 – May 31, 2017
- PCMC and the traffic police to report on results of testing alternative traffic cycle lengths at Dange Chowk – May 31
- PCMC to advise on complementary measures to improve the functioning of push-button actuated pedestrian signals at Aundh hospital, and the potential expansion of pedestrian actuation in the BRT section north of Dange Chowk – May 31
- PCMC and PMPML to advise on the results of the docking trials carried out, and on further actions planned to improve docking of BRT buses at stations – April 30
- PMPML to advise on bus overcrowding along Corridor 2 and on measures to increase service frequency on Corridor 3 – May 31
- PMPML to advise on its plans to improve bus bunching – May 31
- PCMC to devise comprehensive action plan for starting BRT operations on Corridor 4 – May 15
- PCMC to advise on actions taken to implement IIT traffic safety audit – April 30
• PCMC to send timed action plan for the completion of safe passenger connections with BRT stations between Pimpri Chowk and Finolex Junction – April 30
• PCMC to send timed action plan for the completion of busway segregation on Corridor 1 – April 30
• PCMC to advise on implementation of MVA’s passenger access proposals – April 30
• PCMC to send a list of missing passenger ramps and access ways at Pimpri BRT stations on Corridor 1, and confirm that they will be built by June 2017 – April 30
• PCMC to send timed action plan for completing passenger access to Empire State and Chinchwad stations, as well as other civil works to complete Corridor 1 – April 30
• PCMC to send timed action plan for the construction of the Corridor 3 BRT station still to be built on top of the Nashik Phata flyover – April 30
• PCMC to send overall timed action plan for completing Corridor 1 – May 31
• PCMC to send the completed designs of the recently contracted traffic engineering consultant (all of Corridor 1 intersections) – April 15
• PCMC to advise on the establishment and staffing of the recently approved traffic engineering cell – April 30
• PMPML to rollout Micard, commencement of mobile app and development of ITS dashboard – April 15
• PMPML to share approach for off board fare collection study – April 30
• PMPML to submit detailed service plan for corridor 1&4 and revised service plan for Corridor 2&3 – May 31
• Submit a note on proposed action plan and time frame for remaining pending LA and R&R actions – April 10
• Complete submission of a Tripartite agreement to the court for direction on shifting of industrial units in MIDC land – April 15
• Complete the process of shifting PAPs residing along the corridor 4 - April 30
• Finalize alternative approach on acquisition land for remaining 600 meters in corridor 4 based on the outcome of the court hearing, if required – April 30
• Complete payment of compensation for remaining eligible land owners of Advance possession - April 30
• Shift remaining eligible PAFs from Transit camp to permanent houses – May 31
• Complete grading and finishing of the site to allow removal of all rainwater into the Pavana – May 15
### Status of Works Contracts (Oct end 2016)

<table>
<thead>
<tr>
<th>Contract</th>
<th>Description</th>
<th>Length (km) of exclusive BRT corridor</th>
<th>Original Contract Amount (million INR)</th>
<th>Revised Contract Amount (million INR)</th>
<th>Works Start Date</th>
<th>Original Works Completion Date</th>
<th>Extended Works Completion Date</th>
<th>Approximate Value of Works Done (million INR)</th>
<th>Physical Progress % of Contract Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corridor 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-1</td>
<td>Interchange at Nashik Phata (Bank-financed)</td>
<td>0.9075</td>
<td>988.1</td>
<td>988.1 + 11.3 (adjustment to Contract Price) + 149.5 (variation) = 1,148.9</td>
<td>12 Jul 2010</td>
<td>13 Jan 2013</td>
<td>31 May 2017</td>
<td>880.8 + 11.3 + 142.1 (variation) + 92.5 (ongoing Ramp 2 works) = 1,126.7</td>
<td>98.1%</td>
<td>Works on Ramp 2 ongoing</td>
</tr>
<tr>
<td>3-2</td>
<td>Nashik Phata to Kasptewasti</td>
<td>4.85</td>
<td>571.1</td>
<td></td>
<td>25 Aug 2009</td>
<td>24 Feb 2011</td>
<td>31 Mar 2015</td>
<td>559.3</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>3-3</td>
<td>Kasptewasti to Wakad</td>
<td>2.28</td>
<td>288.7</td>
<td>400.1 (0.9 km length, not exclusive BRT corridor, added)</td>
<td>25 Aug 2009</td>
<td>24 Feb 2011</td>
<td>31 Aug 2013</td>
<td>364.4</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.26</td>
<td>62.1</td>
<td></td>
<td>04 Mar 2016</td>
<td>03 Dec 2016</td>
<td></td>
<td></td>
<td>Physical possession of part land not available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pedestrian Facilities</td>
<td>99.4</td>
<td></td>
<td></td>
<td>29 Feb 2016</td>
<td>28 Feb 2017</td>
<td></td>
<td></td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction of 8 Bus Stops</td>
<td>38.96</td>
<td></td>
<td></td>
<td>05 Mar 2014</td>
<td>04 Sep 2014</td>
<td></td>
<td>38.0</td>
<td>Complete</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The values in the Revised Contract Amount and Approximate Value of Works Done columns include adjustments and variations as noted.*
<table>
<thead>
<tr>
<th>Contract</th>
<th>Description</th>
<th>Length (km) of exclusive BRT corridor</th>
<th>Original Contract Amount (million INR)</th>
<th>Revised Contract Amount (million INR)</th>
<th>Works Start Date</th>
<th>Original Works Completion Date</th>
<th>Extended Works Completion Date</th>
<th>Approximate Value of Works Done (million INR)</th>
<th>Physical Progress % of Contract Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Construction of 7 Bus Stops</td>
<td>34.09</td>
<td></td>
<td></td>
<td>07 Nov 2014</td>
<td>06 May 2015</td>
<td></td>
<td>33.5</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dedication of Corridor</td>
<td>49.83</td>
<td></td>
<td></td>
<td>12 Aug 2014</td>
<td>10 Nov 2015</td>
<td></td>
<td>46.2</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Complete except in 260 m length</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corridor 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-1</td>
<td>Kalewadi Phata to Chinchwadgaon Bridge Phata</td>
<td>1.600</td>
<td>241</td>
<td></td>
<td>25 Aug 2009</td>
<td>24 Feb 2011</td>
<td>30 Sep 2013</td>
<td>238</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>4-2</td>
<td>Chinchwadgaon Bridge Phata to Pawana River Bridge Approach</td>
<td>1.200</td>
<td>198.9</td>
<td></td>
<td>14 Dec 2010</td>
<td>13 Jun 2012</td>
<td>31 Mar 2014</td>
<td>51.6</td>
<td>25.9%</td>
<td></td>
</tr>
<tr>
<td>4-3</td>
<td>Empire Estate Grade Separator (Bank-financed)</td>
<td>1.600</td>
<td>984.0</td>
<td>993.4</td>
<td>897.8 (excluding Components 5 and 6)</td>
<td>06 Apr 2011</td>
<td>10 Oct 2013</td>
<td>31 May 2017</td>
<td>752.2</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>83.8% (excluding Components 5 and 6)</td>
<td></td>
</tr>
<tr>
<td>4-4</td>
<td>Pawana River to KSB Chowk</td>
<td>2.080</td>
<td>372.9</td>
<td></td>
<td>28 Feb 2013</td>
<td>31 May 2014</td>
<td>31 Mar 2016</td>
<td>368.3</td>
<td>98.8%</td>
<td>Land not available for 60 m length</td>
</tr>
<tr>
<td>4-5</td>
<td>KSB Chowk to Dehu Alandi Road</td>
<td>1.450 (total length of contract 3.795 km)</td>
<td>370.7</td>
<td></td>
<td>25 Aug 2009</td>
<td>24 Feb 2011</td>
<td>31 May 2015</td>
<td>366.0</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction of</td>
<td>50.5</td>
<td></td>
<td></td>
<td>05 Mar</td>
<td>04 Sep 2014</td>
<td>31 Mar 2016</td>
<td>49.1</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Contract</td>
<td>Description</td>
<td>Length (km) of exclusive BRT corridor</td>
<td>Original Contract Amount (million INR)</td>
<td>Revised Contract Amount (million INR)</td>
<td>Works Start Date</td>
<td>Original Works Completion Date</td>
<td>Extended Works Completion Date</td>
<td>Approximate Value of Works Done (million INR)</td>
<td>Physical Progress % of Contract Amount</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------</td>
<td>---------------------------------------</td>
<td>------------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------------</td>
<td>--------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>10 Bus Stops – Part I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction of 10 Bus Stops – Part II</td>
<td></td>
<td>51.1</td>
<td></td>
<td></td>
<td>05 Mar 2014</td>
<td>04 Sep 2014</td>
<td></td>
<td>24.4</td>
<td>47.7%</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Dedication of Corridor</td>
<td></td>
<td>50.6</td>
<td></td>
<td></td>
<td>05 Mar 2014</td>
<td>04 Dec 2014</td>
<td></td>
<td>21.6</td>
<td>42.7%</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
Social Management

1. The mission noted some additional PAPs have received compensation and assistance since last mission in November, 2016. These include shifting of 9 additional families from Transit to permanent housing, receipt of compensation by 15 additional land owners whose lands have taken through advance possession and allotment of EWS housing to 6 additional people and progress in reviewing most of the land ownership documents in case of those whose lands have taken under advance possession is observed.

2. **Pending Land Acquisition.** The pending land acquisition continues to affect the construction of Corridor 4, which includes: (i) about 600 meters of Kalewadi area of corridor-4 due to court case on compensation award and resistance of about 20 families who are not offered alternative housing due to owning of another house as per PCMC records; and, (ii) continuing delays in relocation of industrial units in about 60 meters at towards Empire Estate area. PCMC clarified that the remaining three pending compensation award cases are those where the lands are already handed over to the contractor and do not affect the construction schedule due to delay in award of compensation.

3. **Entitlements to different Impact groups.** The payment of R&R assistance has been made to all those who came forward. The progress to date is as summarized below

<table>
<thead>
<tr>
<th>No</th>
<th>Type of assistance</th>
<th>Target</th>
<th>Revised Target</th>
<th>Progress</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transportation allowance</td>
<td>282</td>
<td>187</td>
<td>187 (100.0%)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Assistance for Vulnerable Families</td>
<td>76</td>
<td>54</td>
<td>54(100.0%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Payment of subsistence allowance</td>
<td>68</td>
<td>35</td>
<td>35(100.0%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Subsistence allowance for Non-title holders</td>
<td>72</td>
<td>5</td>
<td>5 (100.0%)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Allotment of EWS Houses (handover of house keys)</td>
<td>257</td>
<td>123</td>
<td>110 (89.43%)</td>
<td>Additional people will become eligible due to changes in eligibility criteria</td>
</tr>
<tr>
<td>6</td>
<td>Allotment of alternative houses to affected squatter families</td>
<td>144</td>
<td>101</td>
<td>87 (86.13%)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Compensation/TDR/FSI received in case of advance land possession</td>
<td>174</td>
<td>174</td>
<td>83 (47.70%)</td>
<td>Additional 11 land owners are expected to receive compensation within a week.</td>
</tr>
<tr>
<td>8</td>
<td>Payment of Vulnerability assistance to Squatter families</td>
<td>93</td>
<td>79</td>
<td>79 (100.0%)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Payment of additional subsistence allowance to</td>
<td>34</td>
<td>26</td>
<td>26 (100.0%)</td>
<td></td>
</tr>
</tbody>
</table>
4. **EWS Housing.** Out of those 123 identified as eligible families, so far 110 families have moved into new houses and the remaining are awaiting the allotment for various reasons. Out of the remaining 13 cases, 4 will be provided possession very shortly and 3 after completing certain formalities and the remaining 6 have not shown interest to deposit the amount. In view of PCMC’s decision to allot houses to those who own another house, the number of people eligible for EWS will now increase and accordingly, the mission advised to update this information and follow up as needed.

5. **Resettlement of those residing in the Transit camps.** So far 87 out of 101 eligible families have moved to the new site. Another 16 have been identified having houses and PCMC will seek council’s resolution for eligibility to allotment houses and in case of remaining 27 non-eligible people due to cut-off date for eligibility, the PCMC will explore the option of accommodating in other ongoing Government schemes. The mission clarified that since all 144 families shifted to Transit should be provided alternative housing or other assignee for their alternative resettlement. In case of those who are not currently residing in Transit among those originally identified 144 families list should be prepared and shared with the Bank and accordingly the list of people requiring alternative housing should be updated. The additional repairs to new building where the people are resettled includes common repairs to the building, operation of lift service, improvement of access road and construction of a boundary wall are still in progress and expected to be completed shortly.

6. **Follow-up actions.** The following actions were discussed and agreed with PCMC in order to complete the remaining actions and bring the full compliance with OP 4.12 Involuntary resettlement to a satisfactory rating.

   (i) **Making 600-meter unencumbered stretch to contractor.** This is the most critical action affecting the construction. Based on the outcome of court hearing during the first week of April, PCMC needs to act quickly on how to get these lands by engaging the land owners. Since about 20 houses are also present in this section, PCMC should inform their eligibility immediately as per their decision to allot houses in case of those who own a house and offer rental allowance or make temporary allotment of EWS houses until they complete the formalities for formal allotment of houses. Without this approach, the complete land may not be available even if the compensation issue is resolved. PCMC should inform the Bank on how to deal with this issue by middle of April, 2017.

   (ii) **Transfer of MIDC land:** The mission was informed that MIDC has approved the tripartite agreement and this will now be submitted to the Court by middle of April, 2017 and based on the direction from the Court, the rehabilitation of industrial units will be implemented. The possibility of using alternative route to launch corridor-4 will be explored until shifting of industrial units is shifted and the road for this 60 meters is competed.

   (iii) **Compensation payment for lands taken on advance possession:** Out of 174 land owners whose lands have taken through advance possession, 62 have received compensation and another 11 will be given by April 07 and another 13 by April 30, 2017. In case of 52 land
owners whose ownership papers are not in order will be offered compensation through land acquisition award within a month after obtaining Collector’s approval. Among the balance 36 who opted TDR/FSI, 21 have received so far and the balance will be offered once the change in the TDR rules is effected by the Government and the owners have agreed to wait until such time.

(iv) **Shifting of people from Transit site:** 87 out of current 101 eligible families are shifted. In case of 16 who own another house as per PCMC records, council’s approval will be obtained in the next meeting and accordingly allotments will be made. As regards 27 ineligible people, PCMC will complete document verification by middle of April and explore the possibility of accommodating in other Government schemes or else propose alternative support. The completion of common facilities such as access road, lift, boundary wall, etc. at the resettlement site is in advance stage and expected to be completed by end of April, 2017. Once all 144 originally shifted families are resettled, PCMC will close the Transit site to bring the site to the original condition.

(v) **Compensation awards:** The remaining 3 pending compensation awards, will be completed shortly as these are in advance stage and are related to lands already handed over to the contractors and thus do not affect the ongoing construction schedule.
Annex 3-C

ITS PERFORMANCE MONITORING - SUGGESTED METRICS TO REPORT DAILY BY WEEK

Level 1: ITS Performance – Summary Output Metrics

- % uptime of main ITS platform components (main servers, main applications, internet, video wall, communications, …)
- % of GPS data records received by the system (including those received with delay)
- % of GPS data received on first transmission
  - distribution of time between successful transmissions, by 10-second intervals
- % of data packets received by bus station devices, on first transmission
  - distribution of time between successful transmissions, by 20-second intervals
- % of periodic uploads to buses received in full, on first transmission
  - % that required manual uploading
- % of daily uploads to buses received in full, on first transmission
  - % that required manual uploading

Level 2: ITS Performance – Technical

- No. of buses fielded/number of buses equipped
- No. of in-vehicle equipment failures during the day
  - Breakdown by equipment type (OBU, DDU, power unit, RTPI, voice announcer, …)
- No. of failures of VMU/OBU
  - Breakdown by failure type (hardware, software, logic fault, data loss/corruption, intermittent irregularity, …)
- No. of vehicles entering service with defective ITS equipment
- No. of failures of at-station equipment, by type
- Mean time to repair ITS equipment, by type
  - Mean time to restore functionality (repair or replace) from first reporting
  - Mean time to restore functionality (repair or replace) from bus available to O&M team
  - Mean time to repair and return to location or to spares, by equipment type
  - Number of units where repair exceeds threshold number of days (to be agreed)
- ETA completeness (i.e. whether any buses that are actually in service are missed from the ETA advisory)
- ETA accuracy, by defined time intervals (e.g. 30, 20, 10 and 5 minutes before arrival)

Level 3: ITS-Tracke Service Performance

- % of scheduled buses /duties fielded
- % of scheduled trips operated
- % of operated trips completed
- % of scheduled kms operated
- % of trips departing on-time/early/late
- Number of bus bunching incidents
- Number of overspeeding incidents
- Number of harsh acceleration/braking incidents
- Accuracy of schedule, measured as variance from scheduled running time
- Distribution of actual journey time compared to schedule, by minutes shorter or longer than the time given in the schedule
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Naya Raipur

1. A World Bank mission met Naya Raipur Development Authority (NRDA) officials on March 27, 2017, to discuss the implementation of the Naya Raipur component of the Sustainable Urban Transport Program (SUTP). The meetings were chaired by with Mr. Salil Srivastava, Chief Engineer, NRDA and Mr. Panigrahi, Chief Project Manager, PIU and their team, along with representatives of the PMU and the consultants working with NRDA on various activities. The mission also met with Mr. Rajat Kumar, CEO, NRDA and briefed him on the Project.

Non-Motorized Transport (NMT)

2. Scope of this contract comprises construction of Cycle Tracks, Walkways / Foot Paths, Cross-drainage Structures, and Road Furniture including Signage. This contract of INR 416.5 million with 15 months completion period had started on 28 March 2014. Subsequent to modification of the proposed road cross-sections and detailed review of the proposed works, the value of proposed works increased substantially and presently it’s estimated that the Completion Cost of the contract is likely to be about INR 440 million. Physical progress is about 99.5% of the likely Completion Cost.

3. The Works Completion Period of the contract was extended until 30 September 2016. The Contractor has been given provisional time extension till 31 March, 2017.

Bus Rapid Transit (BRT) Lite

4. Three BRT corridors were planned of which Corridor 1 is implemented as BRT Lite; Corridor 3 is planned as BRT and Corridor 2 as a public transport service:
   - Corridor 1: Raipur Railway Station – NH6 – Capital Complex in Naya Raipur (25 km)
   - Corridor 2: Kabir Nagar (Raipur) – NH43 – Capital Complex in Naya Raipur (35 km)
   - Corridor 3: Along the main east-west axis of Naya Raipur, between NH43 and NH6 (17.8 km).

5. BRT Infrastructure. Scope of this contract originally included construction of Bus Workshop Depot and Control Centre, Eight Bus Shelters, and a Pick-up Point near Old Mantralaya. The contract of Indian Rupees (INR) 298.9 million with 15 months completion period had started on 31 December 2013. Subsequently, construction of another Pick-up Point at Raipur Railway Station of approximately INR 9 million was added to the contract as Variation. Presently, it’s estimated that the Completion Cost is likely to be about INR 254.7 million. This reduction in contract amount is due to higher provision of quantity for several items in the contract as well as no requirement or non-execution of some items. Progress of works is about 94% of likely Completion Cost. Works Completion Period of the contract has been extended until 30 March, 2017.

6. At the Pick-up Point near Old Mantralaya, all major works were completed. Remaining works such as Silicon Paint on Walls, Advertisement Boxes, Louvre Fixing, Ticketing Booths, Sitting Benches, Light Poles, Polycarbonate Sheets, Aluminium Criss-cross Plates, HDPE Rollers, Signages, Blinkers, etc are substantially complete. Pavement works at the Entry to the Pick-up Point are also complete. For the Exit route of the Buses from the Pick-up Point,
the Mission was informed that a new exit route is now proposed with the Tertiary Hospital planned in the location. The mission visited the site and finds the new proposal to be in order. However, the designs for these need to be expedited and works commenced at the earliest.

7. At the Workshop, Depot and Control Centre site, all structural and pavement works were completed. Work is in progress for the oil-grease separating plant and false ceiling of the Entrance block. In the Bus depot area, work is yet to be started on 5 nos of electrical poles, signages, fire-fighting buckets, dustbin. All electrical works related to SITC of IP-65 Feeder Panel, Landscape area light fixture, high mast light fixture, PA and access control system is in progress. At the Control Centre, wooden flooring, Louver Fixing, and electrical room finishing are remaining to be completed. In the Workshop, toilet door fitting, shutters of denting/painting area is yet to start.

8. Finishing works are complete in Eight Bus Shelters located in the median of the Road.

9. At the Pick-up Point at Raipur Railway Station, all major works and finishing works such as Silicon Paint on Walls, Advertisement Boxes, Ticketing Booths, Sitting Benches, Paver Blocks, Polycarbonate Sheets, Aluminium Criss-cross Plates, Signages, Blinkers, etc were completed. Pavement works for the Bus Way have been completed under a separate contract, discussed hereinafter.

10. Three works contracts each of INR3.4-4.2 million, being implemented by the same Contractor, started from 07 October 2016 and to be completed by 30 November 2016, comprises (i) Cement Concrete (CC) Pavement and Mild Steel (MS) Grill Partition near Bus Shelters, (ii) CC Pavement and Table Top Pedestrian Crossing near BRT Bus Pickup Point at Railway Station, and (iii) CC Pavement, Pedestrian Pathway and Shops near BRT Bus Pickup Point at Old Mantralaya. Overall progress of 3 contracts together is about 97% of a total of INR 11.2 million of works. Work has been completed and the final payments are under process.

<table>
<thead>
<tr>
<th>Contract Description</th>
<th>Name of Contractor</th>
<th>Original Contract Amount (million INR)</th>
<th>Likely Completion Cost (million INR)</th>
<th>Works Start Date</th>
<th>Original Works Completion Date</th>
<th>Extended Works Completion Date</th>
<th>Approximate Value of Works Done (million INR)</th>
<th>Physical Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Shelters, Pick-up Points, Workshop Depot and Control Centre</td>
<td>Essel Infrastructure Pvt Ltd, Raipur, Chhattisgarh</td>
<td>298.9</td>
<td>254.7</td>
<td>31 Dec 2013</td>
<td>30 Mar 2015</td>
<td>30 Mar 2017</td>
<td>239.0</td>
<td>94% of likely completion Cost</td>
</tr>
<tr>
<td>Non-Motorized Transport Infrastructure (Cycle)</td>
<td>BSBK Private Limited, Bhilai, Chhattisgarh</td>
<td>416.5</td>
<td>439.7</td>
<td>28 Mar 2014</td>
<td>27 Jun 2015</td>
<td>Provisional extension upto 31 Mar 2017</td>
<td>408.8</td>
<td>99.5% of likely completion Cost</td>
</tr>
<tr>
<td>Contract Description</td>
<td>Name of Contractor</td>
<td>Original Contract Amount (million INR)</td>
<td>Likely Completion Cost (million INR)</td>
<td>Works Start Date</td>
<td>Original Works Completion Date</td>
<td>Extended Works Completion Date</td>
<td>Approximate Value of Works Done (million INR)</td>
<td>Physical Progress</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------</td>
<td>-----------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Tracks, Walkway, etc</td>
<td>rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement Concrete (CC)</td>
<td>VAS Nimman, Raipur, Chattisgarh</td>
<td>4.2</td>
<td>07 Oct 2016</td>
<td>30 Nov 2016</td>
<td></td>
<td></td>
<td>4.1</td>
<td>99.5% of Contract Amount</td>
</tr>
<tr>
<td>Pavement and Mild Steel (MS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grill Partition near Bus Shelters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC Pavement and Table Top Pedestrian Crossing near BRT Pickup Point at Railway Station</td>
<td>VAS Nimman, Raipur, Chattisgarh</td>
<td>3.4</td>
<td>07 Oct 2016</td>
<td>30 Nov 2016</td>
<td></td>
<td></td>
<td>3.3</td>
<td>99% of Contract Amount</td>
</tr>
<tr>
<td>CC Pavement, Pedestrian Pathway and Shops near BRT Pickup Point at Old Sect</td>
<td>VAS Nimman, Raipur, Chattisgarh</td>
<td>3.6</td>
<td>07 Oct 2016</td>
<td>30 Nov 2016</td>
<td></td>
<td></td>
<td>3.5</td>
<td>99%</td>
</tr>
</tbody>
</table>

**Technical Discussions**

11. **Bus Passengers Carried**: According to the data provided by the Service Plan Consultants (DIMTS), the BRT services (inbound and outbound) amount to 642 passenger boardings per weekday, which is only 13% of the projected volume of 5,072 boardings per day. This is not only disappointing, but clearly unacceptable. A strategy must be developed to find the underlying reasons for this low ridership, and to define measures to increase the use of the BRT-Lite. The mission recommends that NRDA urgently define that strategy and inform the PMU/World Bank about its conclusion, as soon as possible, but *no later than April 21, 2017*.

12. In addition to ramping up promotional and outreach activities, there are operational actions that could be taken to make the bus service faster and more attractive to potential
passengers. The following elements of such strategy were considered in the discussions between the mission and NRDA:

- At the 10 stations in Naya Raipur, the drivers have been instructed to keep the BRT doors open for at least 30 seconds – even if there are virtually no passengers getting in or out. This is an unnecessary waste of (time) resources. By reducing that time to 10-15 seconds (depending on passenger demand observed by the driver), much time could be saved.

- It was observed that it can take 3 minutes for BRT buses to move the railway terminal station to the exit from railway plaza, in large part due to unnecessary congestion caused by loading/unloading/parked city buses. This could be reduced to less than 30 seconds, simply by imposing more disciplined behaviour of the City bus drivers.

- A contract has been signed to implement a pick-up point at Telibandha. Potentially this could attract many passengers onto the BRT Lite. The construction of the pick-up point should be expedited. At the same time, the scheduling of City buses connecting with BRT Lite at Telibandha should be given close attention.

- At present, there are no BRT Lite buses serving the business center of Raipur. The Old Mantralaya terminal will not be fully functional for some time to come, and the Railway Station terminal is beyond walking distance from the city center (it takes 15 minutes away by bus, or 30 seconds to get to the railway station, catch the BRT Lite, and travel back to the city center on the way to Naya Raipur). It is strongly recommended to implement simple pick-up and drop-off points in the Gadhi Chowk – Shastri Chowk area to provide an acceptable service between the center of Raipur and Naya Raipur.

- Introduce combined use of smart fare cards the BRT Lite and the existing bus services. This would improve the feeder bus function of the City bus lines and the BRT Lite and likely improve ridership on both services.

- As in Naya Raipur many destinations are beyond walking distance from the BRT Lite stations, there may be scope to provide last-mile connectivity in collaboration with shared vehicle services, such as OLA or UBER.

13. **Terminal of BRT-Lite at Raipur Railway Station:** During a field visit, the mission observed that work on the terminal itself was virtually complete, except for some relatively minor finishing works. The footpath between the northern end of the BRT shelter and the Railway Station Campus has also been built, but unfortunately the operator of the parking in front of the station has blocked the footpath by placing concrete blocks, permitting for cars to park across the footpath. The mission understands that NRDA plans to intervene with the railway company to rectify this situation. At the southern end of the BRT shelter, pedestrian crosswalks have been installed, but these are partly interrupted by big holes in the pavement. NRDA plans to rectify this in the near future, and also install a pedestrian crossing across the main station road; the mission suggests that a refuge island be built in the middle of that road. The mission recommends that NRDA advise the PMU and World Bank, by April 30, 2017 of the progress achieved, and of the timetable to implement the remaining works to be carried out to complete an attractive pedestrian access for both ends of the BRT shelter.
14. **Terminal of BRT-Lite at Old Mantralaya:** The almost completed BRT Terminal at the Old Mantralaya is surrounded by a maze of narrow streets and paths used informally by pedestrians, and 2-, 3- and 4- wheel vehicles, which in the future were to be joined by BRT buses (Figure 1). In a recent new development, however, a major hospital is to be built in the area including the northern egress roads from the terminal. To facilitate the necessary egress of BRT buses, a new road has been proposed to connect the terminal with CC Road (Figure 2). In the mission’s view, this would be a great improvement over the original egress arrangements, but presupposes several actions that have yet to be taken:

- The concept of building the new road is yet to be approved by the Chief Secretary, a decision that is expected for mid-April 2017.
- The new road implies the removal of about three low-value buildings on CC road.
- There will have to be a sharp right turn around the eastern end of the terminal which will require the modification (or removal) of the current passenger access ramp.
- As an alternative, it appears possible to replace the western access (built as a five-step staircase) with an access ramp suitable for wheel chair use.
- Access needs to be provided to two recently built residential buildings on the west side of the new road.
- The median on G.E. Road will require an opening at the junction with C.C. Road, so exiting BRT buses can turn right to reach the northbound lanes. Consideration might be given to also place a crosswalk across G.E. Road at this location, and to install traffic signals to control movements at this new junction as well as that located about 40 m to the south.
- As a first step, proper designs need to be prepared at an adequate scale for the new road, its sidewalks, and the modifications required on C.C. and G.E Roads. *The mission*
**recommends** that NRDA send those designs to the PMU and the World Bank no later than *May 15, 2017*.

15. A new pavement has been built on the narrow road between G.E. Road and the new BRT Terminal, including a footpath of 2 m width, or wider where possible, and a strong fence between the carriageway and the footpath. The access on the G.E. Road side needs to be improved, as it is virtually impossible for pedestrians to reach the footpath on that side. Moreover, arrangements need to be put in place to prevent the dumping of garbage in the footpath, as is now happening on the G.E. Road side. *The mission recommends* that these actions be taken by *April 30, 2017*, including the removal of the trash that has already accumulated.

16. **Intelligent Transport Systems**

- The Bank mission observed that the ETA variation is 5 – 7 minutes and the ETA being reported in the Control Room does not match what is being reported at the Bus Shelter. The Bank mission encouraged the ITS vendor and the PMC to systematically diagnose the reasons for loss of packets so that several associated symptoms such as ETA inaccuracy, loss of bus tracking on the server map etc. can be resolved. The Bank mission also suggested the ITS vendor to consider back-up or secondary 3G service provider for better service coverage.
- CCTV footage from the buses is not being transmitted to Control Center. The Bank mission proposed to change the standard operating procedures to schedule the download sequentially so that each Bus gets to use the entire bandwidth for download.
- The Bank mission learnt that the Smart City program is deploying a Public Bike Sharing (PBS) in the city of Naya Raipur and suggested combining the PBS app with Tatpar App (for BRT Lite).
- The Bank mission also suggested ways to improve the on-bus PA system with user-friendly announcements on POI and upcoming events.
- In order to improve the existing service, the Bank mission encouraged the client to consider reducing dwell times (from a fixed 30 seconds duration) of buses at stations where there are no commuters. Analysis of in-vehicle CCTV images would indicate the number of people boarding and alighting at each station, based on which the optimal dwell time can be derived. Reducing average dwell time to 20 seconds would save about three minutes per trip in each direction.
- The Bank mission suggested the installation of LCD screens at Railway Station with real-time updates of BRT buses using ETA module that feeds the App and LED screen at Bus Shelters.
- The ITS is generating valuable OD data on a daily basis. However, the data is not being harnessed to improve service planning. The Bank mission urged the ITS PMC and vendor to quickly develop an Analytics Dashboard that would present commonly used KPIs that can be utilized by Bus service planners and operations managers.
- The Bank mission suggested that the ITS data should also be used to revise the scheduled running time by day type, time of day and direction. This would help to improve on-time departures, reduce lost trips/kilometres and reduce bus bunching; it may also reduce the level of overtime required. Recovery time at each end of the route is given as 15 minutes. This is excessive by any standards and could be reduced, thereby reducing the total number of buses and crew needed for the planned service level.
- The Bank mission also pointed out the need to establish a working group consisting of key stakeholders from NRDA, Operators, the ITS PMC, and the Vendor to discuss issues of integration and workflow on a weekly basis. It was also suggested that the Operator use the server room screens to discuss solutions to operational problems with the ITS vendor and NRDA officials.
• The PMC for ITS has been asked to come up with a proposal to integrate fare collection systems of the BRT lite and City bus networks with a view to improve ridership on the BRT service. The Bank mission suggested the use of common ETMs in both networks as a first step towards enabling common mobility. Subsequently, the turnstiles could be upgraded to support NFC, QR, and PayTM interfaces. It was agreed that by April 15th, the PMC will submit a proposal that will allow commuters to use a common smart card on both services. The Bank mission encouraged the client to negotiate a revenue sharing model with the operator of the city bus services that will allow for the client to replace the existing ETMs of the operator in exchange for advertising rights.
• As part of the campaign to boost ridership, the Bank mission suggested to identify, prioritise and work with the 15-20 main destinations. The Bank mission also suggested to examine whether areas of potential demand could be served by minor variations from the main route rather than setting up specific feeder routes.

17. **Bus Delivery.** All 30 buses have been delivered. However, the mission was concerned to note that only 15 of the 30 buses were plying on the corridor. This is partly because the service from Old Secretariat is not yet operational.

**Technical Assistance and Capacity Building**

18. **Regional Mobility Plan.** The mission was informed that consultants had completed the work and copy of the final report was shared.

19. **SPV Business Plan:** The consultants also presented the business plan which outlines the financial requirements for running the BRT Lite and the organizational staffing. The staffing was discussed at length and it was agreed that besides the Chief Operating Officer, the SPV should be equipped with a dedicated team that could take care of the following functions (i) daily operations; (ii) planning & marketing; and (iii) intelligent transport systems.

20. **Marketing and Communications Strategy:** The mission noted that the BRT Lite was suffering from lack of promotion and information among potential users and champions. Several of the passengers interviewed by the mission mentioned that very few users were aware of the new service. NRDA which has access to communications firm and had named the BRT Lite ‘Tatpar’, has not really progressed with its plans for a communications and outreach effort. It was recommended that NRDA have a standard presentation developed on the BRT Project which should be delivered to a variety of stakeholders including political representatives, officials, school and college students and authorities, industry associations etc. to start creating awareness about this new project. Bringing high profile dignitaries i.e. the Chief Minister, and the state Cabinet, Mayors etc. for a ride on the BRT would bring high visibility to the project. It was recommended to begin the promotional activities in earnest. NRDA is also actively planning to promote a cycling culture within the state capital to make use of the infrastructure that is being developed. NRDA agreed to initiate a formal outreach program with all stakeholders at the earliest. The Communications & Outreach Program to be launched from [April 15, 2017](#).

21. **Project Management.** The Mission again reiterated its earlier recommendation for NRDA to ensure a proper team at the newly created SPV to take forward the operations. The SPV continues to be staffed with only an MD and Transport Planner and most of their time is spent managing the interim bus operations between Raipur and Naya Raipur. It will be important for this team to be quickly enhanced and for them to be fully involved in the service planning, ITS implementation and daily operations monitoring. The absence of key manpower manning each of these critical positions is adversely affecting the service and its ridership.
**Safeguard Management**

22. **Environment.** The mission noted that with the change in proposed exit route for buses from the Old Secretariat, the previously envisaged project impacts will no longer be valid. The new proposal is for connecting to another road through a short new road, which will pass through a block of housing currently constructed by the Raipur Municipal Corporation. This new alignment will mean that the residents in the new blocks will need to be provided safe passage within the colony and prevented from directly using the road to cross to the building on the opposite side, and would need to be shielded, if the modeling indicates that the noise levels will exceed the stipulated standards for residential areas. In addition, while the alignment is not likely to have any other impacts, proper to-scale drawings would need to confirm that none of the trees in the vicinity are being damaged.

23. The works for the BRT infrastructure are almost complete. The contractors are beginning demobilization with eventual handover of the sites for their plants and camp to the NRDA. The mission noted that the disposal of waste/discarded material is the key remaining activity for the NMT contractor site, especially the concrete batching plant area material, which may have impervious material that can impede movement of water if disposed indiscriminately. It was agreed that the plan for the disposal would be prepared by the Contractor and approved by NRDA by 15th April 2017 and shared with the Bank as part of the QPR.

24. **Social.** Due to change in the exist route of old Mantralaya station, the previously identified displacement of 4 families and other impacts are avoided. However, 5-6 additional shops will be affected, in additional to a Government building belonging to the Hospital. The 3 small shops present in the entry route will be soon be shifted to 3 constructed shops within the bus station premises. The mission noticed that NRDA has completed the construction of 3 shops within the premises and ready for allotment. NRDA reconfirmed that these three shops will be allotted to those 3 shops present in the entry route. As regards new impacts in the revised exist route, the mission clarified to NRDA that they should engage with the affected shopkeepers to ascertain their current socio-economic profile and propose suitable livelihood measures. The mitigation measures should include but not limited to compensation for affected structures and economic rehabilitations assistance including transitional support in line with ESMF principles and provisions. The mission interacted with one of the affected shopkeepers and learnt that these shop keepers were deriving livelihood for very long time for more than 20 years and the shops are automobile repair and spare parts, storing place snack and tea shops. As regards employment under contractors, 53% of 95,302 unskilled man days of employment has gone to local people and out of these 35% are women. The total employment created up to February, 2017 is 1, 47,047 man days consist of skilled, semi-skilled and unskilled employment. The rating for OP 4.12 Involuntary resettlement is rated as “satisfactory” since no know policy non-compliances are noticed.

25. **Key Agreed Actions**
   - Submit the Plan for BRT Lite Full Service Launch – May 15
   - NRDA to prepare a strategy for rapidly expanding the ridership of the BRT Lite, including the modification of several operation procedures – Apr 21
   - Launch Communications & Outreach Plan for BRT Lite full service – Apr 15
NRDA to send progress report on improving pedestrian access to the two ends of the BRT-Lite Terminal at the railway station – Apr 30
NRDA to prepare geometric and functional designs for the proposed new road between the Old Mantralaya terminal and C.C. Road – G.E. Road, and to send those designs to the PMU and the World Bank – May 15
Conditions on new pedestrian sidewalk between G.E. Road and the Old Mantralaya terminus to be improved (including removal of garbage that has accumulated) -- Apr 30
NRDA to complete BRT stop at Telibandha – June 30
NRDA to submit proposal for common smart card on both services – April 30
Submit revised implementation schedule for ITS commissioning and acceptance – April 30
DIMTS to prepare monthly monitoring reports and NRDA to forward the report – Immediate
Submit updated service plan – April 30
Submit draft Business Plan for SPV – April 30
Share final staffing plan for SPV – April 30
Completion of BRT civil works – April 30
Finalise proposal for additional stations; finalise designs & contract – April 15/ May 30
Allotment and shifting of 3 shopkeepers present at Old Mantralaya Entry point - ASAP
Submit a draft Note Bank’s review of impacts to shops and mitigation measures in the revised alignment of Exit route at Old Mantralaya – April 20
Submit plan for disposal of waste/discarded material – Apr 15
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Indore

1. The World Bank mission, along with PMU and PMC, held discussions with Mr. Rahul Shrotiya, Manager, AICTSL, and his team on the project progress in regard to the Indore component in Delhi on April 3, 2017.

BRT Corridor

2. BRTS corridor: The 12 km corridor runs from Niranjanpur towards the north of the city to Rajiv Gandhi chowk in the south. There are 7 interchanges with the city buses in between these two points. The average travel time for a BRT bus from end to end reduced to 35 minutes from 45-50 minutes earlier. Accident rates have reduced with mixed traffic no longer being allowed within the BRT corridor.

3. BRT Operations. AICTSL advise that ridership on the BRT is currently about 46,000 passengers per day, with 42 buses operating on it. There are issues related to having the funds to buy additional buses, but they can get another 6 or 7 on lease, which will provide some additional service. Currently, total AICTSL services operates 150 city buses, carrying 75-80,000 passengers per day. Indore expects to receive 350 buses under AMRUT, of which about 200 would be for city services and 150 would be for inter-city services. Some 40 to 50 of the existing buses are due to be retired within the coming 2 years, the balance will be an increase in fleet size. AICTSL advise that there is sufficient depot space and that this would not be a problem.

4. Indore Smart City Project. AICTSL advised that EPTISA is the PMC for the Indore Smart City Project (same firm as the PMC for Jaipur Smart City project). In the transport domain of the Indore Smart City project, there are three main strands: “Smart Traffic System”, “Smart Poles” and “Smart Parking”. All the main junctions are now fitted with red light violation detection system. This is integrated at the back-end with the administrative systems, so that the challans are now issued automatically. To date this has proved effective, with a reduction of 50% in violations, plus revenue earning from those who continue to violate. They will extend to Automatic Number Plate Recognition (ANPR). This will cover the main BRT junctions as well, and will be able to identify violations on the BRT lanes. AICTSL advise that between 0630 and 2300 ambulances are the only vehicles other than buses authorized to use the lanes; and that currently there are not many violations, not least because so many turning movements are no longer possible due to the BRT infrastructure so violation is not worthwhile for most of the traffic.

5. Discussions are ongoing on how to integrate the AICTSL ITS project with the Indore Smart City Project. The Control Room will be co-located and integrated with the Traffic Police. Both AICTSL and the Traffic Police participate in the Smart City meetings.

6. ITS Component. The ITS for AICTSL is being supplied by as consortium headed by Infinium Solutionz, together with ASIS of Turkey and AGS. IBI Group is the ITC PMC on behalf of AICTSL.

7. Infinium Solutionz outlined their ITS project in other cities and States in India, including Ahmedabad city buses (1,000 buses), Gujarat SRTC (6,000 buses), Navi Mumbai (450 buses), the
non-BRT buses in Pune (1,000 buses), Amritsar BRTS, Surat BRTS, the NCC (Harish Travel) at Jaipur. ASIS have supplied AFCS to 65 cities in Turkey and are now active in 9 other countries; they have three projects in India being Kochi Metro, Amritsar BRTS and Indore.

8. The Contract has been signed and the Consortium has been mobilised. To date, Infinium Solutionz has its initial team of 4-5 people full-time on-site. They are doing the design and finalising the documents. These will be signed off and the development and supply will follow. They have already installed AVL units in a few buses to gain some experience, to gather data and to help populate data bases as well as using historic data (AICTSL has had more basic AVL for about 10 years already). ASIS has ordered the equipment, when it arrives they will deploy their team on-site.

9. The Mission and the ITS PMC requested that Infinium Solutionz provide a full list of all equipment (make and model); it was agreed that this would be provided by the end of the current week (7th April 2017). Client approval is needed before ordering. This will avoid that any equipment arrives on site that Client would not accept due to not meeting specifications.

10. The Mission noted that the System Architecture was not sufficiently detailed and did not include the depots and items such as MIS/ERP. The Mission adviser that various parts of the System Architecture need to be “unbundled” to the level of sub-systems and specific functions, with explicit provision for multiple operators, different organisational arrangements, etc. Over the 10+ years of the ITS system life, it is possible that new arrangement would be put in place and it should be avoided to “hardwire” the ITS to a single vertically-integrated arrangement which could pose difficulties to separate out functions or scale up to multiple operators and new agencies. Infinium Solutionz agreed that they would do this.

11. Infinium Solutionz advised that the AFCS is being developed as “Level 3” and that provision will be made that this can later operate with or subordinate to a “Level 4” integrated fare collection system (e.g. a multimodal citywide card). They also advised that discussions are ongoing about the nature of interface that would be required with the Traffic Control System. On the communications side, Optic Fibre Cable is being laid by micro-trenching. The Mission recommended that they do an in-depth analysis of the GPRS coverage and the success rate of transmissions from buses; and to resolve any blackspot issues and any other erratic response rates.

12. The Mission recommended that a formal working group is established from now through to post Operational Acceptance, consisting of the AICTSL (as Client), the bus operator(s), the System Integrator (Infinium Solutionz) and the ITS PMC (IBI Group). This working group should have a formal work program and agreed way of working, and the overall goal to bring the ITS system successfully through to Operational Acceptance. Among other things, they need to define Operational Acceptance (scope, acceptance criteria, targets, measurement methods) as soon as possible. Infinium Solutionz advised that they will submit a draft OA plan by end-April. The Mission also recommended that all activities of the working group should be documented, for example in the form of technical notes for all issues that arise. This will assist in downstream problem-solving and can also provide good supporting material for the Operational Acceptance process. The Mission also recommended that the concept, scope and expectations of Operational Acceptance are communicated throughout the organisation to avoid any misunderstanding later on.

13. AICTSL and ITS PMC advised that the AICTSL Board of Directors had provided direction on four specific issues: (1) On the issue of closed loop or open loop or the smart card
payment, it was agreed that it will be sufficient that the card can be used on all buses in Indore, and that complications should be avoided for now. This means that it will commence as a closed-loop system. (2) Self-service Ticket Vending Machines (TVMs) should be provided at stations, with note acceptors and allowing card recharge. It is not yet finalised now this would be implemented in practice, the choices being a full TVM with note acceptor (expensive, O&M burden) or a simpler device that would generate a barcode ticket/receipt based on pre-booking/pre-payment made through the mobile app; (3) Pre-booking facilities through the mobile app, plus reminder features. This are already planned, so no additional actions are required for this item; and (4) To remove the pilot test in order to accelerate the timeline. It is considered that since the ITS equipment is already in use in many Indian cities it is not necessary to do a Pilot, given that there is already a strong testing regime planned.

14. The ITS will be deployed in two phases, which will run in parallel. Phase 1 consists of the AVLS, Mobile App, PIS, TMC and ETMs; all of which are based on GPRS communications. Phase 2 consists of the AFCS, flap gates and validators at BRTS stations, POS and OFC communication. The implementation timeline is T+12 which completes in December 2017.

15. **Fare Collection Agency.** The contract of the fare collection agency expired in March 31, 2017 and has been extended by a month to complete the fresh hiring of the agency. It was agreed that ITS PMC would assist AICTSL to ensure that the technical requirements for ensuring single smart card facility across all bus services are properly incorporated.

16. **Technical Assistance Activities.** The Mission reviewed the status of the proposed TA activities.

(i) *Preparation of BRT Accessibility Plan, including pedestrian access:* Consultants have been mobilized and started the work. The consultant will submit the inception report in two weeks.

(ii) *Monitoring & Evaluation Study.* The consultants M/s Aakar Abhinav Consultants Pvt Ltd made a detailed presentation on the ongoing Indore BRTS M&E Study, for which the work order was placed in April 2016. The first M&E Report have been submitted and the first Six-Monthly User Satisfaction Survey Report has been submitted, the second is in planning.

The first M&E report reviewed the baseline M&E report prepared by IBI Group in 2012, which was conducted before the BRTS was commissioned. Initial findings for each of these 32 direct and indirect parameters and of the first user satisfaction survey were presented and discussed. There have been significant improvements in direct factors including total journey time, dwell time at station, waiting time, deviation from schedule, unauthorised stoppages and in revenue leakage; and in indirect factors including user satisfaction, total ridership, women ridership, bus occupancy, revenue and accidents, as well as in the productivity indicators. Key metrics include: (1) customer satisfaction has improved from 64% to 84%; (2) ridership has increased from 9,000 per day to 40,000 per day; (3) total average journey time has decreased from 64 minutes to 40 minutes; (4) average waiting time has decreased from 11 minutes to 2.5 minutes; (5) revenue leakage has reduced from 24% to “negligible levels”; bus occupancy has increased from 32% to 45%. It is noted that in some indicators there has not been gains and even lower performance, primarily those related to traffic and mode share. This is attributed to very large increases in vehicle numbers and traffic generally in Indore.

The Mission made the following comments and suggestions, which the consultants were requested to take account in their ongoing work and in preparing the second round of User Satisfaction Surveys: (1) to check the original IBI M&E matrix and to follow the same methodology to measure the indicators; (2) to collect IBI baseline study data for proper
comparison of the indicators; (3) standard deviation of headways should be identified and mentioned in the report, as these will give a better indication of variance and passenger uncertainty than just average headways; (4) classified accident data showing involvement of BRTS should be provided; (5) to check the results for modal shift by passengers as the percentage of modal shift toward BRTS on corridor as well as city; (6) to Identify ITS components in the tender and suggest and collect data before implementation of ITS; (7) dwell time for buses is required in addition with dwell time per passenger; (8) Intersection delay results should be put in such a way that it can show proper comparison with baseline results by considering increase in number of vehicles in the city over the years; (9) to prepare schedule for BRTS and identify the schedule adherence with respect to the prepared schedule; (10) to identify components in ITS tender for Transit data accessibility and provide suggestions to improvise it only if necessary; (11) to identify present incident response time; and (12) to schedule the next user satisfaction survey after implementation of ITS project i.e. in January 2018.

(iii) Preparation of a Service and business plan for AICTSL. Comments on the Inception Report were submitted to the Consultant by the PMU and subsequently by the Bank. A revised Inception Report was submitted by the Consultant to AICTSL in January, but this has not yet been shared with PMU. The Mission requested that the revised report is shared immediately for review and feedback. This is especially important as there had been substantive comments and the survey and analysis work now appears to be drawing to a close without having taking these into account.

The Mission reiterated its concern that the data collection program is dominated by the collection of traffic-related data; that the presentation only dealt with vehicle counts with no reference to occupancy or passenger numbers; that there is not a clear modelling and analysis methodology; that it is not clear how the data collection requirements and methods are based on what is actually needed to develop the model or to perform the analysis; and that it is not clear how the current phase of the work will result in or sufficiently support a Service and Business Plan that will meet the customer needs and in which AICTSL can have sufficient confidence to make investment and take financial risks.

The Consultant presented some initial results from the opinion surveys, covering only the non-users. This was presented in the absence of any overall framework for the survey, neither in terms of the overall methodology, survey design or sampling framework. The discussion indicated that the sample was random and unstructured, consisting of respondents intercepted at the roadside. It was not validated either if the sample is representative and can be expanded to the Indore population of non-PT users; or if such in-trip roadside intercept surveys would yield the same responses as if the respondents were asked the same questions in a different setting (e.g. within a household survey), in particular for items such as willingness to consider changing modes or willingness to pay. The Mission noted that 75% of the sample identified as “graduates”, which can hardly be representative of the population of Indore as a whole, and which also indicates that the important segment of 13-19 year olds have probably not been surveyed. The Mission reiterated that AICTSL and/or the Operator(s) will take substantial financial risks based on the recommendations. If the sample is not representative, or if user preferences and willingness to change mode or to pay are not correctly understood, it could have very serious consequences.

17. **Key Agreed Actions:**
- Submit operational acceptance plan for ITS system/ Complete Ph 1 – Apr 30/ Jul 31
- Phase 1 completion/ Complete ITS implementation – June 30/ Dec 31
- Submit Inception report for BRT Accessibility Study – Apr 15
- Submit revised Inception Report for Service Plan and Business Plan Study– Apr 20
- Submit revised M&E Study Report – April 30
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Mysore Intelligent Transport Systems

1. A World Bank mission held discussions with Mr. Vishwanath, GM Traffic (KSRTC), and the ITS team including KSRTC officials, their consultants and vendors in Delhi through Video Conference on April 03, 2017 to discuss the project’s progress. Also present in the meeting were representatives from PMU and PMC.

GEF-SUTP Funded Project

2. Intelligent Transport Systems. Intelligent Transport System (ITS) was implemented and launched in November 2012, and has following sub components:
   - Passenger Information System (PIS)
   - GPS based Automatic Vehicle location (AVL) System
   - Monitoring center to track and monitor bus movement through GPRS based devices

3. KSRTC advised of the substantial progress that has been made in resolving outstanding technical and deployment issues relating to the ITS.

4. MCTD now has a fleet of 476 buses of which 474 are available for tracking. The 93 new buses were mostly fitted with ITS equipment removed from scrapped buses. New power cards have been installed in 186 buses to date, one batch in late 2016, a second batch in early-2017. Some further buses will have the new power cards fitted, but only those that exhibit problems (the new buses are expected to be free of these problems). Of the buses fitted with new power cards, about half were cases where there was failure of the original power card or other component; and about half were buses in which the VMU was experiencing restart problems. The outcome has been a significant drop in the VMU failures (halved to 0.63% of units per day) and in restart problems (reduced to about a sixth of earlier levels). The Mission requested that KSRTC produce a technical note to comprehensively document this issue and how it has been resolved.

5. Performance is now at or exceeding SLA in most aspects. Server and platform-related metrics have consistently performed better than SLA from the outset and continue to do so. Per VMU data availability at Control Centre is now around 99.5%; in-bus display and voice announcement exceed 98% and 99% availability respectively; LED display availability (166 units) exceeds 99%, the Samsung display availability (26 units) is slightly below the SLA of 95%. VMU resolution time has been problematic for more than two years, and it is not clear that this has yet been brought within SLA.

6. The issue of power supply to bus queue shelters has finally been resolved after more than two years. The PIS boards are now restored to functionality. Of the 167 LED Boards, 162 are now operational, 3 are temporarily offline due to such things are bus shelter being dismantled, and 2 are TSC-related issues to be resolved. Of the 26 large LCD boards, 24 are currently operational and 2 are offline.

7. Operational performance has greatly improved over the past two years as KSRTC/MCTD have systematically utilised the ITS and its data to improved their scheduling, operations management and operational discipline. Bus bunching incidents have been reduced to about 5% of their former level. Driver indiscipline, such as harsh braking, sharp acceleration, overspeeding
and stop-skipping have all been reduced to a quarter or less of their previous levels. The number of unscheduled stoppages alerts remains relatively high and is being investigated.

KSRTC advised of some further enhancements they have requested from TCS (1) to improve their internal operational efficiency using the ITS and its data; and (2) to support the mobile app and further upgradation.

8. **Open Data.** KSRTC submitted a draft of an IT Data Sharing Policy to the KSRTC Board at end-December 2016. The draft policy covered a much wider range of subjects than availability of Open Data from the Mysore ITS. On approval by the Board, the draft Policy was submitted in mid-January to the Government of Karnataka Centre for e-Governance for their comments. An extensive set of comments were received from CeG in mid-March, including recommendations on issues such as creation of audit logs for each transaction, security policy and procedures, data purging etc. The CeG comments have now been sent to TCS for their review and suggestions.

9. Following receipt of the TCS comments, the draft Policy will be redrafted to incorporate the various recommendations and suggestions, and then sent to a legal expert for review (the expert has already been selected). KSRTC advise that the suggestions of the World Bank experts have been incorporated in the Policy, including the Terms of Use.

In parallel to development of the Policy itself, the TCS team has been requested to prepare for technical support including data conversion (Static & Real Time), architectural design, etc.

10. **Other Procurements.** The two driving simulators are approaching completion and the point at which they can be installed. Software and motion sensing testing are under way. The CGIs are in progress for both the Hubli-Dharwad and KSRTC implementation.

11. A delay issue has arisen as important information about the vehicles to be simulated has not been received from the vehicle manufacturers (Mercedes and Corona). The 2-D representation is required, only hardcopy material is available. The detailed design specification cannot be completed without this. Sydac advised that they could work from the drawings, but it will take some additional time. To maintain progress, Sydac are moving forward with software development on “at risk” basis, making assumptions about the outstanding data. Sydac also notes that the scope of the simulated routes has been increased.

12. In the next stage, the hardware will be installed and the software development will be installed and tested as it comes available. It is proposed to work in two phases. In the first phase, the hardware will be installed with a functional motion simulator, and with basic instructor and observer stations. It will have the simulated routes. In the second phase, the full functionality will be implemented. Given the delay issue and ongoing software development, the first phase would be implemented by end-May and the project complete and tested by year-end.

13. The Mission raised the issue of the location of the simulator provided under the Mysore ITS project. It had only recently been advised that KSRTC intend to locate it at Hasan. This is too far removed from Mysore to be able to justify the expenditure falling under Mysore ITS. The nearest KSRTC driver training school is located at Malavalli, about 40 km from Mysore. This is to be considered.

14. **Comprehensive Service Operations Analysis Study.** A discussion was organised on the study findings and way forward on June 1, 2016. It was agreed that much had been learned through the exercise but it was now time for the KSRTC/ MCTD team to take over and start
internalising and implementing the recommendations. As a formal handover exercise it had been agreed that the consultants would conduct a workshop in Mysore along with the depot managers and take them through the staged process of conducting the route profitability analysis etc. KSRTC had requested the Bank team and PMU to participate in the workshop. However, Bank advised them to proceed with the workshop without waiting for them.

15. **Communications Consultant.** The Technical Evaluation has been completed and shared with the Bank and MoUD. Financial offers were opened on 16th March 2017. The Accounts Department of KSRTC is currently doing the financial auditing. The Combined Evaluation Report will be submitted by the end of the week (7th April 2017).

16. **M&E Consultant.** The final Draft Contract Agreement has been shared with PMU on 14th March 2017. This should now proceed. The Mission stressed the importance of completing this work before the SUTP project close at year-end.

**Key Agreed Actions:**
- Update on status of open data sharing Policy/ Finalise Policy – Apr 30/ May 31
- Submit ITS Performance updates - Continuous
- Complete driving simulator installation and commissioning – June 30/ Nov 30
- Complete hiring of Communications Consultants – Apr 15
- Complete extension of scope of M&E Consultants – Apr 15
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Mysore – Public Bike Sharing Project (PBS)

1. The Mission met with Mr. M J Ravi Kumar, Mayor, Mysore City Corporation officials, DULT, PMC and their team and the vendor in Mysore on April 1, 2017 to review the Mysore Public Bike Sharing Project.

2. MCC shall be the implementing agency for this activity with a committee for managing the overall administration of the project. The project monitoring committee has been set up as on May 15, 2015 and is chaired by the Deputy Commissioner of Mysore District. It consists of the Mysore City Corporation Commissioner, the Commissioner of Police, Mysore, Commissioner Urban Development Authority and a representative of Commissioner DULT. The total project capital cost and operating cost is Rs. 205.23 million for the six-year period. A Rs. 3 crore corpus has been created for supporting the operations and maintenance phase and transferred to a jointly held account by DULT and MCC. The PMC for the project, PWC cum VBSoft, hired by DULT came on board in Feb 2016 to support the project. Mssrs. Green Wheel have been hired on a design, supply, install and operate model, and signed the contract in January 2016.

3. The PBS logo and website were launched on July 16. The mission was informed that owing to a variety of reasons the Project launch earlier scheduled for September 2016 has been delayed. In August 2016, a short pilot was conducted with 5 docking stations using local parts for bicycles and docking stations as there were delays with Customs releasing the parts being imported from China. 30 percent of the parts have since been changed. There were also issues that surfaced owing to road widening works taken up the City Corporation, traffic police giving approvals, other authorities and agencies delaying approvals, local opposition in some locations, etc.

4. The project has progressed since then. At present, 44 docking stations are complete, site is not available because of ongoing road widening work at 1 station and another 3 of the 48 locations are held up owing to public objections. So far, 475 bicycles have been manufactured and assembled including the front basket and headlights. 6 redistribution vehicle have been procured and registered in the name of Mysore City Corporation and another 4 redistribution vehicle have been customized to carry 10 bicycles at a time. The Control Centre has been set up with all equipment at MCC Zonal Office. It has since been furnished and equipped with the hardware and software, and the communications network is working well. All the staff are in place at the control centre. In addition to 1 LED display, Commissioner, DULT has directed to install additional three display units at the control centre. The Mobile App has been completed and 1000 smart cards are available. 6 redistribution centre have been set up by the operator and furniture and registration devices have been procured at the registration centres. The Mysore One centres (6 in nos) have been physically integrated with the PBS registration Centres to provide wider coverage. Mysore City Corporation has provided a space for maintenance centre to the PBS operator. The Maintenance work of cycle and electronics items are scheduled to be performed at the maintenance centre.
5. The Bank mission viewed the promotional video on Trin-Trin, the PBS service, and shared a couple of suggestions for enhancement including using positive language such as "docking is easy" as opposed to "docking is not difficult" and to ensure all riders in the footage indeed wear helmets. The mission also suggested discussing with a Road Safety NGO or a small enterprise to set up a helmet rental outlet close to docking station in an effort to encourage bicyclists to wear helmets.

6. With a view to increase ridership on both the PBS and the city Bus service, the Bank mission suggested the integration of the respective smartphone apps. Specifically, the integration should be bi-directional, perhaps via APIs, with Port location made available on MITRA App and the ETA and Schedule info made available on the PBS app. Furthermore, the Bank mission encouraged DULT and MITRA (ITS Mysore) teams to discuss the integration plan and modalities.

7. With respect to bike rental fees, the Bank mission advised DULT and MCC to avoid launching the service with further reduced rates and more free time and instead consider the following two options:
   a. Make the service free of charge for rentals up to 30 minutes (instead of 60) and keep the rental at Rs. 5 for 30 minutes to 2 hours.
   b. Offer the service free of charge during a "trial phase" (preferably through credits) and the actual plan to be effective after the trial phase.

8. During the Trial Run, Kiosks at only 10 out of 35 docking stations were found to be working. The Bank mission discussed the hardware-related issues and urged the operator to resolve them at the earliest.

9. The Bank mission discussed a few requirements for MIS Reports, KPI Dashboards, Helpdesk, and problem ticketing system and encouraged the Operator to complete the pending tasks by 2nd week of April.

10. The PMC and the Operator agreed to complete the System and User Acceptance testing in the 3rd milestone.

11. The Bank mission discussed the following tasks that are pending completion:

<table>
<thead>
<tr>
<th></th>
<th>Task</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hosting the Server at State Data Centre</td>
<td>1st week of April</td>
</tr>
<tr>
<td>2</td>
<td>Advertisement agreement to be signed</td>
<td>1st week of April</td>
</tr>
<tr>
<td>3</td>
<td>Maintenance centre to become fully operational</td>
<td>2nd week of April</td>
</tr>
<tr>
<td>4</td>
<td>Bugs reported during Trial Run to be resolved</td>
<td>1st week of April</td>
</tr>
<tr>
<td>5</td>
<td>iOS version of the Mobile Phone App to be developed by the Operator</td>
<td>2nd week of April</td>
</tr>
<tr>
<td>6</td>
<td>Pay-Gov agreement to enable payment to be signed</td>
<td>1st week of April</td>
</tr>
<tr>
<td>7</td>
<td>Distribution of Smart Card to the Government Agencies and Bicycle Club members</td>
<td>1st week of April</td>
</tr>
</tbody>
</table>

12. The Bank mission understood that the system will likely be launched tentatively within April 2017.
13. **Key agreed actions included:**

- Formal Launch of PBS – Apr 30
- Operator to complete pending task (MIS report, KPI dashboard, helpdesk and problem ticketing system) - Apr 15
Financial Management

1. The overall rating of the project is retained at MS.

<table>
<thead>
<tr>
<th>PIU</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri</td>
<td>MS</td>
</tr>
<tr>
<td>Naya Raipur</td>
<td>MS</td>
</tr>
<tr>
<td>Hubli</td>
<td>MS</td>
</tr>
<tr>
<td>Mysore ITS</td>
<td>S</td>
</tr>
<tr>
<td>Mysore PBS</td>
<td>MS</td>
</tr>
<tr>
<td>Indore</td>
<td>MS</td>
</tr>
<tr>
<td>PMU – MoUD</td>
<td>MS</td>
</tr>
<tr>
<td><strong>Overall Project</strong></td>
<td><strong>MS</strong></td>
</tr>
</tbody>
</table>

2. Disbursement profile: As of April 04, 2017, the disbursement profile (including advances) stood at 52.30% against IBRD and 64.17% against GEF financing. PIU wise disbursement Table is enclosed hereunder.

<table>
<thead>
<tr>
<th>Financing source</th>
<th>Allocation</th>
<th>Disbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBRD</td>
<td>105.23</td>
<td>47.90</td>
</tr>
<tr>
<td>DA Advance &amp; Front end Fees*</td>
<td>-</td>
<td>7.15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105.23</strong></td>
<td><strong>55.05</strong></td>
</tr>
<tr>
<td>% Disbursed inc DA</td>
<td>52.30%</td>
<td></td>
</tr>
<tr>
<td>% Disbursed exc DA</td>
<td>45.52%</td>
<td></td>
</tr>
</tbody>
</table>

*Including the front end fees of US$ 0.263 million

<table>
<thead>
<tr>
<th>Financing source</th>
<th>Allocation</th>
<th>Disbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEF</td>
<td>18.45</td>
<td>10.05</td>
</tr>
<tr>
<td>DA Advance</td>
<td>-</td>
<td>1.79</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18.45</strong></td>
<td><strong>11.84</strong></td>
</tr>
<tr>
<td>% Disbursed inc DA</td>
<td>64.17%</td>
<td></td>
</tr>
<tr>
<td>% Disbursed exc DA</td>
<td>54.47%</td>
<td></td>
</tr>
</tbody>
</table>

3. IUFR: We have received & reviewed the IUFRs till December 31, 2016 & found acceptable. However, a few inconsistencies were noticed in Format 5 & Format 6, needs correction.

4. Visits to Implementing Agencies:
   a) Hubli Dharwad BRTS: During the mission, a few running bills were test checked & found in order. The IUFR for the period Jan & Feb 2017 was also shared, while reviewing a few observations made are as under:
      i) IUFR Format 5 for SUTP GEF & IBRD, had some inconsistencies, the total expenditure was over & above the total cost under different activities, resulting in negative balance, needs correction.
      ii) IUFR Format 6 under SUTP GEF the Total Value of Purchase order was less than the Payment made, resulting in negative balance.
      iii) PMC Contracts: Work Contract (LASA) & ITS Contract (IBI India Consultancy) got renewed after a gap of 10 months, needs attention.

Further, there was a big gap between the Budgeted & the actual expenditure. The total Budget provided by the PIA in October 2016 for the period from October to
March 2018 was Rs. 90.46 crores against which the total expenditure claimed through IUFR till Feb 2017 is only Rs.20 crores approximately. The technical team is suggested to present a realistic Budget.

Under PW- 10: Only 60 % provisional payment amounting to Rs 15 Cr has been made in last 6 months. Balance 40 % is pending because of approval for extra work. Needs to be resolved at the earliest.

b) Mysore PBS:

i) **C & AG Audit** of the Projected Financial Statement for the year 2015-16 & 2016-17: State AG Audit not yet initiated. Need to expedite the matter at the earliest;

ii) System of Preparation of the IUFR, needs to be streamlined in case of frequent changes in the Finance staff. Need to impart training to Finance staff;

iii) Only one contract against which 10% has been released during September 2016 after the completion of I^th Milestone. In the process of achieving II^nd Milestone.

c) KSRTC: Procurement of Simulator, need to expedite the matter at the earliest.

5. **Key Actions**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Actions</th>
<th>By Whom</th>
<th>By When</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Schedule AG audit for FY 15-16 &amp; 2016-17, Submission of GOI Entrustment to AG office.</td>
<td>PMUs – Mysore PBS</td>
<td>April 30, 2017</td>
</tr>
<tr>
<td>2.</td>
<td>Corrections in the IUFRs for the Dec 2016 Quarter</td>
<td>PMU- NRDA, PCMC &amp; HDBRTS</td>
<td>May 15, 2017</td>
</tr>
</tbody>
</table>

**PIA’s wise disbursement profile USD/Mn as of April 04, 2017**

<table>
<thead>
<tr>
<th>PIU’s</th>
<th>IBRD- PIU wise disbursement USD/mn</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCMC *</td>
</tr>
<tr>
<td>IBRD allocation *</td>
<td>35.58</td>
</tr>
<tr>
<td>Total Disbursements</td>
<td>26.53</td>
</tr>
<tr>
<td>% Disbursed excluding DA</td>
<td>74.56%</td>
</tr>
<tr>
<td>Front End Fees</td>
<td>0.26</td>
</tr>
<tr>
<td>Designated advance</td>
<td>4.59</td>
</tr>
</tbody>
</table>
### Table

<table>
<thead>
<tr>
<th></th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Disbursements including Front end Fees.</strong></td>
<td>31.12</td>
</tr>
<tr>
<td></td>
<td>9.80</td>
</tr>
<tr>
<td></td>
<td>13.85</td>
</tr>
<tr>
<td></td>
<td>55.03</td>
</tr>
<tr>
<td><strong>% Disbursed including DA</strong></td>
<td>52.30%</td>
</tr>
</tbody>
</table>

*Including the front end fees of USD 0.263 mn

<table>
<thead>
<tr>
<th>PIU's</th>
<th>PCMC</th>
<th>Naya Raipur</th>
<th>Indore</th>
<th>KSRTC</th>
<th>MoUD</th>
<th>HDBRTS</th>
<th>Mysore</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised GEF allocation</td>
<td>1.9</td>
<td>1.9</td>
<td>1.91</td>
<td>2.49</td>
<td>6.15</td>
<td>2.5</td>
<td>1.6</td>
<td>18.45</td>
</tr>
<tr>
<td>Total Disbursements</td>
<td>0.77</td>
<td>1.33</td>
<td>0.59</td>
<td>2.02</td>
<td>3.49</td>
<td>1.39</td>
<td>0.46</td>
<td>10.05</td>
</tr>
<tr>
<td>% Disbursed excluding DA</td>
<td>40.53%</td>
<td>70.00%</td>
<td>30.89%</td>
<td>81.12%</td>
<td>56.75%</td>
<td>55.60%</td>
<td>28.75%</td>
<td>54.47%</td>
</tr>
<tr>
<td>Designated advance</td>
<td>0.18</td>
<td>0.23</td>
<td>0.22</td>
<td>0.23</td>
<td>0.84</td>
<td>~</td>
<td>0.09</td>
<td>1.79</td>
</tr>
<tr>
<td>Total Disbursements</td>
<td>0.95</td>
<td>1.56</td>
<td>0.81</td>
<td>2.25</td>
<td>4.33</td>
<td>1.39</td>
<td>0.55</td>
<td>11.84</td>
</tr>
<tr>
<td>% Disbursed including DA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64.17%</td>
</tr>
</tbody>
</table>