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

Sixteenth Implementation Support Mission
(November 27 to December 18, 2015)

Aide Memoire

I. Introduction

1. A World Bank mission\(^1\) 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, held discussions with Mysore KSRTC officials and Mysore MCC officials in Bangalore and with Indore AICTSL officials through audioconference. The Mission also joined the DEA Portfolio Review on 10 December 2015. 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 Technical Assistance activities under the Capacity Building Component
   - Review progress on City Demonstration Projects in Pimpri Chinchwad, Naya Raipur, Hubli Dharwad, Indore, Mysore ITS and Mysore PBS:
     - Review overall project implementation progress and timelines for launch
     - Review progress with procurement and awarded civil works packages
     - Review progress with land acquisition and resettlement issues and environment aspects

3. Key findings of the Mission were 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. The summary of Mission highlights include the following:

   - **Overall Project** - Over 80 percent of the IBRD funds and 90 percent of the GEF funds are committed and balance procurements in Hubli Dharwad and Indore are expected to be completed by April 30, 2016. Over 90 percent land acquisition has been completed in Hubli Dharwad and another 7 percent is under process. The progress on pending resettlement and land acquisition in Pimpri-Chinchwad however continues at a slow pace.
   
   - **The overall implementation progress rating is upgraded to Moderately Satisfactory as the Project has substantially completed procurements and land acquisition and now has adequate time for completing remaining works within the extended closing date of March 31, 2018. The likelihood of achievement of PDO rating is also upgraded to Moderately Satisfactory.**
   
   - **Component IB** - Nine activities are ongoing, with about 7 in final stages. Over 260 officials have been trained in Leaders in Urban Transport Planning (LUTP) both at CEPT University and in other programs across the world.

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\(^1\)The mission comprised of Nupur Gupta (Transport Specialist and Task Team Leader), Mr. Michael Haney (Operations Advisor), Neha Dhoundiyal (Finance Management Specialist), I. U. B. Reddy (Social Development Specialist), Satyanarayan Panda (Procurement Specialist), Gaurav D. Joshi (Environmental Specialist), Raman Krishnan (Information Officer), Sujit Das (Consultant - Transport Engineer), Gerhard Menckhoff (Consultant - Public Transport), Kartik Ta (Consultant – Structural Engineer) and Neetu Sharda (Program Assistant).
• **Pimpri-Chinchwad** – PCMC has now successfully launched Corridor 2 and Corridor 3 leaving two more corridors to be launched. PCMC and PMPML will need to begin to focus on the emerging operational issues to ensure the continued success of the BRT. Meanwhile, Corridor 4 will require until end 2016–early 2017 for completion of Empire Estate flyover and remaining LA R&R.

• **Naya Raipur** – NRDA expects to launch the BRT Lite Service by mid-to-late 2016 provided early decisions are taken in regard to financing of buses and finalization of Service Plan. Changes to the Naya Raipur Masterplan to incorporate ToD principles notified.

• **Hubli-Dharwad** – Procurement of ITS and Dharwad Terminal expected to be initiated in December 2015. There is steady progress in land acquisition and this is expected to be substantially complete by Dec 31, 2015. Progress on awarded packages needs improvement.

• **Indore** - In Indore ITS bid docs are under finalization and expected to be issued in December 2015.

• **Mysore ITS** – The ITS Project is now operationally accepted and performing well. However, KSRTC will need to ensure continuous training of staff for the system to be well utilized and functioning.

• **Mysore PBS** – PBS procurement has been completed and the vendor proposes to complete implementation over the next 6-8 months.

• **Project Management** – MoUD needs to expedite extension of the UNDP executed portion as that supports Project Management. The extension or rehiring of the PMC to the Project will also need to be initiated as it closed in March 2016.

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>May 31, 2018</td>
</tr>
<tr>
<td>GEF Grant IBRD</td>
<td>US$ 18.45 mn</td>
</tr>
<tr>
<td></td>
<td>US$ 105.23 mn</td>
</tr>
<tr>
<td>Disbursed Amount</td>
<td>GEF US$ 9.20 mn</td>
</tr>
<tr>
<td></td>
<td>IBRD US$ 42.80 mn</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>Complete Project Extension for UNDP component upto Mar 31, 2018</td>
<td>Dec 31</td>
<td>MoUD/ PMU</td>
<td></td>
</tr>
<tr>
<td>Submit Progress Reports; Contract wise physical &amp; financial progress</td>
<td>Jan 7, Feb 7, Mar 7</td>
<td>PMU &amp; PIUs</td>
<td></td>
</tr>
<tr>
<td>Audit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) External audit Report for all PIUs</td>
<td>Dec 31, 2015</td>
<td>MoUD/PIUs</td>
<td></td>
</tr>
<tr>
<td>b) Entrustment of audit of MCC PIU by CAG to State AG</td>
<td>Immediate</td>
<td>MCC/DULT</td>
<td></td>
</tr>
<tr>
<td>Corridor 2 &amp; 3: Redesign geometrics and traffic signal plans/ Define a timebound action plan</td>
<td>Jan 15, 2016</td>
<td>PCMC</td>
<td></td>
</tr>
<tr>
<td>Corridor 1: Finalise &amp; Submit BRT access</td>
<td>Jan 31, 2016</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>
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<tr>
<td>improvement plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compete ETM installation at depots for Corridor 3/ All</td>
<td>Feb 15, 2016/ Jun 30, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete ITS operational acceptance</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare and submit traffic management plan at Bhosari and improvements at the terminal procurement</td>
<td>Jan 15, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate off board collection study</td>
<td>Dec 31, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend PMC contract for Corridor 3 &amp; 4</td>
<td>Immediate</td>
<td>Jan 31, 2016</td>
<td></td>
</tr>
<tr>
<td>Prepare and submit traffic management plan at Bhosari and improvements at the terminal procurement</td>
<td>Dec 31</td>
<td></td>
<td></td>
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<tr>
<td>Complete shifting of first batch of transit camp PAPs to permanent houses</td>
<td>Feb 28, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit of inventory of displaced families</td>
<td>Dec 31, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion allotment of EWS housing to all eligible people and decide on support to those ineligible people for EWS housing and affected small businesses</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete all LA R&amp;R activities</td>
<td>March 31, 2016</td>
<td></td>
<td></td>
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<tr>
<td>Submission of Action Taken Report on all quality related issues</td>
<td>Jan 15, 2016</td>
<td></td>
<td></td>
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<tr>
<td>Submit options analysis and concept plan for Telibanda pick up point</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
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<tr>
<td>Submit concept plan for drop off point at Gadhi Chowk</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share review of access roads &amp; circulation plan at Old Secretariat</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue RFP for appointment of fare collection agency</td>
<td>Feb 1, 2016</td>
<td></td>
<td></td>
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<tr>
<td>Complete procurement of bus operator</td>
<td>Apr 30, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Define itemized schedule to complete works at Railway Stn/ Completion of BRT civil works</td>
<td>Jan 15/ Mar 31, 2016</td>
<td>NRDA</td>
<td></td>
</tr>
<tr>
<td>Submit final report on BRT feeder routes and service options</td>
<td>Dec 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit options for integration of smart card functionality between Naya Raipur and Raipur</td>
<td>Dec 31, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit revised BRT Lite implementation schedule</td>
<td>Dec 31, 2015</td>
<td></td>
<td></td>
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<tr>
<td>Finalise Bus Funding</td>
<td>Dec 31, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop a Communications &amp; Outreach Plan for BRT Lite</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
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<tr>
<td>Issue Jubilee circle terminal bid doc</td>
<td>Dec 31, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit selected traffic engineering and signal design plans</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit ITS BER</td>
<td>Mar 31, 2016</td>
<td></td>
<td>HDBRTS</td>
</tr>
<tr>
<td>Finalise contract for Traffic Management</td>
<td>Jan 31, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalise contracts for RoB/ balance 4 laning work</td>
<td>Feb 28, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approval and disclosure of RAP/ EMP Addendum</td>
<td>Dec 15, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compensation Award to all</td>
<td>Jan 31, 2016</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>villages/Towns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion of payment of compensation and R&amp;R assistance to all affected people</td>
<td>Feb 28, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note on additional land acquisition and R&amp;R, environmental impacts due to Dharwad Terminal</td>
<td>Dec 15, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalize driving simulator bid</td>
<td>Feb 28, 2016</td>
<td>Mysore</td>
<td></td>
</tr>
<tr>
<td>Discussion Workshop on CSOA</td>
<td>Feb 15, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit update on compliance</td>
<td>Weekly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hackathon in Mysore</td>
<td>Feb 15, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek no objection for extension to PMC contract</td>
<td>Dec 31, 2015</td>
<td>Indore</td>
<td></td>
</tr>
<tr>
<td>Issue of revised ITS RFP/Finalise Award</td>
<td>Dec 15, 2015/ Apr 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRT Accessibility Study – Issue EoI</td>
<td>Dec 15, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appointment of consultant for Business Plan study and M&amp;E</td>
<td>Feb 15, 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrustment of statutory audit of PIU of MCC to the state AG</td>
<td>Within three months from restructuring</td>
<td>DULT/MCC</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 activities under Component IB are well advanced. The Leaders in Urban Transport Planning training, introduced in CEPT University as well as those taking place in Singapore, Seoul and Dubai have been well received and are ensuring exposure to urban transport officials and decision makers to the complexities and multi-faceted nature of the issues. 260 officials have been trained so far. The technical assistance activities in regard to assistance with implementation of reforms, and development of a Research Facility within MoUD, are ongoing. Under the TA activities, Indian cities are receiving hands on technical assistance in areas such as creation of UMTA and UTF (8 cities), Transit-oriented development, NMT Master planning and Public Bike Sharing (6 cities), Traffic Management and Information Centers and National Urban Transport Helplines (5 cities), contracting of private operators in city bus services (3 cities) etc. All these activities are expected to result in an improved planning process for urban transport and adoption of good practices and approached in Indian cities.

7. Among the city demonstration projects, the Mysore ITS project implementation has been completed and its performance is now stabilized. The other city demonstration projects, Pimpri-Chinchwad, Naya Raipur, Hubli-Dharwad and Indore are in various stages of implementation. BRT Corridor 2 and 3 in Pimpri-Chinchwad have been launched and Corridor 1 is proposed for launch in first half of 2016, however, Corridor 4 is likely to be delayed to end of 2016; In Naya
Raipur, the BRT Lite could be launched by mid next year; In Indore, with rebidding and roughly a year to implement mid 2017 is likely date of completion; HDBRTS will require additional time for completion until end 2017; Mysore PBS implementation is expected by end 2016. The PDO is expected to be achieved within the extended closing timelines. The PDO risk rating is accordingly upgraded to ‘Moderately Satisfactory’.

V. Current Implementation Progress

8. **Overall Status**: The Mission rates the overall project progress as *Moderately Satisfactory*. The capacity building component is progressing well, the procurements for the city demo projects component is substantially complete or in advanced stages, and land acquisition & resettlement is also well advanced. The progress on awarded construction contracts requires improvement. However, with the necessary additional time the Project is being upgraded to *Moderately Satisfactory* status.

<p>| Status of Contract Award and Procurement in Numbers and Value in US$mn for IBRD |
|----------------------------------|------------------|---------------------|---------------------|---------------------|</p>
<table>
<thead>
<tr>
<th></th>
<th>Awarded</th>
<th>Under Procurement</th>
<th>To be Initiated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCMC</td>
<td>2</td>
<td>36</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NRDA</td>
<td>3</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>HDBRTS</td>
<td>8</td>
<td>35</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>85</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>%</td>
<td>80%</td>
<td>13%</td>
<td>7%</td>
<td>100%</td>
</tr>
</tbody>
</table>

9. The city-wise status of disbursement under the loan and grant is provided below.

<table>
<thead>
<tr>
<th>Disbursement Status (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
</tr>
<tr>
<td>Component 1B</td>
</tr>
<tr>
<td>Pimpri-Chinchwad</td>
</tr>
<tr>
<td>Naya Raipur</td>
</tr>
<tr>
<td>Indore</td>
</tr>
<tr>
<td>Mysore KSRTC</td>
</tr>
<tr>
<td>Hubli-Dharwad</td>
</tr>
<tr>
<td>Mysore MCC</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

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. Its progress is slowed down by the fact that draft guidance documents developed are required to be tested in a subset of cities prior to finalization and this adds substantially to the time and effort involved. At the same time it also adds far greater value to the process and resultant capacity building. MoUD and the PMU have been taking keen interest in furthering these activities. The mission reviewed the progress on the capacity building component and finds that of the 9 ongoing activities, at least 7 would be in a position to substantially finalize the Guidance document shortly. The updated status is tabulated below:
### 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>Roundtable held at MoUD to finalize the UMTA &amp; UTF guidelines and draft Bill. City specific reports under finalization.</td>
</tr>
<tr>
<td>2</td>
<td>Development of a standard architecture and plan for ITS and Traffic Management Center</td>
<td>20,070,000</td>
<td>Draft TMICC and NUTH generic documents are in final stages. City specific reports finalized following workshops.</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>Guidance documents for NMT and PBS are being finalized. All city reports have been submitted and workshops ongoing.</td>
</tr>
<tr>
<td>4</td>
<td>Development of a Research Program</td>
<td>5,530,000</td>
<td>Final operations manual updated and with MoUD for approval.</td>
</tr>
<tr>
<td>5</td>
<td>GHG Emissions reduction assessment</td>
<td>28,650,000</td>
<td>City specific Draft Final Reports under review. Emission estimates based on 2nd Annual Survey (Feb 2015) being prepared.</td>
</tr>
<tr>
<td>6</td>
<td>Leaders Program</td>
<td>135,000,000</td>
<td>260 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>Data collection report being reviewed. Activity excessively delayed; quality issues</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>Draft generic guideline under review. City specific contract documents under preparation.</td>
</tr>
<tr>
<td>9</td>
<td>Preparation of GEF5 Project</td>
<td>11,230,000</td>
<td>Activity extension processed; documents still not finalized</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>ToR under preparation</td>
</tr>
<tr>
<td>12</td>
<td>Workshops</td>
<td>30,000,000</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Component IA

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

12. The Toolkits and Training Modules have been prepared and training is ongoing. The development of the Urban Transport Knowledge Management Centre is ongoing and proposed to be completed by December 2015. UMTC was hired on 18 November 2014 to develop the KMC. The consultants are currently collecting traffic and transport data from Comprehensive Mobility Plans of all the selected cities. Instead of carrying out this activity for 3 selected cities on a pilot basis, the approach now being taken is to complete data population process for all the 50 cities as the data source is now limited to CMPs. After the World Bank’s comments on the data formats,
the consultants are now using simpler formats for data collection/entry and will be able to complete this activity by August 31, 2015. Simultaneously, data validation for the 40 cities completed so far is being done at the Institute of Urban Transport (IUT). The Mission was informed that further progress on data validation and launch of the web portal is now critically dependent on the issue of license agreement between MoUD and SAP. During the last review meeting it was noted that the activity would require additional time and could not be deemed completed with the completion of data population by UMTC. Experience with such systems suggested that there needed to be a phase for debugging and ensuring smooth operations. Further, it was found that 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 loose 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.

The UNDP executed component which covers project management costs also has a closing date of December 31, 2015. This will need to be extended in line with the extension to the Bank executed portion so as to ensure that the project management activities remain unaffected. At the same time, lack of clarity on above issues regarding KMC as well IUT raise concerns about sustainability.

**Component 2: City Demonstration Projects**

Implementation Progress: **Moderately Satisfactory**

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

(i) **Pimpri-Chinchwad:** Physical progress of seven contracts combined together in BRT Corridor 3 is about 87%. BRT Corridor has been launched on November 28, 2015. The BRT lane is exclusive except for a length of 260 m where construction works are yet to be completed. Pedestrian Facilities for travel between ground level on Mumbai-Pune Highway (NH4) and Corridor 3 at higher level are awarded and likely to be ready not earlier than early-2017. Progress in the Bank-financed Contract I (Interchange at Nashik Phata) is satisfactory. Remaining Ramp 2 under this contract (delayed due to non-availability of land and subsequent design changes) might get completed by end-2016. PCMC however needs to get some land into its possession for construction of Ramp 2 on Mumbai side.

Physical progress of all eight contracts combined together in BRT Corridor 4 is about 65%. Land is not yet available for 1.46 km of length. There is no likelihood of the full length of BRT
Corridor being available for plying of Buses prior to mid-2017. Progress in the Bank-financed Contract III (Empire Estate Flyover) remains unsatisfactory. The progress in this contract can be assessed as about 60% of the Value of Works excluding two Ramps which are on hold now. The Contract is suffering from cash flow problem since the start. Due to lack of required finances, and the non-availability of required Machinery, Labourers and Materials the progress is slow and erratic. At its current pace of progress the grade separator may not be ready before March 2017. Timely completion of land acquisition and resettlement activity and management of the Empire Estate contract are the two critical items holding up 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, started in December 2013 with 15 months completion period, is about 71% of likely Completion Cost. The Contractor’s mobilization as well as progress remains slow. However, they now propose to complete the works by March 31, 2016. The ITS vendor is mobilized and ready to begin installations however the non-availability of buses is holding up progress. Works progress in the contract for Non-Motorized Transport Infrastructure (Construction of Cycle Tracks, Walkways, etc), started in March 2014 with a 15 months completion period, is at about 50% of the likely Completion Cost. It would require until mid-2016 for completion. It should be possible for NRDA to launch the BRT Lite by mid to end 2016, provided they ensure timely completion of civil works, ITS installation, bus delivery, finalization of service plan and hiring of private operator.

(iii) Mysore: Most of the problems encountered by the ITS system for Mysore city bus have been addressed and system operational acceptance is effective from Oct 1, 2015. However, for the overall system performance to improve KSRTC will need to make special efforts to instill greater discipline in its operations and TCS/CMC will need to speed up spares mobilization to address maintenance backlogs and start rectifying the residual problems observed.

(iv) Indore: Rebidding is being initiated.

(v) Hubli-Dharwad: INR 408 million worth of works (about 20%) out of total about INR 2046 million of works (being financed by the Bank) has been carried out so far in 10 contracts of Depots, Workshops, Terminals, Bus Stations, Foot Overbridges, etc., being implemented by HDBRTSCL. Nine of the contracts have started, and their progress varies between 0% and 35%. Progress of all ongoing contracts is slow, overall about 4% in last 4 months (August-November 2015). Two more contracts remain to be awarded by end-April 2016, and designs are ongoing for one of them. The main BRT Corridor / Road works being implemented through Karnataka Road Development Corporation Limited (KRDCL) involve four contracts, (i) construction of Mixed Traffic Lanes along the Hubli-Dharwad BRT Corridor which is progressing slowly owing to encumbrance free sites not being available, (ii) 3 flyovers of which work on two has commenced and (iii) Road over Rail Bridges (RoBs) for which tendering is ongoing; (iv) 8.7 km of 4 laning contract which still has to be tendered. It’s assessed that all Works under the BRTS Project including the exclusive BRT Corridor cannot be completed earlier than mid-to-end 2017.

(vi) Mysore PBS: The tender process for design, implementation and operation of the bike sharing project in Mysore has been completed and award modalities are being finalized. It is expected that the project implementation shall be completed by end 2016.

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:
13. **Pimpri-Chinchwad - Land Acquisition and resettlement impacts.** The outstanding land acquisition and resettlement implementation issues which are directly affecting the construction of corridor include: (i) inordinate delays (more than 3 and half years) in shifting of remaining about 50 residential families to EWS housing; (ii) resolving the compensation issue for about 20 small business; (iii) completion of associated land acquisition for a stretch of about 1.4 Kms at Khalewdwadi along corridor 4 after shifting the people residing on the corridor; and, (v) finding a satisfactory resolution on rehabilitation of affected industrial units in 60 meter stretch in Corridor 4 (pending for more than two and half years). In addition, shifting of 144 families who are residing in transit housing for about 5 years against the originally envisaged period of 18 months amount is affected due to delays in undertaking the repairs to the building where people are planned to be shifted. PCMC has missed all previously assured target dates in addressing the above pending issues. The project has encountered additional land acquisition for Bank-financed Contract (Interchange at Nashik Phata) for construction of Ramp 2 (Mumbai side). More details are provided in Annex 3b. It was agreed with PCMC that all pending issues would be resolved by March 31, 2016.

14. **Pimpri-Chinchwad - Flyover contract on Corridor 4 (Kalewadi Phata-Dehu Alandi Road):** Progress of this contract continues to be unsatisfactory. The progress can be assessed as about 60% in four and a half years since April 2011. Non-availability of required Machinery, Labor and Materials as a result of the financial problems of the Contractor was slowing down the progress. PCMC had issued legal notice to the contractor on March 27, 2015 but the contractor assured PCMC of their commitment to complete the works by December 2015. Since then the contractor has subcontracted the river portion to a contractor and the railway line portion to another contractor. They had proposed to increase the pace of casting segments however, owing to the cash flow situation payment to suppliers and subcontractors and therefore works progress is getting intermittently affected. Present progress of works is much behind the Program submitted by the Contractor on 27 April 2015. **Progress since the last Bank Mission** in late July 2015, as reported, has been 6.2% (in monetary terms) of Value of Works (excluding Components V and VI) in 4 months from 29 July to 30 November 2015. It’s reported that the **works are held up presently at multiple fronts because of non-payment by the Contractor to its vendors.**

The contractor assured the Mission that the issues had since been resolved and they expected to complete the works by July 2016. This may be possible with sustained progress and some infusion of funds from the contractor, however, at its current pace the Mission’s assessment is, one may expect the Contract to be completed by early 2017.

15. **Pimpri-Chinchwad – BRT Launch and Coordination among key stakeholders:** Two BRT corridors have been launched in Pimpri-Chinchwad – Corridor 2 in September, 2015 and Corridor 3 in November, 2015. While overall there has been a strong positive public response to the launched BRT corridors, the ridership has grown and there is a sense that there are time savings, there are still several issues that require attention to improve the overall performance of the system and the experience of the users. These are in the areas of (i) ITS and passenger information systems, (ii) Traffic signal phasing which is resulting non priority and delays on the BRT (iii) major intersections with poor geometry making passenger access unsafe (iv) problems with station doors and bus doors (vi) issues of bus bunching (vii) large gaps in bus docking, (viii) poor pavement quality and road markings in several sections (ix) need for fare rationalization, launch of e-ticketing and off board fare collection, etc. The resolution of these will require the concerted efforts of different departments (engineering and electrical) within PCMC, PMPML and the Traffic Police. The Mission reiterates its earlier recommendation for jointly developing a time-bound implementation schedule capturing all the actions and its close monitoring by the key stakeholders. Without this close coordination ensuring prompt action and resolution on emerging issues would remain difficult.
Hubli-Dharwad – Land Acquisition & Resettlement Progress: The land acquisition and resettlement implementation is progressing steadily. As on date, 76% of 26 acres private land acquisition is completed and about two-thirds of land owners have received the compensation. The progress in payment of R&R assistance is about 60%. The remaining land acquisition and payment of R&R assistance is expected to be completed by February, 2016, with about 3 years delay against the planned date of April, 2013. The progress in compensation awards is delayed due to inordinate delays in submission ownership document by the land owners.

16. The key challenges in land acquisition include: (i) completion of awarding remaining 6 acres of private land; (ii) shifting of all affected temples as there is no resolution on shifting of a Dharga and 3 other temples; and, (iii) dealing with Dharwad Land Losers Association who have appealed to the High court on compensation rates and options considered for BRT alignment within Dharwad Town.; and, (iii) mitigation of pending impacts in first and second milestone stretches already handed over to the mixed lane contractor. More details are provided in Annex 2.

17. Works Contract implementation progress: The progress on the awarded works packages is slow and a matter of concern. The progress was a bare 4% of the awarded contracts funded by the Bank in the last four months. Generally, the initial problems are over, although still there are a few issues related to availability of land and drawings. HDBRTSCL needs to monitor the Contractors’ performance together with its own deficiencies (land / site handing over, issuance of final ‘Good for Construction’ drawings) closely. The Mission noted lack of initiative by the Contractors to bring out and push for resolving the issues. They need to bring out the issues and push both HDBRTSCL and Project Management Consultant (PMC) for decisions. There did not appear to be urgency by most of the Contractors in progressing and completing the works. Most of the Site staff (specifically for Contracts 8 and 9) does not have any control over planning and availability of resources. The Contractors appear to be having fund flow problem, lack of technical knowledge, and lack of planning. All Contractors are required to vigorously progress the works for early completion. Contractual Works Completion Period has expired for six of the ongoing nine works contracts. HDBRTSCL is required to extend the Works Completion Periods, with conditions if any. The PMC’s quality of services provided at the site level may need to be improved.

18. Launch of the BRTS. Presently, the main issues which need to be addressed in order to be able to complete the BRT corridor in a timely fashion include: (a) Completion of Land Acquisition / Transfer and Resettlement, and Relocation of Utilities, (b) Designs to be completed and approved from the Railways and Award of Works Contract for the RoBs, (c) Designs being prepared for Construction of Trunk Corridor from Jubilee Circle to Dharwad CBT and of Terminal at Mitra Samaj, and Invitation of Bids and Award of Works Contract for the same, (d) Arrangements for construction of remaining about 8.7 kms of 4-laning (exclusive BRT Corridor), (f) Timely decision and issuance of drawings by HDBRTSCL and its Design Consultant, and (g) all Contractors required to vigorously progress the works for early completion. (h) Traffic signal designs for all major intersections and hiring of vendor for implementation, (i) completion of hiring of ITS vendor. Based on current assessment the BRTS cannot be completed before end 2017.

19. Naya Raipur - Works Contracts Progress & Quality: The progress on the BRT Infrastructure contract, was about 71% in more than 100% of the contract life, and of the NMT Infrastructure package signed in March 2014 was just 50%. These will not be ready prior to mid next year. NRDA has initiated the process for addressing the lapses in the construction works quality identified in the previous mission. The mission, however, noted that tests were often being conducted in non NABL accredited laboratories and NRDA would need to insist on quality supervision support from their Project Management Consultants.
20. **Launch of BRT Lite**: The launch of the BRT Lite service requires not only the completion of civil works (stations, pick up points, depot & control room), but also buses, ITS installations, a service plan, bus operators, fare collection agents and promotion & outreach activities. There is continuing uncertainty in regard to the financing of Buses, the service plan is under preparation, the fare collection policy though developed and endorsed is on the high side, and hiring of private operator is uncertain in the absence of buses and a service plan. The Mission advised NRDA to finalize the issue of buses at the earliest.

21. **Indore BRT ITS Delays**: The procurement of ITS for the Indore BRT has is being relaunched.

22. **Mysore ITS Project operational acceptance.** The ITS system for Mysore city bus, rolled out gradually since November 2012 had encountered initial system troubles viz. including VMU performance and ETA performance. Now that the system is operationally accepted the Mission noted with concern the long delays in rectifying issues and was informed that the merger of CMC into TCS had created some initial issues resulting in delays in procurement of spares inventory but that the situation would improve immediately.

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

Safeguards Rating: **Moderately Unsatisfactory**

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

**Environment Management**

23. The project performance on environmental aspects is currently rated as Moderately Satisfactory as there are some improvements in the situation on site safety in some locations. However, issues around environmental aspects of construction management, as well as safety of both workers and other users of the facilities continue to affect full implementation of the EMP. City-wise summaries follow with details in respective city-wise Annexes.

**Naya Raipur**: The implementation of EMP provisions has been improving in Naya Raipur, except for the NMT facilities, where delays continue to affect speed of works. In order to allow the contractor to compensate for lost time, if works are allowed at night, additional measures for safe construction will be required. In addition, the plans for procuring asphalt for pavement and disposal of debris need to be firmed up after scrutiny by the PMC for NRDA. Water harvesting structures that have been designed need to be executed in advance of earthworks / embankments, as otherwise, their construction may affect the base of the embankments.

24. At the pick-up point in the old Mantralaya site, several trees were saved from cutting and integrated with the design of the facility. However, the mission noted that these have now become vulnerable as the construction has led to the exposure of the roots as the excavation for elements in the design has been quite close to these locations. It was agreed that the roots would be immediately covered with soil again to prevent damage and allow the trees to survive.
25. The Regional Mobility Plan study underway has taken into consideration environmental aspects of the proposed improvements to the transportation network. This analysis needs to be supported by more recent information on the levels of pollution and their sources in the study area.

**Hubli Dharwad:** The BRT infrastructure packages have shown some improvements in implementing the EMP provisions for the depot and workshop sites. The contractors for the BRT stations need to improve the measures undertaken for safe passage of traffic as well as the personal protection of their workers – with provision of safety shoes, jackets, etc. to reduce the chances of injury at site. The barricading for the grade separators under construction needs to improve with provision of illumination of the top edge and/or line of visible/fluorescent paint at drivers’ eye level to ensure that there are no accidental collisions with the safety barriers. Diversion of traffic to the Mixed Traffic Lane (MTL) for construction of the Unkal Cross grade separator needs to be preceded by erection of barriers.

The mission provided minor comments on the EIA addendum and suggested that once finalized, the document can be submitted for Bank review. For the Mitra Samaj location in Dharwad, and the proposed connection to the Dharwad Agricultural University, another addendum will be prepared as the designs are finalized by 31st December 2015. The mission suggested that the design should incorporate the site features like old trees to the extent it fits with other considerations like safety of traffic and users of the facility.

Due to the weak monsoon earlier this year, the HDBRTSCo’s green plantation targets were curtailed for the last rainy season. While the survival rate remains acceptable for the plantation already undertaken, careful monitoring and timely availability of water during the upcoming dry periods are essential to achieve the targets of the Green HDBRTS plan. HDBRTSCo has informed that Forest Department accordingly and shortfall in plantation for this year would be compensated by increased planting in the rainy season for 2016.

26. HDBRTSCo is planning to reduce the environmental impact of the infrastructure construction by potentially reusing some of the waste from construction. The material from existing road alignment is being stored by the MTL contractor on plots close to the corridor. The mission discussed the possible reuse option for the material following which it was agreed that, subject to engineering suitability, it may be used for the fill of embankment of the new Rail Over Bridge section. The same will be conveyed to the bidders in the pre-bid meeting around 7th January 2016 as an integral part of the features of the Works Contract.

**Pimpri Chinchwad:** The mission noted that the contractor has started activities along the Pavana River bridge alignment for the construction of the in-water spans with a cycle time of about 45 days. The mission reminded PCMC to confirm that Contractor needs to remove all the material transferred after the rainy season to the river bed for the temporary staging to be erected. It was informed that the Contractor is planning to substantially increase the workforce size in order to meet with the revised project timelines. The mission urged the PCMC to ensure that this increased workforce has all basic environmental amenities available with the campsite – drinking water, sanitation, clean fuel for cooking, as required in the Environmental Management Plan. It was agreed that this would be completed by 31st December 2015 and the NPMU’s PMC would undertake site visits in mid-January 2016 to confirm the same.

27. In order to increase the speed of progress, it is likely that works will start at several locations simultaneously with new teams of workers. It is essential that PCMC require the contractor to ensure that safe working conditions are maintained with inputs from their PMC team, both for the workers as well as other road users that may be in the work areas.
Social Management

28. **Pimpri-Chinchwad**: All previously committed dates for resettlement of displaced families have been missed by PCMC and now it is increasingly becoming uncertain on when these pending issues will be resolved. The Bank provided an implementation matrix during last mission in July, 2015 for addressing the pending actions related to EWS housing, shifting of people from Transit to permanent housing and completing the pending land acquisition. Out of 17 actions, only 4 actions are completed and implementation of remaining actions are now increasingly becoming uncertain. There is no further allotments of EWS housing since the last mission in July, 2015 and there is no sign of submitting the tripartite agreement to the court to resolve the MIDC land issue. Though there is some progress in terms of self-contribution and approval of Bank loans in case of Transit housing, but there is no corresponding efforts from PCMC to make the houses ready for allotment. Further, no attention has been paid to deal with affected small businesses and no decision is forthcoming on how to deal with those ineligible PAPs for EWS housing. The mission clarified that in case of those who are not eligible to EWS housing, those should be provided with other assistance such as compensation for affected structures, to comply with the Bank’s safeguard policies. Due to the uncertainties in the implementation of the remaining actions, the safeguards management shall be considered for a downgrade to “**Unsatisfactory**” if these pending actions are not satisfactorily concluded by March 31, 2015. The status of LA and R&R implementation matrix is provided below. In addition, the mission suggested to prepare an inventory of all displaced families to record the type of assistance received and identify any gaps in providing support to the displaced families. More details are provided in **Annex 3B**.

**Suggested LA/RR Implementation Progress Matrix for Outstanding Activities**

<table>
<thead>
<tr>
<th>Resettlement of PAPs living in Transit Housing</th>
<th>Resettlement of those displaced families to EWS housing</th>
<th>Complete pending land acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Complete repairs in 2-3 weeks to the proposed houses/Building to be allotted at Vital Nagar housing (NOT DONE).</td>
<td>1. Take a positive decision by August 31, to make eligible for EWS housing among those 20+ families who have second houses but sold out and remaining along Corridor-4 (Adarsh Nagar) (NOT DONE)</td>
<td>1. Deposit compensation amount immediately with Collector as per court order for the pending land acquisition case in Corridor 3 by August 10 (DONE)</td>
</tr>
<tr>
<td>2. Issue provisional possession letters to all 90 eligible PAPs and shift them on temporary basis by August 31 (DONE).</td>
<td>2. Complete formalities for the remaining about 50 families waiting for allotment and issue possession letters by August 31. (NOT DONE)</td>
<td>2. Facilitate payment of compensation to the land owner and take over the land from land owner and handover to the contractor in Corridor 3 by August 31 (DONE).</td>
</tr>
<tr>
<td>3. Complete all formalities for permanent allotment as soon as possible. (NOT DONE)</td>
<td>3. Complete formalities for those 20+ families</td>
<td>3. Sign Tripartite agreement for Transfer of MIDC lands in 60 meters in corridor IV , by August 10</td>
</tr>
<tr>
<td>ineligibile PAPs for shifting out of Transit by August 31 by paying shifting charges (NOT DONE).</td>
<td>having second houses and issue possession letters for EWS house allotment by August 31 (NOT DONE).</td>
<td>(NOT DONE)</td>
</tr>
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</tr>
<tr>
<td>5. Complete eligibility requirements for the balance 36 families and issue temporary possession letters by August 31 (NOT DONE)</td>
<td>4. Resolve on the compensation and rehabilitation assistance for those affected 10+ business in survey No 80 at Adarsh Nagar on Corridor 4 and agree on their shifting mechanism. By September 30 (NOT DONE).</td>
<td>5. Facilitate speedy land acquisition in 1.4 Km stretch through FSI route or compete land acquisition process and takeover land and handover to the contractor by November 30 (NOT DONE).</td>
</tr>
<tr>
<td>6. Dismantle the Transit housing by September 30 (NOT DONE)</td>
<td>6. Based on the court directives complete the actions for taking over of the MIDC land by November 30 (NOT DONE).</td>
<td></td>
</tr>
<tr>
<td>7. Complete all formalities and regularize final allotment by October 31 (NOT DONE).</td>
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**Hubli-Dharwad**: Though the implementation of land acquisition and resettlement is progressing steadily, the mission noted certain shortcoming in the implementation. The mission found that the project is deducting 10% of compensation amount towards Income Tax. The new Land Acquisition act has an explicit provision for not levying the tax on compensation award amount and this was also clarified in the previous missions. As a result of this, the land owners may end up in paying about 30% of compensation amounts towards income tax. The mission also observed that in case of those displaced land owner families, the R&R assistance is not discussed and agreed during the land acquisition negotiations. Some of the displaced families mentioned during the field visits that they were not paid the R&R assistance amounts before their displacement. The project need to look into these shortcomings and comply with policy provisions. The mission advised that M&E consultants to prepare an inventory of displaced land owners with type of R&R assistance provided to them so that adequate R&R assistance is provided. There are also some encumbrances in the two milestone stretches handed over to mixed lane constructions. The social safeguard Management is retained as “Moderately Satisfactory” and will be reviewed during next mission in the context of attending the shortcomings identified during this mission and accordingly will be adjusted as appropriate.

**Naya Raipur**: NRDA has confirmed that 3 small shops will be affected at old Mantralaya pick-up point and this shop keepers will be provided alternative pre-fabricated shops at the same site itself. To ensure that their livelihood is maintained. However, the assessment of impacts at the exit point is not yet completed. As observed during July, 2015 mission, there could be some partial impacts to structures situated along the exit point.
Results Framework Indicators and Monitoring. Following the restructuring of the project in November, 2015, two indicators 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 (December, 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCMC: Percentage of Displaced families that are resettled in alternative houses</td>
<td>401</td>
<td>100% (401 PAFs)</td>
<td>19.20% (77 PAFs)</td>
</tr>
<tr>
<td>HDBRTS: Percentage of PAPs received compensation and R&amp;R assistance</td>
<td>1,155</td>
<td>100% (1,155 PAPs)</td>
<td>63.12% (729 PAPs)</td>
</tr>
</tbody>
</table>

VIII. Procurement, Expenditures and Disbursement Plans

Procurement. Mission noted that revised procurement plan from HDBRTS is received in Nov 2015, which is reviewed and returned with comments. HDBRTS is requested to submit the final procurement plan after complying with the comments. Other IAs who had plan for new activities may submit their revised procurement plans after inclusion of the same and then initiate the procurement process.

- MoUD as implementing agency has already finalized all consultancy contracts at their level. They need to monitor these contracts for timely completion.
- For PCMC, all the contracts are already awarded. However, due to inordinate delay in contract execution by Gammon India, the client had issued a show cause notice after which performance improved for sometime. PCMC will require strong contract management.
- For Mysore city, the DULT has finalized the tender for public Bike Sharing Project (PBS) and in the process of signing the contract.
- For Naya Raipur, all the contracts are already awarded including the procurement of ITS. Close monitoring from project side is required for their timely completion.
- HDBRTS has initiated procurement process for rebid of ITS as earlier tender for the same could not be finalized due to technical non responsiveness. The project needs to process the case expeditiously for early finalization. Besides few consultancy contracts need to be finalized on priority by them.
- Similarly AICTSL is processing for rebid for procurement of ITS for Indore city as earlier tender for the same could not be finalized due to technically non responsive bids. The project has to finalise the same on priority after opening.

For PPR16, the list of contracts awarded between 1st July 2014 to 30th June 2015 is already received from implementing agencies. PPR will be conducted in the month of Jan/Feb 2016 in consultation with the client.

29. There is some progress made in procurement activities as compared with that in last mission though the overall progress is slow, hence the overall procurement rating is upgraded to satisfactory from earlier MS with details as follows:

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

Financial Management

30. The disbursements (excluding advance) stands at 31.67% and 39.00% against IBRD and GEF respectively. The IUFR submission (last submitted till September 2015) is timely. The next IUFR is expected to be submitted before Feb 15 2016. The audit for all PIA’s pertaining to FY 14-15 has been completed by designated auditors and the audit report is likely to be issued to PIA’s by Dec 15 2015. The due date for submission of audit report to Bank is Dec 31 2015 and there is a high likelihood given the present progress that all reports including MoUD will be shared with Bank before the due date.

31. The internal auditors are in place and will be taking up the internal audit for the entire year (ie., backlog since April 2014 till date). The audit committee meeting was last held on November 12th 2015 for discussing the key observations emanating from audit reports for the year 2013-14. With regard to Mysore City Corporation, the budget head has been created for the project with initial allocation of INR 6 crores for FY 15-16. On project audit, necessary actions needs to be initiated by MCC to ensure entrustment of project financial statement audit by March 2016.

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

X. Project Management

33. Project Restructuring. The recent restructuring for extending the Project Closing date to March 31, 2018, has been completed. However, the countersignatures of all state governments and DEA are required to be expedited for the IBRD reallocations and changes to results framework to be effective.

34. Project Management & Staffing. The overall slow progress of the city demonstration projects is symptomatic of weak project management and staffing of PIUs. The rating for Project Management is accordingly retained at MU. Given that the UNDP executed component covering project management costs has a closing date of December 31, 2015, MoUD needs to ensure its extension or provision of alternate resources for continuity of PMU. At the same time, the PMC contract which closes in March 2016 will also require an extension.

Annual Meet. It is proposed to organize the next Annual Meet at Pimpri-Chinchwad where the BRT corridors are now in operation to facilitate knowledge exchange and cross learning among cities. This maybe organized around the next mission in March 2016.

XII. Next Mission for Bank’s Implementation support

35. The next mission is proposed to take place between 7-18 March, 2016.
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. Ms. Rana Amani, Deputy Project Manager, SUTP PMU, MoUD
5. Mr. Rajeev Jadhav, Commissioner, Pimpri Chinchwad Municipal Corporation
6. Mr. Rajan Patil, Joint City Engineer, Pimpri Chinchwad Municipal Corporation
7. Mr. Shrikant Savane, Executive Engineer, Pimpri Chinchwad Municipal Corporation
8. Mr. Salil Srivastava, Chief Engineer, NRDA
9. Mr. L.K. Panigrahi, CPM SUTP, NRDA
10. Mr. Sandeep Soni, CEO, AICTSL
11. Ms. V. Manjula, Commissioner, Directorate of Urban Land Transport, Govt. of Karnataka
12. Mr. C. M. Noormansoor, Commissioner HDMC
13. Ms. Deepa Cholan, Managing Director HDBRTS
14. Mr. R. K. Kataria, MD, KSRTC
15. Mr. Ramamurthy, DC, MCTD, KSRTC
16. Mr. Gururaj, KSRTC
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)
Hubli-Dharwad

1. A World Bank mission visited Hubli-Dharwad on December 3 and 4, 2015 to discuss the implementation of the Hubli-Dharwad BRT project. The meetings were attended by Ms. V. Manjula, Commissioner, DULT; Mr. C.M. Noormansoor, Commissioner, HDMC; Dr. Deepa Cholan, Managing Director, HDBRTS Company; their teams and consultants; and representatives of the PMU and PMC.

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 110 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. **BRT Terminal in Dharwad:** For some time, it was intended to build an elevated transfer terminal at the northern end of the BRT. However, objections were voiced against a solution on viaduct, as it was considered to be visually obtrusive, and it was ultimately decided to build the Dharwad terminal at-grade. Being at-grade, it will provide an operational turnaround for BRT buses and a final BRT station, but no spaces for feeder buses which will mostly use the nearby CBT and OCBS terminals. About 20% of the BRT buses will continue towards the NWKRTC Regional Bus Terminal and thus provide a link with non-urban bus services. Some of the BRT buses would continue from there and serve the Agricultural University.

4. Several options were considered for the terminal, providing up to five loading bays (two for articulated and three for standard-size BRT buses). In addition, space was found in the same complex to permit the layover of about six BRT buses. CEPT submitted a concept design to DULT in August 2015, and detailed designs are expected to be ready by early December 2015. The mission agrees that the proposed terminal could handle the expected demand, provided buses are operated efficiently. As the terminal must be completed when BRT operations start (mid 2017), the mission recommends that the construction contract be awarded as soon as possible, no later than March 31, 2016.

5. **Traffic Signal Designs:** The BRT corridor will include about 40 signalized intersections, i.e. on the average there will be traffic signals every 590 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 about 30 non-BRT intersections will be signalized in the central districts of Hubli and Dharwad).

6. The consultants (IBI) presented typical signal and phasing layouts for the corridor. While this provides some guidance at a very early stage of signal planning, it is important to remember that few intersections along the BRT corridor are “typical” right-angle cross or T-junctions; thus, the final signal design must be prepared on plans that are to-scale. Also, IBI’s typical designs should be expanded to consider the following:

- Consider intermediate skip signal phases for BRT buses to reduce delays.
- Consider single (rather than double) pedestrian crossings across the main road, usually on the side that provides access to the nearest BRT station.
- Prepare typical design for pure pedestrian crossings that would provide safe access to BRT stations at locations where there is no cross traffic. Define guidelines on whether or not to include push-button pedestrian actuation.

7. It has been decided that the C-DAC would do 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. There are some risks with this design-build approach, and it was agreed during this mission that C-DAC should seek approval for each signal design before proceeding with the installation. Given that there are very few BRT systems in India, 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.

It is understood that C-DAC prepared the traffic signal designs for the BRT corridor in Indore. This will be useful, but it is worth noting that the Hubli BRT will have much greater bus frequencies than the one of Indore. Also, especially in the built-up areas of Hubli and Dharwad, the intersections are much more complex. It is therefore strongly recommended that the signal designs be based on professional traffic engineering analyses and reviews.

8. It has been agreed during the April and July 2015 missions that signal design plans, including the signal phasing and timing, should be designed case by case, as each intersection poses its own specific issues and generalized standards would not suffice. These plans should be developed at an appropriate scale, probably 1:500, and should include all elements of traffic engineering such as the locations of mixed-traffic, BRT and pedestrian signals, lane markings, zebra crossings, bollards, traffic signs, and the phasing and timing of the traffic signals, and – where required – proposed modifications of the geometric design of the intersection. As was agreed with the technicians present at previous mission meetings, the signal cycle (probably uniform for all signals) should not exceed 90 seconds, and bus-actuated skip phases might be considered to minimize BRT delays and bunching.

9. DULT agreed that the traffic signal designs should be submitted for approval, prior to their installation. It is envisaged that the contract with C-DAC will be signed in January 2016, and that the detailed designs would be completed two months later. The mission recommends that selected signal design plans (a sample of about 5 locations) be produced quickly and forwarded to the PMU and the Word Bank by January 31, 2016.

10. ITMS. HDBRTS had received two bids which had been found to be technically non-responsive. The tender had been cancelled and DULT/ HDBRTS had organized a potential
bidder workshop to seek feedback on the reasons for the poor response. Based on feedback received a revised RFP was shared and discussed in detail with PMU/PMC and the Bank. The revised RFP incorporating previous comments was discussed and finalized during the mission. The bid document has been issued for a second round of bidding. The ITS procurement timeline was discussed extensively and there was consensus that while responses to RFP should be received by March 9th 2016, the ITS contract should be evaluated and awarded by April 15 2016.

11. The Bank team urged the ITS PMC to ensure the Traffic Signal Provider would have access to Fiber Optic network outside the BRT corridors to be able to connect roadside controllers with Application software at the Control Center.

12. It was understood that the ITS PMC contract will end June 2016. The Bank team concurred with the suggestion to extend the contract to ensure there is continuity in oversight of ITS implementation.

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

13. **About 20% (in monetary terms) of works** being financed by the Bank, has been carried out in 10 contracts being implemented by HDBRTSCL. Nine of the contracts have started, and their progress varies between Nil and 35%. Progress of all ongoing contracts is slow, overall about 4% only in last 4 months (August-November 2015). Designs are ongoing for the tenth one (Construction of Trunk Corridor from Jubilee Circle to Dharwad CBT and of Terminal at Mitra Samaj). The Table at the end gives the overall status of all contracts.

14. HDBRTSCL needs to monitor the Contractors' performance together with its own deficiencies (land / site handing over, issuance of final 'Good for Construction' drawings) closely. The Mission noted lack of initiative by the Contractors to bring out and push for resolving the issues. They need to bring out the issues and push both HDBRTSCL and Project Management Consultant (PMC) for decisions. There did not appear to be urgency by most of the Contractors in progressing and completing the works. Most of the Site staff (specifically for Contracts 8 and 9) does not have any control over planning and availability of resources. The Contractors appear to be having fund flow problem, lack of technical knowledge, and lack of planning. There are some site availability issues at a few sites. In addition, there are issues related to issuance of final 'Good for Construction' drawings for few contracts or part of the contracts. All Contractors are required to vigorously progress the works for early completion. Contractual Works Completion Period has expired for six of the ongoing nine works contracts. HDBRTSCL is required to extend the Works Completion Periods, with conditions if any. The PMC’s quality of services provided at the site level may need to be improved.

15. **PW-1**: This contract for Construction of four 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. The Contractor is presently working at BS-04 and laying kerbs for the Walkways. The Contractor will be able to lay the Footpaths after the Hubli Electric Supply Company (HESCom) lays underground cables and relocates poles. The Contractor can start the works at BS-01 and BS-02 after the road is widened by the Municipality involving acquisition of private land at BS-01 and transfer of government land at BS-02. As because the traffic diversion plan, involving land from North West Karnataka Road Transport Corporation (NWKRTC), could not be agreed with the Traffic Police until now, works at BS-03 (at Rani Chennamma Circle) also could not be started yet.

16. **PW-3A**: The contract for Construction of Four FoBs started on 06 November 2015 with 9 months works completion period. The Contractor has completed the Soil Investigation works at all 4 locations. ‘Good for Construction’ drawings have not been issued to the Contractor yet. In
addition, there is a land issue for the FoB near Prerana College and also the works for the FoB at Rani Chennamma Circle cannot be started due to the traffic diversion plan not being agreed with the Traffic Police as mentioned in the preceding paragraph for PW-1.

17. **PW-3B**: The contract for Construction of Four FoBs, won by the same Contractor for PW-3A, started on 06 November 2015 with 9 months works completion period. The Contractor has completed the Soil Investigation works at 3 locations except at Court Circle in Dharwad City where the Contractor cannot start the works because of land availability issue. ‘Good for Construction’ drawings have not been issued to the Contractor yet.

18. **PW-4** 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) started on 10 November 2014 with 9 months completion period. Present physical progress is 35% of the contract amount. The Contractor has completed the full Drain works, and presently laying kerbs for the Walkways in Navanagar. In 1.3 km in Dharwad, Walkways can be laid after the road works and utility ducts are laid under another project. In about 1.4 km in Navanagar, the Walkways and Street Lighting works can be done after HESCom has removed all poles and laid underground cable. HDBRTSCL is still in communication with HESCom regarding the cost of HESCom’s works.

19. **PW-5** comprising Construction of 13 Bus Stations (BS) at middle of the BRT Corridor width, started on 15 October 2014 with 12 months completion period. Physical progress of this contract has been about 17% of the contract amount. It’s reported that the works at BS-11 (Unkal Lake) can be started after relocation of electrical poles. The Contractor has started works at all other 12 sites. No works are presently being done at a few BSs because of non-availability of labourers. Reportedly, this contract is suffering from shortage of labourers for last 2-3 months. The Mission was informed that the full steel materials are available at site, and fabrication of the steel structures is ongoing. The Mission was informed that this contract works are expected to be completed by June 2016.

20. **PW-6** comprising Construction of 11 Bus Stations (BS) in the middle of the BRT Corridor width, started on 15 September 2014 with 12 months completion period. Physical progress of this contract is 29% of the contract amount. The Contractor is working at 8 locations out of 11. The site at Court Circle (included under this contract in place of BS-24 at Navlur Lake near Road over Rail Bridge deleted from scope of this contract) will be handed to the Contractor after construction of road diversion by HDBRTSCL. The sites at BS-29 (Toll Naka) and BS-30 (Bagalkot) can be handed to the Contractor after construction of the road diversions by HDBRTSCL after resolution of land issues. Out of 8, civil structures completed up to roof beam at 6 sites. Fabrication of 50% of Roof Trusses has been done. The Contractor informed that the works at 8 BSs can be completed by April 2016. HDBRTSCL needs to clarify to the Contractor about laying the flooring and other finishing items pending the works by the ITS contractor.

21. **PW-7**: The site has been finalized for Construction of Terminal at Mitra Samaj in Dharwad. Concept design has been finalized and soil investigation completed. Detailed designs, drawings and cost estimate for Construction of Trunk Corridor from Jubilee Circle to Dharwad CBT and of Terminal at Mitra Samaj are now expected to be ready by end-December 2015. Land acquisition process is ongoing.

22. **PW-8** comprising Depot and Divisional Workshop in Hubli and the Depot in Dharwad, started on 20 December 2013 with 15 months completion period, is progressing very slowly. Physical progress has been about 28% of the contract amount. There were initial delays for reasons beyond the control of the Contractor. The Contractor’s mobilization has been slow as well as progress of works has been lethargic.
Granular Sub Base (GSB) materials are lying spread in Hubli Depot for 4 months, part of which was reportedly compacted and approved. Soil and foreign materials have got mixed with the GSB materials during this long period. The full GSB materials may need to be loosened, screened, materials quality tested and re-laid prior to the Dry Lean Concrete (DLC) works. In Dharwad Depot also, GSB materials spread over last 3 months are lying loose. Soil and foreign materials might have got mixed with GSB materials, thus require materials screening and tests before re-laying and completion. Labourers were noticed to be working without wearing Shoes and Gloves. The Contractor is required to re-submit its Methodology for laying DLC and Pavement Quality Concrete (PQC) as well as submit Concrete Mix Designs for the same. The PMC informed that the sites are suffering from Skilled Manpower like Bar Benders, Carpenters, Masons, Construction Materials like Cement, Bricks, Sand, Reinforcement Steel, Staging and Shuttering Materials, and Cash Flow. The Contractor is required to procure large amount of Structural Steel also and get fabrication done. The Contractor is required to carry out efficient planning, increase its resources, and manage its resources efficiently for higher productivity. It requires progress the works vigorously simultaneously in all 3 sites.

Both the Contractor and the PMC expressed that all works at Hubli Depot site can be completed by 31 March 2016. For Dharwad Depot site, the Contractor expressed that it would be able to complete all works by April 2016, whereas the PMC’s Site Engineer assessed that the works may not be completed prior to December 2016. For Divisional Workshop, both the Contractor’s site In-charge and the PMC expressed that the works at this site can be completed by June 2016 provided all resources are available timely.

PW-9 for Re-construction of OCBS (Old Central Bus Station) at Dharwad, started on 05 September 2014 with 12 months completion period. Its physical progress has been only about 13% of the increased contract amount (variation of INR 18 million worth of works). Reportedly, the Engineer has issued three Notices to Correct asking the Contractor to show Improvement in Progress. The expectation of improved progress in this contract with the change in the Site Management around July 2015, has not been met. The PMC informed that the site is suffering from Skilled Manpower like Bar Benders, Carpenters, Unskilled Labourers, Construction Materials like Cement, Sand, Reinforcement Steel, Aggregates, Technical Staff like Licensed Electrical Engineer, Environmental and Safety Personnel. The Contractor is required to submit its Methodology for laying DLC and PQC as well as Concrete Mix Designs for the same. The Contractor has submitted a revised Work Program in September 2015, which is not resource-based thus reasonableness of the Program cannot be assessed. The Contractor has claimed for an Extension of Time (EoT) until 31 July 2016 and expressed that it would complete all works by that time. The Contractor is required to carry out efficient planning, increase its resources, and progress vigorously in order to complete all works early.

PW-10 for Construction of Hosur Interchange started on 15 May 2014 with 18 months completion period. Its physical progress has been about 29% of contract amount. The Contractor had submitted, in May 2015, a Broad Program in the form of Bar Chart showing completion of all works by August 2016, and has claimed an Extension of Time (EoT) for completion of all works until September 2016 which is under review by the PMC. The Contractor did not appear to have initiative to resolve the issues. It should push both HDBRTSCL and the PMC to resolve the issues and progress the works fast. Reportedly, a total of 20,000 cum of Concrete works are still to be made. Considering the average output of the Contractor’s Concrete Plant @100 cum per day, the Concrete Works itself would take 200 days means about 8 months. Another critical activity is fabrication of Mushroom Columns. Presently, the Contractor has 2 Fabrication Teams (each of 15 persons) and present speed is @20 days per Column. The Contractor informed that it would mobilize 6 Teams for fabrication. Considering 6 Teams and assuming a better production @15 days per Column, it would take about 7-8 months to fabricate the remaining about 80
Columns. The Contractor is also required to increase its Labourer strength for finishing works in the buildings.

27. The Mission was informed that some works cannot be taken up due to non-availability of drawings and information. Pavement works in C-Block are on hold due to non-availability of final layout. Final internal layout drawings for Divisional Office building in B-Block are pending. Plastering and flooring works in toilet block below kiosk in grid A5-A-6 are held up in absence of ITS cable layout. Final location drawings for Underground Water Tank works in D-Block and for Fuel Station Washing Ramp Inspection Pit are pending. Water Consumption data required for Supply of Domestic Water Treatment Plant. Details of the Connection between Bore Well and Underground Water Tank are pending.

Works being / to be implemented through Karnataka Road Development Corporation Limited (KRDC) (not financed by the Bank)

28. Complete length of about 19 km long BRT corridor along Hubli-Dharwad Highway is being implemented through KRDC, except the Bus Stations and Foot Over Bridges (FoB) therein.

29. The 4-laning works of Hubli-Dharwad Highway (the BRT Corridor) started in September 2012 after making necessary design changes to fit the BRTS. 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 the Mixed Traffic Lanes being constructed under a separate contract. 2 x 7.5 km of Concrete Pavement has been constructed, out of 2 x 11.75 km of Concrete Pavement proposed. Concrete Pavement could not be laid in length of about 1.9 km due to proposed Flyovers, in about 1 km for RoBs at Navlur 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 Dharwad city areas could not be completed 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. No further works are presently being carried out under this contract.

30. KRDC is required to engage an agency(ies) for completion of the remaining works of this contract in the stretch of about 1.6 km from Gateway Hotel to Sena College and in about 7.09 km in Hubli and Dharwad city areas (exclusive BRT corridor). The Mission was informed that two options – (i) terminate the present contract and invite new bids, and (ii) continue with the present Contract with new Rates – will be considered by the KRDC Board. Based on the decision by the KRDC Board, further steps will be taken in this regard.

31. The Contract for Construction of Mixed Traffic Lanes on Hubli-Dharwad Highway (SH-73) started on 23 March 2015 with 18 months completion period. KRDC has handed to the Contractor 1st Milestone stretches (4.32 km on Left and 5.511 kms on Right) on 23 March 2015 and 2nd Milestone stretches (4.87 kms on Left and 3.07 kms on Right) on 22 August 2015. The contract is flawed to the extent that it does not specify the Site Handing Over (to the Contractor) dates for subsequent Sections / Milestone stretches, although it specifies the Completion Dates for those. In absence of stipulation of Site Handing Over Dates in the contract, those are being considered / interpreted arbitrarily. The Contractor has carried out works worth 1.5% of the contract amount only in 8 months. It’s reported that presence of Water Pipeline (relocation in progress) on the Left is hampering progress of works in the stretches handed to the Contractor. Presence of Underground Utilities and Structures is also hampering the progress in the handed 2nd Milestone stretches. The Contractor has started works in about 3 kms length out of about 8.9 kms handed to it. It has started works at 5 Culverts only out of a total of 37 Structures (36 Culverts and 1 Minor Bridge).
32. Contract for *Construction of Three Flyovers* started on 05 November 2014 with 14 months completion period. The July 2015 Mission was informed that Encumbrance-free site for Flyover 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. The Contractor has made good progress of completing all the Sub-structures and presently the works for superstructures are ongoing at this site. The site for the Flyover at Unkal Lake was handed to the Contractor on 14 September 2015. Although reportedly there is no encumbrance in the flyover alignment at Unkal Lake, there exist private properties, buildings, temples and electric poles in the areas where the Contractor is constructing the Diversion for vehicular traffic movement. The site for Construction of Flyover at Unkal Cross requires a temple to be relocated, demolition of some small structures and relocation of electric poles.

33. 2-lane wide *Road over Rail Bridge (RoB)* is proposed to be constructed on both sides of the existing 2-lane RoB near Navalur. Approval of the General Arrangement Drawings (GADs) has been received from the Railways. KRDCL has invited the Bids for Construction of the RoBs (including approaches) on 13 November 2015. It’s now expecting to award the contracts by February 2016. Assuming the 14 month’s time period stipulated for works completion, construction of the RoBs may be completed by April 2017 earliest. However, this time schedule is quite optimistic and challenging. Detailed designs and drawings, which are under preparation, will be required to be reviewed and cleared by a Proof Consultant recommended by the Railways and thereafter to be cleared by the Railways. The engaged Contractor’s work progress will depend upon availability of final drawings as well as unencumbered site. Process for acquisition of private lands by HDBRTSCL is in progress. The Mission was informed that Relocation of Water Pipelines by Karnataka Urban Water Supply and Drainage Board (KUWS&DB) is likely to be completed by January 2016. Relocation of Electric Poles can be done only after acquisition of land. KRDCL is planning to invite proposals for the Project Management Consultant (PMC)’s services for this RoB contract.

**Environment**

34. The mission visited BRT Infrastructure sites including depots and locations along the trunk corridor where grade separators are being constructed. It also visited locations where NMT improvements are underway. A follow-on meeting with Directorate of Urban Land Transport (DULT), GoK, and HDBRTSCo officials was also organized in Bengaluru where the mission discussed its findings, and agreed on the steps for the way forward.

35. The mission noted that the works along the BRT corridor have now started showing some progress with fronts opened for – i) mixed traffic lanes, and ii) grade separators in 3 locations.

36. **Site Safety**: The mission noted that HDBRTSCo has started requiring contractors to improve barricading of the grade separator sites resulting in safer work environment, but slightly more congested traffic moving area. There are now emerging challenges as construction of Mixed Traffic Lane (MTL) and on-site facilities like Interchanges is happening simultaneously. Since it has been decided that instead of diverting the traffic into the city, MTL space will be used, for example near Unkal cross to allow passage of traffic. The mission advised that this situation will need careful planning for safe passage of road users, and construction vehicles as well as laborers. It was agreed that the PMC will review both Contractors’ plans and advise HDBRTSCo if any changes are required to ensure that risks to safe passage are minimized.
37. For the BRT infrastructure, there are issues of workers’ safety in the Bus-station construction where provision of Personal Protective Equipment like shoes and hard hats needs better enforcement. In addition, since the contracts are running for a long time, the safety measures along the road edges need reinforcement – for instance illumination of the edges of the barricading in some locations.

38. Reuse of Debris from the road: The mission was informed that the embankment for the proposed bridges over the railway at Navalur would be constructed using debris. The mission also discussed the use of other waste from existing roads, currently being stored by the Contractor for MTL, for a double benefit of reducing waste disposal quantity and fresh fill requirements. It was agreed that subject to the suitability from a safety/engineering perspective, this would be informed to all bidders in the pre-bid conference in mid-January 2016.

39. Plantation under the Green BRTS Plan: The mission was informed that HDBRTSCo allowed for less plantation this year due to poor rains. Only 2000 new saplings were planted. The shortfall would be covered next year, subject to water availability. The mission agreed with this as it reduced wastage of saplings. It further requested HDBRTSCo to work closely with the Forest Department to ensure that survival rate which has shown some improvement previous year does not deteriorate. It was agreed that the information about this would be shared with the Bank.

40. Environmental Audit: While the highlights of the Audit report are yet to be shared with the Bank formally as part of the QPR, it was discussed that the compliance to remove/reduce deficiencies observed should be prepared. It was agreed that the HDBRTSCo will prepare the same with assistance its PMC and share the same with the Bank. In particular, all Contractors for the project must be required to ensure that the regulatory permits are current for the duration of the contract/project and the evidence for the same must be collected and maintained by KR DCL and/or HDBRTSCo.

41. EA Addendum Documentation: The mission reviewed the revised Addendum to the EIA/EMP document and provided comments on it to the DULT and HDBRTC. The document is almost finalized and needs to be shared with the Bank formally for its review and go-ahead for disclosure. It was agreed that this would be done soon after the site visits are completed.

42. A second Addendum to the EA documents would be prepared for the Mitra Samaj Terminal and the proposed spur to Dharwad Agricultural University and shared with the Bank by 31st January 2016.

43. Monitoring and Reporting on Environmental aspects, including Safety: The PMC has a full time environmental specialist based in Hubli-Dharwad providing oversight for the Mixed Traffic Lanes, in addition to the Infrastructure works. It reiterated its suggestion that there should be formal coordination meetings on the issues around workers’ and general public safety close to work site, as well as EMP implementation with all stakeholders, including relevant officials of HDMC, whenever needed.
Social

The key progress in land acquisition and R&R Implementation is summarized below.

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<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>
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<td>20.19</td>
<td>(76.62%)</td>
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<tr>
<td>2</td>
<td>Government land Transfer (in acres)</td>
<td>45.34</td>
<td>45.17</td>
<td>(99.60%)</td>
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<tr>
<td>3</td>
<td>No. of land owners received compensation</td>
<td>575</td>
<td>382</td>
<td>(66.40%)</td>
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<td>4</td>
<td>No. of Non-title holders/ Tenants received assistance</td>
<td>580</td>
<td>347</td>
<td>(59.82%)</td>
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<tr>
<td>5</td>
<td>Assistance for relocation/reconstruction of religious structures</td>
<td>17</td>
<td>9</td>
<td>(52.94%)</td>
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<tr>
<td>6</td>
<td>Financial Progress (INR. In Millions)</td>
<td>2,400</td>
<td>1,265</td>
<td>(52.71%)</td>
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</tbody>
</table>

**Land Acquisition.** The project has come long way in completing the land acquisition as summarized above. Some of the delays are due to the fact that land owners are not able to submit the ownership documents and are taking time to produce those documents. The mission once again retreaded that compensation paid under consent award should be compared with the compensation due under new act, so as to conclude that compensation paid under consent award is not lower than compensation due under new Act. The mission clarified that while estimating compensation under new act, the reference date to be reckoned for arriving at market value is January 01, 2014, as clarified by Department of Land Resources, GOI, and the nodal department for new act. A copy of the clarification provided by DOLR, was shared with HDBRTS.

**Construction of Mixed Lane.** Though two out of three milestone stretches are handed over to the contractor, the stretches are not free of encumbrances. In case of first milestone, one stretch is not handed over due to pending court case. In case of second milestone stretch, the pending encumbrances include: resistance from one of the non-title holder and pending land acquisition award involving 20 landowners in Lakamanhalli, pending General award in Unkal Zone 5 and 6, pending Wakq Board land. In case of third milestone, still about 3 Kms stretch is not available. The mission suggested that a joint field visit by contractor, KRDCL and HDBRT should be undertaken to identify the encumbrances on the ground to record the list of encumbrances and sign jointly by all parties, so that HDBRTS can concentrate in attending those encumbrances.

**R&R Impacts.** As on date 60% of 480 non-title holders including tent have received R&R assistance so far. The RPF provides a provision for discussion on the quantum of R&R assistance with displaced land owners. However, this is not being followed and instead, only the amount payable to non-title holders is being paid. In some case these payments were also not paid. The details of displaced land owners is not available. It was informed that there are about 25 displaced land owners. The mission suggested that an inventory of displaced land owners need to be prepared with details of R&R assistance paid and discuss with them to provide any additional support is need to enable them for smooth transition in their relation.  

**Impact on Religious Structures** As many as 17 religious structures will be affected either fully or partially. As on date 9 structure (53%) are either shifter or likely to be shifted as theory reconstructed is completed. Reconstruction is in progress in case of another 4 temples. There
continue be resistance in case of Dargha and three other temples. HDBRTS informed that appropriate measures will be taken to shift those 4 structures where there is resistance, when the progress in the remaining temples and road construction is advanced. Once an agreement is reached with Dargha committee owners, the other temples will come forward to agree on the same line of agreements made in Dargha.

**Concerns of Dharwad Land Losers Association.** This group continue to put forward their grievances and also met the project and Bank Team during the mission. Their grievances include not limited to: compensation rates are not in line with market rates, provide alternative land for construction of affected shops, consider other alignment options to avoid impacts to their business, provide additional FSI, relax fire safety and set back norms for reconstruction of shops, take safety measures while shifting electric poles, etc.

**Addendum to RAP.** The addendum containing an updated land acquisition and resettlement impacts, consultations held as part of alignment changes with PAPs of Dharwad and revised time tables is now approved and disclosed. DULT will confirm to the Bank the approval of addendum with disclosure details. It was clarified to the mission that a budget of Rs. 2400 million has been approved by the Government and hence the approval of RAP is not required Government approval and will be approved at the level of DULT. In case additional budget is needed, then DULT/HDBRTS will approach the Government. The mission clarified that in case the social screening for Jubilee Circle Terminal and BRT extension to Agricultural university triggers land acquisition and resettlement impacts, an additional Supplementary Note need to be prepared to document the impacts and its mitigation measures.

**Field Visits.** The discussions with displaced land owners during the field visit reveal that: (i) all 3 people whom the mission met confirmed the receipt of compensation amount, but income tax has been deducted; (ii) the people informed that were not paid any R&R assistance; (iii) Among these three, one has has taken a house on lease, while another has moved into a rented house and third land owners has temporarily adjusted in his relative houses These people confirmed that they have received stamp duty exemption certificates. Some of the people also mentioned that safety measures were not followed while shifting the electric poles and some allege that deductions were made in case of certain steel items in the structure valuations. The HDBRTS should look into these and provide clarifications as needed.

**Concurrent Monitoring of RAP implementation.** The mission interacted with concurrent monitoring consultants. They have now submitted 8 progress reports summarizing their field visit observations. The HDBRTS/DILT is not sharing these report with the Bank. The mission advised that M&E consultants to focus on: (i) preparing inventory of those displaced land owners and how they have made self – relocation arrangements and also the details of R&R assistance received by them; (ii) verify whether the land owner have receive the stamp duty exemption in case they want to buy the property with compensation amounts; (iii) also undertake analysis of land owners by extent of land lost and compensation received; and, (iv) assist the HDBRTS to compile the compensation paid under consent award and compensation payable under the new Act to ensure the payment of short fall amount, if any.

44. **BRT Implementation Schedule:** The Mission reviewed the sub activities and their likely completion dates i.e. BRT implementation schedule.
   - Complete all land acquisition – March 31, 2016
   - Shifting of Utilities – June, 2016
   - Balance work on BRT corridor – July 2016
   - Construction on mixed traffic lanes - Dec 2016
   - Construction of all three flyovers – June 2016
• Construction of ROB – Sep 30, 2017
• Construction of BRT bus stations – July 2016
• Construction of Depots and Workshop to be over by July, 2016
• Construction of OCBS and terminal – March 2016
• Completion of work on NMT facility – March 2016
• Constructions of BRTS station and pedestrian infrastructure between Hosur to Railway station – June 2016
• Dharwad Terminal – March 2017
• Installation of ITS – February 2017
• Delivery of standard buses – May 2016
• Delivery of articulated buses – October, 2016

Key Agreed Actions

• Preparation of Jubilee circle terminal detailed design – Dec 22; Issue of bid documents – December 31
• Submit detailed traffic signal and traffic engineering designs for about 5 sample locations along the BRT corridor – Jan 31
• Finalise contract for Traffic Management – Jan 31
• Issue ITS prebid queries/ Final award – Jan 25/ Apr 15
• Finalise contracts for RoB/ balance work on 4laning – Feb 28
• Approval and disclosure of RAP/EMP Addendum – December 15, 2015
• Ensure EMP compliance in terms of worker safety, cordonning of work sites etc – Continuous
• Note on additional land acquisition and R&R impacts due to Dharwad Terminal and proposed mitigation measures for Bank’s review – Dec 31, 2015
• Inventory of Displaced land losers with type of R&R assistance provided – Dec 31, 2015
• Completion of all LA consent awards – Dec 31, 2015
• Completion of all LA general awards – Jan 31, 2015
• Completion of all R&R assistance payments – Feb 15, 2016
## Annex 2A
**SUTP : Hubli-Dharwad : Status of Civil Works Contracts under the World Bank Funding**

<table>
<thead>
<tr>
<th>Package</th>
<th>Name of Works</th>
<th>Contractor</th>
<th>Contract Amount / Estimated Amount (INR Millions)</th>
<th>Works Start Date</th>
<th>Scheduled Works Completion Date</th>
<th>Value of Works Done (INR Millions)</th>
<th>Physical Progress % of Contract Amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW-1</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</td>
<td>04Apr15</td>
<td>03Apr16</td>
<td>3.3</td>
<td>3.8%</td>
<td>Works cannot start at 3 Bus Stations and for Walkways</td>
</tr>
<tr>
<td>PW-3A</td>
<td>Foot Over Bridges (4 numbers)</td>
<td>Swarna Techno Construction Private Limited, Hubli</td>
<td>100.8</td>
<td>06Nov15</td>
<td>05Aug16</td>
<td>Nil</td>
<td>Nil</td>
<td>Final drawings not issued. Works cannot start at two sites.</td>
</tr>
<tr>
<td>PW-3B</td>
<td>Foot Over Bridges (4 numbers)</td>
<td>Swarna Techno Construction Private Limited, Hubli</td>
<td>118.2</td>
<td>06Nov15</td>
<td>05Aug16</td>
<td>Nil</td>
<td>Nil</td>
<td>Final drawings not issued. Land issue at one site.</td>
</tr>
<tr>
<td>PW-4</td>
<td>Non Motorized Transport (3.2 km long in Dharwad and at Navanagar)</td>
<td>Suprada Construction Company, Dharwad</td>
<td>124.2</td>
<td>10Nov14</td>
<td>09Aug15</td>
<td>43.6</td>
<td>35.1%</td>
<td>Most of the works on hold, beyond the control of Contractor</td>
</tr>
<tr>
<td>PW-5</td>
<td>Bus Stations (13 numbers)</td>
<td>Rajdeep Buildcon Private Limited, Ahmednagar,</td>
<td>140.7</td>
<td>15Oct14</td>
<td>14Oct15</td>
<td>23.8</td>
<td>16.9%</td>
<td>Works cannot start at One Bus Station</td>
</tr>
<tr>
<td>Package</td>
<td>Name of Works</td>
<td>Contractor</td>
<td>Contract Amount / Estimated Amount (INR Millions)</td>
<td>Works Start Date</td>
<td>Scheduled Works Completion Date</td>
<td>Value of Works Done (INR Millions)</td>
<td>Physical Progress % of Contract Amount</td>
<td>Remarks</td>
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</tr>
<tr>
<td>PW-6</td>
<td>Bus Stations (11 numbers)</td>
<td>Suprada Construction Company, Dharwad</td>
<td>115.8</td>
<td>15Sep14</td>
<td>14Sep15</td>
<td>33.7</td>
<td>29.1%</td>
<td>Works cannot start at 3 Bus Stations</td>
</tr>
<tr>
<td>PW-7</td>
<td>Construction of Trunk Corridor from Jubilee Circle to Dharwad CBT and of Terminal at Mitra Samaj</td>
<td>Shreehari Associates Private Limited, Aurangabad, Maharashtra</td>
<td>200 (approximate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Concept design finalized. Soil investigation completed. Detailed designs, drawings and cost estimate are under preparation. Land acquisition process ongoing.</td>
</tr>
<tr>
<td>PW-8</td>
<td>Depot at Hubli</td>
<td>Shreehari Associates Private Limited, Aurangabad, Maharashtra</td>
<td>564.5 + 11.7 (variation)</td>
<td>180.4 + 11.7 (variation)</td>
<td>20Dec13</td>
<td>19Dec14</td>
<td>67.3</td>
<td>35.0%</td>
</tr>
<tr>
<td></td>
<td>Depot at Dharwad</td>
<td></td>
<td>109.8</td>
<td>20Dec13</td>
<td>19Mar15</td>
<td>160.8</td>
<td>28.7</td>
<td>27.9%</td>
</tr>
<tr>
<td></td>
<td>Divisional Workshop at Hubli</td>
<td></td>
<td>274.4</td>
<td>20Dec13</td>
<td>19Mar15</td>
<td>64.9</td>
<td>23.7%</td>
<td></td>
</tr>
<tr>
<td>PW-9</td>
<td>OCBS (Old Central Bus Station) at Dharwad</td>
<td>Shreehari Associates Private Limited, Aurangabad, Maharashtra</td>
<td>148.7 + 18 (variation)</td>
<td>05Sep14</td>
<td>04Sep15</td>
<td>21.1</td>
<td>12.7%</td>
<td></td>
</tr>
<tr>
<td>PW-10</td>
<td>Hosur Interchange</td>
<td>Rajdeep Buildcon Private Limited, Ahmednagar, Maharashtra</td>
<td>416.5</td>
<td>15May14</td>
<td>14Nov15</td>
<td>121.3</td>
<td>29.1%</td>
<td>Some works cannot be taken up in absence of final drawing/info</td>
</tr>
</tbody>
</table>
## Annex 2B

### Status of Works being / to be implemented through KRDC and not financed by the Bank

<table>
<thead>
<tr>
<th>Name of Works</th>
<th>Contractor</th>
<th>Contract Amount / Estimated Amount (INR Millions)</th>
<th>Works Start Date / Expected Start</th>
<th>Works Completion Period (months)</th>
<th>Value of Works Done (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>24</td>
<td>349</td>
<td>29.3%</td>
<td>No further works are being carried out under this contract. Remaining works could not be done due to encumbrances and Structures to be constructed.</td>
</tr>
<tr>
<td>Construction of Mixed Traffic Lanes on Hubli-Dharwad Highway (SH-73)</td>
<td>RNS Infrastructure Limited, Hubli</td>
<td>1469.3</td>
<td>23Mar15</td>
<td>18</td>
<td>22Sep16</td>
<td>22.7</td>
<td>1.5%</td>
</tr>
<tr>
<td>Flyovers at Unkal Cross, Unkal Lake and Navanagar</td>
<td>Rajdeep Buildcon Private Limited, Ahmednagar, Maharashtra</td>
<td>359.5</td>
<td>05Nov14</td>
<td>14</td>
<td>04Jan16</td>
<td>58.4</td>
<td>16.2%</td>
</tr>
<tr>
<td>Road over Rail Bridges (RoBs)</td>
<td></td>
<td>441.5 (estimated)</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td>Bids invited on 13Nov15. Detailed designs and drawings under preparation, to be cleared from the Railways. Process for acquisition of private lands is in progress. KUWS&amp;DB works ongoing. Relocation of electric poles can be done after acquisition of land.</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 December 1 and 2 to discuss the implementation of the Pimpri-Chinchwad component of SUTP. The Mission was joined by the Country Operations Advisor, Mr. Michael Haney. It met the Commissioner of PCMC, Mr. Rajeev Jadhav; CMD, PMPML, Mr. Abhishek Krishan, Joint City Engineer, Mr. Rajan Patil; and their staff and consultants; also present were Mr. I.C. Sharma, National Project Director of SUTP and his Project Management Consultants, and ITDP which is providing assistance with the BRT Project. On Dec 2, a meeting was held at PCMC, with Dy. Police Commissioner (Traffic) Mr. Sarang Awad and his team, to discuss the issues around traffic signals and intersections along the BRT. The mission carried out site visits along Corridors 2 and 3 and also visited all the terminal facilities and some of the bus stops.

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,

3. 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, PCMC has now launched Corridor 2 in September, 2015 and subsequently Corridor 3 in November 2015. Launch of Corridor 1 will take place in early 2016 and Corridor 4 in 2017.

World Bank Supported Project

Corridor 3 (Nashik Phata - Wakad): Construction Progress

4. This BRT Corridor of about 8 km length is being constructed under 7 works contracts, out of which only Contract I (costing about 45% of total cost of 7 contracts) is being financed by the Bank. The Table hereafter presents the overall status of the 7 contracts in this corridor. **Overall progress is about 87%** of likely total amount of seven contracts. BRTS has been commissioned on 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. Ramp 2 connecting the Nashik Phata Flyover and Mumbai-Pune Highway (NH4) and Pedestrian Facility for travel between ground level on NH4 and Corridor 3 at higher level, are likely to be ready not earlier than early-2017.

5. **Contract I: Interchange at Nashik Phata (Bank-financed):** Progress of this contract was satisfactory. All works except Ramp 2 were complete long back. In view of non-availability of additional land, an alternative layout was prepared for Ramp 2. The revised General Arrangement Drawing (GAD) was issued to the Contractor on 13 November 2014. Because of the objections raised by abutting locality people, the works could not be started. Taking account
of the objections made by the local people, the GAD was further modified by incorporating a Pedestrian Underpass on the Right Side (Pune side) and final GAD was approved / issued on 14 August 2015. The Contractor has almost completed the utility (storm water, water supply and electrical) relocation works on the Right Side (Pune side), and expecting to start the works for the Ramp on this side shortly. The Contractor informed that it would complete the works on Right Side in another 9 months. A part of the land required for construction of the Ramp on Left Side (Mumbai side) is still not in possession of PCMC and thus could not be handed to the Contractor. The Contractor has completed storm water drain relocation works on Left Side. The Contractor has claimed Extension of Works Completion Period until 31 December 2016, which is under consideration by the PCMC.

6. The Contractor had made several Claims, which were not agreed to by the PCMC and thus Disputes arose. Dispute Adjudication Board (DAB) was not established under 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 has submitted its ‘Statement of Claims’ in August 2015. PCMC has not submitted its ‘Response’ until now and sought extension of time for submission of the same.

7. The Mission learned that the Project Management Consultant (PMC)’s services have not been extended beyond 31 August 2015, and the PCMC officials are directly looking after the Contractor’s works.

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

9. Contract III: All works have been completed except for 260 m length where required land on one side has only recently become available. Bids for the works in that 260 m length have been invited. The works may be completed by end of 2016.

10. 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. Single bid for these works of 14.4% higher than the estimated cost, received on 15 March 2014, was not accepted by PCMC. PCMC had prepared revised design with improved specifications, bids for which have been received on 15 September 2015. The lowest bid is 35.1% below the estimated cost. The Mission was informed that the bids have been awarded. Works are not likely to be completed prior to early-2017.

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

12. Dedication of Corridor: The works for erecting Railing-type Separator to create physically separated exclusive BRT Corridor have been completed except for the 260 m length where the road works have not been completed.

13. Corridor 4: 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 65% of total cost of eight contracts. There is no likelihood of the full length of the BRT Corridor being available for plying of Buses prior to mid-2017.
14. *Contract I*: All works are complete.

15. *Contract II*: Land for this 1.4 km long contract is not available, and therefore no work has been carried out. The Mission was informed that the works can be completed by the selected Contractor in about 12 months after the land is handed to the Contractor.

16. *Contract III: Empire Estate Flyover (Bank-financed)*: Progress of this contract is highly unsatisfactory. Since start in April 2011, the progress is only 49.9% (in monetary terms) of revised contract amount until 30 November 2015. Components V and VI, ascending and descending Ramps in Empire Estate stretch, costing INR 95.6 million, are presently on hold because of objection by the Empire Estate community. Thus, progress works out to 55.3% (in monetary terms) of the Value of Works excluding Components V and VI. It’s understood that the Payment Schedule is little back-loaded, and thus, the actual progress may be assumed somewhat higher. Even considering the delays caused due to changes in general arrangement made by PCMC and in handing over encumbrance-free lands to the Contractor, the progress by the Contractor has been very low. Reportedly, the slow progress has been mainly due to inadequate financial inflow for execution of works. The Contractor has been suffering from financial problems since start of the contract. Because of shortage of fund, the Contractor is unable to utilize its resources to its potential. Non-availability of required Machinery, Labourers and Materials has slowed down the progress.

17. Following PCMC’s Notice (dated 24 March 2015) to Correct under Clause 15.1 of the Contract asking the Contractor to show desired planned improvement in progress by 28 April 2015, the Contractor submitted its response on 27 April 2015 together with a Work Program showing completion of all works (except Components V and VI, which are on hold) by December 2015.

18. The Works Completion Period for the Contract has been extended until 31 December 2015, as claimed by the Contractor, however freezing the Price Adjustment as on 30 April 2015 except for the Rail over Road Bridge (RoB). Present progress of works is much behind the Program submitted by the Contractor on 27 April 2015. Progress since the last Bank Mission in late July 2015, as reported, has been 6.2% (in monetary terms) of Value of Works (excluding Components V and VI) in 4 months from 29 July to 30 November 2015. It’s reported that the works are held up presently at multiple fronts because of non-payment by the Contractor to its vendors. The Contractor is required to vigorously progress the works concurrently, besides in the areas presently some works are ongoing, in various fronts like Approach to the Bridge across Pawana River, the Bridge across Pawana River, and the Road over Rail Bridge (RoB), where the works are standstill presently.

19. Although full land for Approach to Bridge across River Pawana under Component 1 was handed to the Contractor in December 2013, the Contractor started the works therein towards end-March 2015 and stopped thereafter due to scarcity of resources. The Contractor is required to urgently re-start the works in this stretch.

20. The Contractor had mobilized a specialized agency for works for Bridge across River Pawana, which was withdrawn during the monsoon and has not mobilized post-monsoon yet. It’s understood that the Contractor is yet to make some payments to the Agency. The Mission was informed that the Agency is likely to re-mobilize shortly after receipt of part payment. Five superstructure spans are yet to be cast. With the resources for staging and shuttering (2 sets) available with the Contractor and the Agency together, as reported to the Bank Mission, there is a
likelihood of completion of all remaining works for the Bridge during December 2015 to May 2016 before the onset of monsoon, provided the financial and material requirements are timely provided by the main Contractor and the Agency is able to perform in the same speed (45 days time cycle for one span) as it has done earlier.

21. The works for the RoB is standstill now. On one end, because some miscreants had cut the reinforcement bars protruding up from the Piles, further works are held up. A technical solution is proposed to be submitted to the Railways for their approval. On the other end, the Load Test on the Piles is held up reportedly due to non-payment to the concerned vendor. In addition, the Contractor has not submitted yet its Erection Plan to the Railways seeking the ‘time blocks’ for erection of the superstructure. The Contractor needs to plan considering realistically the ‘time block’ likely to be allowed by the Railways based on the experience of construction of similar structures nearby on the same rail corridor. This has a potential of delay in completion of the RoB, if the Railways’ clearance cannot be obtained in time. Fabrication for the superstructure of the RoB is on hold now.

22. PCMC is required to resolve the issue of obstruction / opposition created for works at P17 by a Land Owner who claims of not been compensated for full land yet.

23. The PMC presented during the Mission, a broad Work Program based on the Contractor’s planning, targeting Completion of all Works by July 2016. It’s based on sustained achievement of maximum progress (erection of 40+ superstructure segments, in comparison to erection of 20 segments on average per month in the past) from December 2015 onward, which is a feasible program as opined by the PMC. However, the Contractor has never been able to sustain its progress over a long period because of its financial problem. Financial flow is the main issue to be resolved for this contract. The Contractor may need to arrange for additional cash inflow than what it receives from the PCMC, as required. In case erection of superstructure segments progress at the same speed as progressed earlier @ 20 segments per month on average and assuming timely progress of both the RoB and the Bridge across River Pawana, all works may be completed by around March 2017.

24. Written brief report on this contract presented to the Mission is inadequate and lacks key information required to review performance of the contract. The Mission would prefer a brief Report containing, besides the information presently being provided, (i) important contract data, (ii) an S-curve showing month-wise and cumulative ‘planned target’ as per approved work program prevailing in the respective month and ‘achievement’ (both in terms of ‘total value of works’) since start of the contract, (iii) current issues together with PCMC and PMC’s recommendations and actions agreed, (iv) Contractor’s available resources and PCMC and PMC’s comments thereon, (v) information on variations, claims, disputes if any, and (vi) annex the Minutes of Monthly Review Meeting.

25. Contract IV: Works are ongoing. Land is not available for 60 m of private land.

26. Contract V: All works under this contract are complete.

27. Construction of Bus Stops: Both the contracts are ongoing.

28. 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.
Observations on Rainbow BRT in Operation

29. BRT bus operations started on Corridor 2 (Sangvi Phata – Kilwale) 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 probably the most heavily traveled in India. The current mission inspected sections of the two corridors. Before that, the Bank’s BRT specialist visited Pimpri-Chinchwad October 5-9 and shared their technical observations. Below are the mission’s observations, including those elements of the previously shared observations which have not yet been acted upon.

Road and Station Infrastructure

- **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. The mission recommends that PCMC define a time-bound action program to fix up these intersections and send it to the PMU and the Bank by January 15, 2016.

- **Key Corridor 2 intersections:** The intersections at Jagtap Dairy (with Corridor 3) and Kalewadi Junction (with Corridor 4), and also at Dange Chowk it seems, were implemented piecemeal: (i) design prepared as part of the main road (Aundh-Ravet), (ii) design prepared as part of the side road, (iii) modifications during construction, and (iv) further modifications requested by the Traffic Police. The resulting geometric layout is disjointed and hazardous, especially for pedestrians. The mission recommends that each intersection be redesigned as a unit, and that modifications be made to the current curb alignments, traffic islands, crosswalks, and pedestrian signals. It recommends that PCMC send the designs to the PMU/Bank by January 15, 2016.

- **The busway pavement** is in bad condition at various locations. It should be patched as needed, and full rehabilitation of some stretches should be envisaged (and budgeted) for 2016-2018. The mission recommends that PCMC explore options to strengthen the pavement so it can accommodate the frequent repetitive heavy-axle loads. In Ahmedabad, the asphalt pavement started settling after three months of continuous operations. This is not yet the case in Pimpri but can be expected for next year.

- **Routine maintenance:** A safety audit report prepared by IIT Bombay (September 2015) notes that “BRTS lanes are looking very untidy, markings are not visible, and it’s not properly maintained; overall it is not looking aesthetic. Therefore proper routine maintenance strategy is strongly recommended.” The mission recommends that a routine maintenance strategy be prepared and that adequate funds be budgeted for the purpose in 2016 and subsequent years.

- **Daily cleaning at stations:** PMPML entered into contracts with a private company to clean all BRT stations. The stations themselves look clean, including the immediate access ramps. However, much accumulated trash was observed on the pedestrian ways connecting the station ramps with the nearest crosswalk. These pedestrian ways are not included in PMPML’s cleaning contracts, as it is the responsibility of the local
government body to keep them clean. *The mission recommends* that PCMC follow up with the local government body to regularly clean the station accesses. *The mission further recommends* that PMPML’s station cleaning contract for the next BRT line (Corridor 1) also include the accessway connecting the BRT station with the nearest crosswalk / intersection.

- **Signs on the outside walls of BRT stations:** With the current signing, passengers inside the bus may not know at which station the bus is stopping -- this is particularly important when the PIS inside the bus is not functioning. *The mission therefore recommends* that be placed on the outer side walls of BRT stations (not just inside or at the ends of the station).

**Traffic Signals and other traffic engineering elements**

- **Signal cycles are too long** – The actual length of signal cycles is different 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 which then obstructs upstream intersections, and implies long waiting times for pedestrians wanting to cross the street (one of the reasons why pedestrians cross against the red light). At a meeting with the Traffic Police, arranged by PCMC on December 2, it was 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. *The mission recommends* that PCMC advise the Bank by January 15, 2016 of the actual signal cycles at each intersection along Corridor 2.

- **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. The Traffic Police agreed with the current mission that pedestrian push buttons be mounted on the signal pole – only when actuated, a green pedestrian light would appear, and mixed-traffic would be given a red signal; this may require the change of the signal controllers and, initially at least, the deployment of guards to monitor/enforce the novel type of signal control. *The mission recommends* that PCMC advise the PMU and the Bank by January 15, 2016 of the progress achieved in installing pedestrian actuation.

- **Poorly timed pedestrian access signal at BRT Station (Jagtap Dairy):** At this location, pedestrian flows are greater, and the use of pre-timed signals is appropriate. However, it was observed that the pedestrian phase lasts about 10 sec and is followed by 140 seconds red. No pedestrian would wait that long, especially as mixed traffic arrives in batches. *The mission recommends* that that more green time be given to pedestrians, that the signals for mixed traffic be coordinated with those at the nearby intersection (Jagtap Dairy), and that the cycle length be reduced to half of that at the nearby intersection.

- **Traffic signal phasing** could be improved at many intersections, giving more priority to buses. As of now, only one phase for BRT buses is provided during the whole cycle length. It was agreed with the Traffic Police that intermediate skip phases should be inserted to give a green light to BRT buses at some key intersections. *The mission recommends* that PCMC advise the PMU and the Bank by January 15, 2016 of the progress achieved in installing extra skip phases.
• Pedestrian conditions are chaotic and dangerous at many junctions. Where left-turning traffic is heavy, it is almost impossible for pedestrians to even reach the BRT platform, safely. The mission recommends that PCMC advise the PMU and the Bank by January 15, 2016 of its strategy to improve pedestrian convenience and safety at intersections.

• The role of the Traffic Police is vital for efficient BRT operation, adequate traffic flow, and pedestrian safety. It had been suggested that PCMC, PMC and PMPML regularly interact with the traffic police about traffic management, intersection improvements, and enhanced traffic signal operation. In the meeting with the Traffic Police, it was agreed that regular coordination meetings with the PCMC will be agreed from now on. The mission recommends that PCMC send the PMU and the Bank by January 15, 2016 the minutes of the PCMC/Police coordination meetings that will have been held by that date.

• Bhosari Terminal: Traffic management elements and facilities for pedestrian movement are yet to be built at Bhosari Terminal. The mission repeats its previous recommendation that PCMC provide the designs for traffic signaling and phasing no later than January 15, 2016.

Other aspects of BRT operations:

• Route number signs: Bus number and direction panels are not lit when the ITMS is not functioning. Even when the ITMS is functioning properly, it is difficult to know to which route a bus belongs that has just arrived at a station platform (as the sign is only at the front of the bus). There are lit signs at the left side of the new buses, but these cannot be seen from the BRT platform which is to the right of the buses. The mission recommends that lit signs also be installed on the right side of buses that run on the busway. For the short term, the mission recommends that PMPML paste large (cardboard or plastic) signs with the bus route numbers on two windows on the right side of the bus, which would be visible from the station platforms.

• Station and bus doors: It was also observed that the station door sometimes did not open, with people leaving the bus being caught between the bus and the (closed) station door. In all cases, the security guard or passengers forced the door open from the inside. Also, sometimes only one half of the bus door opens or, reportedly, it does not open at all. The mission recommends that these malfunctions be rectified and that PMPML and PCMC advise the PMU and the Bank by January 15, 2016 of the actions taken.

• Docking of buses. In general, buses dock quickly, without touching the horizontal rollers installed at each station door. 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”. The mission recommends that PMPML rectify this problem through more training and supervision. The mission fully agrees with the plan that PCMC add pavement markings at stations to assist drivers in properly aligning the bus. The mission recommends to place these pavement markings as soon as possible. The mission further recommends that PCMC advise the PMU and the Bank by January 15, 2016 of the actions taken.
- **Bus shelters on Hinjewadi section:** Corridor 3 buses also run in mixed traffic at the western end. Between Wakad Gaon and Hinjewadi, only one formal bus stop in that stretch (about 4 km long) was observed. *The mission recommends* that, similar to the Bhosari spur, bus shelters ought to be installed soon in that section.

- *The mission also recommends* that discussions be initiated with MIDC to extend the segregated busway to Hinjewadi.

- **Bus Bunching:** One of the main issues is the bunching of buses, which to a large degree is due to the long mixed-traffic runs before reaching the busway. The long traffic signal cycles also contribute to that phenomenon. As bus bunching severely affects the quality of the BRT service, and *it is recommended* that PMPML give urgent attention to this problem. Other contributing factors would be irregular bus dispatching at depots, traffic signal timing, and driver behavior. Moreover, the ITMS systems is not currently being used to control bus headways. It was agreed that it would be useful to identify the key factors of bus bunching in Pimpri and to develop a strategy to reduce this phenomenon to the minimum possible. *The mission recommends* that PMPML, with the assistance of ITDP, define a simple TOR for an individual consultant to carry out that work, to be funded under the GEF part of the project. *The mission further recommends* that the TOR be submitted to PCMC, PMU and the World Bank by *December 31, 2015*, together with the names of at least three bus operations specialists to, one of whom would be selected for this task.

**Corridor 1 (Old Pune - Mumbai Road)**

30. 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. *The mission recommends* that PCMC incorporate those lessons when completing the current BRT infrastructure on the Pune – Old 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 in 2014 by IIT Mumbai. *The mission recommends* that PCMC prepare a time-bound action program to complete the remaining works, and send it to the PMU and the World Bank for their information, no later than *January 31, 2016*.

- **Access to BRT Stations:** Passenger access to the BRT stations is one of the great shortcomings on Corridor 2 – this has been highlighted by this and previous missions and is also reflected in the monitoring data collected by IBI. A year ago, IIT Mumbai carried out a traffic safety audit for Corridor 1 made some general recommendations on how to provide safe pedestrian access. While containing some interesting suggestions, that audit did only make rudimentary proposals which are quite insufficient to assure modern access to the BRT stations. In the meantime, MVA has completed access plans for all BRT stations and intersections on Corridor 1. *The mission recommends* that PCMC approve these recommended access plans (or adapt them as may be necessary) and define a program to carry out those works, and submit the plans to the PMU and World Bank by *January 31, 2016*.  

39
• **Traffic Engineering and Signal Control:** During field visits of the corridor in 2014, previous mission noted that the signals of most major intersections operate in four phases, requiring rather long signal cycles (120 seconds or more). As it was decided to build the busway segregation all the way up to the intersections, additional signal phases will be required because right turning mixed-traffic movements, and U-turns, cannot be eliminated. With the current signal phasing approach, this would require yet longer signal cycles, resulting in excessive delays for both public transport and mixed traffic; it would also contribute to bunching of BRT buses—which must be avoided at all cost. As highlighted earlier, these problems have been observed at several junctions of Corridor 2 and will pose yet a greater challenge on Corridor 1 as it carries higher bus volumes.

• **Signal Phasing:** In December 2014, representatives of the PCMC Electrical Department presented planned traffic signal improvements at about 20 intersections along Corridor 1, based on 90-second signal cycles. At virtually all intersections, the proposed traffic signal control envisaged separate phases for (i) cross traffic, (ii) the straight movements along the corridor including the BRT busway, and (iii) right turns from the mixed traffic lanes on the service road. One of the lessons learned this year, and supported by both the traffic police and the Bank mission, is the possible insertion of intermediate skip-phases for BRT buses at some key intersections. *The mission recommends* that the PCMC Electrical Department and their consultants, when updating the plans prepared a year ago, consider the use of such skip phases where required to avoid excessive waiting times for the BRT and submit their new phasing plans to the PMU and the World Bank *no later than January 31, 2016.*

• **Signal Designs:** A year ago, plans for signal heads and posts, had been elaborated schematically. When inquiring about the width available for straight-through movements (between the kerb and the edge of the right-turning lane), the December 2014 mission was told that in some cases there would probably be only one lane, or even less—i.e. not enough space for the straight movements. To assess the feasibility of the proposed signal control, these geometric designs need to be carried out to-scale (i.e. not schematically). *The mission recommends* that a full traffic engineering design carried out for all intersections, probably by incorporating the MVA’s recommendations. *It recommends* that the intersection layouts (including signals and phasing, and geometric intersection design) be sent to the PMU and the World Bank by *January 31, 2016.* This should include any additional pedestrian signals will be needed to provide safe passenger access to the BRT stations.

• **Passenger Transfers with BRT Corridor 3:** With the launch of BRT services on Corridor 1, it is now time to complete the passenger transfer facilities with Corridor 3, at Nashik Phata. The mission was advised that the construction contract for the FOBs connecting the two corridors had been awarded. *The mission recommends* that PCMC inform the PMU and the World Bank, by *January 15, 2016,* of the expected schedule for completing the works, including the Corridor 3 BRT station on top of the flyover.

**Intelligent Transport Management System:**

31. *Observations on ITS Operations.* The Bank Mission visited the BRT and held detailed discussions with PMPML, PCMC, ITS PMC and vendor in regard to the ITS issues and progress with the earlier observed issues of non-functioning PIS in buses, communications networks and power backup in bus stations. The Mission was advised that the issues relating to non-functioning of PIS boards in buses had been substantially resolved and the communication and power back up
issues were also stabilising. However, issues around (i) accuracy of ETA; (ii) vandalism of equipment; (iii) improper/ not starting of route by drivers, remained issues. The following further observations were made by the mission:

- In terms of PIS operations, the Bank team suggested several changes with a view to improve user experience of LCD displays at Bus shelters including change of background colors, font size, capitalization of station names, re-arrangement of columns etc. The insertion of route information on the route map at the shelters was also discussed.

- At one station, the LCD was malfunctioning even though the diagnostic software did not report any errors. The Bank team advised the ITS vendor to implement remote diagnostics (via SNMP for example) that would help investigate failures of the end devices (e.g. UPS, LCD screen etc.) not just the aggregator devices at the shelters.

- The Bank team discussed the issue of bus bunching at length and encouraged the ITS vendor to explore application solutions to solve bus bunching issues using AVL parameters.

- In order to remedy the problem of incorrect selection of routes and to signal action from Control Center, the Bank team suggested implementation of a SOS on the Driver Console Unit and a 2-way communication with the Conductor.

- During the demo run, the Bank team observed that the shelter-facing PIS unit inside the Bus was not installed even though the wiring was present. PMPML was encouraged to approve the procurement and installation of this additional PIS so that the passengers at the Shelters would clearly see the Bus information. The ITS vendor estimated the incremental cost to be Rs. ~25K-30K per unit. PMPML indicated that they would try and seek budget approval for this incremental installation.

- The Bank team also observed that the Buses were starting from the shelters even before the station sliding doors were fully closed. Recognizing this to be a safety hazard, the Bank team urged the ITS vendor to rectify the associated RFID operations.

- The issue of Stop Skipping was also discussed. It was agreed that the problem would be handled via penalties through the detection of skips via the ITS (AVL) system reports.

- The Bank team urged the ITS vendor to generate automated alerts that would bring the attention of the Control Center operator to stop-skipping, breakdowns etc., in real-time.

- The need to establish SOP for incident management in concert with ITS functionality was also discussed at length.

32. **Electronic Ticketing.** The Bank team discussed the phase deployment and operational acceptance plan for ETM services. It was understood that the ETM service provider will support the operations of ETM for up to 5 years after the base year. The mission was informed that the Smart Cards and Passes will be supported on the BRT network from June 1 2016. The need to ensure front-end compatibility with National Mobility Smart Card was highlighted. The need to ensure business continuity during transition of ETM Server from the cloud to the PMPML control center was emphasized. The Bank team encouraged PMPML to closely monitor the performance of the ETM service relative to the SLA with the service provider.

33. **ITS Project Management.** The Mission was concerned to note that neither the PMC nor PMPML was able to provide any quantitative assessment of the performance of the ITS systems and that a systematic approach to the identification of issues and their satisfactory resolution was altogether missing. The ITS PMC has only two staff to monitor the BRT service and report problems. The Bank team urged the PMC to deploy additional personnel to identify operational problems and report those to the ITS vendor for immediate resolution. The interaction between the ITS PMC and ITS vendor was found to be inadequate and in some instances lacking. The Bank team advised the ITS PMC to independently source as many operational problems as
possible and communicate with ITS vendor in the format required so that all operational problems can be captured, documented, and resolved centrally by the ITS vendor trouble ticketing system. In this context, the Bank team encouraged the PMPML team to appoint champions who could facilitate this collaboration and ensure timely resolution of operational problems during these initial weeks of the service launch.

34. Finally, the Bank team strongly recommended that ITS PMC to compile and share with PMPML frequent reports that documented, classified, attributed, tracked, and monitored all operational problems related to ITS. More importantly, the ITS PMC was urged to document ETA accuracy, MTBF, and MTTR indicators.

Studies, Technical Assistance (TA) and Capacity Building:

35. Presentations were made of various studies under implementation, financed under the GEF grant.

- **BRT Passenger Access:** The consultants (MVA) had submitted the detailed designs and implementation plan for Corridor 1 in September 2015, and presented a summary of the work achieved to-date. Following a second workshop, planned for January 2016, PCMC should urgently define a program of access improvements to the Corridor 1 BRT stations – see more on this subject above, under the heading of Corridor 1. The remaining deliverables including Implementation plan and changes to the development control norms will be submitted as soon as they receive comments on the draft designs. The Mission advised the consultants to review the existing DCR for PCMC and identify areas for improvement after reviewing available documentation and DCRs that have been amended in other cities. The consultants will also prepare tender documents for the works contract.

- **Promotion & Outreach Plan for BRT:** The consultants (IBI Group / CEE) presented a status report on their work. The Rainbow website and the active engagement on social media has been an effective communication tool with the public. While a lot of positive feedback is flowing in, there are queries, suggestions and areas for improvement also being highlighted which need to be tabulated regularly (weekly) and circulated with concerned agencies for their action/response. It was noted that this effective loop was operating in an ad hoc manner and needed to be formalized. Second, it was observed that the effective social media interaction was possible because of the P&O consultants and no one had been delegated from PMPML to take over this function. It was agreed that a special effort was now required prior the opening of BRT corridor 1, expected for the second quarter of 2016. PCMC and the consultants were advised to expedite the contract extension modalities to cover the additional support necessary during the initial operations phase.

- **Parking Policy and Master Plan:** The contract was signed with UMTC in October 2013, the study commenced in November, and the Draft Report had been submitted and commented on by the Bank. It was agreed in the last review meeting on Sept 30, 2015, that the consultants (i) needed to revisit some of the parking policy principles and language to make it more transit friendly and geared towards disincentivising personal modes; (ii) need to separate out the recommended parking policy and implementation plan out of the detailed technical analysis; (iii) PCMC needs to organize discussions with key internal stakeholders such as Town Planning Dept, Traffic Police, Corporators etc. to gain consensus on the policy and implementation. PCMC proposed to organize a
consultation in each of the 6 wards of the city. All of these actions are yet to be completed and the Mission urged PCMC and the consultants to move forward with these to ensure the policy and implementation plans early adoption.

- **Monitoring and Evaluation:** the consultants (IBI Group) presented a “Pre- and Post BRT Scenario”, taking account of the first experiences with BRT operations on Corridor 2. Among these are the following:
  - Average daily passengers on Corridor 2 routes increased from 61,791 (pre-BRT) to 67,701 (post BRT). This is for the entire bus route length and includes passengers that enter and leave the bus within the Pune limits. *The mission recommends* that the number of passengers actually travelling on the BRT busway be also estimated. Peak hour passengers increased from 3,128 to 3,823 per direction.
  - Before the BRT started operating, only 5% of all passengers rated the bus service as good or excellent. After its launch, this jumped to 61% - certainly a great achievement that needs to be expanded on.
  - Of 14 elements, “cleanliness of the stations” and “cleanliness of the bus” ranked highest in passenger satisfaction. At the other end, the lowest scores were given to (a) “behaviour of BRT Bus staff”, (b) “fare/value for money” and (c) “facility to cross the road to reach BRT station”. *The mission recommends* that PMPML and PCMC give particular attention to items (a) and (c), especially in anticipation of launching BRT services on corridor 1.
  - With the introduction of BRT services, the average bus dwell time/passenger at stations declined from 1.79 seconds to 1.14 seconds. Although this is a marked improvement, the mission agrees with IBI that the dwell time is still quite high for a modern BRT operation.

- **GEF funding:** It had been suggested that some of the remaining GEF funds might be used to provide assistance on BRT operational aspects for aspects that are considered high-urgency. Examples:
  - Design by experienced traffic engineers to improve functionality and safety of intersections geometrics, pavement markings, traffic signs (including phasing and timing)
  - Consultants to design a road (and busway) rehabilitation and maintenance strategy
  - Study to define a strategy for introducing off-board fare collection
  - Individual consultant to assist PMPML in addressing bus bunching
  - Other assistance

- **Off-board fare collection:** On November 19, PMPML (through PCMC) submitted a 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. *The mission recommends* that PMPML submit the revised TOR to PCMC, which would then pass it on to the PMU and the World Bank for no-objection. *The mission further recommends* that the text of a notice be drafted to request Expressions of Interest (EOI), and be sent to the PCMC, PMU and the World Bank as a matter of urgency, *no later than December 20, 2015*. 
**Environment Management**

36. The mission met with the PCMC team and their consultants supervising the construction of the Flyover along Corridor 4. It also visited select locations on the corridor where construction is underway to review the implementation of the EMP provisions, especially with reference to Pavana River and safety of workers and residents close to these areas.

37. **EMP implementation near the Pavana River:** The agreement to remove the material from the Pavana River bed was partially complied in line with discussions during the previous mission. The contractor has now started bringing back the material so that the cast-in-situ spans can be erected in the dry period. Each span with a cycle time of 45 to 56 days will mean that if cast sequentially, this will be again very close to the rainy season. The mission advised the PCMC to ensure that there are no slippages on this critical activity as it has the potential for a risky situation if the material remains in the river bed narrowing the passage of water.

The mission again noted that the new sub-contractors, assisting the main Contractor for concrete and steel work has also brought in new labor gangs. In addition, the Contractor has proposed to bring in workers to have a peak work force of around 200-300, doubling the current head count. However, the facilities for them – for shelter, sanitation, and other amenities, are well-below requirements of the EMP agreed by PCMC. The mission advised the PCMC to ensure that these be improved by 31st December 2015 – workers’ accommodation needs to be above the ground level to avoid flooding, there should be provision of toilets and sanitary facilities, and there should be protection from vectors. It has been agreed that the NPMU’s PMC will visit the site in mid-January 2016 to confirm progress on this activity so that construction speed can be increased with improved facilities for the workers.

38. **Plantation within PCMC corridors:** Fresh plantation was observed along the recently completed stretches close to the road approaches of the Empire Estate fly-over where the full section has been constructed. The mission was informed that almost all the agreed plantation under the project has been completed and the only portion that remains is for road stretches which are still being constructed. The mission reiterated its previous recommendation of confirmation of the final numbers in the QPR as well as update on the same in the PCMC website. It was agreed that PCMC QPR for the period ending December 2015 would have accurate numbers for all these achievements.

39. **Key Agreed Actions**

- PCMC to define a time-bound action program to improve pedestrian conditions at Corridor 2 intersections – January 15, 2016
- PCMC to redesign geometrics and signal control at Jagdap Dairy, Kalewadi Junction and Dange Chowk – January 15
- PCMC to advise on reduction of signal cycles at Corridor 2 & 3 intersections – January 15
- PCMC to advise on progress to install push-button actuated pedestrian signals – January 15
- PCMC to advise on progress to introduce BRT skip signal phases on corridor 2 & 3 – January 15
- PCMC to send minutes of coordination meeting with traffic police – January 15
- PCMC to send traffic management plan for Bhosari terminal – January 15
• PMPML and PCMC to advise on actions taken to ensure correct bus and station door closing – January 15
• PCMC to advise on painting of lines at BRT stations, to assist in bus docking – January 15
• PMPML and PCMC to issue EOI for off-board fare collection study – December 31, 2015
• PMPML to draft TOR for expert to address bus bunching issue – December 31
• PCMC to send time-bound action program to complete works on Corridor 1 – January 31, 2016
• Based on MVA’s proposals, PCMC to send recommended access plans to Corridor 1 stations – January 31
• PCMC to send traffic signal designs, including signal phasing and possible geometric improvements – January 31
• PCMC to inform Bank on implementation plan and time schedule to achieve passenger transfers between Corridors 1 and 3 – January 15
• Complete ETM installation at depots for Corridor 3: Feb 15, 2016; All corridors – Jun 30
• Resolve PIS and ETA issues and submit ITS performance reports/ Complete operational acceptance – Dec 31/Jan 31
• Complete works on ITS control room at Swargate – Jan 31
• Complete construction of Ramp 2 on Nashik Phata – June 2016
• Submit the design options for the two ramps at Empire Estate intersection for review – Dec 31
• Extend Corridor 3 and 4 PMC’s contract – Immediate
• Submission of M&E post BRT launch report – Dec 31, 2015
• Complete all LA R&R activities- May 31, 2016
  o Tripartite agreement on MIDC land - Immediate
  o Inventory of Displaced families – Dec 31
  o Shifting of first batch of PAPs from Transit to permanent housing – Feb 28
  o Completion allotment of EWS housing to all eligible people and decide on support to those ineligible people for EWS housing and affected small businesses – Jan 31
## Annex 3-A

<table>
<thead>
<tr>
<th>Contract</th>
<th>Description</th>
<th>Length (km)</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 (in financial terms)</th>
<th>Remarks</th>
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<tbody>
<tr>
<td><strong>Corridor 3</strong></td>
<td></td>
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<td></td>
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<tr>
<td>3-1</td>
<td>Interchange at Nashik Phata (Bank-financed)</td>
<td>0.9075</td>
<td>988.1</td>
<td>990.05</td>
<td>12 Jul 2010</td>
<td>13 Jan 2013</td>
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<td>909.95</td>
<td>91.9%</td>
<td>Extension of Works Completion Period claimed by Contractor until 31 Dec 2016</td>
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<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>
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<td>24 Feb 2011</td>
<td>31 Aug 2013</td>
<td>364.4</td>
<td>Complete</td>
<td>260 m length could not be completed due to non-availability of land</td>
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<tr>
<td></td>
<td></td>
<td>0.26</td>
<td>65.5 (estimated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.26</td>
<td>65.5 (estimated)</td>
<td>Presently, required land is in possession of PCMC. Bids invited in last week of November 2015, with 9 months of Works Completion Period.</td>
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<tr>
<td></td>
<td>Pedestrian Facilities</td>
<td></td>
<td>153.2 (estimated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>153.2 (estimated)</td>
<td>Earlier bidding process cancelled. Fresh bids (with works completion period 12 months) received on 15 Sep 15. Lowest bid 35.1% below Estimated Cost. Evaluation of bids ongoing.</td>
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<td></td>
<td>Construction of 8 Bus Stops</td>
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<td>04 Sep 2014</td>
<td>38.0</td>
<td>Complete</td>
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<td>Kalewadi Phata to Chinchwada Gaon Bridge Phata</td>
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<td>Chinchwada Gaon Bridge Phata to Pawana River Bridge Approach</td>
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<td>Contract</td>
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<td>Length (km) of exclusive BRT corridor</td>
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<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 (in financial terms)</td>
<td>Remarks</td>
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<tr>
<td></td>
<td>Grade Separator (Bank-financed)</td>
<td></td>
<td></td>
<td>897.2 (excluding Components V and VI)</td>
<td>2011</td>
<td></td>
<td></td>
<td>55.3% (excluding Components V and VI)</td>
<td>planned to complete (except Components V and VI) by July 2016</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 May 2015</td>
<td>340.7</td>
<td>Works ongoing. Land not available for 60 m length.</td>
<td></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>346.2</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction of 10 Bus Stops – Part I</td>
<td></td>
<td></td>
<td>50.5</td>
<td>05 Mar 2014</td>
<td>04 Sep 2014</td>
<td></td>
<td>45.2</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction of 10 Bus Stops – Part II</td>
<td></td>
<td></td>
<td>51.1</td>
<td>05 Mar 2014</td>
<td>04 Sep 2014</td>
<td></td>
<td>16.0</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dedication of Corridor</td>
<td></td>
<td></td>
<td>50.6</td>
<td>05 Mar 2014</td>
<td>04 Dec 2014</td>
<td></td>
<td>13.0</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>
Social Management

**Pimpri-Chinchwad BRT**

**Land Acquisition and Resettlement Implementation**

1. The pending land acquisition in two location continue to affect the construction work and will have serious implication in completing the construction of BRT Corridor 4. The detail are summarized below

**Case 1 (Corridor 4):** 4.69 hectares of land involved along a stretch of 1.4 Kms near MM school to Pawana river, near Adarsh Nagar is a complex case, where about 50 families are residing. The affected persons need to be shifted to EWS houses and some of them are not eligible and their case needs to be dealt with separately. In addition, it is now identified that about 10-15 additional small businesses who have approached to Pune District Court on the compensation issue. Only after shifting these affected people, land can be made free of encumbrance and only then the land department can complete the land acquisition process. This case becomes more complex since some of the affected households may not be legible for EWS housing (about 25) and getting them vacated without any assicne will be difficult.

**Case 2 (Corridor 4):** This relates to MIDC land in Indo Euro city building of about 0.23 hectares and the process of private negotiations on the price and submission to court on the agreed price, etc. The number of units affected are 22 consisting of two societies. The mission was informed that there is an agreement on the tripartite agreement but this need to be endorsed by MIDC before submitted to the court. Once this is submitted to the court, it will give a direction on how to proceed further in rehabilitation of the affected units and compensation payable to the affected unit by PCMC.

**Case 3 (Corridor 4):** It seems that the land owners in P11-P17, are opposing on the ground that they have not received full compensation. This issue needs to be resolved as appropriate to avoid any objection to construction.

**Case 4 (Corridor 3):** In addition to the above, it was revealed that there is some resistance from the local residents near Empire Estate (slip roads/Ramps) and Nashik-Phata Ramp-2 Right side of the ramp). These objections need to be looked into and appropriate measures must be taken to minimize the obstructions to the local residents due to construction related activities.

The summary of land acquisition details and progress is presented below. The update is not available.

<table>
<thead>
<tr>
<th>No</th>
<th>Land acquisition Impacts</th>
<th>Kalewadi-Dehu-Alandi Road (Corridor 4)</th>
<th>Nashik Phata Flyover</th>
<th>Nasikphata-Wakad Road (Corridor 3)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Private Land</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. **Land acquisition (in Ha)**

<table>
<thead>
<tr>
<th></th>
<th>Land acquisition</th>
<th>20.90 (100%)</th>
<th>1.09 (100.0%)</th>
<th>27.30 (100.0%)</th>
<th>49.29 (100%)</th>
</tr>
</thead>
</table>

2. **Land acquisition completed**

<table>
<thead>
<tr>
<th></th>
<th>Land acquisition completed</th>
<th>16.38 (78.37%)</th>
<th>1.09 (100.0%)</th>
<th>26.25 (96.15%)</th>
<th>43.72 (88.70%)</th>
</tr>
</thead>
</table>

3. **Government Land Transfer**

<table>
<thead>
<tr>
<th></th>
<th>Land Transfer (in Ha)</th>
<th>8.29 (100.00%)</th>
<th>00</th>
<th>1.43 (100.0%)</th>
<th>9.97 (100.00%)</th>
</tr>
</thead>
</table>

4. **Land transfer completed**

<table>
<thead>
<tr>
<th></th>
<th>Land transfer (in Ha)</th>
<th>8.07 (97.34%)</th>
<th>00</th>
<th>1.43 (100.0%)</th>
<th>9.50 (95.28%)</th>
</tr>
</thead>
</table>

5. **Compensation payment**

<table>
<thead>
<tr>
<th></th>
<th>Award Amount (INR/Millions)</th>
<th>54.31</th>
<th>74.26</th>
<th>55.75</th>
<th>459.75</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>No. of land owners as per LA compensation Award</th>
<th>NA</th>
<th>NA</th>
<th>NA</th>
<th>NA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>No. of land owners received compensation</th>
<th>NA</th>
<th>NA</th>
<th>NA</th>
<th>NA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>No. of People opted for FSI/TDR</th>
<th>46 (100.0%)</th>
<th>02</th>
<th>149 (100.0%)</th>
<th>197 (100.0%)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>No. of people received FSI/TDR</th>
<th>44 (95.65%)</th>
<th>00 (0.00%)</th>
<th>143 (95.97%)</th>
<th>187 (94.92%)</th>
</tr>
</thead>
</table>

**Note:** There discrepancies and details of people receiving compensation need to be attended by PCMC.

2. **Entitlements to different Impact groups.** The payment of R&R assistance has been made to all those who came forward. A notice was published in the local newspaper in case of those who could not avail this opportunity. Since there were people who did not turn up to receive the assistance, the targets have been revised and reflected below. The mission noted that some shops are constructed at Mukai Chowk Terminal on Corridor 2. The allotment of these shops and other shops (if any) should be considered for those with whom PCMC has already executed MOU for allotting shops in the future (32 Persons). The progress to date is as follows.

<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>77 (62.60%)</td>
<td>12 additional people will be allotted soon</td>
</tr>
<tr>
<td>6</td>
<td>Allotment of alternative houses to affected squatter</td>
<td>144</td>
<td>144</td>
<td>00</td>
<td>13 paid self-contribution and</td>
</tr>
</tbody>
</table>
3. **EWS Housing.** The allotment of EWS housing to eligible PAPs is at various stages. Out of those 123 identified as eligible, 77 families have moved into new houses and the remaining are awaiting the allotment. The mission visited the building where some of the resettled families are residing and interacted with them. They have expressed satisfaction with the house and basic facilities available in the building.

4. **Resettlement of those residing in the Transit camps.** The resettlement of those 144 families residing at Transit site continue to be delayed. It is about 5 years since these people have been residing on this site. There is some progress since last mission in July 2015 as regards payment of initial contribution. As many as 15 of them have paid cash towards initial contribution and Bank loan has been approved for 67 families. The Bank loan is under consideration for another 10 families. Thus 92 out of 144 will be eligible for alternative housing. In case of remaining, while some have alternative housing, the document verification for others is in progress. The mission expressed concern over delay in allotment even after the people have paid initial contribution, which was one of the rooms for delay in allotment. PCMC has only recently finalized the contract for undertaking repairs and they have now confirmed that the flats will be available in instalment from February, 2016 onwards.

5. **Agreed Actions.** During the warp-up meeting with Commissioner, the following next steps are agreed to resolve the pending land acquisition and resettlement issues.

- The Mission was confirmed that the contract for repair of houses is awarded and progressive allotments will be made to those living in Transit. The first batch of PAPs will be shifted by February, 2016 and all PAPs by March, 2016.

- In case of those who are not eligible for EWS housing, the Commissioner assured that some kind of assistance will be arranged including to those affected small business.

- In case of Tripartite agreement for MIDC lands, PCMC will pursue with MIDC to agree on the draft agreement, so that this can be submitted to the court for further direction form the court.
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 November 30, 2015, to discuss the implementation of the Naya Raipur component of the Sustainable Urban Transport Program (SUTP). The meetings were chaired by Mr Salil Shrivastava, Chief Engineer, NRDA and Mr. L.K. Panigrahi, Chief Project Manager and their team, along with representatives of the PMU and the consultants working with NRDA on various activities.

Non-Motorized Transport (NMT)

2. Non-Motorized Transport Infrastructure (Construction of Cycle Tracks, Walkways, CD Structures): 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 started on 28 March 2014. Subsequent to modification of the proposed road cross-sections and detailed review of the proposed works, it’s now estimated that the Completion Cost of the contract is likely to be about INR 484.8 million. Physical progress has been about 50% of likely Completion Cost.

3. The Contractor could not initially proceed on about 85% of contract works involving Road works because of NRDA’s review of the proposed Road Cross-Sections. Final Road Cross-Sections were issued to the Contractor on 10 October 2014 (about 6.5 months after contract start) and Final Road Levels (FRLs) were issued starting from 15 October 2014. Out of about 40 kms of Cycle Tracks, the Contractor has laid both layers of Wet Mix Macadam (WMM) of total thickness 225 mm in about 20 kms while 1st layer of WMM has been extended further by 12 km. Wearing course with Open Graded Bituminous Surfacing (OGBS) is due to be started from 2nd week of December, 2015. Out of about 28 kms of Footpaths, Granular Sub base (GSB) has been laid in about 20 kms, Plain Cement Concrete (PCC) laid in 10 kms, and Paving Tiles also laid in 10 kms. GSB layers wherever affected by rains have been rectified prior to laying upper layers. Top level of the small slab covering the storm water entry has been made to match with the Footpath level carrying out necessary rectifications. Out of about 80 kms of pre-cast Kerbs to be laid, about 58 kms have been laid. In case of cast-in-situ Kerbs, only 15 kms have been laid out of about 45 kms to be laid. The Mission noted that replacement of some length of cast-in-situ Kerb damaged during laying is still not completed although work on the same is in progress. The contract also includes laying of Paving Blocks in about 4 km length of Pedestrian Crossings for which materials have been procured but laying is not started yet.

4. There are about INR 45 million worth of works for Cross-Drainage Structures. Out of the Six Minor Bridges, Deck Slab and Superstructure works completed for Five Nos. The Mission noted that the deck slab of the Minor Bridge structure at Km 4.800 on Road No. 2, cast about 7 months back, is full of cracks. Investigation should be made into it, and remedial measures taken. The Mission was surprised to note the quality of Services being provided by the Project Management Consultant (PMC). Neither the PMC nor the Contractor or NRDA representatives had noticed such extensive cracks in the deck slab in 3 months period when first noticed by Mission during July’15 visit. It’s necessary that NRDA and the PMC should jointly inspect all structures as to their acceptability. Out of about 44 Pipe Culverts to be constructed, 42
structures are complete while protections works for these are in progress. Out of total 4 Nos Box Culverts 2 Nos are complete in all respects while for balance culverts work is still to be taken up.

5. PMC explained that the most critical activity in this contract now is Procurement and Laying of Paving Tiles in the Footpath areas. About 90,000 sqm of Paving Tiles are to be laid out of which 33,000 sqm area have already been laid. For the balance quantity procurement plan has been submitted by Contractor to PMC along with activity-wise manpower deployment. On the basis of current mobilization and rate of progress PMC considers the schedule of completion of work by April,’16 as realistic. However to achieve this, detailed/ micro-programme of completion of balance work is to be obtained from Contractor and the same is to be closely monitored by PMC.

**Quality Control Issues**

6. **Field Observations** (under Quality Assurance). Deck slab in CD structure at Ch 4.8 km on Road No 2 developed numerous cracks on which UPV and Rebound Hammer Tests have been conducted and results found satisfactory. Some more tests are proposed to be conducted. In view of 75 cm thick RCC slab provided for 5.25 m x8.0 m deck resting on piers the designers might have considered use of this lane normally meant for cycle/ pedestrian track, for vehicular traffic in case of emergency. Thus apart from a few more tests as recommended, PMC and Design Consultants should satisfy if based on satisfactory results of these tests the deck slab can be allowed to be retained to carry specified load satisfactorily or else dismantled and replaced by new slab.

7. **Quality Control (QC) Issues**

   (i) For laboratories claiming to have NABL Accreditation a copy of Accreditation certificate alongwith Annexures covering scope of certification issued by NABL shall be asked from such laboratories. If any test is not included in scope of accreditation certificate then such tests shall be conducted in any other approved laboratory.

   (ii) Test results of chemical properties of coarse aggregates are incomplete. Also test results on chemical admixtures are inconsistent.

   (iii) For NP4 class RCC Hume pipes tests appear to have been conducted for ingredient materials including reinforcement bars through unauthorized laboratory. Tests should be conducted only through approved laboratory and records maintained.

The Mission advised NRDA to ensure close monitoring and adequate expert support from the PMC.

**Bus Rapid Transit (BRT) Lite**

8. Three BRT corridors are planned:
   - Corridor 1: Naipur Railway Station – NH6 – Capital Complex in Naya Raipur (24.7 km)
   - Corridor 2: Kabir Nagar (Raipur) – NH43 – Capital Complex in Naya Raipur (37.5 km)
   - Corridor 3: Along the main east-west axis of Naya Raipur, between NH43 and NH6 (17.8 km).
9. **Construction of BRT Bus Shelters, Pick-up Points, BRT Workshop Depot and Control Centre.** 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 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. The Mission has now been informed that the Completion Cost is likely to be about INR 247.3 million. The reduction is because of higher provision of several items in the contract. Progress of works until Nov, 2015 is about 71% of likely Completion Cost. The contract has been extended until 30 September 2015. Further extension of time till 31st March, 2016 is under process.

10. At the proposed **Pick-up Point near Old Mantralaya,** Dry Lean Concrete (DLC) has been completed in the full pavement area and about 55% of the Pavement Quality Concrete (PQC) has been laid. Cutting of grooves at the joints in the PQC and their sealing had been initially delayed beyond stipulated period but now completed including sealing of grooves. The structure of the Bus Station has been completed including the roof while the finishing works are still to be carried out.

11. At the **Workshop Depot and Control Centre** site, about 96 p.c Compound Wall is completed leaving only temporary entrance area. Underground Water Tank structure is almost complete, finishing works ongoing for Washing Ramp and Inspection Pit, full Pavement Quality Concrete (PQC) works have been completed, and structures for Workshop and Control Centre are complete. However, internal and finishing works are ongoing therein. At this site also, cutting of grooves at joints has been initially delayed and now cutting of grooves and their sealing have been completed. The Contractor of Naya Raipur Phase II has started constructing the Service Road (of NRDA-1 / Expressway) abutting this Complex, to which the entry from / exit to this Complex will be connected. No permanent arrangement for flow of storm water (discharged from the site) outside of the site towards the outfall has been planned for execution till date.

12. The structures have been completed including the roofing for **Bus Shelters** 1 to 8. Finishing works are ongoing at these Shelters. April 2015 Mission had suggested that the NRDA needs to implement appropriate safety measures for the bus passengers crossing the high-speed arterial road at grade to / from the Bus Shelters located in the median of the road on which there is no progress.

13. At the proposed **Pick-up Point at Raipur Railway Station,** the structure of the Bus Station has been completed including the roof while the finishing works are in progress. Rectifications suggested during July, 2015 visit of Mission have been completed. Pavement works abutting the Bus Station is not within the contract. **NRDA needs to make arrangement of carrying out the required Pavement works.** Although the April 2015 Mission was informed that decision was taken in consultation with the Railways, to **construct a safe clear pedestrian pathway between the Pedestrian Crossing at the Pick-up Point and the Railway Station Building,** no arrangement has been made by NRDA to implement the same till now.

14. **Works Completion Period** for the contract has been extended until 30 September 2015. The Contractor informed that it would complete all works by 31st March, 2016. With increase of resources and upgrading of capacity of Hot Mix Plant, PMC is of the view that it should be possible to meet the target of completion by March, 2016.
### STATUS OF THE WORKS CONTRACTS

<table>
<thead>
<tr>
<th>Contract Description</th>
<th>Name of Contractor</th>
<th>Origin Contra ct Amou nt (million INR)</th>
<th>Likely Completion Cost (million INR)</th>
<th>Wors ks Start Date</th>
<th>Original Works Completi on Date</th>
<th>Exten ded Works Completi on Date</th>
<th>Approxim ate 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 Private Limited, Raipur</td>
<td>298.9</td>
<td>239.6</td>
<td>31 Dec 2013</td>
<td>30 Mar 2015</td>
<td>30 Sep 2015 (Request for Extn upto 31.3.16)</td>
<td>171</td>
<td>71% of likely Completion Cost</td>
</tr>
<tr>
<td>Non-Motorized Transport Infrastructure (Cycle Tracks, Walkway, etc)</td>
<td>BSBK Private Limited, Bhilai, Chhattisgarh</td>
<td>416.5</td>
<td>481.8</td>
<td>28 Mar 2014</td>
<td>27 Jun 2015</td>
<td>30 Nov 2015 (Request for Extn upto 31.4.16)</td>
<td>218.9</td>
<td>50% of likely Completion Cost</td>
</tr>
</tbody>
</table>

15. **Quality Control**

A. **Field Observations (under Quality Assurance)**

In view of provision of joints in Pavement Quality Concrete (PQC) not made as per construction drawings nor following recommendations in relevant IS code and also cutting and sealing of grooves not done in specified time after casting of PQC, NRDA is to ensure extension of Defects Liability Period and Bank Guarantee amount so that in case damage to PQC takes place after the facilities are operative cost of necessary repair and rehabilitation of affected PQC can be covered within the BG amount if the present Contractor does not co-operate or is not available and the work has to be executed through a second agency.

B. **Quality Control (QC) issues**

i) Sealant used in PQC joints shall be tested in an approved external laboratory Govt owned or with NABL accreditation.

ii) For laboratories claiming to have NABL Accreditation a copy of Accreditation certificate along with Annexures covering scope of certification issued by NABL maybe asked from such laboratories. The same shall be verified and kept in record before engaging them.

iii) Results of test on flyash used in flyash bricks conducted in Shriram Laboratories, New Delhi are not satisfactory. Again results of strength test for flyash bricks conducted at Bhilai Institute Of Technology show inconsistencies in the Report and also this private institute does not appear to have NABL Accreditation.
It is advised that fresh test on strength of flyash bricks may be conducted in an approved laboratory and PMC/ NRDA to take a decision on retaining the relevant flyash brick walls already built.

iv) Test results on chemical admixtures are still awaited from Shriram Laboratories, New Delhi.

v) Dry Film Thickness (DFT) of paint applied in 3 coats including primer on structural steel members tested recently has been recorded in the range of 44.5 to 95.5 micron. One or more coats maybe applied in deficit areas to have minimum DFT 90 micron.

The quality of works needs further improvement and the Mission advised NRDA to ensure close monitoring and adequate expert support from the PMC.

Technical Discussions

16. **Terminal of BRT-Lite at Raipur Railway Station:** During a field visit the mission observed that work progress had been slower than expected. While some elements of the station could be delayed until system opening is clearly defined (to avoid vandalism), there is no such reason to further postpone road paving nor building the 4m wide table-top footpath to the railway station; the latter would already be useful for passengers of the city buses. *The mission recommends* that NRDA define an itemized schedule to complete the works and send it to the PMU and World Bank *by January 15, 2016.*

17. **Terminal of BRT-Lite at Old Secretariat:** Currently, the layout of the terminal area does not provide for feeder buses delivering passengers that would transfer to the BRT-Lite. The previous mission recommended that NRDA design space for those feeder buses, and send a concept report to the PMU and World Bank. However, NRDA feels that there would not be enough capacity for the extra buses in the narrow access roads to the terminal. That argument is not very convincing, considering that there would be only one feeder bus every 3-5 minutes while many more small vehicles use the same roads.

18. The alignment of feeder roads will depend on the BRT service plan, which was to be submitted two days after the mission’s visit. Presented at the World Bank’s Delhi office the following week (see below), it did not propose feeder buses serving this BRT terminal. One of the comments made at that presentation was to examine the option of terminating those buses that come from the west (via GE Road) at the old Secretariat, rather than continuing those routes to the Railway Station. If that option is ultimately proposed, the question arises again where those feeder buses would stop near to the BRT terminal.

19. The previous mission also recommended that the access and egress roads and the circulation plan for the entire area surrounding the terminal should be reviewed and that any (probably minor) works that may be required to ensure the fluid movement of buses and minibuses be defined. No such review was made, and *the mission thus repeats its previous recommendation* to carry out that review and advise the PMU and the Bank of the conclusions, *by January 31, 2016.*

20. **Possible Pick-up Point at Telibanda:** It is virtually certain that the bus service plan will recommend a pick-up point for the BRT-Lite at Telibanda, connecting with some feeder routes. NRDA officials and the mission visited the area again and, from a technical viewpoint, there appear to several physical options to facilitate the interchange of passengers in this area. *The mission repeats its previous recommendation* that NRDA assess the options and prepare a
concept plan for the Pick-up-Point and send it to the PMU and the World Bank by January 31, 2016.

21. Possible Pick-up and/or Drop-off Point at Gadhi Chowk: The initial review of the service plan indicates that a pick-up and/or drop-off point for the BRT-Lite may be required near Gadhi Chowk, to connect with city center destinations and several feeder routes, obviating the need for BRT passengers to travel all the way to the Railway Station. This is a fairly congested area and there appear to several physical options to facilitate the interchange of passengers in this area. The mission recommends that NRDA prepare an option analysis and concept plan and send it to the PMU and the World Bank by January 31, 2016.

22. Intelligent Transport Systems. The contract for the ITS system integrator has been signed with Rosemerta Technologies based in Gurgaon, India. The detailed design has been completed and order placement and delivery has been put on hold owing to the uncertainty around the delivery of buses. The Mission held discussions with the vendor and the ITS PMC on key areas:

Fare collection systems and interoperability:

- In previous missions the Bank team had raised the need for integration of fare collection between BRT and non-BRT networks (i.e. RNNTL, Urban Public Transport Society etc.) as the commuters would be between Raipur and Naya Raipur and this should be a convenience offered the users of the service. The PMC accordingly shared some options for offering this functionality. The PMC was advised to consider payment as a service in the context of consolidation of multi-network transactions via a common clearing house. PMC agreed to present multiple options for fare integration across BRT and non-BRT bus services considering both ETM tickets and Smart Card modes of payments. Furthermore, the solution to be proposed should be able to support the soon-to-be-implemented National Common Mobility Card. It was agreed that NRDA would share the options analysis including the pros and cons of each modality and the indicative costs involved with the PMU and the Bank by December 31, 2015.

- Beyond the initial implementation, as discussed in the past, it was confirmed by PMC and the Vendor to deploy ETM ticket/Passes/Smart Card validators that would actuate the Turnstiles.

- The Bank team sought clarification on the role of passenger counting with respect to ETM and Turnstiles. While the ETM will send updated proxy information for passenger counts via GPRS network in real-time, it was not clear how the passenger count measured by Turnstiles would be communicated to the Control Center. Would Turnstile count be redundant? 3 Kiosks were discussed to be deployed for issuance and personalization of Smart Cards and Passes. Based on discussions is appears that only one location (at Old Mantralaya) has been determined. The bank team advised the ITS PMC toget her with NRDA to finalize the other two locations and also reflect the costing accordingly in the BOM.

- It was understood that the Fare Collection Agency contract would call for providing labor force that would be responsible for fare collection and security of the Shelter equipment. Furthermore, the Fare Collection Agency will need to be trained on SOP based on Service Plan, Fare Collection policy including issuance of personalized Smart Cards and Passes. The Bank team sought clarification on how three designated kiosks would access the Smart Card/Personalization Software from the Control Center.
As observed in other ETM systems, the need to provide automatic alerts for the revenue auditor was highlighted.

**Communications, Social Media etc.**

- Conduits for fiber optic cabling have not been deployed yet at the Control Center. The Bank team urged the works contractor to install PVC conduits (typically four 40mm pipes) to carry fiber optic traffic from the BSNL access point to the control center under the raised floor at the Control Center.
- Each Bus Shelter will be provisioned with four cameras and a DVR with a storage capacity of 7 days. However, it was not clear how this video footage would be archived at the Control Center? A storage system capable of archiving for 60-days was suggested. The need for SOP associated with archival was also highlighted.
- In addition to using Apps and Websites, the Bank team encouraged the ITS vendor to consider publishing Service Alerts to the Public on Social Media channels including Twitter and Facebook.
- The status of a comprehensive Mobile App to support the BRT service was not clear. ITS Vendor should provide a time table for the development and testing of the Mobile App.

**System Requirement & Functional Requirement Specs.** The Mission reviewed the specifications shared by NRDA with the PMC and vendor and had the following observations:

- The ITS SRS indicated that the PIS information will be made available via SMS. ITS Vendor should clarify why this might be required, how this will be implemented and if this might lead to additional operational service charges.
- The Bank team suggested the need for automatically detecting an incorrect selection of route (UP versus DOWN) by the Bus Driver on the console.
- The Turnstile, as per SRS, is designed to operate in two directions. The Passenger counting application should take into account the directionality at the Turnstiles.
- The option to provide real-time PIS data in the GTFS format should be implemented by the ITS vendor.
- The ITS FRS calls for a Command Control Center and a Data Center. The Bank team suggested that these terms be consolidated.
- The ITS FRS indicates the fare collection system would support smart cards and Tokens. ITS Vendor should clarify how tokens would be used in this network.

The Bank team did not find detailed implementation plan for ITS and consequently urged the ITS Vendor and PMC to submit a detailed PERT/PCM for implementation of various ITS modules including test plans. Testing of smart card functionality should be part of the full scope of ITS testing.

23. **Bus Delivery.** The Mission was informed that the prototype for the 40 ordered buses from Tata Motors was reviewed and commented upon by NRDA. Once these comments are resolved the manufacturer will be able to supply buses in 45 and 90 days respectively. However, with the MoUD funding no longer being available the matter has been under review. The mission was concerned to note that NRDA had still not taken a final decision on how to fund the buses. The Mission expressed serious concern over the matter and advised NRDA to take an early decision as the BRT Lite launch would be uncertain without a final decision on this matter. NRDA could consider directly purchasing the buses and then handing over to an operator to
operate or alternatively hiring the operator and requiring them to procure the buses as part of the contract. Considering non AC buses only or a combination fleet might be advisable given the fiscal implications. The Mission recommended that the decision be made no later than Dec 31, in order to ensure timely delivery of buses and launch of the service by year end.

24. **BRT Operator:** The RFP for hiring the BRT operator has been issued on July 28, 2015, and the bid submission was proposed for Oct 30. The contract is modelled on a gross cost contract template. However, this has had to be stalled in view of lack of clarity on buses. As the procurement of the operator is likely to take up to 3 months NRDA is strongly advised to finalise their decision re buses and then proceed with the operator hiring as they once hired would require at least 3 months to mobilize.

25. **Fare Policy.** NRDA and its consultants presented the broad fare policy approved by NRDA for the BRT service. The Mission noted with concern that the 25 km distance between Raipur to Naya Raipur was proposed to cost Rs. 45 on the AC buses proposed on the BRT, which was clearly way in excess of the locally available alternatives of RNNTL, etc. as also fares in other parts of the country. NRDA is strongly advised to revisit the AC rolling stock proposed to be procured for the BRT which appeared to have the impact of doubling the fares or consider bringing the fares in line with levels prevalent in the region to ensure ridership. In most other cities where BRT services have been launched efforts have been made by the implementing agencies to ensure a competitive fare for the BRT in order to ensure its success. In most cases these have been set equivalent to the city bus service levels.

26. **Technical Assistance and Capacity Building**

**TA on Transit Oriented Development (ToD):** Based on findings of the TOD study by IBI, changes have been made to the Naya Raipur Development Plan in its Chapter 9 and Chapter 18. Majority of the recommended norms that facilitate TOD implementation have been incorporated in these chapters. Planning of certain sectors has also been modified based on the TOD concepts. NRDA received in principle approval from the Government of Chhattisgarh in March 2015. NRDA had issued a public notification for public consultation and comments had been received. A final gazette notification has been issued in November, 2015, approving the changes to the NR Masterplan 2031.

**Regional Mobility Plan.** The consultants (LEA Associates) had prepared a presentation on the Draft Final Regional Mobility Plan for Greater Raipur Region (GRR). The draft plan for 2034 (with 2019 and 2024 as intermediate target years) envisages a total population of over 6 millions in the GRR, spread over an area of 5,156 square km. In addition to major road investments including three ring roads, the plan includes 114 km of suburban railways and 316 km of BRTS corridors. A workshop is planned for December 2015; taking account of its results, the Final Report would be submitted by January 31, 2016. The following comments were shared by the Mission:

a. Capital cost estimates, based on aggregate unit costs per Km for different types of improvements, should include contingency factors 50-100% with variation based on the nature of the particular investment and location – because of gross uncertainties related to resettlement, land/ROW acquisition, utility relocation, geo-technical conditions, etc.;

b. Investment recommendations in a strategic plan or CMP with a plan horizon of 20+ years should not be specific as to public transport mode and design or roadway design type and
capacity because not enough detail on the costs, benefits and impacts of options can be ascertained at the level of a long range CMP;

i. In a CMP, it is sufficient to call out the need for a major high quality, performance and capacity public transport investment in one or more corridors but not the specific mode (e.g., BRTS, tramway or suburban railway) or vertical alignments pending a detailed corridor alternatives analysis for the highest priority corridor where action is required in the near future;

ii. It is sufficient for a CMP to identify those locations where existing roadway infrastructure and junctions are likely to be saturated and in need for some type of improvement or operating/management strategy change. This is particularly important if the objective is sustainable, people centric transport; In fact, the specific need for flyovers, interchanges, major arterial roadways on new alignment and other forms major highway capacity additions for a 20+ year planning horizon, other than for access and coverage shouldn’t be done with the same kind of corridor specific alternatives analysis done for major rapid transit investments;

c. The need for multi-modal improvements, e.g., roadway capacity and public transport enhancements in the same corridors should be specifically called out as appropriate rather than simply treating roadway and PT separately;

d. The Mission applauded the draft CMP’s calling out the need for facilities, e.g., logistics hubs, needed to enhance good movements over the long term; That having been said, specific locations and design details may not be supportable at the level of a CMP other than to note approximate facility locations and sizes; Where appropriate, the CMP should specifically identify logistics hub locations envisioning railway/roadway goods transport interfaces;

e. The section of the CMP dealing with the UMTA proposed for Raipur (Chapter 12) envisions separate rail and roadway planning units; there should be only one single multi-modal planning unit, with both railway, other public transport and highway planning expertise; Any detailed design activities would be in the purview of the respective implementing agency (e.g., railways, bus SPV, Highway Authority…) rather than a function of the UMTA calling for a distinct unit; The technical arm of the secretariat should report directly to the Director of the secretariat rather than through two layers of control.

f. All investment proposed in the CMP are treated as if they have the same priority and the need for significant additional funding shown; It might be worthwhile to also note which investments, both medium and long term should be given the highest priority if only current funding levels are available;

g. The economic analysis of the proposed CMP shows a sensitivity analysis with a 20% bandwidth for costs and benefits; however, the record in India for both major public transport investments like metros (e.g., Delhi Airport link) and major toll highway investments is that actual implementation costs are invariably twice what is shown for the respective investment in its DPR, while usage and hence benefits are about half or less. If one checks the CMP’s containing these types of strategic investments, the record is likely to be even worse. Therefore, a sensitivity analysis with a bandwidth of 50% (costs twice as much, benefits, one half the estimates) should be shown.
h. All detailed modeling discussion should be moved to an appendix;

i. Levels of accuracy of any evaluation criteria, whether travel demand or costs should not be shown to a precise level of accuracy, e.g., demand forecasts for a 20 year+ horizon year should not be shown to a level of accuracy better than the nearest five thousand.

**Bus Service Plan and Financial Plan:** Previous Bank missions had commented on the technical scope of this activity, the importance of which had been discussed for some time. Considering that NRDA intends to have BRT Lite operations starting in the near future, agreement on the bus service plan is clearly on the critical path.

In July 2015, the consultants (DIMTS) presented the preliminary results of their work which were too general to provide practical results that could lead to a service plan for the BRT-Lite along Corridor 1. Rather than conducting a general bus route rationalization study for northern Raipur, the previous mission suggested that the consultants focus on the BRT-Lite corridor and define feeder routes to the Railway-Station and Old-Secretariat terminals. Moreover, the options of introducing intermediate pick-up points was to be examined at Telibanda and possibly at Serikedi, also to be served by feeder routes.

The previous mission recommended that the consultants define 3-4 options for BRT-Lite and feeder route services, taking account of estimated passenger demand and of the available street system where feeder buses or minibuses would run. Following an evaluation of operational and financial implications, a recommended BRT-Lite (plus feeder route) service plan would be defined.

The service plan report was delivered on December 2, 2015, two days after the mission visited Naya Raipur. On December 8, the consultants presented it in Delhi to representatives of the PMU, PMC, NRDA and the World Bank. Below are some of the observations that were made on the consultants’ report, and subsequently sent to NRDA for consideration:

- The report does not define and evaluate alternative service options for the initial phases of BRT operation
- Options in central Raipur that could be considered:
  - Almost all city bus services converge on Gadhi Chowk and then proceed to the Railway Station. Wouldn't it seem reasonable if passengers could transfer at Gadhi Chowk to the BRT? In that way, they would not have to backtrack to the Railway Station (about 3.5 km additional distance, i.e.10-15 minutes extra travel).
  - About 10 minutes extra are needed for buses to swing by the Old Mantralaya terminus, rather than going straight to/from the railway station. Please examine the option that, at least during the peak, the BRT bus routes split at Shastri Chowk, with one spur going straight to the Railway station and the other to the Old Mantralaya.
  - Another option: only outbound buses would stop at old Mantralaya, and inbound buses would have a drop-off point at Gadhi Chowk and then proceed directly to the Railway Station (avoiding the circuitous loop to get into the Old Mantralaya terminal).
  - Alternatively, the city bus lines coming from GE Road might be terminated at Old Mantralaya terminal, rather than going all the way to the Railway station.
• Most stations in Naya Raipur will have zero passenger demand in 2016. Was it considered to not serve these stations, or only during specific hours?

• Would the charter buses on Corridor 2 continue to operate, during the peak hours? In this context: Was the option considered to reroute some of these buses via Telibanda and Corridor 1 rather than running on NH34 (this would appear to be quicker).

• There would be 80 bus runs (one-way; i.e. 160 bus runs in both directions) between 06:00h and 19:50h. With a current demand of 6,915 trips/day the average occupancy would be 43 passengers per bus. This means that buses in the heavy direction would likely be overcrowded at some hours. This should be rechecked.

• The bus headway would be 20 minutes before 8:40h. Then, until 11:30h, the headway would be 5 minutes. The last morning bus would leave the railway station at 11:50h, but then there would be a gap of over 2 hours without any bus services. Why such a long gap between services?

• A one-way trip for the stretch from Railway Station to Mantralaya (25 km) would take 55 minutes. The commercial speed would thus be 27km/h which appears quite low, considering that 60% of the route would operate on wide open roads, and there would be only about 7 BRT stations / pick-up points. How was the 55 minute time requirement calculated?

• What would be the travel times of competing modes (two- and three-wheelers)?

• The proposed BRT fare for the entire length is Rs. 45. What are the fares of competing modes (shared three-wheelers, and perhaps informal minibuses that might start operating)? These appear to be on the high side and may require some review to ensure sufficient traffic on the BRT. The fare differential between AC and non AC is virtually double and NRDA is advised to look deeper into the matter before taking a final decision on AC vs non AC buses for the BRT.

• Could the study also define the framework for monitoring and adjusting the service plan?

The mission recommends that the consultants respond to these queries by December 15, 2015.

27. **Marketing and Communications Strategy:** NRDA needs to engage a marketing and communications firm to start the marketing campaign ahead of the BRT launch which is tentatively being planned for mid 2016. Discussions were held on how events promoting NMT and BRT can help in spreading awareness on BRT amongst the public. NRDA plans to seek support from existing agencies and NGOs in organizing these public awareness events.

28. **BRT Lite Implementation.** The mission expressed concern over the delays in completing the ongoing civil works. The Mission advised NRDA to start working backwards and develop a BRT Implementation Schedule capturing all the critical activities to be completed ahead of launch (including BRT pickup points and key stations, bus delivery and hiring of bus operators, ITS installation, service plan, communications, fare collection agents, traffic wardens, security & housekeeping etc.). It was agreed that NRDA would share the plan with PMU and the Bank by Dec 31, 2015, covering the following aspects.

• Completion of Stations & Control Centre Delivery of buses
• Appointment of bus operator
• Bus operator/ driver training
• Installation and Testing of ITS
• Completion of procurement for fare collection agency
• BRT Service Plan route options report
• Fare Policy Review and Finalisation

**Project Management.** The Mission was pleased to note that the Chief Project Manager had agreed to continue with the assignment.

29. The Mission again advised NRDA to ensure a proper team at the newly created SPV and for it to be fully engaged with the current implementation phase so they could hit the ground running during operations. Presently, the SPV is 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 enhanced and for them to be fully involved in the service planning, bus procurement, procurement of fare collection agency, ITS implementation and BRT Lite Implementation Schedule planning etc.

**Environment Management**

30. The mission visited the work sites in Naya Raipur and Raipur to understand the extent to which the EMP provisions are being used during construction. It also discussed the progress on various aspects with NRDA officials, the consultant team assisting them to supervise the implementation, and contractor representatives.

31. **BRTS Infrastructure:** At the Old Mantralya (Secretariat) site, trees saved from cutting for installation of the new facilities, by careful design, are now at a risk of overturning as their roots are exposed by excavation of foundation of the light mast. The mission advised that the soil should be packed and roots covered to prevent damage to the trees. It has been agreed that this will be done immediately. For the depot, the mission noted that the work is almost complete and water harvesting and recycling systems are being installed as per design.

32. **NMT Infrastructure:** For widening the embankments for installation of footpaths and cycle tracks, the Contractor has borrowed earth from Mandir Hasaud, outside Naya Raipur city limits. NRDA has shared the documentation confirming the consent from the landowners and local village council for the use of borrow areas. At worksites, the contractor’s concrete mixers are sometimes washed to avoid hardening of concrete in the mixers. The other issues that need to be handled in site management include sourcing bituminous material from licensed Hot Mix Plants and the appropriate disposal of debris currently being piled up in the Contractor premises. Wherever water harvesting structures are to be installed, the embankment work should be done only after the sub-surface work for these is completed. Otherwise, there could be issues with the embankment integrity.

33. **Regional Mobility Plan:** The mission participated in the discussions around the regional mobility plan that will help prioritize investments in transport in Raipur-NayaRaipur-Bhilai-Durg region. It noted that environmental considerations are being incorporated in the plan. However, the data used for modeling is old. It suggested that the latest information regarding air quality and noise levels, the variables that could be affected by the proposed plan, should be obtained from the Environment Control Board. It was agreed that during the revision of the report, this information would be reflected in the modeling and suitably used for planning purposes.
36. **Social.** NRDA has confirmed that 3 small shops will be affected at old Mantralaya pick-up point and this shop keepers will be provided alternative pre-fabricated shops at the same site itself. To ensure that their livelihood is mainaigntained. However, the assessment of impacts at the exist point is not yet completed. As observed during July, 2015 mission, there could be some partial impacts to structures situated along the exist point.

37. **Key Agreed Actions**
   - NRDA to respond to comments on bus service plan report with revised draft – December 15, 2015
   - NRDA to define an itemized schedule to complete the works at Railway Station BRT terminal – January 15, 2016
   - NRDA to send review of access roads and circulation plan around the Old Secretariat terminal – January 31
   - NRDA to send concept plan for the Pick-up-Point at Telibanda – January 31
   - NRDA to send concept plan for the Pick-up-Point at Gadhi Chowk – January 31
   - Lea Associates to submit Final Regional Mobility Plan incorporating comments – January 31
   - Submit monthly progress report contract wise – Continuous
   - Completion of BRT civil works – March 31
   - Completion of NMT civil works–April 31, 2016
   - Final decision on funding of buses – Dec 31
   - Submit Action taken report on construction issues identified
   - Issue RFP for appointment of fair collection agency –Feb 1; Complete procurement by April 30
   - Complete procurement of bus operator – April 30
   - Submit options for integration of smart card functionality between Naya Raipur and Raipur – Dec 31
   - Submit revised BRT Lite Implementation Schedule – Dec 31, 2015
   - Review and Finalise Fare Collection Policy – Jan 31
   - Develop a Communications & Outreach Plan for BRT Lite – Jan 31
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. Sandeep Soni, CEO, AICTSL on the project progress in regard to the Indore component through audiocon in Delhi on December 7, 2015.

**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. With the court ruling in place, the average travel time for a BRT bus from end to end reduced to 35 minutes from 45-50 minutes. Accident rates have reduced with mixed traffic no longer being allowed within the BRT corridor.

3. Corridor extension is proposed for another 8 kms as per in principle approval by the AICTSL Board and Sarak Suraksha Committee in Indore. Stations will be developed on PPP. Road widening works (6 lanes) are already ongoing. AICTSL needs to develop depots for maintenance of the new bus fleet.

4. **BRT Operations**. AICTSL has 40 buses in operations and the daily passenger traffic is 50,000 on the BRT corridor as compared to the 70 buses in operation for ordinary city bus services which experience a daily ridership of about 30,000. Additional 5-6 buses are expected to be added to the BRT fleet in the coming months. The service frequency of BRT ranges from 3 minutes – 5 minutes. The Mission was informed that the service ridership has had no impact despite an increase in the fare slabs for longer distances in the month of July. However, despite substantial revenue generated from fare box, advertisements and other long distance services, AICTSL is still under a deficit Rs 35 lakhs/month. The BRT service has been hugely popular and the cash-flow deficit is expected to reduce further.

4. **ITS Component**. Two bids were received and opened on Feb 2, 2015. The bid evaluation has been completed and the decision to proceed with rebidding was taken. Based on the feedback received and the recent bid process it was determined that the inclusion of fare collection within the scope of the ITS vendor during the operation phase was increasing the risk perception and responsible for the poor response and also the non-responsiveness of the bidders. Accordingly, AICTSL took the decision to drop the fare collection requirement from the bid scope and continue with only AFCS and AVL/ PIS systems along with an operation phase covering system maintenance and operation. The bid documents have been accordingly revised and cleared by the Bank. It is proposed to complete the procurement process by April 2016.

5. **PMC for ITS**: IBI has been given an extension until March 2017 at an additional cost of Rs 75 lakhs over the expired contract. The Mission advised AICTSL to expedite the submission of the revised contract based on comments provided for Bank’s no objection. This has been pending for sometime and needs to be closed off at the earliest.

6. **Technical Assistance Activities**. The Mission reviewed the status of the proposed TA activities.
   (i) **Preparation of BRT Accessibility Plan, including pedestrian access**: AICTSL Board took the decision to cancel the tender owing to the high bid received and proposed rebidding with a
rationalized ToR not including bid process management and implementation. The Bank has agreed to this and advised early submission of draft ToR and EoI for review.

(ii) Monitoring & Evaluation Study. TER report has been prepared and submitted to PMU for review.

(iii) Preparation of a business plan for AICTSL. TER has been prepared and submitted to PMU for review.

7. **Key Agreed Actions:**

   - Seek no objection for extension to PMC contract – December 31, 2015
   - Submit revised procurement plan – August 25, 2015
   - BRT Accessibility Study – Submit revised ToR and EoI – December 15, 2015
   - Appointment of consultant for Business Plan study – Feb 15, 2016
   - Appointment of consultant for Monitoring and Evaluation study – Feb 15, 2016
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Mysore

1. A World Bank mission held discussions with Mr. R.K. Kataria, Managing Director, KSRTC, his team including MCTD officials, their consultants and vendors in Bangalore on December 5, 2015 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 has issued the ‘certificate of operational acceptance’ to the ITS vendor effective Oct 1, 2016. And the system is now technically entered the operational phase.

4. KSRTC presented on the performance of the system and it was noted that there was a growing backlog of maintenance issues that were not being resolved in a timely fashion. CMC, which has recently merged with TCS, explained that owing to the merger and administrative issues there had been delays in ordering spare parts for maintenance. However, the matter had since been resolved and they would be tending to the maintenance backlog soon.

   Reacting to frequent VMU failures resulting from blowing up of power supply fuses, the Bank team reiterated its earlier recommendation for the ITS vendor to come up with a suitable solution to making the fuse module accessible or some other alternative that would be easier to rectify without having to remove the entire VMU. In response to the issue of VMU resync due to GPRS drops, the Bank team suggested the use of back-up SIM on an alternative service provider.

5. KSRTC team informed the Mission that a permanent solution to the bus stop power issues was being worked out with Mysore City Corporation. A proposal to deploy solar-based PIS at pre-designated bus shelters is also under consideration and maybe a more robust solution in the Indian context.

6. It was discussed and agreed with KSRTC to organise a Hackathon in Mysore in Feb 2016 to crowd-source innovative and creative applications using the Big Data that has been captured thus far. As there are several engineering colleges as well as IT majors in Mysore this could be an opportunity for promoting the ITS as well as sourcing mobile app solutions.

7. The **M&E consultant’s** contract with KSRTC which ended on March 31, 2015, is proposed to be extended to cover the post ITS implementation phase to capture the ‘after project’ impacts as a one time exercise. The mission advised KSRTC to ensure that the scope included mobilisation of key staff for 3-6 month period to cover the impacts after the communications and outreach exercise had been implemented. They were also advised to ensure that the daily manpower rates quoted be the same as in the original contract. It was clarified by KSRTC that the consultants had indicated their inability to conduct MTBF tests. The Bank team pointed out
that if the current scope did not cover reliability analysis and did not include such KPIs as MTBF and MTTR, KSRTC should hire an alternate expert or institute to capture and analyze reliability indicators, especially now that the project is in the operational phase. The present vendors and consultants suggested that CIRT could be hired to conduct such tests.

8. **Additional Grant:** Under the previous project restructuring, KSRTC has received an additional GEF grant amount of $0.6 million towards (i) project management of ITS/M&E of the project and, (ii) marketing & communications of ITS, (iii) driver training simulator. The mission was pleased to note that KSRTC has made good progress and was ready to launch the procurement of the driving simulator as well as the communications consultancy.

9. **Comprehensive Service Operations Analysis Study.** The Bank had suggested that the immediate action plan focus on service design and operation and that it is important to first develop and implement a service plan that: 1) provides reliable service (actual operations reflected in passenger timetables) and 2) makes the most cost effective use of limited funding and service resources. The World Bank acknowledged the importance of other improvements suggested in task reports (e.g., improved passenger information, better fleet planning), but felt that these improvements should be addressed after a sound service plan has been implemented.

It had recommended that the immediate action plan focus on following three important improvement areas that were identified in the service analysis work:

- Assessment of poorly-performing routes
- Scheduling of realistic running times by time-of-day and day-of-week
- Revision of operating procedures regarding initial departure of trips from route terminals.

10. The World Bank reviewed the Final Implementation plan shared with the Bank on June 23, 2015 and noted that the only difference of opinion that exists is KSRTC’s focus on EPKM. KSRTC uses the “operating deficit” or the “Margin per Kilometer” (MPKM) as the basis for route analysis. The consultants did come up with an A to E scale based on MPKM which is a reasonable way to examine route performance. However, they still want to use EPKM as one factor in route analysis. The Mission agrees with the approach that uses load factor and cancellation as the basis for route analysis. It is suggested that KSRTC use MPKM (instead of EPKM) as the third factor in this analysis.

11. As this study is a landmark study conducted by KSRTC, the Mission proposed to have a detailed discussion around the findings of the study and how these could be taken forward by KSRTC. As many of the aspects involved in service design of an urban service differ from those of a long distance service, it would be useful to have a more in depth discussion with KSRTC so they can start to document and implement some of the recommendations emerging out of this important study. It was agreed that a discussion cum workshop would be organised in Feb 2016 in Bangalore/ Mysore.

**Key Agreed Actions:**

- Complete driving simulator procurement – Feb 28
- Complete procurement of Communications Consultants – Feb 28
- Complete extension of scope of M&E Consultants – Dec 31, 2015
- Submit update on compliance – Weekly
- Conduct Hackathon in Mysore – Feb 2016
- Discussion Workshop on CSOA Report – Feb 15, 2016
INDIA: GEF-World Bank-UNDP: Sustainable Urban Transport Program (SUTP)

Mysore – Proposed Public Bike Sharing Project (PBS)

1. The Mission met with Ms. V. Manjula, Commissioner DULT, Mr. Suresh Babu, Dy. Commissioner Mysuru, officials of DULT and Mysore City Corporation, the finalized vendor and their team in Bangalore on December 5, 2015, to review the Mysore 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.

3. The procurement for Mysore PBS has been completed and the contract is being awarded to Mssrs. Green Wheel on a design, supply, install and operate model. The contracting modalities are expected to be completed within the month and the vendor is already mobilizing to plan the design and implementation phase. According to them, they would be in a position to complete implementation within six months of contract award. The following were the key aspects of discussions held:

   • The Bank team observed that it would be prudent to insert a clause in the contract agreement that will ensure the purchaser (DULT + MCC) at the end of the contract period would have complete access and rights to the software and associated intellectual property.
   • Given the delivery of service (registration, authentication etc.) will be via the Amazon cloud, the Bank team pointed out the need to ensure fast reaction times and low latencies in the network. The option to implement localized registration and authentication was also discussed.
   • Since there is a need to translate and customize the existing Chinese software, the Bank team advised MCC to make sure the local (Mysore) partner of the JV was equipped with required software engineering expertise.
   • The Bank team supported the JV’s intent to request information about drop-off location at the time of rental to better optimize the allocation of bikes at docking stations. It was also advised that mobile apps etc. sharing information on the number of bikes available at various stations would be useful for users.
   • The Bank team suggested the use of penalties to cover situations when docking stations are empty as well as full (no slots available for parking when returning the bicycle).
   • The Bank team advised the vendor to start reviewing the traffic forecasts and flows outlined in the DPR and updating those for implementation. The vendor was also advised to have the operations team mobilized and gearing up for the operations through exposure and training from the Chinese JV partner operations in Chinese cities.

4. Key agreed actions included:
   • Award of contract – Dec 31, 2015
   • Entrustment of statutory audit of PIU of MCC to the state AG – Within 3 months of restructuring
Financial Management

1. **Budget & Expenditure:** The budgetary requirement for FY 16-17 have been submitted by all PIA’s to their department for inclusion in state budget. The project stands extended with revised closing date of the project as Mar 31 2018.

2. **Disbursement profile:** As on December 15th 2015, the disbursement profile (including advances) stood at 40.67% against IBRD and 49.859% against GEF financing. Disbursements reflect the expenditure claimed by project until June 2015. The claim for the quarter ending September 2015 has been recently submitted by CAAA to Chennai office and is under process. Overall position is stated below and the PIU wise disbursement position is summarized in Annexure 1.

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<th>IBRD status of Disbursement</th>
<th>USD Million</th>
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</thead>
<tbody>
<tr>
<td>Financing source</td>
<td>Allocation</td>
</tr>
<tr>
<td>IBRD</td>
<td>105.23</td>
</tr>
<tr>
<td>DA Advance</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>105.23</td>
</tr>
<tr>
<td>% Disbursed inc DA</td>
<td></td>
</tr>
<tr>
<td>% Disbursed exc DA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GEF status of Disbursement</th>
<th>USD Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing source</td>
<td>Allocation</td>
</tr>
<tr>
<td>GEF</td>
<td>18.45</td>
</tr>
<tr>
<td>DA Advance</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>18.45</td>
</tr>
<tr>
<td>% Disbursed inc DA</td>
<td></td>
</tr>
<tr>
<td>% Disbursed exc DA</td>
<td></td>
</tr>
</tbody>
</table>

3. **External Audit:** The audit for all PIA’s pertaining to FY 14-15 has been completed by designated auditors and the audit report is likely to be issued to PIA’s by Dec 15 2015. The due date for submission of audit report to Bank is Dec 31 2015 and there is a high likelihood given the present progress that all reports including MoUD will be shared with Bank before the due date.

4. **Internal Auditors:** The mission was informed that the internal auditors are in place and the audit for entire one year ie FY 14-15 will be undertaken by them. Last audit committee meeting was held on November 12th 2015.

**Project Rating: Financial Management**

<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</td>
<td>S</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>
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>Entrustment of statutory audit of PIU of MCC to the state AG</td>
<td>MCC</td>
<td>March 31 2016</td>
</tr>
<tr>
<td>2.</td>
<td>External audit report for FY 14-15</td>
<td>All PIA’s</td>
<td>Dec 31 2015</td>
</tr>
</tbody>
</table>
### PIA’s wise disbursement profile USD/Mn

<table>
<thead>
<tr>
<th>PIU’s</th>
<th>PCMC *</th>
<th>Naya Raipur</th>
<th>HDBRTS</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBRD allocation *</td>
<td>35.58</td>
<td>13.94</td>
<td>55.45</td>
<td>105.23</td>
</tr>
<tr>
<td>Designated advance</td>
<td>6.47</td>
<td>1.00</td>
<td>2.00</td>
<td>9.47</td>
</tr>
<tr>
<td>Reimbursements</td>
<td>22.62</td>
<td>4.89</td>
<td>5.55</td>
<td>33.33</td>
</tr>
<tr>
<td>Total Disbursements</td>
<td>29.09</td>
<td>5.89</td>
<td>7.55</td>
<td>42.80</td>
</tr>
<tr>
<td>% Disbursed inc DA</td>
<td>81.75%</td>
<td>42.25%</td>
<td>13.62%</td>
<td>40.67%</td>
</tr>
<tr>
<td>% Disbursed exc DA</td>
<td>63.58%</td>
<td>35.07%</td>
<td>10.02%</td>
<td>31.67%</td>
</tr>
</tbody>
</table>

* Including the front end fees of USD 0.263 mn

### GEF- PIU wise disbursement USD /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>1.90</td>
<td>1.90</td>
<td>1.91</td>
<td>2.49</td>
<td>6.15</td>
<td>2.50</td>
<td>1.60</td>
<td>18.45</td>
</tr>
<tr>
<td>Designated advance</td>
<td>0.46</td>
<td>0.23</td>
<td>0.23</td>
<td>0.23</td>
<td>0.85</td>
<td>-</td>
<td>-</td>
<td>2.00</td>
</tr>
<tr>
<td>Reimbursements</td>
<td>0.50</td>
<td>0.88</td>
<td>0.50</td>
<td>1.94</td>
<td>2.30</td>
<td>1.08</td>
<td>-</td>
<td>7.20</td>
</tr>
<tr>
<td>Total Disbursements</td>
<td>0.96</td>
<td>1.11</td>
<td>0.73</td>
<td>2.17</td>
<td>3.15</td>
<td>1.08</td>
<td>-</td>
<td>9.20</td>
</tr>
<tr>
<td>% Disbursed inc DA</td>
<td>50.29%</td>
<td>58.20%</td>
<td>38.38%</td>
<td>86.97%</td>
<td>51.30%</td>
<td>43.26%</td>
<td>-</td>
<td>49.84%</td>
</tr>
<tr>
<td>% Disbursed exc DA</td>
<td>26.08%</td>
<td>46.09%</td>
<td>26.34%</td>
<td>77.74%</td>
<td>37.47%</td>
<td>43.26%</td>
<td>-</td>
<td>39.00%</td>
</tr>
</tbody>
</table>