Tool Kit for Public–Private Partnerships in Urban Bus Transport for the State of Maharashtra, India

Knowledge Series

Edited by

Anouj Mehta

THE GOI-ADB PPP INITIATIVE
Mainstreaming PPPs in India
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Government of India
Ministry of Finance
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Foreword

India's all-around development demands sustained economic growth. *Sustainable infrastructure development* will allow economic activities to prosper, and limited and fast-depleting resources to be conserved and used most efficiently.

Public–private partnerships (PPPs) are seen as a key ingredient in bringing in much-needed investments and efficiencies in the use and management of financial and other resources. Estimates show that if the economy is to grow by 8% yearly, the infrastructure sectors need more than $500 billion in investments from 2007 to 2012; around 30% of the investments must come from the private sector.

The government is therefore taking a structured approach to creating an enabling environment for private investment and operations in infrastructure. With Asian Development Bank assistance, a gradually ending set of tasks including capacity building and institutionalization of PPPs across the country is being carried out under the Government of India–ADB Initiative for Mainstreaming PPPs. State PPP cells and departments, such as the Urban Development Department in Maharashtra, are being supported in various state-specific activities.

In urban bus transport, PPP structures that can be implemented in the cities of Maharashtra have been identified and developed. Possible PPP structures in the sector were studied, and their applicability to the sample cities was assessed. Consultations led to the development of term sheets for the PPP structures that were found to be most suitable and feasible for implementation.

This tool kit was prepared to assist public entities in the state of Maharashtra in developing PPP urban bus transport projects. It will help those entities decide whether to take the PPP route or not. The tool kit can therefore be the basis for approving a project implementation structure as part of overall project approval.

We are confident that this tool kit will be used by municipal commissioners and chief executive officers of urban local bodies, and other state government officials and decision makers, when considering the PPP-based implementation of urban bus transport projects.

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Abbreviations

ADB	–	Asian Development Bank
CIDCO	–	City and Industrial Development Corporation of Maharashtra Limited
CMP	–	comprehensive mobility plan
CRISIL	–	CRISIL Risk and Infrastructure Solutions Limited
DPR	–	detailed project report
ICTSL	–	Indore City Transport Services Limited
IRR	–	internal rate of return
JCTSL	–	Jaipur City Transport Services Limited
JNNURM	–	Jawaharlal Nehru National Urban Renewal Mission
MSRTC	–	Maharashtra State Road Transport Corporation
NMMC	–	Navi Mumbai Municipal Corporation
NMMT	–	Navi Mumbai Municipal Transport
NWCMC	–	Nanded Waghala City Municipal Corporation
PMPML	–	Pune Mahanagar Parivahan Mahamandal Limited
PPP	–	public–private partnership
RFP	–	request for proposal
RFQ	–	request for qualification
SQP	–	service quality plan
ULB	–	urban local body
VGF	–	viability gap funding
WACC	–	weighted average cost of capital

PART I

Overview and Guiding Principles

1 Introduction

1.1 Background and Scope of Work

The government of Maharashtra proposed a significant upgrade in the civic infrastructure of the state through public–private partnership (PPP). The PPP cell of the state government, in May 2009, therefore approached the Asian Development Bank (ADB) through the Department of Economic Affairs, the Ministry of Finance, and the central government to study the urban transport sector of the state and explore the possibilities of PPP in the sector. ADB appointed CRISIL Risk and Infrastructure Solutions Limited (CRISIL) to

- explore opportunities for PPP in urban transport; and
- prepare term sheets to realize those opportunities.

The assignment was carried out in the following phases:

- **Phase 1**—review of PPP structures implemented in India, preliminary assessment of urban transport services in sample cities of Maharashtra, identification of issues, identification of suitable PPP structures, and preparation of term sheets.
- **Phase 2**—detailed financial analysis, feasibility studies, and project structuring for selected cities.
- **Phase 3**—bid process management.

This tool kit is an output of phase 1.

In discussion with the PPP nodal officer–cum–secretary (Urban Development Department) of the state government, ADB identified four sample cities in Maharashtra for the study. ADB selected cities with varying population sizes and geographic settings, to get a representative sample. Two of the cities (Aurangabad and Nanded) had implemented PPP contracts and hence were able to draw lessons from them; the other two (Navi Mumbai and Nashik)[1] had yet to implement such contracts. Three of the selected cities were covered by the Jawaharlal Nehru Urban Renewal Mission (JNNURM). Therefore, some of the sample cities had already identified investments that needed to be made to improve urban transport.

To choose an appropriate PPP structure for the cities, CRISIL

- studied in detail possible PPP structures in urban bus transport including bus depots;
- made a comprehensive review of urban bus transport in the sample cities and identified areas for PPP-based intervention;
- studied existing PPP contracts where applicable and suggested improvements; and
- prepared detailed term sheets for the PPP structures that were identified as most suitable for the sample cities.

CRISIL also studied the monorail contract being implemented in Mumbai to derive the main terms and conditions for the operation and maintenance of a monorail system.

1.2 Preparation of the Tool Kit

This urban transport tool kit was conceived by ADB and the government of Maharashtra. To prepare it, the study team first reviewed documentation—case studies, reports, articles,

[1] Nashik was excluded from the final analysis because there were not enough data.

and presentations—on urban transport PPPs in India and drew important lessons. Some of the lessons pertained to the main obstacles to private participation in urban transport.

The team then identified project structuring options for implementing PPP in urban transport. The options were based on PPP projects that were being implemented and on future developments in the sector (such as a grant to an urban bus transport authority for the procurement of rolling stock). Project structuring options for the development of bus depots were considered. The team also studied concession agreements for bus transport (Pune, Indore, and Jaipur) and for the development of interstate bus terminals through PPP.

With the knowledge gained, the team prepared term sheets for the PPP structures, each one containing the clauses applicable under the specific PPP structure. These clauses would help the bus transport authority to draft a PPP contract.

The team also assessed the sample cities chosen by ADB, using documents like city development plans, comprehensive mobility plans, and PPP contracts (in the case of Aurangabad and Nanded), and discussed the current state of urban transport with sector officials of the sample cities. The discussions dealt with problems and plans and the scope for PPP in the cities. Views and suggestions on the PPP structures devised were obtained, and the suggestions were incorporated into the term sheets. The team met the private operators that run urban transport services in Aurangabad (Akola Pravasee and Mal Vahatuk Sahakari Sanstha) and Nanded (Siddeshwar Travels) to gauge the problems faced by private operators in providing transport services.

The lessons from the study of PPP in urban transport were used in developing a step-by-step process for the implementation of a PPP life cycle. PPP and urban transport experts from CRISIL gave suggestions. After that the entire tool kit was reviewed and finalized in consultation with the government of Maharashtra, ADB, and the Department of Economic Affairs.

1.3 Structure of the Tool Kit

The tool kit comes in four parts:

- Part 1—overview and guiding principles,
- Part 2—details of PPP structures,
- Part 3—case studies of sample cities in Maharashtra, and
- Part 4—term sheets for PPP structures.

The eight chapters in Part 1 present the following:

- Chapter 1—background of the tool kit, its structure, users, and guiding principles;
- Chapter 2—overview of PPP in the urban bus transport sector and the various case studies that were used in the preparation of the tool kit;
- Chapter 3—contents of the tool kit and the broad approaches followed in selecting the most suitable PPP structure;
- Chapter 4—preparatory work to be done by a bus transport authority or urban local body (ULB) before identifying the PPP structure (defining the problem, identifying a project and assessing it, and prioritizing major problem areas);
- Chapters 5 and 6—manner in which the bus transport authority or ULB should choose between public funding and PPP, evaluate the prospects for PPP, assess the financial viability of the project, and decide whether or not to implement it through PPP;
- Chapter 7—advice on identifying risks and allocating them between the public entity and the private operator or developer, and on selecting a suitable contract structure, and a summary of the PPP structures implemented in India; and
- Chapter 8—procurement process to be followed if the bus transport authority or ULB decides to implement the PPP structure.

1.4 Users of the Tool Kit

As explained above, this tool kit covers a part of project development. Therefore, it may be used by any entity that is developing an urban bus transport project and is exploring the possibility of implementing it through PPP. In India, the organizations that are likely to be involved in project development are transport authorities or ULBs and municipal undertakings.

Therefore, this tool kit will most likely be used by staff from the transport department of such entities.

Additionally, the tool kit will help in deciding whether a particular project might be suitable for PPP or not. The tool kit can therefore be the basis for approving a project implementation structure as part of overall project approval. Project approval is usually a task of the top decision-making authority of the entity that is primarily responsible for implementing or financing the project. Thus, it can be useful to the municipal commissioner or to the chief officer of the transport committee or authority, ULB, or bus transport enterprise.

These authorities would use the tool kit in deciding

- whether a project could be implemented through PPP, and
- which PPP structure would be appropriate if PPP is a suitable choice.

1.5 Disclaimers

This tool kit deals with the decision to implement PPP and with the identification of PPP structures solely for procuring, operating, and managing rolling stock (buses), as projects in the urban bus transport sector mostly involve the procurement of rolling stock.

This is a general tool kit for decisions on PPP. Its application may be modified to suit the urban transport characteristics of a particular city.

2 Public–Private Partnership in Urban Bus Transport

This section summarizes the concept of and rationale for PPP-based project development in urban bus transport. It familiarizes users with PPP projects in the sector and discusses briefly some PPP projects that have been implemented in India.

2.1 General Definition and Overview

A PPP project is based on a contract or concession agreement between a government entity and a private sector company binding the company to deliver an essential service on the payment of user charges.

While service delivery through PPP changes the means of delivery, it does not shift accountability for providing the services. Only the role of the responsible government entity changes. The entity manages; it no longer engages in actual operations. In other words, the government entity is now an overseer rather than a resource administrator.

For example, a concession contract might require the private sector, over a period of time, to design, construct, finance, and operate a project on a plot of land, and to maintain the land and convert it into a special economic zone. During the concession period, the private operator may collect lease premiums from subtenants, instead of developing the land, to recover its costs. The land will be handed back to the government entity at the end of the period.

2.2 Rationale

PPP offers various advantages to all stakeholders in the project.

2.2.1 Advantages to the Public Sector

The public sector benefits from efficient and effective operations. This is possible for the following reasons:

- Private innovation. The government can bring private sector efficiencies and know-how into government operations. The government entity specifies the service to be provided, and the private sector uses its expertise, innovating in the design and building of systems, to make the desired output possible.
- Sharing of responsibilities and risks. The responsibilities and risks in the running of the services are ultimately transferred to the entity most suited and equipped to deal with them. Thus, value is added in service delivery.
- More public resources for other development priorities. The private operator invests its own funds in the service and thereby frees up government funds for more important and critical issues of public policy.

2.2.2 Advantages to the Private Sector

PPP gives the private sector opportunities for profit. The private operator can bring in its innovative approach and know-how to save and thereby earn more profit.

2.2.3 Advantages to Consumers

Better-quality services combining private and government expertise become more accessible. At the same time, the government protects the interests of consumers so that public policy goals are not compromised.

2.3 Urban Transport Sector of India

Demand for urban transport in India is determined by urban population, household incomes, and industrial and commercial activities. The rapid growth in the economy has increased demand, but public transport systems have not kept pace. Public transport is the primary mode of transport in the bigger cities and metropolitan areas. It accounts for 22%–46% of all travel in cities with a population of more than 8 million.[2] Bus transport is the predominant form of public transport in cities with a population of more than 1 million. In cities with poor public transport systems, paratransit and private modes of transport are much more common. Intermediate public transport systems like tempos (three-wheeled buses), autos, and cycle rickshaws help meet the demand in medium-sized cities.

The institutional setup for urban transport is managed by the state and local governments, which operate and maintain public transport systems, especially bus transport. The central government intervenes through centrally funded programs like JNNURM.

2.4 Trends in Public–Private Partnership in Urban Transport

As mentioned, urban transport services are provided mainly by the states. But the services are inadequate and of poor quality. Most municipal transport undertakings are running at a loss and cannot even recover their operating costs. The average age of bus fleets is very high, leading to operating inefficiency and lower mileage. Since the start of 2000, there has been a good rise in the implementation of PPP in urban transport; some landmark contracts are as follows:

- development of bus terminals at Dehradun and Amritsar;
- implementation of metro rail systems in Mumbai (Versova–Andheri–Ghatkopar) and Hyderabad;
- procurement, operation, and maintenance of semi-low-floor buses in Indore;
- a cost-plus contract in Pune; and
- intra-city bus operations in Aurangabad and Nanded.

2.5 Case Studies in India (Bus Transport)

PPP structures for bus transport implemented in the cities of Pune, Indore, and Jaipur are presented briefly here.

2.5.1 Cost-Plus Contract, Pune

Pune Municipal Corporation and Pimpri Chinchwad Municipal Corporation have merged their bus transport authorities into a special-purpose vehicle, Pune Mahanagar Parivahan Mahamandal Limited (PMPML). PMPML's 1,250 buses, operated through PPP, carry one million passengers over 282 routes every day on average. The private operator procures buses to fit PMPML's specified needs, leases them to PMPML, operates the buses on routes identified by the transport utility, and maintains the buses. The number of buses the private operator will lease to PMPML is the main consideration in the bidding. PMPML provides administrative support, including supplying tickets and passes.

The private operator appoints the bus drivers; PMPML, the conductors. The drivers follow the routes and schedules defined by PMPML, and the conductors collect the fare revenues and deposit them with PMPML. The buses use shared infrastructure like bus stops, bus terminals, and parking depots owned by PMPML.

Unlike PMPML-owned buses, which are serviced in PMPML's own depots, the buses under the contract are operated and maintained by the

[2] Government of India, Ministry of Urban Development. 2008. *Study on Traffic and Transportation Policies and Strategies in Urban Areas in India.* Delhi.

private operator. PMPML pays the operator a per-kilometer lease charge, which depends on the operating costs of the private operator. It may increase if the price of fuel or other consumables like tires or engine oil increases. PMPML earns additional revenues by selling advertising rights on the buses. It also develops and implements systems to make the buses operate more efficiently.

2.5.2 Net-Cost Contract, Indore

The Indore Municipal Corporation has formed a special-purpose vehicle, Indore City Transport Services Limited (ICTSL), to monitor and provide bus transport services on a PPP basis (net-cost contract) in the city. A fleet of 84 buses operated and maintained by a private entity transports an average of 75,000 passengers on 24 routes daily.

The private operator procures, owns, and runs the buses and collects fare revenues. The operator keeps the revenues and also shares in ICTSL's income from passes and advertisements on the buses. In return, the operator pays ICTSL a fixed amount each month. The payment quoted by the private operator is the main factor in the bidding.

2.5.3 Cost-Plus Contract, Jaipur

Jaipur City Transport Services Limited (JCTSL) plans to operate a bus rapid transit system on a buy–own–operate–maintain basis. The company invited bids for 60 buses from a private operator. The operator is required, over a period of 7 years, to procure, own, and maintain the buses, and operate them at its cost on routes and according to schedules set by JCTSL. The private operator also has to deploy properly trained and authorized staff to operate the buses. The bus conductor collects the fares and deposits them with JCTSL. The private operator is paid a certain amount per kilometer, which is determined by the operating costs defined in the agreement.

3 Overview of the Tool Kit

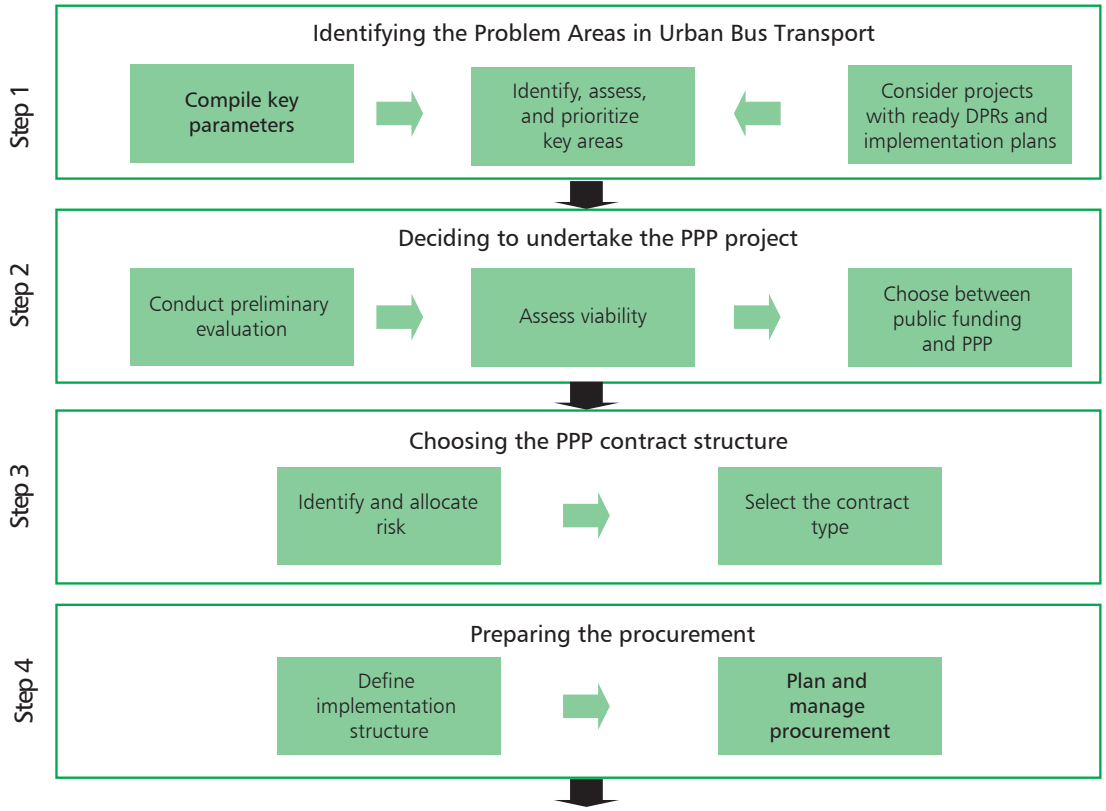
This section gives an overview of the steps to be followed in determining the most suitable PPP structure for an identified project in the urban transport sector, along with a snapshot of the activities that need to be undertaken to facilitate the implementation of the PPP structure selected. The steps involved in determining and implementing the PPP structure are shown in Figure 1.

The choice of a private operator for a PPP project is made in four steps, as follows:

- Step 1—defining the problem (Sections 3.1 and 4),
- Step 2—choosing between public funding and PPP (Sections 3.2 and 5),
- Step 3—choosing the structure for PPP (Sections 3.3 and 6), and
- Step 4—preparing for procurement (Sections 3.4 and 7).

In step 1, the problems of the bus transport undertaking and projects that will mitigate or eliminate these problems are identified. The viability of these projects for public funding or PPP implementation is examined in step 2. Step 3 is the process of choosing the most suitable PPP option for implementing the project. Step 4 is the process followed in

Figure 1 Overview of the Tool Kit



DPR = detailed project report, PPP = public–private partnership.

Source: CRISIL Risk and Infrastructure Solutions Limited.

choosing the PPP operator, through transparent and robust bidding.

3.1 Step 1: Defining the Problem

The first step in implementing this tool kit is identifying the main problems that weigh down an urban bus transport undertaking by assessing the current system. The bus transport system will be surveyed, its financial status assessed, and its services reviewed and benchmarked. If a detailed project report (DPR) has already been prepared, the report must be thoroughly reviewed. The review should also cover DPRs that have been approved for central government funding even if it means additions to or changes in the scope of work. At the same time, the bus transport authority or the urban local body (ULB) will have to prepare a comprehensive mobility plan identifying new and expanded routes in the city. The parameters of the bus transport undertaking can then be compiled and compared against norms to obtain a list of the major issues that concern the undertaking. Projects that deal with these issues will be identified.

3.2 Step 2: Choosing between Public Funding and Public–Private Partnership

The financial feasibility of the projects will be evaluated after the project revenues, and the operating and capital costs, are identified. Financial models based on these costs and plausible assumptions will be built. The estimated returns will be obtained from the financial models and compared against the market rate of return, and the viability of PPP will be determined. Typically, projects that earn more than the market rate of return are deemed suitable for PPP implementation. If standalone projects are not viable, then viability gap funding should also be considered. A qualitative assessment of the projects will be made to gauge whether PPP is justified. The decision to implement PPP will be based on whether the private operators can significantly improve the projects. The projects deemed acceptable under this framework of analysis will be considered for PPP.

3.3 Step 3: Choosing the Structure for Public–Private Partnership

Who will own the assets created in those projects will then be determined, to help decide the type of PPP structure to be implemented. Once ownership has been established, all the possible risks in the projects will be identified and allocated to the entities (private operator, bus transport undertaking) best equipped to handle them. Risk allocation matrices, showing the risks borne by the private operator and by the bus transport authority or ULB, and the risks they share, will be created for the projects. For comparison, risk allocation matrices will also be prepared for contract structure options based on a study of PPP structures that have already been implemented in India. The contract options that offer the best match will be selected. Ease of application of the contracts, cost recovery, and competition for the contracts will also be considered.

3.4 Step 4: Preparing for Procurement

The contract structures chosen and their risk allocation matrices will guide the creation of project implementation structures and the drafting contracts for the projects. A short-listing process that suits the requirements of the bus transport authority or ULB will be selected. Typically, depending on the scope of work and the number of bidders, the short listing will be based on financial and technical capability, and short-listed applicants will be invited to bid for the projects. The financial offer alone or in combination with the technical plan will determine the preferred bidders.

These four steps are discussed in more detail in the following sections of this tool kit.

4 Step 1: Defining the Problem

The problem definition stage involves an assessment of the current urban bus transport system—a physical survey of the system and an evaluation of its services—by the bus transport authority or the urban local body (ULB). At the same time, the bus transport authority or ULB must prepare a comprehensive mobility plan with suggested medium- and long-term solutions to traffic and travel problems. The bus transport authority or ULB must then compile the operating parameters of the system and benchmark them against those of well-implemented systems offering the same or similar services. Improvements will be identified and projects prioritized.

4.1 Assessing the Urban Bus Transport System

The assets of the system and the quality of the services provided by the bus transport undertaking will be inventoried. A detailed report will be prepared. This assessment should broadly cover the following:

- assets of the system;
- financial health of the bus transport undertaking; and
- services provided by the bus transport undertaking, including operating parameters, which will be benchmarked, and demand for the services.

The assessment will bring out issues, and the comprehensive mobility plan will help in identifying new routes and areas of operation. Projects that will improve urban bus transport services, possibly through PPP, can then be considered. The assessment can be made either by the bus transport undertaking itself or by an independent agency.

4.1.1 Assets of the System

All the assets of the bus transport undertaking must be physically surveyed to determine their condition. Typical assets are the following:

- rolling stock (buses);
- bus shelters;
- bus depots (repair kits, bus wash systems, fueling stations, restrooms);
- bus terminals;
- employees; and
- administrative offices.

The survey will determine the asset specifications, age, value, condition, and usability. The broad parameters to be surveyed are given in Table 1.

A survey of these assets will determine their condition and the need for immediate replacement or refurbishment. For example, an old bus fleet is one of the main reasons for the poor quality of bus services. It increases operating expenditure and affects operating parameters like punctuality and mileage.

4.1.2 Financial Health of the Bus Transport Undertaking

The financial condition of the bus transport undertaking can be determined through a review of its financial statements. The review will gauge revenue streams and costs, and improve understanding of the most important sources of revenue and the areas of highest cost. It will also help in assessing ratios like average earnings per passenger, operating cost, cost incurred per kilometer, earnings per passenger-kilometer, gross profit, and non-traffic revenue.

Table 1 Physical Parameters of the Urban Bus Transport Undertaking

Indicator	Value
Number of buses	
Number of depots	
Number of repair kits	
Number of bus wash systems	
Number of fueling stations	
Number of restrooms	
Number of bus terminals	
Number of bus shelters	
Number of routes	
Number of trips per day	
Number of employees	
Number of passengers per day	
Distance traveled per bus per day	
Distance traveled by all the buses per day	
Diesel consumed per day	
Average age of employees	
Average age of fleet	
Fuel efficiency	
Special programs (if any)	

Source: CRISIL Risk and Infrastructure Solutions Limited.

A bus transport undertaking has the following revenue streams and costs:

- passenger fares (tickets and passes);
- bus rental revenues;
- advertising revenues (from buses, bus shelters, and terminals); and
- rental of commercial space at bus shelters.

Operating costs consist of the following:

- employee costs (salaries);
- fuel costs;
- engine oil costs;
- tire costs;
- repair and maintenance costs;
- depreciation and interest charges; and
- taxes, fees, insurance, etc.

Capital costs are as follows:

- procurement of rolling stock;
- building of bus shelters, bus depots, and terminals; and
- conversion of compressed natural gas.

If user charges cannot cover the operation and maintenance charges of the system, the financial assessment will also reveal the extent of the deficit.

4.1.3 Services Provided by the Bus Transport Undertaking

Together with the physical survey of assets, there must be a review of the services provided by the system. The main components of this review are

- benchmarking of operating parameters, and
- assessment of demand for the services.

4.1.3.1 Benchmarking of Operating Parameters

The performance and operating parameters of the urban bus transport system (Section 4.1.1) will be evaluated against prevailing standards in well-established urban bus transport systems in the country (for example, Brihanmumbai Electricity Suburban Undertaking [BEST] in Mumbai). The benchmarking will help determine the efficiency of the system and indicate projects

and measures that will improve efficiency. It will answer the following questions:

- What are the main reasons for the poor quality of service?
- Where do losses occur in the system?
- What corrective measures will improve efficiency?
- What will be the approximate cost of these measures?
- How much will these measures improve the current condition?

4.1.3.2 Assessment of Demand for the Services of the Bus Transport Undertaking

Besides the physical survey, the bus transport authority or ULB must also survey consumers (if possible) or use past studies of system users to measure satisfaction with the services. In the consumer survey, users will be asked to rate the services in the city and their satisfaction with the services. The consumers should also be asked about major problems they face. The consumer survey will cover the following:

- major problems faced by consumers in using bus transport services,
- rating of services by consumers,
- suggested new services or routes, and
- willingness to use the bus transport system.

The results of the survey will tell the bus transport authority or ULB what consumers require and expect from the government. They will also indicate new or augmented routes that would create demand for the services of the bus transport authority or ULB.

4.2 Preparing a Comprehensive Mobility Plan

At the same time that the bus transport system is being assessed, a comprehensive mobility plan (CMP) must be prepared for the city. The CMP will identify measures that must be taken to improve the mobility of residents. The preparation of the CMP will involve the following:

- studying the traffic and travel characteristics of the study area,
- defining the coverage of the transport undertaking,
- identifying short-term improvements in the bus transport system,
- preparing medium- and long-term transport improvement plans, and
- suggesting implementation mechanisms and institutional arrangements.

The CMP will help in identifying areas in the city that will greatly affect travel demand patterns, with details of land use in these areas. The CMP will attempt to derive plans for the city from the city development plan or other comprehensive documents.

The following surveys will have to be carried out to prepare the CMP:

- passenger origin–destination survey,
- speed and delay survey,
- parking survey,
- mid-block count on major corridors in the city,
- turning movement survey at important intersections in the city,
- origin–destination survey at exit points,
- demand survey in major commercial areas, and
- collection of data from previous household surveys.

The CMP will indicate the new and augmented routes that the bus transport authority or ULB must cover to serve major intersections and areas of emerging travel demand.

4.3 Compiling Key Parameters

Some performance indicators are used in assessing the quality of services and determining gaps in infrastructure and technical aspects. The parameters for the assessment of the bus transport system are summarized in Table 2 and discussed in the following section.

4.3.1 Typical Issues in Bus Transport Operation

The important issues will be identified from the foregoing analysis. The three main problems

that affect the operation of a bus transport authority are:

- high wage component of employees,
- high age of bus fleets, and
- failure to update tariffs periodically.

Other typical problems of a bus undertaking are[3]

- few buses or inadequate service capacity,
- unreliable service,
- irregular frequency,
- poor route coverage,
- excessive fares,
- losses or low profitability,
- low demand for buses,
- poor supporting infrastructure,
- excessive grant or subsidy requirement,
- poor safety performance,
- pollution caused by buses, and
- poor treatment of passengers.

The bus transport authority or ULB is expected to list the problems facing the bus transport undertaking with the help of the parameters in Table 2 and the qualitative analysis in Sections 4.1.2 and 4.1.3.

Table 2 Parameters for Assessing the Bus Transport System

Indicator	Calculation	Norm	Rationale	Remarks
Adequacy of Stock				
Number of buses per 100,000 population	Number of buses in fleet/Total population of area (XXX,000)	60 buses	Indicates whether enough or too few buses are serving the population. A value very much lower than the norm can also indicate poor route coverage.	Current estimate of population within municipal limits to be considered. Only operational fleet of buses to be considered. Bus size considered is a normal 35-seater.
Fleet Description				
Average age of bus (years)	Not applicable (from physical survey conducted)	<4 years	Indicates whether buses in the fleet are past their useful age. Age of buses is the most important reason for inefficiency in bus transport undertakings, affecting all other standards. A value higher than the norm can indicate unreliable service and poor safety performance.	Average age of total existing fleet to be taken (operational fleet plus buses that are inoperable but not eligible for scrapping).

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[3] World Bank. Public–Private Infrastructure Advisory Facility (PPIAF). *Urban Bus Tool Kit*. This is an indicative list of problems. The actual problems would vary with the city. www.ppiaf.org/ppiaf/sites/ppiaf.org/files/documents/toolkits/UrbanBusToolkit/assets/home.html

Table 2 *continued*

Indicator	Calculation	Norm	Rationale	Remarks
Fuel efficiency (kilometers per liter)	Total number of kilometers operated/ Liters of diesel consumed	4.0–4.2 kilometers per liter	Fuel costs are among the most important components of cost. Lower fuel efficiency adversely affects the profitability of operations, leading to a larger financial deficit. Less fuel efficiency indicates low profitability, pollution, and poor-quality or old vehicles.	Kilometers operated must also include dead kilometers incurred during travel from depot to terminal and on routes.
Utilization of Rolling Stock				
Fleet utilization	Number of buses operated/Total number of buses in the fleet	>60%	Low fleet utilization indicates that there are old and poor-quality buses in the fleet that cannot be used.	Buses operated are based on the average number of buses operated over the year.
Bus productivity	Kilometers operated by buses/Total number of buses	225–275 kilometers	Indicates whether the buses are operating at an optimum level. Higher bus productivity can also indicate higher number of nonoperational buses in the fleet. Lower bus productivity means fewer buses per capita.	Norm is 190–200 kilometers if minibuses are operated. Effective kilometers will be considered.
Dead kilometers (kilometers)	Total number of kilometers traveled by each bus minus total number of kilometers spent by the bus on trips	No norm	Indicate whether the bus depot is too far away from the actual operating routes (between stands and depots). Dead kilometers lower profitability.	Estimation of total kilometers traveled to be based on distance from depot to origin of service, like terminals. Total number of kilometers spent on trips to be estimated as the product of number of trips and length of trips.

continued on next page

Table 2 *continued*

Indicator	Calculation	Norm	Rationale	Remarks
Regularity of Service				
Trip efficiency	Number of actual trips/Number of trips scheduled	>95%	Indicates the quality of operations and the age or operating efficiency of the fleet. Lack of trip efficiency leads to irregular and unreliable service.	Number of trips scheduled to be sourced from the service timetable of the bus transport undertaking.
Kilometer efficiency	Number of kilometers operated/Number of kilometers scheduled	>95%	Indicates the quality of operations and the operating efficiency of the fleet. Low kilometer efficiency indicates unreliable service.	Number of kilometers scheduled to be sourced from the service timetable of the bus transport undertaking.
Punctuality of Operations				
Punctuality of operations	Number of trips made on time/Total number of trips	>95%	A low value can indicate irregular and unreliable service.	Total number of trips can be sourced from the service timetable of the bus transport undertaking. Number of trips made on time can be sourced from the consumer survey.
Reliability of Operations				
Unreliability of buses (per 10,000 kilometers)	Number of breakdowns × 10,000/Total kilometers operated	<5%	A high value can indicate an old fleet or poor-quality vehicles.	Total kilometers operated based on number of trips.
Safety of Operations				
Safety of buses (per 10,000 kilometers)	Number of accidents × 10,000/Total kilometers operated	<5%	High value indicates poor safety.	
User Satisfaction				
Dirtiness of buses (per 1,000 trips)	Number of buses reported dirty × 1,000/Total number of trips scheduled	<5%	High value indicates poor treatment of passengers.	Number of dirty buses can be sourced from the consumer survey.
User dissatisfaction (per 1,000 trips)	Number of complaints × 1,000/ Total number of trips operated	<2%	High value indicates poor treatment of passengers.	Number of complaints can be sourced from the consumer survey.

continued on next page

Table 2 *continued*

Indicator	Calculation	Norm	Rationale	Remarks
Financial Recovery Ratio				
Cost recovery ratio	Revenue/Total operating costs	>100%	Ratio less than 100% indicates the need for a grant or subsidy to carry on operations.	Only fare revenue to be considered.
Staff Ratio				
Number of staff per bus	Total number of staff/ Number of buses in fleet	<5.5	Indicates whether the bus transport authority or urban local body is facing a shortage of workers for the performance of its services.	Total number of staff to be considered. There is no ideal staff ratio; it is contingent on hours of operation, type of service, and ticketing system, among others.
Others				
Load factor	Actual earnings from fares/Expected fare earnings	70%	Indicates roughly the demand for the service and possibly also the quality of the service.	Estimation of expected fare earnings considers all routes operated at full capacity of buses.
Service coverage	Total length of the corridors (route-kilometers)/Urban areas of the city	>1	Indicates the extent to which all areas of the city are covered. A higher value indicates more routes covered.	Total length of routes within the urban limits to be considered. Total urban area of the city to be considered.
Average waiting time	Not applicable	<10 minutes	High value indicates longer waiting time for the buses, and hence overcrowding and poorer service.	Based on survey of waiting time (in minutes) for passengers boarding buses on each route.

Source: Ministry of Urban Development Urban Transportation Guidelines 2008 and Jaipur concession contract.

4.4 Reviewing Projects with Approved Detailed Project Reports

Typically, the output of the assessment will be the main input for any project the bus transport undertaking proposes to develop to improve its services. The undertaking must develop short-, medium-, and long-term projects that will effectively address the issues. It may prepare detailed project reports (DPRs) listing the specific components that must be augmented or replaced, together with the required investment.

If the bus transport undertaking has already prepared a DPR (under JNNURM, the Urban Infrastructure Development Scheme for Small and Medium Towns, or some other program), it must be thoroughly reviewed. The review must assess and establish the need for the proposals contained in the DPR, and evaluate the costs allocated to various activities. A detailed list of activities in the

due diligence of project cost components can be found in Section 5.1.1. The projected revenue must also be worked out. Its components are explained in detail in Section 5.1.3.

Infrastructure and other issues not directly addressed in the DPR must be included, and the investment requirement must be reassessed. Before the projects start, DPRs that have already been approved for central government grants must be reviewed and suitably modified, even if it means additions to or changes in the scope of work. The modified DPRs must then be sent to the center for approval of funding for the changes in the scope of work.

4.5 Prioritizing Key Areas of Investment

The bus transport authority or ULB will have to prioritize the projects identified, depending on the needs of the system and the city. The projects can involve procuring buses, developing a parking facility, or building a bus terminal, bus depot, or bus stops, among others. A qualitative assessment of the projects, using the following criteria, must be made:

- Is there a need to increase the capacity of the current system?
- Is service delivery poor?
- Are there too few buses? Is the waiting time too long and are the buses always overcrowded?
- Is transport coverage less than ideal? Is this a result of an aging fleet or poor route planning or poor operating efficiency?
- Are there very many complaints from consumers?
- Is the safety record very poor?

Most of the problems mentioned in Section 4.3.1 will pertain to the chief parameters of the system given in Table 1. The bus transport authority or ULB must therefore prioritize the projects and determine the feasibility of implementing them through PPP.

5 Step 2: Choosing between Public Funding and Public–Private Partnership

The assessment made so far by the bus transport authority or the urban local body (ULB) will assist in identifying projects that will improve the urban bus transport system. For these projects, the most important activity will be gauging their viability. This section of the tool kit discusses the entire viability assessment process. The assessment will show the financial feasibility of the projects, the amount of investment they require, and the approximate returns to the private sector and the public sector (if revenues are shared). Revenues under certain assumptions will be projected with the help of a financial simulation model. The bus transport authority or ULB can then decide whether to implement the projects through PPP or not.

5.1 Assessing Viability

Detailed financial analysis is a very critical activity in determining whether the projects, given their expected costs and revenues, can and should be developed through PPP.

The main input to the analysis is the project cost. Two broad categories of costs need to be considered: capital costs for project development, and costs of operating and maintaining the infrastructure or asset created. These costs are defined in the following sections to guide the bus transport authority or ULB in identifying them.

5.1.1 Identification and Due Diligence of Project Costs

5.1.1.1 Capital Costs

Capital costs are costs that are directly associated with the provision of services. They include the basic costs of the capital assets for the projects such as rolling stock, buildings, and conversion kits (if required). The cost estimates should reflect the full resource costs of the projects. The main capital costs of urban bus transport projects are in Table 3.

5.1.1.2 Operating Costs

As mentioned, aside from the capital costs to be incurred in creating the project assets, the operation and maintenance costs should also be considered in the project cost analysis. While the exact nature of the costs will depend on the services to be delivered, which in turn will be contingent on the projects, these costs generally include the items in Table 4.

The operating costs will be based on the demand projections in the detailed project reports, and the cost rates on current market rates or rates paid in recent similar projects.

5.1.1.3 Treatment of Grants

All urban bus transport projects include one-time, third-party revenues or capital receipts.

Table 3 Typical Capital Costs of Urban Bus Transport Projects

Cost Item	Amount (Rupees million)
Cost of rolling stock	
Construction cost (depots, terminals, bus shelters, administrative offices, workshops)	
Machinery for depots (bus washers, fueling stations)	
Land acquisition costs	
Preliminary and pre-operating expenses	
Interest during construction	
Contingency expenses	
Capitalized operation and maintenance	

Source: CRISIL Risk and Infrastructure Solutions Limited.

Table 4 Typical Operating Costs of Urban Bus Transport Projects

Cost Item	Amount (Rupees million)
Cost of fuel (diesel, compressed natural gas)	
Cost of tire replacements	
Cost of engine oil	
Insurance cost	
Salaries of employees (calculated as cost to company)	
Repairs	
Body maintenance	
Administrative expenses	
Other miscellaneous operating cost	

Source: CRISIL Risk and Infrastructure Solutions Limited.

These receipts take the form of grants or subsidies from programs like JNNURM or the fiscal stimulus package that funded the procurement of state-run buses or the viability gap funding scheme of the Government of India. Such receipts will be deducted from the capital costs.

5.1.2 Due Diligence of Project Costs

The urban bus transport authority or ULB must conduct due diligence of project costs by benchmarking costs against market rates to ensure that they are credible, realistic, and consistent, and therefore acceptable to prospective bidders. The due diligence will depend on the following factors:

- **Basis for estimation of costs.** The cost estimates must be based on standardized costs, costs of similar projects, actual market prices, and standard industry norms.
- **Inflation.** The projects will be implemented over a period of time. If based on standard historical costs, the project costs must therefore be adjusted for inflation. If not, the estimated costs will be lower and the returns higher than what would actually accrue.
- **Opportunity cost.** The project costs will have to include the opportunity cost the project implementer incurs by not using the resources profitably elsewhere. Omitting opportunity costs will produce cost estimates that are lower than actual, thereby inflating the project returns.

5.1.3 Identification of Project Revenues

The next important estimates that must be prepared by the bus transport authority or ULB during financial feasibility analysis are project revenue estimates. Project revenue from a bus transport project is income from its operations. Only inflows of a revenue nature should be considered by the bus transport authority or ULB as project revenue. The revenue typically generated from urban bus transport projects is discussed below.

5.1.3.1 Project Revenues

All project revenues will have to be identified for the projects and assessed for feasibility. Project revenues are of two types:

- Direct revenues are revenues that are directly attributable to a project and are collected from the primary beneficiaries of the project. Table 5 is an indicative list of the direct revenues accruing to an urban bus transport project.
- Indirect revenues accrue to a project but are not directly connected to it. These increase the total project revenues if the first-level revenues are inadequate. Table 6 indicates the indirect revenues accruing to an urban bus transport project.

5.1.4 Preparation of the Financial Model

Once the project costs and revenues have been identified, the next step in the financial analysis will be to build a financial model of the project. This task involves the following activities:

- Identifying all input to the financial model—project cost, project revenues, operation and maintenance costs, assumptions for the financial model; and

Table 5 Typical Direct Revenues of Urban Bus Transport Projects

Items	Amount (Rupees million)
Fare collection	
Pass revenue collection	
Sales of advertising rights on the buses	
Sales of advertising rights on the bus shelters	
Sales of vending rights on the corridor (if any), terminals, depots, and rolling stock	
Parking charges (if any) at terminals	
Penalties, fines, etc.	

Source: CRISIL Risk and Infrastructure Solutions Limited.

Table 6 Typical Indirect Revenues of Urban Bus Transport Projects

Items	Amount (Rupees million)
Revenues from commercial development of project land	
Sale of FSI along transport corridor	
Transfer of development rights and sale of FSI (if depot land is also part of the project)	

FSI = floor space index.

Source: CRISIL Risk and Infrastructure Solutions Limited.

- Preparing the financial model—calculation of project cash flows and project internal rate of return (IRR).

5.1.4.1 Input to the Financial Model

The following basic assumptions and input must be considered when preparing a financial model:

- project cost arrived at after due diligence;
- grants approved for the project;
- project revenues (Section 5.1.3);
- operation and maintenance costs (Section 5.1.1.2); and
- certain assumptions for future cash flow projections, such as long-term inflation rates and interest rates, and income tax rates in the future.

All these assumptions will need to be documented during the financial feasibility process.

5.1.4.2 Preparation of the Financial Model

The financial viability of any capital-intensive project is largely defined by the expected return on investment. Therefore, a major objective of financial model preparation is to estimate the returns that the project can generate in the future. These estimates are based on project cash flows available to investors, both debt and equity investors.

To calculate the project cash flows, the following financial statements will have to be prepared:

- projected profit and loss account,
- projected balance sheet,
- projected cash flow statement (showing how the project cash flows were calculated),
- statement of the assumptions used in the financial statements, and
- total capital expenditure and its phasing.

Generally, these financial statements will cover the economic life of the created asset to allow consideration of the costs for the entire project life cycle. The typical projection period for projects involving rolling stock is 10–12 years.

5.1.5 Assessment of the Viability of Private Investment

There are two kinds of PPP contract structures corresponding to alternative situations where the private sector

- invests capital in the project, or
- does not invest capital in the project.

If the private sector invests capital, it expects an attractive return based on market returns. Therefore, the project must be assessed for commercial feasibility to determine whether it will draw private sector interest or not. The willingness of the private sector to invest will depend on the returns and on the risk involved. The following subsections describe the process of evaluating whether a project will attract the private sector or not.

5.1.5.1 Viability Assessment Process

The financial model prepared by the bus transport authority or ULB will give the project IRR, defined as the discount rate at which the net present value of all the cash flows become zero. The project IRR must be compared against a benchmark to assess whether the project is commercially viable or not. The posttax weighted average cost of capital (WACC) is a logical benchmark.

The posttax WACC is the minimum return from a project that would satisfy creditors, owners, and other providers of capital. It is calculated as follows:

$$WACC = (I - t)\,[(E/K) \times Ce + (D/K) \times Cd]$$

where t = amount of tax applicable
E = value of equity in the project
D = value of debt in the project
$K = D + E$
Ce = cost of equity/minimum return expected by equity investors
Cd = cost of debt/minimum return expected by debt investors

The project IRR must be at least equal to the WACC for the project to be considered commercially viable. The value of WACC will

be directly related to the risk perceived in the project by the investors.

project internal rate of return ≥ weighted average cost of capital

The use of the WACC in assessing commercial viability is explained below.

Sovereign debt (e.g., 10-year government bonds) carries the least risk because the Government of India is not expected to default on its obligations. The rate of return is commonly referred to as risk free. All other risks are benchmarked against this risk-free rate. Therefore, the project IRR should be greater than the risk-free rate of return, as the investor could easily invest in these bonds and earn a risk-free rate of return.

The next least risky investment option is AAA-rated bonds because the AAA rating is given only to companies with sound fundamentals and stable revenues. The risk associated with the project under development will realistically be equal to or higher than that of AAA-rated bonds. If the project offers returns less than those offered by AAA-rated bonds, then investors would prefer to invest in the less-risky AAA-rated bonds. In such a case, the public sector should fund the project completely, as the returns are not attractive to private investors.

After AAA-rated bonds, the long-term interest rate offered by banks is the next least risky option. If the project offers a return below this rate, then investors would be more comfortable putting their money in banks, where it can earn a higher rate of return than that promised by the project.

The next best option is investment in other business opportunities. The project IRR can be compared with the long-term rate of return on the equity market to determine objectively whether it is commercially attractive or not. Therefore, the final benchmark for the project would be the long-term return on the Bombay Stock Exchange Sensitivity Index or the National Stock Exchange Nifty. If the returns to equity investors equal or exceed the market rate of return, the project can be declared commercially viable for implementation through private investment.

This range of the actual project IRR will help the bus transport authority or ULB decide whether the project is attractive to investors and if the project returns can factor in a return to the bus transport authority or ULB. This process is mapped out in Figure 2.

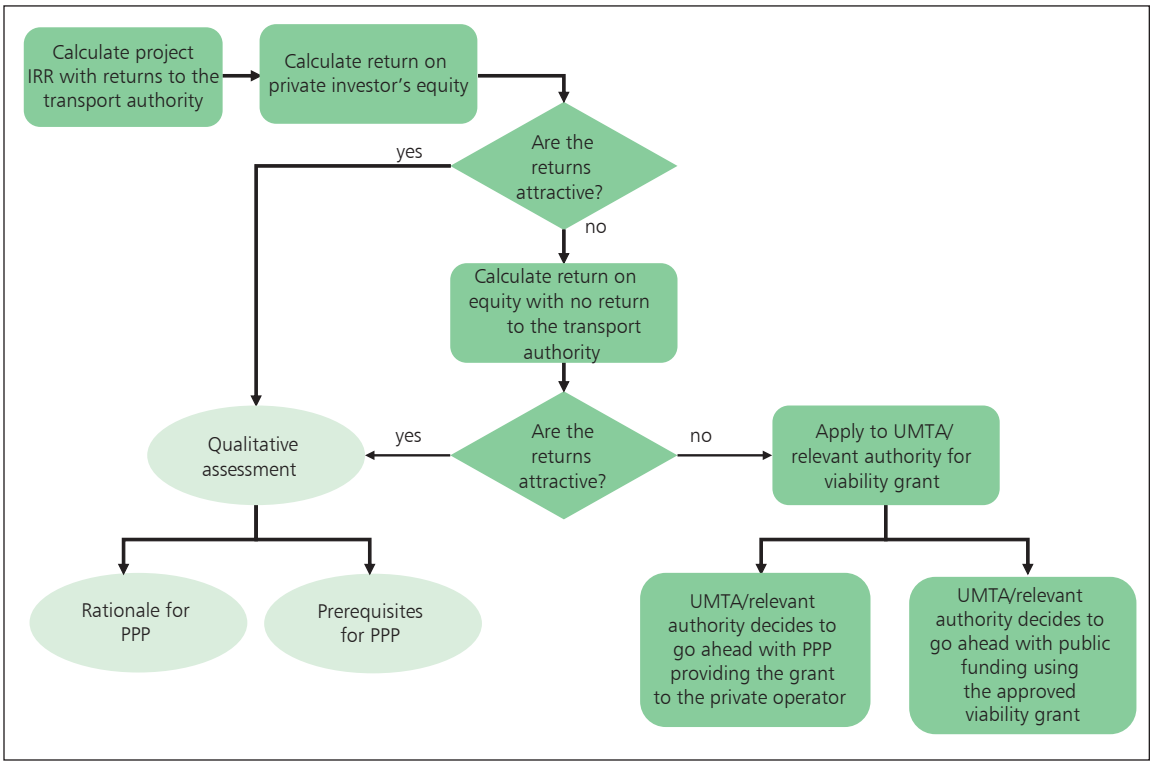
As evident from Figure 2, if the returns are found to be attractive to private investors then the bus transport authority or ULB must consider a qualitative assessment of the PPP option, based on the rationale and prerequisites. If the returns are less than the market returns in both instances, the bus transport authority or ULB should consider viability gap funding (VGF) for the project.

5.1.5.2 Viability Gap Funding

The Government of India launched its VGF scheme to lend financial support to PPP infrastructure projects. There are a few basic guidelines for VGF grants:

- VGF grants are provided to PPP projects in specific sectors, sponsored by the central, state, or local government.
- VGF support is issued to a project only after all other viability enhancement options have been exhausted or found not to be possible.
- The VGF support is capped at 20% of the project cost. An additional VGF grant, capped at 20%, can be given by the government agency sponsoring the project.
- The VGF scheme provides a one-time grant or deferred grants, generally in the form of a capital grant during project construction, only to make the project viable.
- To qualify for a VGF grant, the project should involve the provision of a service against the payment of a user charge.
- The entire amount of the VGF grant for a project is released to the lead financial institution (lead member of the consortium financing the project), which then releases

Figure 2 Process Flow for Viability Assessment



IRR = internal rate of return, PPP = public–private partnership, UMTA = Urban Metro Transport Authority.

Source: CRISIL Risk and Infrastructure Solutions Limited.

the grant to the project after the equity of the private partner is exhausted. The release of the grant to the project follows the ratio of release of the debt.

The extent of VGF support that will make the project attractive to private investors will therefore have to be assessed. The VGF may be sourced from the city itself through levies like fuel cess, employee taxes, congestion charges, license fees, and betterment levies.

5.1.5.3 Assessment Where the Private Sector Does Not Invest Capital in the Project

PPPs that require no private investment are in the nature of licensing or management contracts. To decide whether or not to take the PPP option, the urban transport authority or ULB must compare the cost of the service if provided by the government with the cost of private sector provision. It should outsource the service only if doing so would lower the cost of the service. The assessment will have to proceed in the following steps:

- The bus transport authority or ULB will list all the costs to be incurred in implementing the service and classify them into fixed and variable costs.
- It will separate these costs into costs that can be retained by the bus transport authority or ULB and costs that will be transferred to a private operator.
- It will then compute the price of the service if provided by a private operator and compare it with the price of the service if done in-house.
- If the price of the privately provided service is less than the price of the service provided in-house, then a PPP contract can be considered.

5.2 Choosing between Public Funding and Public–Private Partnership

Once it has been clearly established that the proposed project offers returns that will attract

a private developer to the project, the bus transport authority or ULB must decide whether the project is to be implemented through PPP or solely with public funding. This section of the tool kit discusses the parameters the bus transport authority or ULB needs to consider before making the final decision to involve the private sector in the project.

5.2.1 Decision-Making Parameters

The choice between public spending and PPP rests mainly on the cost of the service: PPP is justified if the private sector can provide the service at lower cost. But the decision to take the PPP option must also be supported by other parameters.

5.2.1.1 Innovation

The urban bus transport authority or ULB must determine whether the private operator can provide the services efficiently, with innovative practices. Earnings linked to ability to provide good and efficient service give the private operator an incentive to reduce costs and improve revenues.

5.2.1.2 Responsibility and Risk Sharing

Each risk in a project must be allocated to the party that is best able to manage the risk at the least possible cost. If the private operator is deemed better able to handle an identified risk at lower cost, that risk should be passed on to it. It must also be assessed whether the private operator can take up some of the responsibilities of the bus transport authority or ULB and handle them efficiently. Doing so would free up resources of the urban transport authority or ULB for other, higher-priority projects and works.

5.2.1.3 Sharing in Funding

An important benefit of private sector participation is the capital investment contribution of the private developer to the project. The urban bus transport authority or ULB thus gains access to private sector funds for project development. On the other hand, spending for some of the capital costs also makes the private operator responsible for any losses incurred by the project. It likewise frees up capital that the government would otherwise have to spend on the project. Thus, the opportunity cost to the government is avoided.

5.2.2 Rationale for Public–Private Partnership

The choice to implement the identified project through PPP will depend on a set of parameters that justify the use of PPP in creating an asset in the urban bus transport undertaking. The decision will be based on the answers to three important questions:

- Will the private sector be able to bring in efficiency by cutting costs and increasing revenues?
- Will the private operator invest funds in the project?
- Can the risks and obligations be handed over to the entities best equipped to handle them?

5.2.2.1 Improvement in Efficiency

The bus transport authority or ULB will need to assess whether the private sector can provide the service more efficiently. The cost of the public service can be obtained from the financial evaluation made during the assessment of the urban bus transport undertaking. The private operator's cost of service can be derived from the financial feasibility exercise (Section 5.1). These costs must be compared after the financial model prepared in Section 5.1.4.2 is refined according to a suitable PPP model. This exercise will generate the PPP service costs, forcomparison with the public sector costs obtained above. The following questions must be answered at this stage:

- Has the bus transport authority or ULB calculated its own cost of service to be compared with the private operator's cost?
- Will the private sector be allowed to innovate to improve operating efficiency?
- Will the innovations identified bring in efficiency in terms of revenue realization or will the savings be marginal?

5.2.2.2 Resource Constraints

The bus transport authority or ULB must assess whether it can remove internally any constraints

like the existing work force, limited resources, and obsolete technology. If not, then it must consider PPP. The following questions must be answered:

- What resources—land, labor, technology, etc.—are required?
- What are the constraints on providing the service?
- What is the nature of the constraints?
- Can the constraints be removed?
- Can the bus transport authority or ULB itself remove the constraints?

5.2.2.3 Capacity of the Private Sector to Offer Service

The bus transport authority or ULB needs to assess whether the private sector has the technical and financial capability to provide the service. Otherwise, the bus transport authority or ULB will have to provide the service with its own resources. The urban bus transport authority or ULB must also assess whether several players in the market must be present to ensure competitive bidding and competitive quotes for the contract. The following questions must be answered:

- Will the private sector face the same constraints that beset the bus transport authority or ULB?
- Is the private player technically and financially capable?
- Are there enough players in the market to ensure competitive rates?

5.2.3 Prerequisites for Public–Private Partnership

In addition to considering efficiency improvements, resource constraints, and the capacity of the private sector, the bus transport authority or ULB must assess whether it has the right to appoint a private operator through a PPP contract to provide a service that the bus transport authority or ULB is legally mandated to provide. It must also assess whether higher authorities need to approve the private sector's involvement and whether the authority's by-laws or other legislation must include an enabling clause to provide an environment suitable for PPP.

The final decision to allow the private sector to participate in providing bus transport services will depend on the general views of the public and support from political representatives. Including the private sector in this traditionally public domain is a sensitive matter. The bus transport authority or ULB will therefore have to consult the various stakeholders that are directly or indirectly involved in providing the bus transport services. In-depth consultation with the end consumers and the members of the municipal councils or corporations will create awareness of the proposed change and bring out the concerns of the stakeholders. This very important step must be carried out before the bidding starts.

5.2.4 The Final Choice

The financial feasibility of the project involves comparing the project IRR against a series of benchmarks. The bus transport authority or ULB will thus be able to assess whether the project is viable enough for private investors. If the project returns are attractive, then the project will be judged suitable for PPP. Once the viability of the project has been established, a qualitative assessment of the project (Section 4.5) needs to be carried out to assess the capacity of the private sector to improve efficiency and to infuse capital, and its ability to work within current constraints. The PPP structure will also be assessed for its legal validity under existing laws and bylaws as well as its acceptability to public and political stakeholders. Although the project might not be commercially viable, other parameters permitting, the bus transport authority or ULB might consider implementing the project with viability gap funding.

After going through the above stages, the bus transport authority or ULB must finalize its choice: PPP or public funding. This final decision needs to be well documented, with the rationale for the decision and the type of PPP structure to be implemented.

6 Step 3: Choosing the Structure for Public–Private Partnership

Once the bus transport authority or the urban local body (ULB) has decided to implement the project through PPP, it will have to select the appropriate contractual structure. The following will need to be identified:

- ownership of assets,
- all possible risks,
- risk allocation,
- possible contractual structures, and
- the most appropriate contractual structure for PPP.

6.1 Determining Ownership of Assets

The major determinants of asset ownership in a project are the operating costs and capital costs of the project. Capital costs are those that relate to the procurement of new buses and other transport infrastructure, while operating costs are the costs involved in the day-to-day operations of the venture. The assessment of the current state of the bus transport undertaking (Section 4.1) will give information about operating costs, and the financial feasibility study (Section 5.1) will give information about capital costs. Given these costs, three scenarios are possible:

- Project revenues cannot cover even operating costs.
- Project revenues can cover operating costs but only a part of capital costs.
- Project revenues can cover both operational and capital costs.

If the revenues are not enough to cover even operating costs, then the assets should be owned by the bus transport authority or ULB and the private operator can simply operate and maintain the system.

If the revenues are not enough to cover capital costs, then the assets can be owned by a special-purpose vehicle with both the bus transport authority (or ULB) and the private operator investing in the capital assets. The operation and maintenance of the rolling stock will still rest with the private operator.

If the project revenues are enough to cover both operating and capital costs, then the private entity should own the assets during the concession period, besides operating and maintaining the system.

6.2 Identifying Risks

The risks associated with the various phases of the project—inception, development, and operation—must be identified. The risks typically associated with projects are presented in Table 7 along with their consequences.

6.3 Allocating Risks

The next step will be to allocate the risks among the parties involved in the project. Allocating the risks to the entities that are best equipped to handle them will enable the project to be implemented most efficiently and at the least cost. The allocation will be based on an assessment of the following:

- capacity of the entity (bus transport authority or ULB and private operator) to handle each risk, based on previous experience;
- public interest; and
- market attitudes toward risk.

Table 7 Types of Risks in the Urban Bus Transport Sector

Risk	Explanation	Consequences
Commissioning risk	The risk that the bus transport authority (or ULB) or the private operator, or both, might not receive all the approvals needed to provide the services	Additional costs Delay in project
Demand risk	The risk that the projected demand may not correspond to actual demand after the project is implemented	Reduced revenues; losses
Design risk	The risk that the project will not meet the performance and quality standards specified	Additional costs Redesign Delay in project
Financial risk	The risk that the project will not achieve financial closure or will have problems raising debt	Additional funding costs Default in obligations Delay in project
Force majeure risk	Natural disaster, unnatural disaster (such as a strike or riot leading to damage to buses), earthquake, flood, or other unanticipated act that delays or destroys the assets of the project	Additional costs Reduced revenues; losses
Operating risk	The risk that day-to-day operations will be adversely affected	Additional costs Reduced revenues; losses
Performance risk	The risk that the private operator will not be able to comply with the performance and quality standards defined	Reduced revenues; losses
Change-in-law risk	The risk that the legal framework of the project will be affected	Additional costs Cost of compliance with new regulations

ULB = urban local body.

Source: CRISIL Risk and Infrastructure Solutions Limited.

All the risks identified need to be classified into retained risks (still with the bus transport authority or ULB), transferable risks (transferable to the private operator), and shared risks (shared by both parties). Risk sharing has to occur in accordance with an agreement between the two parties. In the case of transferable risks, the private operator must be free to decide the best suitable option for handling that risk. Shared risks are those risks that neither of the two entities has control over. The risk allocation should provide for risk mitigation. The risks identified and allocated should be summarized in a risk matrix (Table 8).

6.3.1 Risk Mitigation Strategy

Once the risks have been identified, and allocated appropriately, possible risk mitigation strategies must be developed to reduce each party's exposure to risk.

The possible strategies for mitigating risks in the system are

- preparation of a comprehensive contract stating all project outcomes, regulations and approvals, obligations of each party based on the risk matrix, and well-defined mitigation processes for each identified risk;
- proper and transparent bidding;
- preparation of a contingency plan;
- insurance for force majeure and private operator's risks;
- pass-through of risks, or the transfer of the private operator's risks to subcontractors (if any); and

Table 8 Indicative Risk Matrix

Risk	Risk Allocation		Risk Management Strategy
	Transport Authority or ULB	Operator	
Commissioning risk			
Demand (usage) risk			
Design risk			
Performance risk			
Financial risk			
Force majeure risk			
Operating risk			
Change-in-law risk			

ULB = urban local body.

Source: CRISIL Risk and Infrastructure Solutions Limited.

- creation of a transport fund to receive all the revenues (direct and indirect) accruing to the project, and to be used in making viability gap funding (VGF) payments (if required) to the private operator and in investing in other necessary infrastructure like bus stops.

6.4 Identifying Contract Structures

Once the risk matrix (Table 8) has been constructed, the bus transport authority or ULB must identify the contract structure that would fit the identified risk allocation scheme. This would require listing all the possible contract structures and comparing the risk allocation for each of these with the risk matrix. PPP arrangements are dynamic, and most arrangements depend on current conditions.

A study of PPP structures implemented in India for rolling stock and a review of the literature yield four main types of PPP contract structures that can be used in India. These are

- cost-plus contract,
- gross-cost contract,
- net-cost contract, and
- licensing contract.

Each of these contracts is explained briefly below and described in detail in Part 2 of this tool kit.

6.4.1 Cost-Plus Contract

A cost-plus contract is typically a lease contract agreement. The private operator owns and runs the buses, and operates and maintains the bus transport system, while the bus transport authority or ULB collects the revenue. The private operator is paid per kilometer, depending on the operating cost of each bus. Such a contract ensures a quick increase in service capacity and in operating efficiency. Cost-plus contracts are preferred when the revenues of the project are not enough to cover even the operating costs of the system.

Pune Mahanagar Parivahan Mahamandal Limited (PMPML) and Jaipur City Transport

Services Limited (JCTSL) have applied the cost-plus arrangement successfully in the urban bus transport sector.

6.4.2 Gross-Cost Contract

A gross-cost contract is also typically a lease contract agreement. The private operator owns and runs the buses, while the bus transport authority or ULB collects the revenue. All the fare revenues are transferred to the authority, which selects the private operator that offers to provide the required service at the lowest cost. The contracted payment specified in the bid can take the form of a fixed hourly charge for the bus or a per-kilometer charge. Gross-cost contracts are preferred when the revenues of the project are not enough to cover even the operating costs of the system but there are many bidders for the project.

Copenhagen (Denmark) and London (United Kingdom) provide examples of the implementation of gross-cost contracts.

6.4.2.1 Difference between Cost-Plus and Gross-Cost Contracts

The bus transport authority or ULB has high liability under a cost-plus contract—it reimburses the operating costs incurred by the franchisee. Under a gross-cost contract the liability of the bus transport authority or ULB is limited to the negotiated amount of payments to be made to the private operator as consideration for its services. Thus, in a gross-cost contract a part of the operating risk is transferred to the operator, giving the latter added incentive to induce efficiencies in operations to increase its profit margin. A gross-cost contract thus achieves more operating efficiency because the operator's profit will be directly proportional to the cost savings, as revenues are fixed.

6.4.3 Net-Cost Contract

A net-cost contract is typically a lease contract. The private operator procures, owns, and runs the buses for a specified period, and also collects and retains all the revenues. The authority may consider paying a subsidy to the operator if the bus services in the area are unprofitable. If the services are profitable then the private operator can consider paying a fixed amount to the bus transport authority or ULB. Net-cost contracts are preferred when revenues from the project are enough to cover both operating and capital costs.

A net-cost contract is a type of PPP arrangement that has been successfully applied in India's growing bus transport sector. Indore City Transport Services Limited (ICTSL) has implemented a net-cost contract in its operations.

6.4.4 Licensing Contract

A licensing contract is typically an operation and maintenance contract. The bus transport authority or ULB procures the buses, usually with the help of grants from government programs like Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The private operator pays the share of the bus transport authority or ULB in the purchase price of the buses, operates and maintains the buses, collects the revenue, and remits to the bus transport authority or ULB a royalty per kilometer. Licensing contracts are preferred when revenues from the project are enough to partly cover at least part of the operating and capital costs of the project.

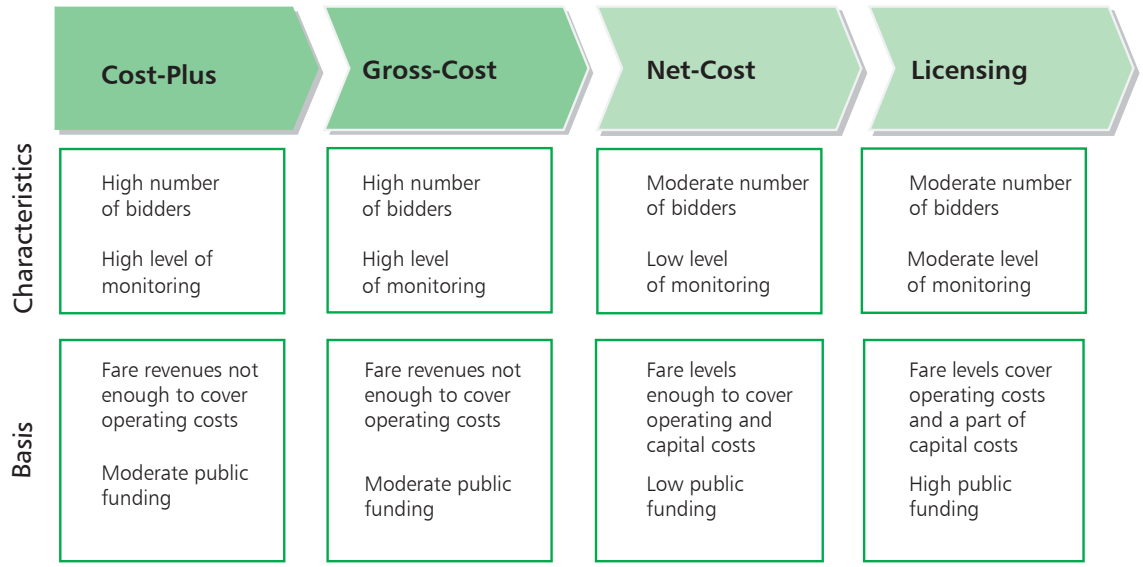
6.4.4.1 Difference between Licensing and Gross-Cost and Net-Cost Contracts

Under a licensing contract the bus transport authority or ULB owns the assets as it has invested in their procurement. The bus transport authority or ULB licenses the private operator to operate and maintain the bus system. The private operator must comply with the performance standards of the bus transport authority or ULB, and operates and maintains the buses. Under gross-cost and net-cost contracts, the private operator owns the assets.

6.5 Selecting an Appropriate Contract Structure for Public–Private Partnership

Aside from the possible PPP contract options discussed above, other PPP structures may be developed to suit the specific requirements

Figure 3 Selection of the Public–Private Partnership Contract Structures



Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

of the bus transport authority or ULB. The authority must review the PPP alternatives against the project requirements to determine the most suitable PPP option. Figure 3 is an indicative matrix showing the various PPP contract structures.

6.5.1 Competition for the Contract

The number of bidders also has a role in deciding the type of contract to be implemented. Gross-cost and cost-plus contracts, which allocate demand risk to the bus transport authority or ULB (and assure fixed returns to the operator despite low demand), create more competition than net-cost and licensing contracts, where the risk is borne by the private operator.

6.5.2 Ease of Contract Management

Gross-cost and cost-plus contracts require effective monitoring of compliance with performance standards, as the revenue streams of private operators are not tied to demand. Net-cost and licensing projects with good demand do not require such extensive monitoring. Net-cost, gross-cost, and licensing contracts encourage the operator to introduce improvements in operating efficiency to increase profit. In the case of cost-plus contracts, the private operator has no incentive to operate more efficiently, as earnings are directly linked to operating costs. The provision of subsidies (passes for children, students, the disabled) in a net-cost system would be difficult, as there is no incentive for the operator to serve passengers paying lower fares. Moreover, disputes over payments may arise.

The bus transport authority or ULB should consider all of these factors when deciding on the contract structure.

6.5.3 Basis of Appropriate Structure

If the revenues of the project are not enough to cover even operating costs, then a gross-cost or cost-plus contract would be preferred. If the revenues cannot cover capital costs, then a licensing contract can be considered, provided a grant is available to partly fund the procurement of buses (the private operator pays the share of the bus transport authority or ULB). If the project revenues are enough to cover both operating and capital costs, then a net-cost contract is preferable.

7 Step 4: Preparing for Procurement

The procurement phase will mean finalizing the funding structure of the project, defining the implementation structure, and planning procurement. The contract structure identified in the previous section will be translated into an implementation structure with clearly defined roles and responsibilities for each of the parties. The contract for the PPP arrangement will be drawn up and the procurement plan finalized and put into operation on the basis of this implementation structure.

7.1 Defining the Implementation Structure

Before drafting the contract, the bus transport authority or ULB must first define an implementation structure, which is the framework of the primary relationship between the private operator and bus transport authority or ULB. The structure will have the following components:

- allocation of demand risk;
- tariff;
- government commitment;
- performance indicators, parameters;
- payment terms; and
- bid criteria.

7.1.1 Demand Risk Allocation

Demand risk is the risk that actual demand for the service on the proposed urban bus transport system will be less than the demand estimated during the financial feasibility study. The allocation of demand risk is important because this determines the risk–return profile of the project. Private operators, as stated earlier, are open to the concept of a PPP project only if they are comfortable with the allocation of risks. The allocation of commercial risks is primarily drawn from the risk matrix. This can be changed to make the project more attractive to private operators, for example, by guaranteeing a minimum amount of traffic on the routes and setting payment levels based on actual traffic levels. An optimal risk allocation matrix, especially for demand risk, will ensure good participation and competition for the bid.

7.1.2 Tariff Setting

Tariffs are probably the most sensitive aspect of urban bus transport PPP contracts. The bus transport authority or ULB must consider the methodology to be followed in tariff setting. When there is competition in the market for the same service, private operators have to be given scope for tariff setting, as competition serves as a good check on prices. If there is some degree of monopoly, the tariff needs to be regulated and set by the government to ensure a fair tariff. It is advisable for the tariff-setting mechanism to remain with the bus transport authority or ULB if it desires to protect the weaker sectors of society.

7.1.3 Government Commitment

The government's commitment to the project must be clearly expressed in the agreement. Clear clauses stating the process to be followed if the agreement is terminated should be inserted in the agreement.

7.1.4 Performance Indicators or Parameters

The bus transport authority or ULB must specify performance indicators or parameters to be able to gauge the performance of the system. These performance indicators can be based on the parameters in Table 2. Penalties

for noncompliance with these performance parameters will be constituted to ensure sustained performance.

7.1.5 Payment Terms

In PPP arrangements, the payment can flow from the private operator to the bus transport authority or ULB, or vice versa. The private operator may pay the bus transport authority or ULB a royalty for using its bus transport infrastructure or for the right to operate services, or both. If the project is not commercially viable, viability gap funding can be considered.

7.1.6 Bid Criteria

The bid criteria for the project depend on the need of the bus transport authority or ULB. The bidding parameter can vary from the cost per kilometer to be paid by the bus transport authority or ULB to the bus operator (under a cost-plus or gross-cost contract) to the per-kilometer royalty to be paid by the private operator to the bus transport authority (under a net-cost or licensing contract).

7.2 Drafting the Contract for Public–Private Partnership

The final implementation structure will be translated into a legally enforceable document, the PPP agreement. This document must be drafted before the start of procurement, as prospective bidders will need to know the terms and conditions of their contracts. The agreement would make bidders aware of their roles, as well as all the risks and obligations involved in the transactions.

A typical contract would contain the following:

- recitals,
- definitions and interpretations,
- rights of the contracting parties,
- obligations of the contracting parties,
- contract considerations,
- payment mechanism,
- performance management,
- defaults and their consequences,
- dispute resolution,
- termination of the contract, and
- effects of termination (terminal payment arrangements and other issues related to the termination).

7.3 Managing the Procurement Process

Once the PPP contract document has been drafted, the bus transport authority or ULB will have to start with the procurement of the private operator. Figure 4 shows the range of procurement processes that can be implemented by the bus transport authority or ULB.

The bus transport authority or ULB will select the procurement process that most suits the project. The selection will be based on the matrix in Table 9.

The following sections describe the procurement process based on the two-stage procurement process (request for qualification [RFQ]–request for proposal [RFP]) that is extensively followed. The bus transport authority or ULB can, however, select another process that fits the unique characteristics of the project.

7.3.1 Pre-Bid Activities

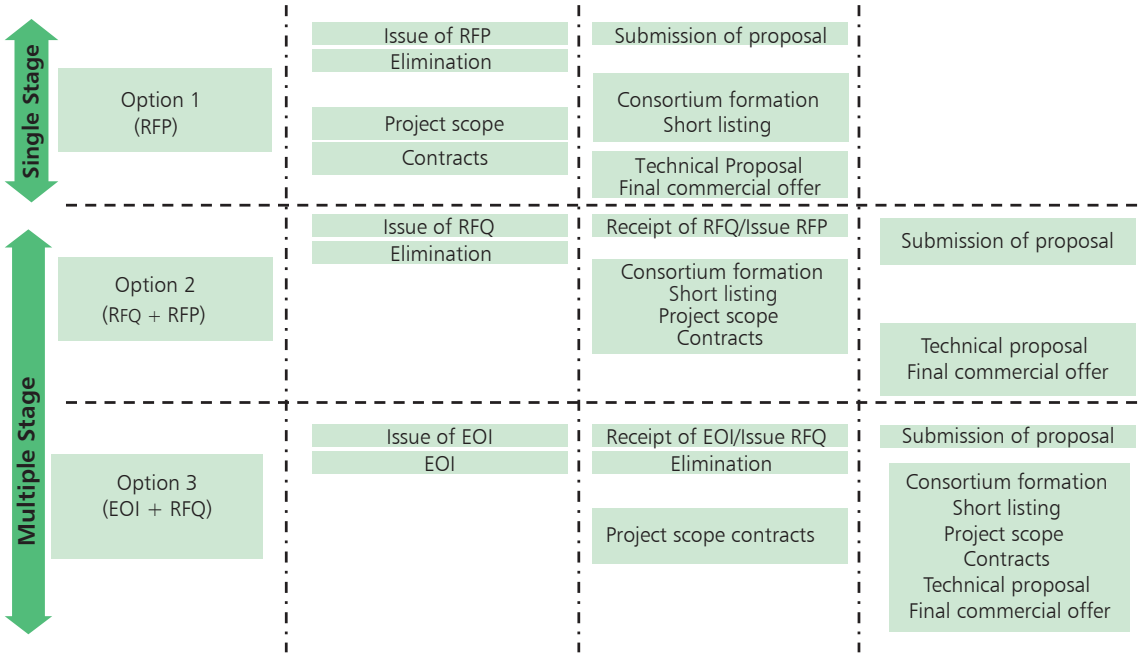
The first pre-bid activities pertain to reinforcing the links between the feasibility and procurement stages of the project. The following will be reviewed and analyzed:

- project scope, definition, and objective;
- timelines, strategies, processes, and deliverables in the procurement plan;
- project type and structure, and sources of funds;
- mechanism of payments to and from the bus transport authority or ULB;
- risk matrix updated after the PPP; feasibility stage; and
- third-party contracts.

The subsequent pre-bid activities relate to the major decisions to be made in the procurement process:

- Defining the bidding period (when bidders must prepare and submit their

Figure 4 Alternative Procurement Strategies



EOI = expression of interest, RFP = request for proposal, RFQ = request for qualification.

Source: CRISIL Risk and Infrastructure Solutions Limited.

Table 9 Matrix for Procurement Process Selection

Option	Project Characteristics	Bidder Characteristics
Option 1 (RFP)	Project scope is unambiguous. Execution options are well defined.	Bidder universe is well defined and limited.
Option 2 (RFQ + RFP)	Project scope is ambiguous and requires extensive discussions.	Bidder universe is well defined. Number of bidders is large and needs to be limited. Considerable effort is required from bidders to submit proposals.
Option 3 (EOI + RFP)	Project scope is ambiguous and requires extensive discussions.	Bidder universe is limited. Bidder profile needs sharpening. Considerable effort is required from bidders to submit proposals.

EOI = expression of interest, RFP = request for proposal, RFQ = request for qualification.

Source: CRISIL Risk and Infrastructure Solutions Limited.

bids) according to the size of the bid; the length of the period will affect the quality of the bid.
- Disclosing all information related to the assets of the bus transport undertaking, including their condition and maintenance schedules, in the RFP.
- Dealing with labor issues in the RFP; staff information pertinent to the project, such as the displacement of existing staff, must be communicated to bidders along with the implications.
- Providing enough time for compliance with regulatory requirements.

7.3.2 Preparation of the Request for Qualification and Prequalification of Bidders

The RFQ in PPP procurement limits the number of bidders so that only technically and financially qualified bidders go on to the next stage of the process.

The RFQ must effectively communicate the service delivery specifications of the project to private bidders. It should allow the bidders to provide appropriate information about themselves. It should also clearly lay down the evaluation criteria.

The indicative contents of an RFQ are given in Box 1.

The RFQ should be well advertised according to the rules of business and, if possible, uploaded to the website of the bus transport authority.

The bus transport authority or ULB must respond to bidders' requests for clarification within a predetermined period defined in the procurement plan. If possible, it should also hold a pre-bid meeting to answer issues raised by bidders.

7.3.2.1 Evaluation of Responses

The bidders' responses to the RFQ must be evaluated according to the evaluation criteria in the RFQ. The evaluation criteria must consider the technical and financial capability of the private operator, its understanding of the project, and the skills it has at its disposal to deliver the project.

Bidders that meet the RFQ criteria should be notified by the bus transport authority or ULB and invited to bid. The notification should also indicate the terms and conditions for obtaining the RFP, and the document date and cost.

7.3.3 Preparation of the Request for Proposal

The RFP is the most critical stage of the PPP procurement process as it communicates the service requirements of the project to the bidders. It must therefore be structured to serve this purpose and must convey information in clear and concise terms. The indicative contents of the RFP are shown in Box 2.

The bus transport authority or ULB must distribute the RFP to prequalified bidders.

Box 1 Contents of the Request for Qualification

- Disclaimer
- Terms and conditions of the request for qualification
- Outline of the request
- Brief statement of intent of the transport authority in issuing the request
- Detailed information about the project (description, background, performance parameters, financing structure, risk allocation, etc.)
- Description of the procurement process, along with the evaluation criteria
- Instructions to respondents
- Information required from bidders, along with the prescribed format for its submission
- Description of the evaluation process

Source: CRISIL Risk and Infrastructure Solutions Limited.

7.3.4 Evaluation and Selection

The evaluation of bids is an extremely important stage in the PPP project life cycle. For transparency, the evaluation process and schedule must be stated clearly in the RFP. Proposals will be evaluated as shown in Figure 5.

The selection of the preferred bidder will be based on the terms and conditions in the RFP.

Box 2 Contents of the Request for Proposal

Introduction to the Project

- Description of the project
- Milestones of the project
- Scope of work
- Brief description of the bid process
- Contract structure
- Contents of request for proposal

Principal Document

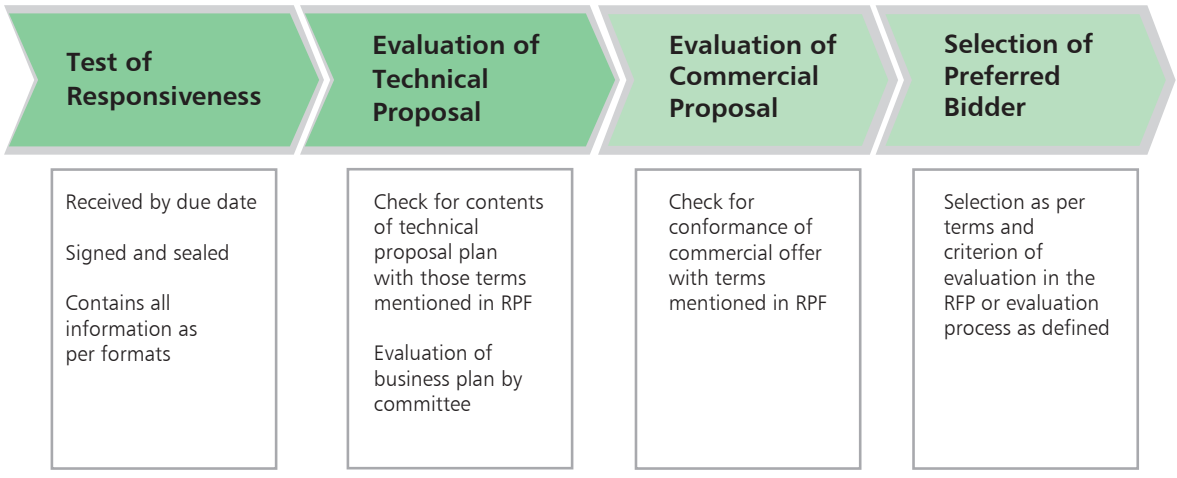
- Definitions
- Instructions to bidders *(inquiries and clarifications, submission of bid)*
- Description of the selection process *(evaluation criteria)*

Evaluation

- Technical proposal
- Commercial proposal
- Selection of the preferred bidder

Source: CRISIL Risk and Infrastructure Solutions Limited.

Figure 5 Evaluation of Proposals



Source: CRISIL.

PART II

Public–Private Partnership Structures

1 Background

Part 2 provides detailed information relating to the four public–private partnership (PPP) contract structures that can be used in the procurement of rolling stock (buses) for urban bus transport undertakings, as mentioned in Part I of this tool kit. The overall structure of each PPP contract, the obligations of the parties involved, the nature and type of risk allocation between the public and private entities, and other important features are presented. The four PPP structures for the procurement, operation, and management of an urban bus transport system are

- cost-plus contract,
- gross-cost contract,
- net-cost contract, and
- licensing contract.

Each of these structures is discussed in detail in the following sections.

2 Cost-Plus Contract

A cost-plus contract is typically a lease contract agreement. The private operator owns and runs the buses, and operates and maintains the bus transport system, while the bus transport authority or urban local body (ULB) collects the revenue. The private operators are paid per kilometer, depending on the operating cost of each bus. Such a contract ensures a quick increase in service capacity and in operating efficiency.

Pune Mahanagar Parivahan Mahamandal Limited and Jaipur City Transport Services Limited have applied the cost-plus arrangement successfully in the urban bus transport sector in India.

2.1 Public–Private Partnership Structure

The private operator procures the buses, leases them to the bus transport authority or ULB, and is paid a predetermined per-kilometer charge agreed on in the contract. The bus transport authority or ULB hires the conductor who collects the fare revenue. The private operator operates and maintains the buses and hires skilled staff to run them. The private operator keeps a record of the kilometers traveled by the buses each day and is reimbursed according to the per-kilometer charge. The running rate per kilometer is decided by a combination of the following components, quoted per kilometer:

- Hiring cost (C)
- Staff labor cost (S)
- Fuel, oil, and lubricants (F)
- Cost of tires (T)
- Repair and maintenance cost (R)
- Depreciation and interest charges (D)
- Taxes, fees, and insurance (X)
- Other charges (O)

Therefore, hiring cost C = S + F + T + R + D + X + O.

The private operator bears all the costs associated with the procurement of the buses. The buses procured must conform to standards specified by the bus authority in the contract. The bus transport authority or ULB appoints the private operator and lays down the physical specifications of the buses, performance standards and penalties, and minimum running of the buses. The contract period is indicated in the agreements and varies between 5 and 7 years or depends on bus usage (typically 7.5 million kilometers).

The private operator is able to recover its investment through a per-kilometer charge based on the operating expenses the operator incurs. The bus transport authority or ULB, which collects the revenues, decides the fares charged to passengers. The per-kilometer charge is reviewed whenever there is a rise or fall in the price of fuel, spares, etc., used in the operation of the buses, as specified in the contract.

Figure 6 and Table 10 present the roles and responsibilities of the stakeholders under a cost-plus contract.

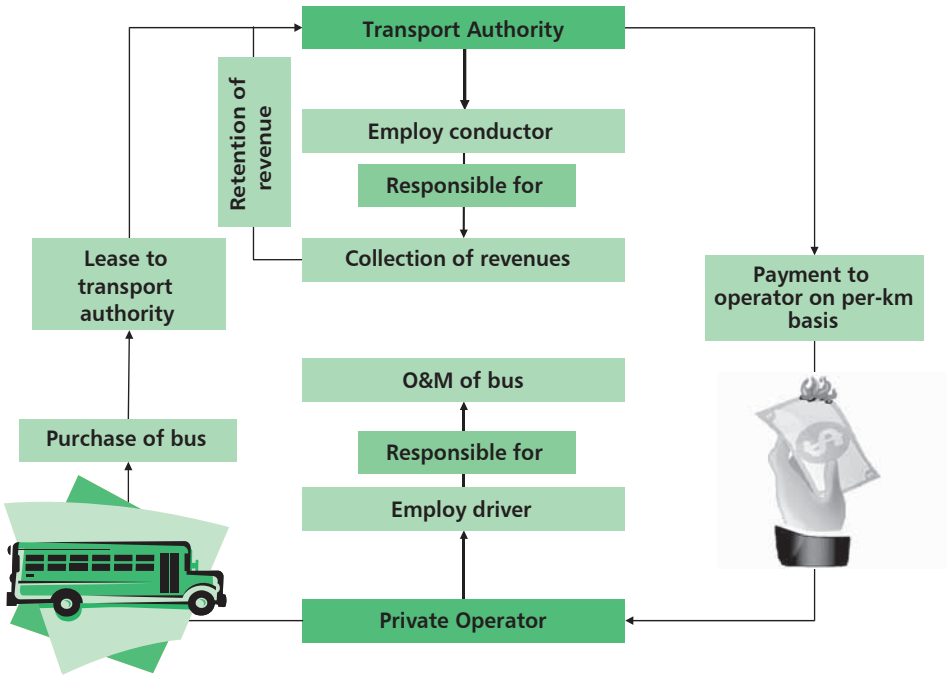
The obligations and responsibilities of the bus transport authority or ULB and the private operator are listed in detail in Part 4 of this tool kit.

2.1.1 Preparatory Work by Bus Transport Authority or Urban Local Body

Before the cost-plus contract takes effect, both the private operator and the bus transport authority or ULB must carry out certain preparatory activities. To set reasonable targets for the private operator, the bus transport authority or ULB must

- survey and evaluate the routes it intends to serve;

Figure 6 Structure of the Cost-Plus Contract



km = kilometer, O&M = operation and maintenance.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

Table 10 Roles and Responsibilities of the Private Operator and the Bus Transport Authority under a Cost-Plus Contract

Item	Private Operator	Transport Authority
Primary task	Procurement of buses and skilled staff to operate and maintain the buses	Fare setting, route planning, and management of transport infrastructure like bus stops and terminals
	Procurement of permits	Performance and quality monitoring and regulation
	Procurement of diesel, spares, engine oil, and other consumables for running of buses	Collection of all revenues such as tickets, seasonal tickets, advertising revenues
Fares and payments	Receipt of a per-kilometer charge based on operating expenses incurred	Fare setting and collection
Operating expense	Spares, minor and major repairs	Not applicable
	Fuel	
	Any other operation and maintenance expense	
	Bus registration	
Capital expense	Capital expenditure for the procurement of buses	Not applicable
Asset ownership	Takes over the assets at the end of the contract	Buses are run in the name of the bus transport authority or urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

- establish the exact requirement for and physical specifications of buses required for the operation, and determine the routes to be served by the buses;
- create a service quality plan that contains the performance and quality standards for the system and that provides for the imposition of fines and penalties for noncompliance with the quality contract;
- provide for bus inspections, checking of the log of kilometers run, display of advertisements, and equipment of buses with vehicle-tracking devices;
- authorize the private operator to use the transport infrastructure such as bus stops and bus terminals; and
- authorize the private operator to use the bus depot with clear terms for its use, and state the specifications and area of the depot.

2.2 Risks

The risks that must be borne by the private operator and the bus transport authority or ULB under a cost-plus contract are summarized in Table 11.

Table 11 Risks of the Private Operator and the Bus Transport Authority under a Cost-Plus Contract

Activity	Private Operator	Transport Authority	Comments
Commissioning Risk			
Delay in the procurement of buses needed for the start of operations	✓		The buses have to be procured according to the bus delivery schedule and specifications mentioned. The private operator must pay a penalty for any delay in the procurement of buses.
Delay in the allocation of the bus depots		✓	The specifications, location, and area of the depots must be clearly mentioned in the contract, and at the start of operations the private operator must be given the right to use the depots.
Demand (Usage) Risk			
Inadequate demand for buses		✓	The private operator's revenues are based on a per-kilometer charge; therefore, the demand risk rests solely with the bus transport authority or ULB.
Performance Risk			
Noncompliance with the service quality plan and performance parameters	✓		The private operator must follow the service and performance quality standards; otherwise, it incurs fines and penalties.
Financial Risk			
Cost of bus procurement	✓		The private operator is solely responsible for arranging the funds needed to procure the buses.
Fare collection		✓	The bus transport authority or ULB is responsible for the collection of revenues through its mechanisms.
Force Majeure Risk			
Force majeure risk	✓	✓	Each party bears the risk where its own assets are concerned.

continued on next page

Table 11 *continued*

Activity	Private Operator	Transport Authority	Comments
Operating Risk			
Increase in the cost of operating the buses		✓	The private operator operates and maintains the buses, and is paid a per-kilometer charge based on its operating costs. Therefore, the bus transport authority or ULB must pay for any increase in operating costs.
Increase in labor cost	✓	✓	The private operator hires the drivers and mechanics to operate the buses, and the bus transport authority or ULB hires conductors to collect fares.

ULB = urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

2.3 Applicability

A cost-plus structure is applicable in cases where the bus transport authority or ULB proposes to engage a private entity to expand its services, and where a high degree of regulation and monitoring exists, enabling the authority to check compliance with operating and performance standards. It is also applicable where the bus transport authority or ULB can avail itself of moderate public funding to pay the private operator, as fare revenues are not enough to cover operating costs. Therefore, a cost-plus PPP structure is applicable in cases where

- fare revenues cannot cover the operating costs for running the buses;
- the utility that is currently operating the system cannot induce the desired level of operating efficiency in the system;
- the bus transport authority or ULB has substantial regulations in place to sustain the performance standards for the buses, trips, fare levels, routes, etc.;
- the current fleet of buses is not enough to meet the requirements of the population of the city and must be significantly increased in a short period of time; and
- the bus transport authority or ULB has supporting infrastructure like bus terminals and depots in place.

3 Gross-Cost Contract

A gross-cost contract is typically a lease contract agreement. The private operator owns and runs the buses, while the bus transport authority or ULB collects the revenue. All the fare revenues are transferred to the authority, which selects the private operator that offers to provide the required service at the lowest cost. The contracted payment specified in the bid can take the form of a fixed hourly charge for the bus or a per-kilometer charge.

Gross-cost contracts have been implemented in Copenhagen (Denmark), London (United Kingdom), and other cities.

3.1 Difference between Cost-Plus and Gross-Cost Contracts

The bus transport authority or the urban local body (ULB) has high liability under a cost-plus contract—it reimburses the operating costs incurred by the private operator. Under a gross-cost contract, the liability of the bus transport authority or ULB is limited to the negotiated amount of payments to be made to the private operator as consideration for its services. Thus, in a gross-cost contract a part of the operating risk is transferred to the private operator, giving the latter added incentive to induce efficiencies in operations to increase its profit margin. A gross-cost contract thus achieves more operating efficiency because the operator's profit will be directly proportional to the cost savings, as revenues are fixed.

3.2 Public–Private Partnership Structure

Under the gross-cost contract, the private operator procures the buses and leases them to the bus transport authority or ULB for a predetermined per-kilometer or hourly charge based on the operator's record of the kilometers traveled by the buses each day. The bus transport authority or ULB hires the conductor who collects the fare revenue. The private operator operates and maintains the buses and hires skilled staff to run them.

The PPP structure of the gross-cost contract is therefore similar to that of the cost-plus contract.

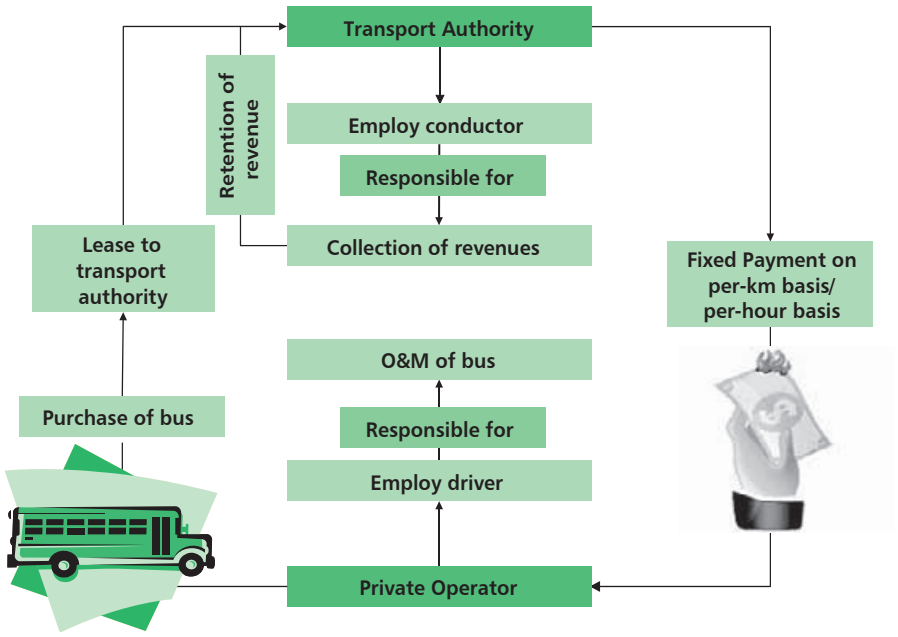
The private operator is able to recover its investment through the fixed per-kilometer or per-hour charge. This charge does not change during the contract period except for standard yearly escalations accorded by the bus transport authority or ULB. Revenues are collected and fares decided by the bus transport authority or ULB.

The private operator bears all the costs associated with the procurement of the buses. The buses must conform to the physical specifications and performance standards stipulated by the bus transport authority orULB in the contract. The bus transport authority or ULB appoints the private operator and lays down the physical specifications of the buses, performance standards and penalties, and minimum running of the buses. The contract period is indicated in the agreements and varies between 5 and 7 years or depends on bus usage (typically 7.5 million kilometers).

Figure 7 and Table 12 summarize the roles and responsibilities of the stakeholders under a gross-cost contract.

The obligations and responsibilities of the private operator and the bus transport authority or ULB under a gross-cost contract are listed in detail in Part 4 of this tool kit.

Figure 7 Structure of the Gross-Cost Contract



km = kilometer, O&M = operation and maintenance.

Note: The gross-cost structure is similar to the cost-plus contract structure. The two differ only in the payment terms.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

Table 12 Roles and Responsibilities of the Private Operator and the Bus Transport Authority under a Gross-Cost Contract

Item	Private Operator	Transport Authority
Primary task	Procurement of buses and skilled staff to operate and maintain the buses	Fare setting, route planning, and management of transport infrastructure like bus stops and terminals
	Procurement of permits	Performance and quality monitoring and regulation
	Procurement of diesel, spares, engine oil, and other consumables for the running of the buses	Collection of all revenues such as tickets, seasonal tickets, advertising revenues
Fares and payments	Receipt of a fixed amount based on per-kilometer or per-hour bus operation	Fare setting and collection
Operating expense	Spares, minor and major repairs Fuel Any other operation and maintenance expense Bus registration	Not applicable
Capital expense	Capital expenditure for the procurement of buses	Not applicable
Asset ownership	Takes over the assets at the end of the contract	Buses are run in the name of the bus transport authority or urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

3.2.1 Preparatory Work by Bus Transport Authority or Urban Local Body

Before the gross-cost contract takes effect, both the private operator and the bus transport authority or ULB must carry out certain preparatory activities. To set reasonable performance targets for the private operator, the bus transport authority or ULB must

- survey and evaluate the routes it intends to serve;
- establish the exact requirement for and physical specifications of buses required for the operation, and determine the routes to be served by the buses;
- create a service quality plan that contains performance and quality standards for the system and that provides for the imposition of fines and penalties for noncompliance with the quality contract;
- provide for bus inspections, checking of the log of kilometers run, display of advertisements, and equipment of buses with vehicle-tracking devices;
- authorize the private operator to use the transport infrastructure such as bus stops and bus terminals; and
- authorize the private operator to use the bus depots with clear terms for their use, and state the specifications and area of the depots.

3.3 Risks

The risks that must be borne by the private operator and the transport authority or ULB under a gross-cost contract are given in Table 13.

Table 13 Risks of the Private Operator and the Bus Transport Authority under a Gross-Cost Contract

Activity	Private Operator	Transport Authority	Comments
Commissioning Risk			
Delay in the procurement of buses needed for the start of operations	✓		The buses have to be procured according to the bus delivery schedule and specifications mentioned. The private operator must pay a penalty for any delay in the procurement of buses.
Delay in the allocation of the bus depot		✓	The specifications, location, and area of the depots must be clearly mentioned in the contract, and at the start of operations the private operator must be given the right to use the depots.
Demand (Usage) Risk			
Inadequate demand for bus service		✓	The private operator's revenues are based on a fixed per-kilometer or per-hour charge; therefore, the demand risk rests solely with the bus transport authority or ULB.
Performance Risk			
Noncompliance with the service quality plan and performance parameters		✓	The private operator must follow the service and performance quality standards; otherwise, it incurs fines and penalties.

continued on next page

Table 13 *continued*

Activity	Private Operator	Transport Authority	Comments
Financial Risk			
Cost of bus procurement	✓		The private operator is solely responsible for arranging the funds needed to procure the buses.
Fare collection		✓	The bus transport authority or ULB is responsible for the collection of fares and other revenue through its mechanisms.
Force Majeure Risk			
Force majeure risk	✓	✓	Each party bears the risk where its own assets are concerned.
Operating Risk			
Increase in the cost of operating the buses	✓		The private operator operates and maintains the buses in exchange for a fixed payment. Therefore, the operating risk rests with the private operator. Moreover, the bus transport authority or ULB periodically inspects the buses and levies fines for noncompliance with specified standards.
Increase in labor cost	✓	✓	The private operator hires drivers and mechanics to operate the buses, and the bus transport authority or ULB hires conductors to collect fares.

ULB = urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

3.4 Applicability

A gross-cost contract is applicable if the bus transport authority or ULB proposes to engage a private entity solely to provide service at the lowest possible cost. There must be many bidders in the market that are willing to quote competitive rates to win the contract. Such a contract is also applicable in cases where a high degree of regulation and monitoring exists, enabling the authority to check compliance with operating and performance standards. Gross-cost contracts transfer the operating risk to the private operator and, hence, are more useful in bringing in operating efficiency than cost-plus contracts. Gross-cost contracts, like cost-plus contracts, are also applicable where the bus transport authority or ULB can avail itself of moderate public funding to pay the private operator, as fare revenues cannot cover operating costs. A gross-cost PPP structure is therefore applicable in cases where

- fare revenues cannot cover the operating costs for running the buses;
- the utility that is currently operating the system cannot induce the desired level of operating efficiency in the system;
- the bus transport authority or ULB has substantial regulations in place to sustain the performance standards for the buses, trips, fare levels, routes, etc.;
- the current fleet of buses is not enough to meet the requirements of the population of the city and must be significantly expanded in a short period of time;
- the bus transport authority or ULB has supporting infrastructure like bus terminals and depots in place; and
- there are many bidders for the project that are willing to quote competitive rates to win the contract.

4 Net-Cost Contract

A net-cost contract is typically a lease contract. The private operator procures, owns, and runs the buses for a specified period, and also collects and retains all the revenues. The authority may consider paying a subsidy to the operator if the bus services in the area are unprofitable. If the services are profitable, then the private operator can consider paying a fixed amount to the bus transport authority or the urban local body (ULB).

Indore City Transport Services Limited has implemented a net-cost contract in its operations.

4.1 Public–Private Partnership Structure

The private operator procures the buses and leases them to the bus transport authority or ULB, and pays the latter either a fixed per-kilometer royalty or a fixed charge per month, as agreed in the contract, for the use of its bus transport infrastructure and the right to operate the services. For this purpose, the operator either keeps a record of the kilometers traveled each day or is monitored by a vehicle-tracking device. The private operator operates and maintains the buses and hires skilled staff to run them. It collects all the revenues on the route and is also entitled to income from bus passes and advertisements displayed on the buses.

The private operator bears all the costs associated with the procurement of the buses. The buses procured must conform to standards specified by the transport authority or ULB in the contract. The bus transport authority or ULB appoints the private operator and lays down the physical specifications of the buses, performance standards and penalties, and minimum running of the buses. The bidding parameter is usually the per-kilometer royalty or fixed monthly charge the operator is willing to pay to the bus transport authority or ULB. The contract period is indicated in the agreements and varies between 5 and 7 years or depends on bus usage (typically 7.5 million kilometers).

The private operator is able to recover its investment through the fares collected and the operator's share in pass and advertising revenues. The bus transport authority or ULB decides the passenger fares and reviews them periodically.

Figure 8 and Table 14 summarize the roles and responsibilities of the stakeholders under a net-cost contract.

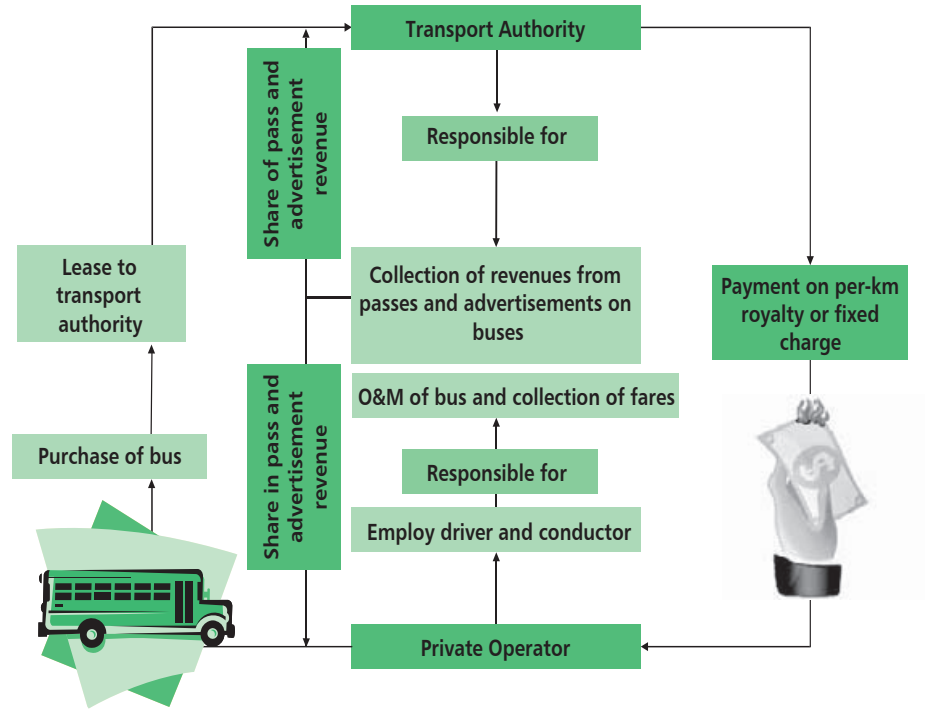
The obligations and responsibilities of the private operator and the bus transport authority or ULB under a net-cost contract are listed in detail in Part 4 of this tool kit.

4.1.1 Preparatory Work by Bus Transport Authority or Urban Local Body

Before a net-cost contract takes effect, both the private operator and the bus transport authority or ULB must carry out certain preparatory activities. To set reasonable performance targets for the private operator, the bus transport authority or ULB must

- survey and evaluate the routes it intends to serve;
- establish the exact requirement for and physical specifications of buses required for operation, and determine the routes to be served by the buses;
- assess the financial feasibility of serving the chosen routes or areas through a PPP contract;
- create a service quality plan that contains the performance and quality standards for the system and that provides for the imposition of fines and penalties for noncompliance with the quality contract;

Figure 8 Structure of the Net-Cost Contract



km = kilometer, O&M = operation and maintenance.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

Table 14 Roles and Responsibilities of the Private Operator and the Bus Transport Authority under a Net-Cost Contract

Item	Private Operator	Transport Authority
Primary task	Procurement of buses and skilled staff to operate and maintain the buses and supervise operations Fare collection Procurement of permits and consumables Procurement of consumables like diesel, spares, and engine oil for the operation of the buses	Fare setting, route planning, and management of other transport infrastructure like bus stops and terminals Monitoring of operating and performance standards of the bus fleet Collection of revenue from advertisements and passes
Fares and payments	Collection of passenger fares Payment to bus transport authority or ULB based on a per-kilometer royalty or fixed monthly charge Receipt of share in advertisement and pass revenues from bus transport authority or ULB	Fare setting Collection of seasonal pass revenues Collection of advertising tariffs

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Table 14 *continued*

Item	Private Operator	Transport Authority
Operating expense	Spares, minor and major repairs Fuel Any other operation and maintenance expense Bus registration	Not applicable
Capital expense	Capital expenditure for bus procurement	
Asset ownership	Takes over assets at the end of the concession period	Buses are run in the name of the bus transport authority or ULB.

ULB = urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

Table 15 Risks of the Private Operator and the Bus Transport Authority under a Net-Cost Contract

Activity	Private Operator	Transport Authority	Comments
Commissioning Risk			
Delay in the procurement of buses needed for the start of operations	✓		The buses have to be procured according to the bus delivery schedule and physical specifications set by the bus transport authority or ULB. The private operator pays delay charges if the schedule is not followed.
Delay in the allocation of bus depots		✓	The specifications, location, and area of the depots must be clearly mentioned in the contract, and at the start of operations the private operator must be given the right to use the depots.
Demand (Usage) Risk			
Inadequate demand for buses	✓		The private operator collects the revenues; hence, the demand risk is transferred to the private operator.
Performance Risk			
Noncompliance with service quality and performance parameters	✓		The private operator must follow the service and performance quality standards; otherwise, it incurs fines and penalties.
Financial Risk			
Cost of bus procurement	✓		The private operator is solely responsible for arranging the funds needed to procure the buses.
Fare collection	✓		The private operator is responsible for fare collection through its mechanisms, and is entitled to a share in advertising and pass revenues.

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Table 15 *continued*

Activity	Private Operator	Transport Authority	Comments
Force Majeure Risk			
Force majeure risk	✓	✓	Each party bears the risk where its own assets are concerned.
Operating Risk			
Increase in the cost of operating and maintaining the buses	✓		The private operator operates and maintains the buses. The bus transport authority or ULB periodically inspects the buses and levies fines for noncompliance with specifications.
Increase in labor cost	✓		The private operator hires the bus drivers, and O&M and administration personnel.

O&M = operation and maintenance, ULB = urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

- authorize the private operator to use the transport infrastructure such as bus stops and bus terminals;
- provide for bus inspections, checking of the log of kilometers run, display of advertisements, and equipment of the buses with vehicle-tracking devices; and
- authorize the private operator to use the bus depots with clear terms for their use, and state the specifications and area of the depots.

4.2 Risks

The risks that must be borne by the private operator and the bus transport authority or ULB under a net-cost contract are summarized in Table 6.

4.3 Applicability

A net-cost contract is applicable in cases where demand for the bus transport services has been established in an objective and credible manner, and where public funding is low but fare revenues are enough to cover operating costs. As this type of contract transfers the operating and demand risk to the private operator, there must be at least a moderate level of regulation and monitoring. The private operator has the incentive to improve its profits by bringing in operating efficiency and stimulating demand. Therefore, a net-cost PPP structure is applicable in cases where

- fare revenues are enough to cover operating costs and capital cost for running the buses;
- the demand for urban bus transport services has been established objectively and credibly;
- the bus transport authority or ULB does not have the resources to manage the revenue collection activity;
- the bus transport authority or ULB cannot induce the desired level of operating efficiency in the system; and
- there is a fair mechanism for the setting of fares (to ensure that private players are interested in the project) and a good mechanism for grievance redress in case operators charge excessive fares.

5 Licensing Contract

A licensing contract is typically an operation and maintenance contract. The bus transport authority or urban local body (ULB) procures the buses, usually with the help of grants from government programs like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The private operator pays the share of the bus transport authority or ULB in the purchase price of the buses, operates and maintains the buses, collects the revenue, and remits to the bus transport authority or ULB a royalty per kilometer.

5.1 Difference between Licensing and Gross-Cost and Net-Cost Contracts

Under a licensing contract, the bus transport authority or ULB owns the assets as it has invested in their procurement. It licenses the private operator to operate and maintain the bus system. The private operator complies with the performance standards of the bus transport authority or ULB, and operates and maintains the buses. Under gross-cost and net-cost contracts, the private operator owns the assets.

5.2 Public–Private Partnership Structure

Under a licensing contract, the bus transport authority or ULB provides the buses to the private operator, who pays the bus transport authority or ULB a fixed per-kilometer royalty or fixed charge per month, as agreed in the contract. The operator either keeps a record of the kilometers traveled each day or is monitored by a vehicle-tracking device. It also bears a part of the procurement cost of the buses, paying the share of the bus transport authority or ULB. For example, JNNURM grants for the procurement of buses cover up to 90% of the cost, depending on the city, and the municipal corporation's share is 10%. The private operator in this case is therefore expected to contribute 10% of the cost of the buses. JNNURM also determines the physical specifications of the buses to be procured. The private operator collects and retains the fares, operates and maintains the buses, and employs skilled staff to run them.

The bus transport authority or ULB appoints the private operator and lays down the performance standards and penalties, and the minimum running of the buses. The contract period is indicated in the agreements and is usually 3–5 years. The bidding parameter is usually the per-kilometer royalty or fixed monthly charge the operator is willing to pay to the bus transport authority or ULB.

The private operator can recover its investment through the fares collected. The fares are decided and reviewed periodically by the bus transport authority or ULB.

Figure 9 and Table 16 summarize the roles and responsibilities of the stakeholders under a licensing contract.

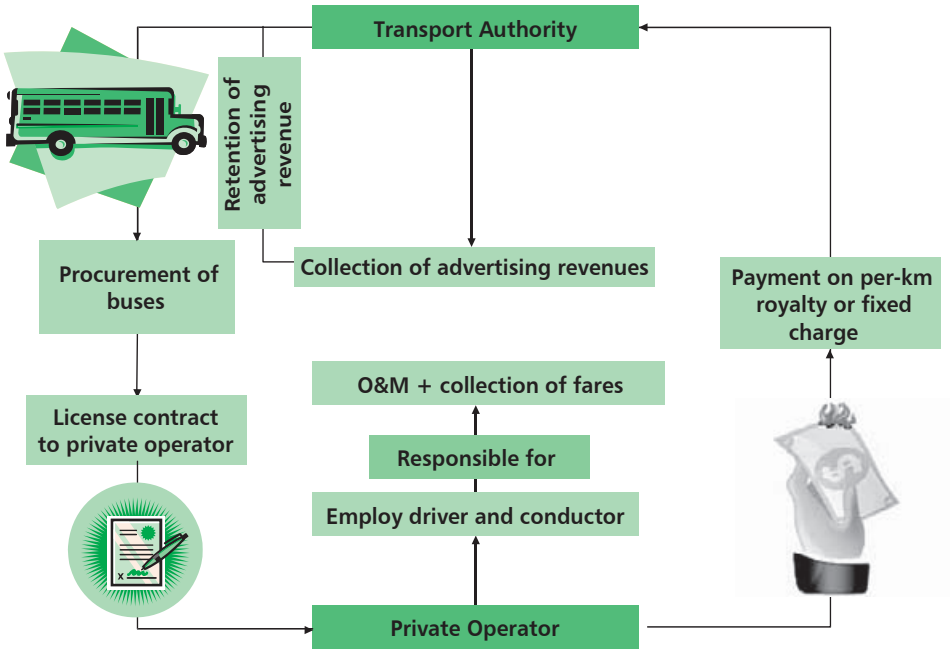
The obligations and responsibilities of the bus transport authority or ULB and the private operator are listed in detail in Part 4 of this tool kit.

5.2.1 Preparatory Work by Bus Transport Authority or Urban Local Body

Before a licensing contract takes effect, both the private operator and the bus transport authority or ULB must carry out certain preparatory activities. To set reasonable performance targets for the private operator, the bus transport authority or ULB must

- survey and evaluate the routes it intends to serve;
- decide which routes will be served by the buses;

Figure 9 Structure of the Licensing Contract



km = kilometer, O&M = operation and maintenance.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

Table 16 Roles and Responsibilities of the Private Operator and the Bus Transport Authority under a Licensing Contract

Particulars	Private Operator	Transport Authority
Primary task	Procurement of skilled staff to operate and maintain the buses and supervise operations Collection of fares Procurement of permits Procurement of consumables like diesel, spares, and engine oil for the operation of the buses	Procurement of buses, setting of fares, route planning, and management of other transport infrastructure like bus stops and terminals Monitoring of operating and performance standards of the bus fleet Collection of revenue from advertisements
Fare and payments	Payment of a per-kilometer royalty or fixed charge to the bus transport authority or ULB	Setting of passenger fares Collection of advertising revenues
Operating expense	Spares, minor and major repairs Fuel Any other O&M expense Bus registration	Not applicable
Capital expense	Part of the capital expenditure for bus procurement	Part of the capital expenditure for bus procurement
Asset ownership	No ownership	Takes over assets at the end of the concession period

O&M = operation and maintenance, ULB = urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

- determine the financial feasibility of serving those routes through a PPP contract;
- create a service quality plan that contains performance and quality standards for the system and that provides for the imposition of fines and penalties for noncompliance with the quality contract;
- authorize the private operator to use the transport infrastructure such as bus stops and bus terminals;
- provide for bus inspections, checking of the log of kilometers run, display of advertisements, and equipment of the buses with vehicle-tracking devices; and
- authorize the private operator to enter and use the bus depots.

5.3 Risks

The risks that must be borne by the private operator and the bus transport authority or ULB under a licensing contract are summarized in Table 17.

Table 17 Risks of the Private Operator and the Bus Transport Authority under a Licensing Contract

Activity	Private Operator	Transport Authority	Comments
Commissioning Risk			
Delay in the procurement of buses needed for the start of operations		✓	The buses have to be procured by the bus transport authority or ULB according to the bus delivery schedule.
Demand (Usage) Risk			
Inadequate demand for buses	✓		The private operator collects the revenues; hence, the demand risk is transferred to the private operator.
Performance Risk			
Noncompliance with the service quality and performance parameters	✓		The private operator must follow the service and performance quality standards; otherwise, it incurs fines and penalties.
Financial Risk			
Cost of bus procurement	✓	✓	The bus transport authority or ULB receives from the private operator the money it has contributed to the procurement of the buses. The cost of procurement is therefore shared.
Collection of fares	✓		The private operator is responsible for the collection of fares through its mechanisms.
Force Majeure Risk			
Force majeure risk	✓	✓	Each party bears the risk where its own assets are concerned.
Operating Risk			
Inadequate operation and maintenance of the buses	✓		The private operator operates and maintains the buses. The bus transport authority or ULB periodically inspects the buses and levies fines if the buses do not meet specifications.
Increase in labor cost	✓		The private operator hires the bus drivers, and O&M and administration personnel.

O&M = operation and maintenance, ULB = urban local body.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

5.4 Applicability

A licensing contract is applicable if the bus transport authority or ULB cannot achieve operating efficiency either because it cannot run the fleet to the fullest or because it lacks skilled labor, transport infrastructure, etc. Such a contract can be implemented where public funding is low but fare revenues are enough to cover operating costs and a part of capital costs. Regulation and monitoring can be moderate. While the operating and demand risk is transferred to the private operator, the liability is less because the operator does not pay the full cost of procurement of the buses. The private operator has the incentive to improve its profits by bringing in operating efficiency and stimulating demand. Therefore, a licensing PPP structure is applicable in cases where

- fare revenues are enough to cover the operating costs and a part of the capital costs for running the buses;
- the bus transport authority or ULB does not have the expertise needed to run the bus transport system though it has the funds to procure the buses, and therefore would not be able to induce a fair level of operating efficiency in the system; and
- there is a fair mechanism for the setting of fares (to ensure private sector interest in the project) and a good grievance redress mechanism in case operators charge excessive fares.

6 Types of Contract Implementation

The contracts explained in the foregoing sections can be implemented either as area contracts or as route contracts. Both types of contracts are explained briefly below.

6.1 Area Contract

When a bus transport authority or ULB issues a contract to a bus operator giving it the exclusive right to run bus services in an area that forms all or a substantial part of the city it is described as an area contract. An area contract is applicable when the city has a number of relatively self-contained areas (fewer than 500 buses are required to serve a whole area) and the bus transport authority or ULB would like the private operator to

- plan bus services in the area, subject to approval by the authority; and
- establish itself and be identified as the bus system provider for the area.

6.2 Route Contract

When the authority issues a contract for the operations of one specified route or a group of routes then it is described as a route contract. A route contract is applicable when the bus transport authority or ULB intends to

- determine the routes and the daily schedule;
- be identified as the bus system provider; and
- offer opportunities to smaller players in the market.

PART III

Case Studies of Sample Cities in Maharashtra

1 Introduction

The process of identifying and implementing the public–private partnership (PPP) structure of a project in the urban bus transport sector is discussed in Parts 1 and 2 of this tool kit. Part 3 follows that process in making a preliminary assessment of the advisability of PPP in the urban bus transport sector of sample cities in the state of Maharashtra and recommending a suitable PPP contract structure.

In the first step in the process—defining the problem—performance assessment parameters that have been compiled are used to determine the status of urban bus transport services in Navi Mumbai, Aurangabad, and Nanded. Projects in the sector that have been proposed for Navi Mumbai are compared against the results of the assessment to verify if they address the issues identified.

In the second step—choosing between public funding and PPP—the projects in Navi Mumbai undergo a preliminary viability assessment using their financial statements, and the appropriate project development option is chosen. The risks pertaining to the projects are listed and allocated between the parties in the third step—choosing the suitable PPP structure. The PPP contract structure that best matches this risk allocation is recommended.

The last step in the process involves identifying the key bidding parameters and implementing the PPP structure chosen, with the help of the term sheets provided in Part 4.

For the cities of Aurangabad and Nanded, which have already implemented PPP contracts for bus transport services, the contracts are studied and key lessons are drawn.

Bus depots, also part of the urban bus transport system, are analyzed separately in Section 5 and the development of a bus depot at Rabale is taken up.

A final section (Section 6) is devoted to the monorail operation and maintenance contract for the Mumbai Metropolitan Region.

2 Summary of the Sector Assessment

The urban bus transport sector in the city of Navi Mumbai was analyzed and a likely PPP structure, from among those described in this tool kit, was recommended for projects in the sector. The PPP contracts that have been implemented in Nanded and Aurangabad were studied, their shortcomings were identified, and improvements were suggested. The key findings and recommendations of the analysis are summarized in Table 18.

The construction of a bus depot at Rabale was among the projects proposed during discussions with Navi Mumbai Municipal Transport (NMMT). A PPP structure, based solely on a qualitative assessment in the absence of data from NMMT, was designed for the project. According to the proposed structure, the private operator would build the bus depot and hand it over to NMMT under a turnkey contract. It would also develop the land allotted to the depot and earn lease revenues, to be shared with NMMT.

The operation and maintenance contract for the monorail system that is being implemented in Mumbai was also studied, and the key principles of such a contract were drafted on the basis of the present contract.

Table 18 Key Findings and Recommendations of the Sector Assessment

City	Findings	Recommendations
Navi Mumbai	Too few buses per 100,000 population Aging fleet Low operating efficiency of service Low fuel efficiency of buses NMMC grant required by NMMT to continue operating Land required for depots Up to 900 million rupees (Rs) required for expansion	Implement a net-cost structure
Aurangabad[a]	Existing net-cost PPP contract Too few buses per 100,000 population No performance or quality standards in bus transport service contract Fewer buses provided than required in PPP contract AMC guaranteed loan to private operator with no payment security Royalty payments fixed at Rs0.80 per kilometer traveled by buses No performance guarantee from the private operator Unclear contract terms for private operator's use of bus depot	Define performance standards and penalties for noncompliance Get performance guarantee from private operator Clarify terms of payment with AMC with appropriate escalation factors Clearly define use of bus depots

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Table 18 *continued*

City	Findings	Recommendations
Aurangabad[a]	Lack of agency support for private operator Unclear contract provisions regarding payment of taxes No grant to private operator for subsidized passes for students and disabled persons	Incorporate bus delivery schedule in contract with delay charges
Nanded[a]	Existing net-cost PPP contract Too few buses per 100,000 population No performance or quality standards in bus transport service contract Fewer buses provided than required in PPP contract NWCMC guaranteed loan to private operator with no payment security Royalty payments fixed at Rs0.72 per kilometer traveled by buses No escrow account for fare revenues despite contract provision No performance guarantee from private operator Unclear contract terms for private operator's use of bus depot Lack of agency support for private operator Unclear contract provisions regarding payment of taxes No grant to private operator to support subsidized passes for students and disabled persons	Define performance standards and penalties for noncompliance Get performance guarantee from private operator Clarify terms of payment with NWCMC with appropriate escalation factors Clearly define use of bus depots Incorporate bus delivery schedule in contract with delay charges Ensure enforceability of contract

AMC = Aurangabad Municipal Corporation, NMMC = Navi Mumbai Municipal Corporation, NMMT = Navi Mumbai Municipal Transport, NWCMC = Nanded Waghala City Municipal Corporation, PPP = public–private partnership.

[a] The municipal corporation has a contract with a private operator.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

3 Public–Private Partnership Structure for Navi Mumbai

The PPP structure proposed for the city of Navi Mumbai, which has not yet implemented a PPP structure in its urban bus transport sector, is discussed in this section.

3.1 Assessment of Navi Mumbai

Navi Mumbai, on the eastern coast of Thane Creek, is the twin city of Mumbai and one of the largest planned cities in the world with a total area of 344 square kilometers. The city limits stretch from Airoli in the north to Uran in the south. The main areas of Navi Mumbai (163 square kilometers in total) come under the aegis of the Navi Mumbai Municipal Corporation (NMMC). Navi Mumbai is divided into 14 nodes—Airoli, Ghansoli, Kopar Khairane, Vashi, Sanpada, Nerul, Belapur central business district, Kharghar, Kalamboli, Kamothe, New Panvel, Ulwe, Pushpak, and Dronagiri.

Navi Mumbai has been expanding rapidly, its population growing from 700,000 in 2001 to about 2.1 million today. The main drivers of the city's growth are the following:

- educational institutions including engineering and medical colleges;
- Maharashtra Industrial Development Corporation industrial area and commercial areas like the Agricultural Produce Marketing Committee market and the Jawaharlal Nehru Port Trust;
- information technology parks and developments like Dhirubhai Ambani Knowledge City;
- residential plots in Kharghar, Uran, Taloja, Panvel, and other areas; and
- upcoming developments like the Navi Mumbai International Airport and the Navi Mumbai Special Economic Zone.

The nodes planned by the City and Industrial Development Corporation of Maharashtra Limited (CIDCO) are expected to be saturated by the end of 2015, and there will be an immense need for good transport services in the newer areas of the city like the upcoming nodes mentioned above. The current modes of transport in the city are described below.

3.1.1 Current and Planned Transport System

Roads and railways provide the city of Navi Mumbai with transport connectivity.

3.1.1.1 Road Connectivity

Road connectivity between Navi Mumbai and other areas of the Mumbai Metropolitan Region is provided mainly by the following three roads:[1]

- Sion–Panvel Highway (including Vashi Bridge), which provides main connectivity with the region of Greater Mumbai. Traffic on the highway is heavy during peak hours (almost 7,300 passenger car units per hour).
- Thane–Belapur Road (Mulund–Airoli, including Mulund Bridge), which provides connectivity with the eastern suburbs of the Greater Mumbai Region and with Thane. Traffic on the Thane–Belapur Road

[1] Comprehensive Mobility Plan of Navi Mumbai.

reaches 2,900 passenger car units per hour during peak hours.
- Shil–Mahape Road, which originates from the Thane–Belapur Road at Mahape and provides connectivity to Kalyan and Dombivli.

3.1.1.2 Rail Connectivity

Two railway lines provide rail connectivity to the city:

- Harbour Line of the Central Railway provides connectivity to Greater Mumbai from Mankhurd and continues through Vashi, Sanpada, Jui Nagar, Nerul, Belapur, Kharghar, Khandeshwar, Panvel, and other nodes of Navi Mumbai.
- Thane–Vashi Line runs along the Thane–Belapur Road up to Thane with stops at Turbhe, Kopar Khairane, Ghansoli, Rabale, and Airoli.

The main rail and road systems are mass transport systems for travel to Mumbai and the Greater Mumbai Region. In addition, buses operated by NMMT, autos, and taxis act mainly as feeder systems to the railway stations and are used for internal travel between the nodes of Navi Mumbai.

3.1.1.3 Planned Transport System

Demand for urban transport in this rapidly growing city is on the rise, and the following projects are planned for the near future to meet this demand:[2]

- extension of the Thane–Vashi railway line up to Nerul;
- extension of the Harbour railway line from Panvel to Uran;
- development of a road from Vashi Gaon to Dighe along Vashi Creek; and
- development of a road from Uran Phata to National Highway 3 along Nerul, Turbhe, Mahape, and the Rabale industrial area.

3.1.2 Current Bus Transport System

The Navi Mumbai area relies primarily on four bus transport corporations that operate in the area. These are

- NMMT,
- Brihanmumbai Electric Supply and Transport (BEST),
- Maharashtra State Road Transport Corporation (MSRTC), and
- Kalyan–Dombivli Municipal Transport (KDMT).

About 210 buses of BEST, 350 of state transport, and 35 of KDMT operate in Navi Mumbai along with 269 buses of NMMT. NMMT mainly serves the NMMC region and has 11 bus terminals in the area and two depots in Turbhe and Asudgaon. NMMT plans to add another bus depot in Rabale. The main features of the NMMT operation are given in Table 19.

NMMT serves mainly the internode routes—Thane, Kalyan, Dombivli, Kalamboli, Panvel, Kharghar, and Uran—and also provides some services to Mumbai. The main functions of NMMT are to support the mass transport system of railways and buses that connect the city to the Greater Mumbai Region and to transport people from one node of Navi Mumbai to another.

The main routes served by NMMT are the following:

- Navi Mumbai to other municipal corporations like Kalyan, Dombivli, and Thane;
- Navi Mumbai to Panvel, Uran, and New Panvel; and
- Routes to Vashi, Airoli, Kopar Khairane, and the Agricultural Produce Marketing Committee market.

NMMT also acts as a feeder system to railway stations on the Central Railways system such as Vashi, Belapur, and Kopar Khairane.

[2] Source: Comprehensive Mobility Plan of Navi Mumbai.

There are plans to expand the bus transport system to new nodes like Kharghar, Uran, Taloja, and Panvel.

Table 19 Profile of Navi Mumbai Municipal Transport

Item	Value
Number of buses	269
Number of depots	2
Number of bus terminals	12
Number of routes served	39
Number of trips made per day	2,882
Number of employees	1,300
Number of passengers traveling per day	230,000
Distance traveled per bus per day	277 kilometers
Distance traveled by all the buses per day	74,621 kilometers
Diesel consumed per day	21,950 liters
Average age of employees	45 years
Average age of fleet	8 years
Revenue per day	Rs1.7 million
Revenue per kilometer	Rs25.6
Fuel efficiency	3.4 kilometers per liter
Special schemes	Monthly, weekly, daily and quarterly passes Concessions for freedom fighters, students, and senior citizens

Rs = rupees.
Source: Navi Mumbai Municipal Transport.

3.2 Step 1: Defining the Problem

Problem areas in the system must be examined to determine the state of NMMT's urban bus transport services and identify the improvements that must be made. The quality of the services now provided must be assessed, key issues isolated, and ongoing projects reviewed. The assessment of Navi Mumbai that is presented here is based on only a few parameters and hence is merely indicative. A detailed review of the system, as discussed in Part 1 of this tool kit, requires a physical survey of NMMT's assets and a thorough assessment of its finances.

3.2.1 Key Parameters

After a preliminary analysis of the urban bus transport services of NMMT and discussions with NMMT officials, the current urban transport system in Navi Mumbai was assessed. Table 20 presents the key indicators used in the assessment and the inferences that were drawn.

3.2.2 Key Issues

After the assessment of NMMT's bus transport services, the key issues facing the bus authority should be listed. Given the present state of the urban bus transport system in Navi Mumbai, the key indicators compiled (Table 20), and the resultant inferences, the following should be investment priorities:

- replacing the old buses of NMMT to improve operating efficiency;
- improving the financial condition of NMMT either by raising fares or by increasing operating efficiency to reduce NMMT's dependence on a grant from NMMC;
- hiring more workers to operate and maintain the buses of the corporation to allow NMMT to provide better service; and
- investing in a depot in Rabale, in view of NMMT's plans to expand its operations and add more buses to its fleet.[3]

[3] Information taken from discussions with NMMT officials. NMMT would be required to pay CIDCO 50% of the market value of the land for the depot.

Table 20 Operating and Performance Standards of Navi Mumbai Municipal Transport

Parameter	Calculation	Norm	Actual Value	Comment
Adequacy of Stock				
No. of buses per 100,000 population	Number of buses in the fleet/Total population of the area	30	12.8	The number of buses per 100,000 population is low, but passengers in Navi Mumbai also use the services of three other operators in the region i.e. (BEST, KDMT, and MSRTC).
Fleet Description				
Average age of buses (years)		<4 years	8 years	An aging fleet lowers the fuel efficiency of the whole bus transport system. NMMT buses have an average age of 8 years and, hence, a low fuel efficiency of 3.4 kilometers per liter.
Fuel efficiency (kilometers/liter)	Total number of kilometers operated/ Liters of diesel consumed	4.0–4.2 kilometers per liter	3.4 kilometers per liter	
Utilization of Rolling Stock				
Fleet utilization	Buses operated/Total number of buses in the fleet	>98%	60%–65%	Of the 269 buses in the fleet, only around 65% are fit for use because of the age of the fleet. The average age of the buses is about 8 years.
Bus productivity (kilometers)	Number of kilometers operated/ Total number of buses in the fleet	225–275 kilometers	277 kilometers	The fleet is overstretched because of poor fleet utilization, leading to increased hours of bus operation.
Regularity of Service				
Trip efficiency	Number of actual trips/Number of trips scheduled	>95%	93%	Trips are often canceled because of the age of the fleet.
Kilometer efficiency	Number of kilometers operated/ Number of kilometers scheduled	>95%	85%	Trips are often canceled because of the age of the fleet.
Punctuality of Operations				
Punctuality of operations	Number of trips made on time/Total number of trips	>95%	80%	NMMT cannot operate its services efficiently.
Reliability of Operations				
Unreliability of buses (per 10,000 kilometers)	Number of breakdowns × 10,000/Total number of kilometers operated	<5%	15%	Reliability is low, as more breakdowns occur because of the age of the fleet.
Safety of Operations				
Safety of buses (per 10,000 kilometers)	Number of accidents × 10,000/Total number of kilometers operated	<5%	0.14%	Meeting norms

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Table 20 *continued*

Parameter	Calculation	Norm	Actual Value	Comment
User Satisfaction				
Dirtiness of buses (per 1,000 trips)	Number of buses reported dirty × 1,000/Total number of trips scheduled	<5%	<5%	Meeting norms
User dissatisfaction (per 1,000 trips)	Number of complaints × 1,000/ Total number of trips	<2%	<5%	Meeting norms
Financial Recovery Ratio				
Cost recovery ratio	Fare revenue/Total operating costs	>100%	83%	NMMT is a loss-making enterprise and gets a grant of Rs150 million from NMMC. NMMT's yearly revenues total about Rs750 million, against expenditures of Rs900 million.
Staff Ratio				
Number of staff per bus	Total number of staff/Number of buses in the fleet	5.5	7.43	NMMT is faced with a shortage of workers and has therefore had to employ contract workers to make up the shortfall.

BEST = Brihanmumbai Electric Supply and Transport, KDMT = Kalyan–Dombivli Municipal Transport, MSRTC = Maharashtra State Road Transport Corporation, NMMC = Navi Mumbai Municipal Corporation, NMMT = Navi Mumbai Municipal Transport, Rs = rupees.

Source: Navi Mumbai Municipal Transport.

3.2.3 Projects Proposed for Navi Mumbai Municipal Transport

NMMT has ambitious plans for overcoming its problems, meeting the shortfall in services, and expanding into new nodes in Navi Mumbai. The plans (Table 21) involve improving intra-node connectivity and expanding services to adjacent nodes in the Mumbai Metropolitan Region like Kalyan–Dombivli, Thane, and Greater Mumbai. NMMT has applied for funds under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), as Navi Mumbai is one of 63 cities under JNNURM's Urban Infrastructure and Governance scheme.

NMMT has already tied up funds for the Rs600 million–Rs650 million worth of expansion plans under JNNURM.[4] It needs about Rs900 million more for the projects with no proposed grants. The feasibility of the PPP option for the 300 new buses intended for the city's new nodes is examined below. The PPP option for the bus depot project in Rabale is reviewed in Section 5.

3.3 Step 2: Deciding to Undertake the Public–Private Partnership Project

After the bus transport services provided by NMMT are assessed, key issues are identified, and proposed projects are briefly reviewed, a choice must be made between public and private or PPP funding and implementation of the projects. The viability of the projects must first be determined.

3.3.1 Assessment of Viability

A preliminary financial analysis has been performed, using the assumptions given in Table 22, to find out if PPP would be a

[4] According to NMMT officials.

Table 21 Proposed Expansion Plans of Navi Mumbai Municipal Transport

Potential Area of Investment	Proposed Scheme	Details
30 new air-conditioned buses to serve the area from Thane–Belapur Road to regions in Greater Mumbai like Mumbai and Dadar	JNNURM	Capital expenditure required: Rs170 million Grant: Rs120 million NMMT contribution: Rs50 million
150 new non-air-conditioned buses for new routes like Uran, Panvel, Taloja, and Kharghar	JNNURM	Capital expenditure required: Rs1 billion Grant: Rs700 million NMMT contribution: Rs300 million
Depot in Rabale	None proposed	Capital expenditure: Rs100 million
CNG kits for existing buses	None proposed	Capital expenditure: Rs50 million
300 new buses to run in the city's new nodes	None proposed	Capital expenditure: Rs750 million

CNG = compressed natural gas, JNNURM = Jawaharlal Nehru National Urban Renewal Mission, RS = rupees.

Source: Navi Mumbai Municipal Transport (NMMT).

Table 22 Financial Assumptions

Parameter	Value	Escalation
Phasing of capital expenditure	100 buses a year for 3 years	5%
Number of kilometers traveled per bus per day	225 kilometers	0%
Base cost of fuel (CNG)	Rs25 per kilogram	5%
Fuel efficiency	4 kilometers per kilogram NMMT: faster reduction in fuel efficiency from 4 to 2.4 kilometers per kilogram Private operator: gradual reduction in fuel efficiency from 4 to 2.4 kilometers per kilogram	
Peak number of passengers per bus per day	855 passengers	0%
Average fare per passenger	Rs8 per passenger	20% every 3 years
Number of employees per bus	7 employees	0%
Salary per employee	NMMT: Rs93,500 per employee Private operator: 60% of NMMT wages	5%
Vehicle maintenance	Rs155,000 per year	NMMT: from 5% to 14% per year over 10 years Private operator: from 5% to 10% per year over 10 years
Other accruals	NMMT: Rs550 per day Private operator: 15% more than NMMT accruals	5%

CNG = compressed natural gas, NMMT = Navi Mumbai Municipal Transport, Rs = rupees.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

Table 23 Private and Public Operators Compared

Item	Capital Expenditure	NMMT	Private Operator
Capital expenditure	Rs750 million (Rs780 million with cost escalation)		
IRR for the project (%)		6.0	19.5
IRR for the operator (%)		4.7	21.4

IRR = internal rate of return, NMMT = Navi Mumbai Municipal Transport, Rs = rupees.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

commercially viable option for the procurement and operation of 300 buses for the new nodes in Navi Mumbai. The assessment in the following sections is concerned largely with determining whether the public sector (NMMT) or the private sector has the financial capability to undertake the project, and how much each would have to invest in it.

The following assessment of the viability of the project under two scenarios—the investments are made by NMMT (option 1) or by a private developer (option 2)—is based on the assumptions in Table 22.

3.3.1.1 Option 1: Investment by Navi Mumbai Municipal Transport

NMMT will have to invest Rs780 million (with cost escalation) in the project. The project's internal rate of return, at NMMT's current operating efficiency, would be around 6%. This is less than the return offered by AAA-rated bonds.

3.3.1.2 Option 2: Investment by a Private Operator

The project would cost the same—Rs780 million—but the private operator would bring in operating efficiencies in salaries to employees, vehicle maintenance, and other accruals from advertising. A return of around 16% could be generated. This return factors in the payment of Rs1.5 per kilometer in royalty to the operator. NMMT's earnings over the life of the project could have a net present value of around Rs240 million (at a discount rate of 9%). Hence, it would be more financially feasible for a private operator to operate the project. NMMT should also consider the option of sharing revenues with the private operator instead of relying on royalties for the use of its transport infrastructure.

Financial statement details can be found in the appendix to this volume.

The above analysis shows that it would not be viable to develop the project with funds from NMMT, given the huge investment requirements and the limited funds at the disposal of the authority, which already has funds tied up in other projects. The PPP option, however, is viable even after returns to NMMT are factored in. NMMT can therefore undertake this project through PPP.

3.4 Step 3: Choosing the Public–Private Partnership Structure

The PPP mode of project development having been chosen, the next step will be to determine which PPP structure best suits the proposed project and its needs.

The preliminary financial analysis of NMMT and the viability assessment conducted above indicate that a net-cost PPP contract is the most suitable.

A net-cost contract is typically a lease contract. The private operator procures, owns, and runs the buses for a specified period, and also collects and retains all the revenues. The authority may consider paying a subsidy to the operator if the bus services in the area are unprofitable. If the services are profitable then the private operator can consider paying a fixed amount per kilometer to the bus transport authority.

Details of the obligations, risks, and payment arrangements under a net-cost contract are provided in Part 2 of this tool kit. The term sheet for this contract structure can be found in Part 4.

3.5 Step 4: Preparing for Procurement

After the PPP structure for the operation and maintenance of the proposed project is finalized, the next stage will be to plan the procurement process. To get the process going, NMMT will have to develop a contract structure that clearly defines the roles and responsibilities of the parties involved, the contractual relationship between the parties, the nature of the arrangement, the allocation of risk, performance and quality standards, the duration of the contract, payment terms, award criteria, and contract management strategies. The details can be found in the term sheet in Part 4 of this tool kit.

4 Public–Private Partnership Structures in Aurangabad and Nanded

4.1 Aurangabad

4.1.1 Current Situation

Aurangabad, with a total area of 200 square kilometers, is the administrative headquarters of the Marathwada Region. It is part of the Aurangabad district of Maharashtra and is bordered on either side by Jalna and Ahmednagar districts. The main city of Aurangabad comes under the aegis of the Aurangabad Municipal Corporation (AMC). Aurangabad is famous for many tourist locations such as the Ajanta and Ellora caves, Bibi Ka Maqbara, and Paithan. Five industrial areas housing industrial giants like Bajaj, Videocon, Johnson & Johnson, Siemens, and Skoda are on the outskirts. The city is thus primarily a manufacturing hub.

The city has a population of 1 million with a high growth rate of 8% over the years. The drivers of growth are the following:

- tourism drawn to Ajanta and Ellora, both World Heritage sites;
- industrial areas like Paithan Road, Chikathana, Harsul, Aurangabad Railway Station, Shendra, and Waluj; and
- educational institutions including the Dr. Babasaheb Ambedkar Marathwada University.

4.1.2 Transport Connectivity

Transport connectivity to Aurangabad is mainly through National Highway 211, which runs from Dhule to Solapur, passing through the city, and by rail from Aurangabad Railway Station. The main arterial roads of the city are

- Jalna Road,
- Railway Road,
- Harsul Road,
- Shivaji Nagar Road,
- National Highway 211 from Dhule to Solapur, and
- Aurangpura Road.

4.1.3 Urban Bus Transport System

The urban bus transport system has been operated since 2006 by Akola Pravasee and Mal Vahatuk Sahakari Sanstha in a PPP arrangement with AMC. The private operators run 74 buses on 24 routes around the city. The main parameters of the urban bus transport system in Aurangabad are given in Table 24.

The private operator serves these main routes in the city of Aurangabad:

- Aurangabad Railway Station–Baba Petrol Pump–Central Bus Stand–Collector's Office–Harsul,
- Aurangabad Railway Station–Osmanpura–Jawahar Colony–Pundlik Nagar–CIDCO Bus Stand,
- Aurangabad Railway Station–Osmanpura–Jawahar Colony–Garkheda–Shivaji Nagar,
- Chikalthana–Kranti Chowk–Baba Petrol Pump–Ranjan Gaon,
- Aurangpura–Seven Hills–Garkheda–Shivaji Chowk, and
- Auranpura–Baba Petrol Pump–Bajaj Nagar.

Table 24 Profile of the Aurangabad Municipal Transport System

Item	Value
Number of buses	74
Number of depots	1
Number of bus terminals	4
Number of routes	24
Number of trips made per day	440
Number of employees	350
Number of passengers per day	25,000–30,000
Distance traveled per bus per day	150–180 kilometers
Total distance traveled by the buses per day	13,500 kilometers
Diesel consumed per day	3,400 liters
Average age of employees	30 years
Average age of fleet	3.5 years
Revenue per day	Rs275,000
Revenue per kilometer per day	Rs20.37
Fuel efficiency	4.5 kilometers per liter
Special schemes for users	Monthly, weekly, daily, and quarterly passes Concessions for freedom fighters, students, and senior citizens

Source: Aurangabad Municipal Corporation.

The bus transport authority does not plan to introduce new routes, but intends to increase the number of buses operating on the present routes as the original PPP contract mandates the operation of 100 buses.

4.1.4 Current Contract

The structure of the current contract between the private operators (Akola Pravasee and Mal Vahatuk Sahakari Sanstha) and AMC is presented in Figure 10.

The main contractual obligations of the private operators are as follows:

- contribute 20% of the value of the buses as equity and take out a loan for the remaining 80%, with AMC standing as guarantor of the loan;
- submit payment security of Rs5 million to AMC for the loan;
- purchase the buses, operate them on the routes and according to the schedule specified by AMC, and maintain the buses;
- build transport infrastructure like bus stops and small shops around the bus stops according to the specifications provided by AMC;
- collect and retain the fare and advertising revenues, and issue passes for travel; and
- pay a royalty of Rs0.80 paisa per kilometer to AMC.

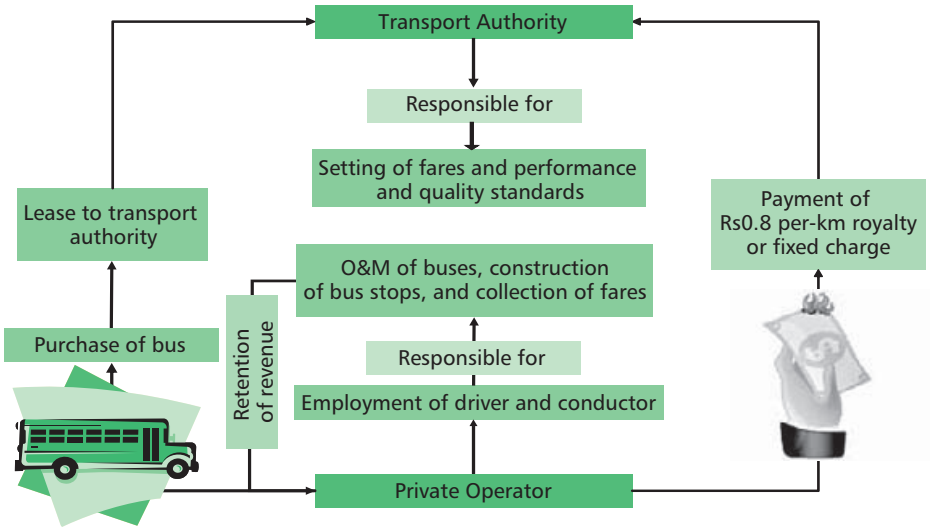
AMC sets and approves fares, and monitors the operation of the bus transport system. After the contract period of 10 years, ownership of the buses will be transferred to AMC.

From the contract structure described above, the PPP contract in Aurangabad appears to be a variant of the net-cost contract explained in detail in Part 2 of this tool kit. The private operators collect and retain the revenues while remitting to AMC a fixed royalty per kilometer traveled by the buses. They earn monthly revenues of Rs8.5 million–Rs9.0 million, which are transferred to an escrow account and used to pay the royalty to AMC and installments on the loan taken out for the procurement of the buses. The monthly payments amount to Rs2.25 million and monthly operating expenses, Rs6.5 million. Revenues are therefore enough for cost recovery. The private operators are expected to earn significantly more once the 5-year loan is repaid.

4.1.5 Key Parameters

The key operating and performance parameters of the urban bus transport system are defined and explained in Table 25 and compared against the desired values.

Figure 10 Public–Private Partnership Contract Structure for Aurangabad



km = kilometer, O&M = operation and maintenance; Rs = rupees.

Source: Aurangabad Municipal Corporation.

Table 25 Operating and Performance Standards of Aurangabad Municipal Transport

Parameter	Calculation	Desired Value	Actual Value	Status
Adequacy of Stock				
No. of buses per 100,000 population	Number of buses in the fleet/Total population of the area	30	7.3	Few buses per capita
Fleet Description				
Average age of buses (years)		<4 years	3.5 years	The buses in the fleet are relatively new, with an average age of around 3.5 years.
Fuel efficiency (kilometers per liter)	Total number of kilometers operated/Liters of diesel consumed	4.2–4.5 kilometers per liter	4.4 kilometers per liter	The buses in the fleet are relatively new. Their fuel efficiency is therefore in line with the norm.
Utilization of Rolling Stock				
Fleet utilization	Number of buses operated/Total number of buses in the fleet	>98%	90%	The private operators keep a few buses in the fleet on standby, to be used if the other buses break down.
Bus productivity (kilometers)	Number of kilometers operated/Total number of buses in the fleet	225–275 kilometers	150–180 kilometers	Nonoptimal use of buses

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Table 25 *continued*

Parameter	Calculation	Desired Value	Actual Value	Status
Regularity of Service				
Trip efficiency	Number of actual trips/Number of trips scheduled	>95%	95%	Meeting norms
Kilometer efficiency	Number of kilometers operated/Number of kilometers scheduled	>95%	95%	Meeting norms
Punctuality of Operations				
Punctuality of operations	Number of trips made on time/Total number of trips	>95%	95%	Meeting norms
Reliability of Operations				
Unreliability of buses (per 10,000 kilometers)	Number of breakdowns × 10,000/Total number of kilometers operated	<5%	<5%	Meeting norms
Safety of Operations				
Safety of buses (per 10,000 kilometers)	Number of accidents × 10,000/Total number of kilometers operated	<5%	<1%	Meeting norms
User Satisfaction				
Dirtiness of buses (per 1,000 trips)	Number of buses reported dirty × 1,000/ Total number of trips scheduled	<5%	<5%	Meeting norms
User dissatisfaction (per 1,000 trips)	Number of complaints × 1,000/Total number of trips made	<2%	<1%	Meeting norms
Financial Recovery Ratio				
Cost recovery ratio	Fare revenue/Total operating costs	>100%	100%	Meeting norms
Staff Ratios				
Number of staff per bus	Total number of staff/ Number of buses in the fleet	No norms	5	The private operators have reduced the number of workers operating the buses.

Source: Aurangabad Municipal Corporation, Akola Pravasee, and Mal Vahatuk Sahakari Sanstha.

The private operators have evidently brought in operating efficiency, as most of the service quality parameters meet the norms. But the number of available buses per capita is low.

4.1.6 Contract Issues

The existing PPP contract was studied and discussed with urban bus transport officials and the private operators in the city. The problems facing the contract from the point of view of the private operators and of AMC were identified, and measures to deal with these issues were suggested for incorporation into the contract.

4.1.6.1 Public Sector Issues

- **No clear operating standards and measures.** AMC has not set up any mechanism for measuring performance

and therefore cannot be certain that the private operators are providing services of acceptable quality. There is no performance guarantee, and there are also no fines or penalties for nonperformance or negligence by the private operators (for example, cancellation of services, noncompliance with schedules). Furthermore, the distance logged by each bus is checked manually by AMC at the end of each operating day. If the private operators were to log fewer kilometers than the distance actually traveled, AMC would earn less.

- **Buses fewer than the number stated in the contract.** The original contract signed by the private operators and AMC calls for 100 buses. Only 73 have been provided. But because the contract does not include a bus delivery schedule and does not provide for penalties in case of a delay in bus delivery, AMC cannot take action.
- **Risky loan guarantee by AMC.** AMC is the guarantor of the loan taken out by the private operators to procure the buses. To reduce its risk, AMC has obtained payment security of Rs5.0 million in the form of a bank guarantee. But this amount is small compared with the loan. If the private operators were to default on the loan, AMC would have to pay the amount due.
- **No escalation in royalty payments.** The private operators are obligated to pay AMC Rs0.80 per kilometer traveled by the buses. The private operators are now able to pay the loan installments and the royalty. The proportion of their earnings should increase substantially once the entire loan is paid. Under the contract, they are not bound to pay more royalty per kilometer.

4.1.6.2 Private Sector Issues

- **No agency support.** The private operators receive no support from state agencies like the police force and traffic cops against converted autos (illegally converted auto rickshaws that carry 10–12 passengers) and other illegal transport.
- **Unspecified bus depots.** The contract is unclear about the exact locations and specifications of the bus depots where the private operators can maintain and park their buses; hence, no permanent space has been allocated for the depots. The private operators have incurred expenditure moving from one location to another.
- **Unclear handling of octroi and advertising taxes.** The contract does not state clearly which entity should pay the octroi and advertising taxes (for advertisements on the buses) levied on the buses.
- **Unclear terms for subsidized passes.** The private operators are obligated to offer subsidized bus passes to students, the handicapped, and disabled persons. The state government compensates municipal and state transport undertakings for these subsidies. However, the private operators providing urban bus transport services on behalf of AMC receive no such compensation, and their profits have been affected.

4.1.7 Recommended Improvements in the Contract

Most of the foregoing issues stem from ambiguity in the terms of the contract. Part 2 of this tool kit explains the various PPP structures for the procurement of rolling stock. The Aurangabad bus PPP contract is a variant of the net-cost contract. The following measures suggested for the improvement of the current contract are derived from the risk allocation and mitigation strategies for this type of contract (Part 4):

- **Performance standards.** The contract must have a clear service quality plan (SQP) with defined performance and quality standards for the bus transport services. The SQP should be attached as a schedule to the contract between the private operators and AMC. It would state the minimum level of acceptable performance by the private operators. For example, bus productivity, which is the average number of kilometers a bus travels in a day, must be more than

225 kilometers per day. The SQP would help AMC monitor the performance of the bus services. Noncompliance with the standards would mean penalties to be paid to AMC. Thus, a good SQP would lessen the performance risk associated with the bus services and would ensure good-quality service.

- **Fines and penalties.** AMC must clearly set fines and penalties for noncompliance with the SQP or for any other default or deficiency. Penalties can be established for defaults and deficiencies related to the bus, the bus driver, or the bus operator, or for other violations. There must also be clear guidelines for the handling of repeated defaults or deficiencies. For example, AMC can declare an event of default if a serious safety incident takes place more than twice.
- **Performance guarantee.** AMC must require the private operators to submit a performance guarantee that would cover the fines and penalties the operators might incur for noncompliance with the SQP or for any defaults or deficiencies in the services as specified. If cashed, the performance guarantee must be replaced within a given time period (typically 15–30 days); otherwise, AMC can declare an event of default.
- **Specified bus depot locations.** The physical specifications of the depots, their location, and the land set aside for the depots must be stated clearly in the contract. The services of the private operators suffer from having to change bus depots frequently. The contract must state the commitment of AMC to hand over the bus depot sites without any encumbrance and not to change their location for the duration of the contract. It must also specify the rules to be followed in case of any construction or maintenance activity on the bus depot sites. A recourse to action in case AMC transfers the sites even if the private operators are not in breach of contract must also be specified in the contract (e.g., compensation equal to expenses incurred in moving to a different location).
- **Clear terms of payment.** The contract must clearly specify the payments due to AMC and to the private operators, with a provision for escalation in the royalty paid to AMC. The payment terms must include any subsidies and concessions offered as part of the agreement. The contract must also identify the party that should pay the taxes applicable to the project (e.g., advertising taxes, octroi).
- **Bus delivery schedule.** The private operators must be required to submit a bus delivery schedule to AMC specifying the dates on which the buses will be delivered and they will be operational. The contract must impose penalties for delays in the procurement of buses (noncompliance with the bus delivery schedule), for example, a penalty of RsXXX per bus per day for every day's delay in the procurement of buses.

4.2 Nanded

4.2.1 Current Situation

Nanded is the second-largest city in the Marathwada region of Maharashtra, with a total area of around 51.76 square kilometers. It has a population of about 575,000 (estimated from the city development plan). Nanded is an important city on the northern bank of the Godavari River. The city is divided into two parts—Old Nanded, on the old bank of the Godavari River, and New Nanded, which consists of Waghala and six other newly merged villages. The main city of Nanded is famous for a Gurudwara, dedicated to Guru Gobind Singh, the tenth spiritual leader of the Sikhs. Nanded is also famous for the cultivation of bananas and for its educational institutions.

4.2.2 Transport Connectivity

The main connectivity to Nanded is through National Highway 222 from Kalyan near Mumbai to Nirmal near Adilabad, passing through the old city of Nanded. Nanded is also connected by rail on the Mumbai–Secundrabad railway line. The old city of Nanded is developed and more populated than the new Nanded. The new Nanded, which consists of the Waghala and six other villages, is where new developments and

settlements are coming up. The main areas of Nanded with the heaviest passenger traffic are

- Sanghvi,
- Ganesh Nagar,
- Juna Munda,
- Shobha Nagar,
- Nanded Railway Station,
- Asarjan Vidyapeeth, and
- Habib Talkies.

4.2.3 Urban Bus Transport System

The urban bus transport system used to be operated by Maharashtra State Road Transport Corporation (MSRTC). But the services were discontinued after MSRTC suffered heavy losses in the early 2000s. The current administration has attempted to reintroduce the services under the Nanded Waghala City Municipal Corporation (NWCMC) by involving private sector participation.

NWCMC has identified 17 routes—14 within the city limits and three outside—for the bus services, and has obtained permission to operate three routes on a pilot basis. Since 2007, NWCMC has been running these routes under a PPP contract with Siddeshwar Travels (Table 26).

The company operates along these three routes:

- Pavdewadi Naka–Habib Talkies (8.8 kilometers);
- Bajaj Nagar–Hudco (12.1 kilometers); and
- Nanded Railway Station–Waghala Naka (7.5 kilometers).

NWCMC plans to expand operations to include all 17 routes proposed. It has also applied for the procurement of 30 buses and the improvement of transport infrastructure like bus stops and bus terminals under the JNNURM scheme, with the central government and the state government of Maharashtra financing up to 90%. The project is expected to cost around Rs75 million.

NWCMC proposes to operate the new buses under the existing PPP contract.

4.2.4 Current Contract

The structure of the current contract between the private operator (Siddeshwar Travels) and NWCMC is shown in Figure 11.

The main contractual obligations of the private operator are as follows:

- contribute 20% of the value of the buses as equity and take out a loan for the remaining 80%, with NWCMC standing as guarantor of the loan (without payment security from the private operator);
- purchase the buses, operate them on the routes and according to the schedule specified by NWCMC, and maintain the buses;
- collect and retain the fare and advertising revenues, and issue passes for travel; and
- pay a royalty of Rs0.72 per kilometer to NWCMC.

The private operator has no rights to revenues from advertising sold by NWCMC itself for Rs300,000.

NWCMC sets and approves fares, and monitors the operation of the bus transport system. After the contract period of 10 years, ownership of the buses will be transferred to NWCMC.

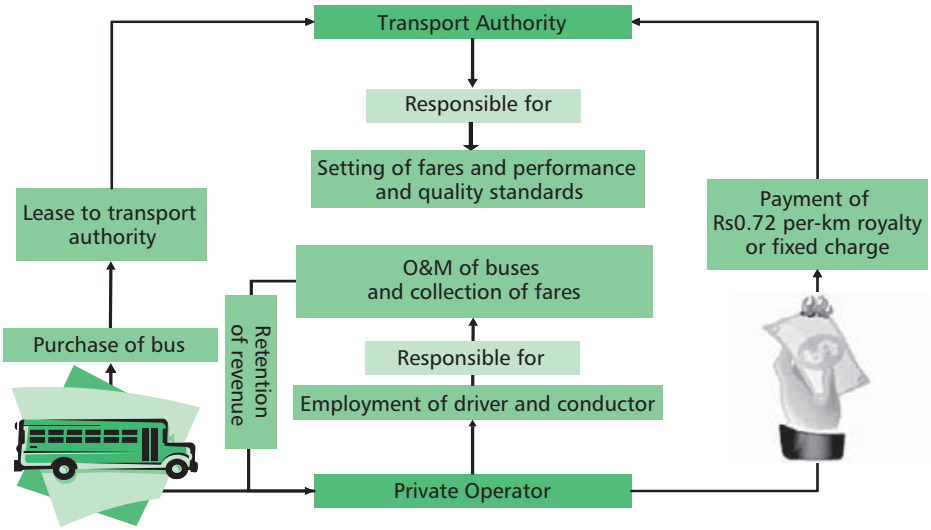
From the contract structure described above, the PPP contract in Nanded appears to be a variant of the net-cost contract explained in detail in Part 2 of this tool kit. The private operator collects and retains the revenues while remitting to NWCMC a fixed royalty per kilometer traveled by the buses.

4.2.5 Key Parameters

The key operating and performance parameters of the urban bus transport system are defined and explained in Table 27 and compared against the desired values.

The private operator has evidently brought in operating efficiency, as most of the service

Figure 11 Public–Private Partnership Contract Structure for Nanded



Km = kilometer, O&M = operation and maintenance, Rs = rupees.
Source: Nanded Waghala City Municipal Corporation.

quality parameters meet the norms. But the number of buses available per capita is low.

4.2.6 Contract Issues

The existing PPP contract was studied and discussed with urban bus transport officials of the city. The problems facing the contract from the point of view of the private operator and of NWCMC were identified, and measures to deal with these issues were suggested for incorporation into the contract.

4.2.6.1 Public Sector Issues

- **No clear operating standards and measures.** NWCMC has not set up any mechanism for measuring performance and therefore cannot be certain that the private operator is providing service of acceptable quality. There is no performance guarantee, and there are also no fines or penalties for nonperformance or negligence by the private operator (for example, cancellation of services, noncompliance with schedules). Furthermore, the distance logged by each bus is checked manually by NWCMC at the end of each operating day. If the private operator were to log fewer kilometers than the distance actually traveled, NWCMC would earn less.
- **Buses fewer than the number stipulated in the contract.** The original contract signed by the private operator and NWCMC calls for 40 buses. Only 16 have been provided. But because the contract does not include a bus delivery schedule and does not provide for penalties in case of a delay in bus delivery, NWCMC cannot take action.
- **Risky loan guarantee by NWCMC.** NWCMC is the guarantor of the loan taken out by the private operator to procure the buses. NWCMC has not obtained payment security for the loan from the bank. If the private operator were to default on the loan, NWCMC would have to pay the amount due. Discussions with bus transport officials of the city have revealed, in fact, that there are indications the private operator may not pay installments on the loan.

Table 26 Profile of the Nanded Municipal Transport System

Item	Value
Number of buses	16
Number of depots	1
Number of bus terminals	1
Number of routes	3
Number of trips made per day	35–40
Number of employees	Data not available
Number of passengers per day	5,000–6,000
Distance traveled per bus per day	150–180 kilometers
Total distance traveled by the buses per day	2,700–3,000 kilometers
Diesel consumed per day	550–580 liters
Average age of employees	Data not available
Average age of fleet	1.5 years
Revenue per day	Data not available
Revenue per kilometer per day	Data not available
Fuel efficiency	5.5–6.0 kilometers per liter
Special schemes for users	Monthly, weekly, daily, and quarterly passes Concessions for freedom fighters, students, and senior citizens

Source: Nanded Waghala City Municipal Corporation.

- No escalation in royalty payments. The private operator must pay NWCMC Rs0.72 per kilometer traveled by the buses. The private operator is now able to pay the loan installments and the royalty. The proportion of its earnings should increase substantially once the entire loan is paid. Under the contract, it is not bound to increase its royalty payments to NWCMC.
- Enforceability of contract. The contract between the private operator and NWCMC specifies the creation of an escrow account, where all fare revenues of the bus transport service would be remitted. The money in this escrow account would be used to pay the royalty to NWCMC and the installments on the loan taken out to procure the buses. Though operations began more than a year ago, however, no escrow account has been created. In the past few months, the private operator has defaulted on payments to both the bank and NWCMC. Without a performance guarantee, payment security, and clauses dealing with default, NWCMC cannot take any action against the private operator.

4.2.6.2 Private Sector Issues

- No agency support. The private operator receives no support from state agencies like the police force and traffic cops against converted autos (illegally converted auto rickshaws carrying 10–12 passengers) and other illegal transport.
- Unspecified bus depots. The contract is unclear about the exact locations and specifications of the bus depots where the private operator can maintain and park its buses; hence, no permanent space has been allocated for the depots. The private operator has incurred expenditure moving from one location to another.
- Unclear handling of octroi and advertising taxes. The contract does not state clearly which entity should pay the octroi and advertising taxes (for advertisements on the buses) levied on the buses.
- Unclear terms for subsidized passes. The private operator is obligated to offer subsidized bus passes to the students, the handicapped, and disabled persons. The state government compensates municipal and state transport undertakings for these subsidies. However, the private operator providing urban bus transport services on behalf of NWCMC receives no such compensation, and its profits have been affected.

4.2.7 Recommended Improvements in the Contract

Most of the foregoing issues stem from ambiguity in the terms of the contract. Part 2

Table 27 Operating and Performance Standards of Nanded Waghala City Municipal Corporation

Parameter	Calculation	Desired Value	Actual Value	Status
Adequacy of Stock				
No. of buses per 100,000 population	Number of buses in the fleet/Total population of the area	30	2.43	Very few buses per capita because of the pilot implementation of the project
Fleet Description				
Average age of buses (years)		<4 years	1.5 years	New fleet provided by private operator
Fuel efficiency (kilometers per liter)	Total number of kilometers operated/Liters of diesel consumed	4.2–4.5 kilometers per liter	5.5–6.0 kilometers per liter	New fleet of minibuses has better fuel efficiency
Utilization of Rolling Stock				
Fleet utilization	Number of buses operated/Total number of buses in the fleet	>98%	90%	Two buses are kept on standby, to be used if the other buses break down.
Bus productivity (kilometers)	Number of kilometers operated/Total number of buses in the fleet	225–275 kilometers	150–180 kilometers	Nonoptimal use of buses
Regularity of Service				
Trip efficiency	Number of actual trips/ Number of trips scheduled	>95%	95%	Meeting norms
Kilometer efficiency	Number of kilometers operated/Number of kilometers scheduled	>95%	95%	Meeting norms
Punctuality of Operations				
Punctuality of operations	Number of trips made on time/Total number of trips	>95%	95%	Meeting norms
Reliability of Operations				
Unreliability of buses (per 10,000 kilometers)	Number of breakdowns × 10,000/Total number of kilometers operated	<5%	95%	Meeting norms
Safety of Operations				
Safety of buses (per 10,000 kilometers)	Number of accidents × 10,000/Total number of kilometers operated	<5%	<1%	Meeting norms
User Satisfaction				
Dirtiness of buses (per 1,000 trips)	Number of buses reported dirty × 1,000/Total number of trips scheduled	<5%	<5%	Meeting norms
User dissatisfaction (per 1,000 trips)	Number of complaints × 1,000/Total number of trips made	<2%	<1%	Meeting norms
Financial Recovery Ratio				
Cost recovery ratio	Fare revenue/Total operating costs	>100%	<100%	Meeting norms

continued on next page

Table 27 *continued*

Parameter	Calculation	Desired Value	Actual Value	Status
Staff Ratios				
Number of staff per bus	Total number of staff/ Number of buses in the fleet	No norms	Data not available	

Source: Nanded Waghala City Municipal Corporation.

of this tool kit explains the various PPP structures for the procurement of rolling stock. The Nanded bus PPP contract is a variant of the net-cost contract. The following measures suggested for the improvement of the current contract are derived from the risk allocation and mitigation strategies for this type of contract (Part 4):

- **Performance standards.** The contract must have a clear service quality plan (SQP) with defined performance and quality standards for the bus transport services. The SQP should be attached as a schedule to the contract between the private operator and NWCMC. It would state the minimum level of acceptable performance by the private operator. For example, bus productivity, which is the average number of kilometers a bus travels in a day, must be more than 225 kms per day. The SQP would help NWCMC monitor the performance of the bus services. Noncompliance with the standards would mean penalties to be paid to NWCMC. Thus, a good SQP would lessen the performance risk associated with the bus services and would ensure good-quality service.
- **Fines and penalties.** NWCMC must clearly set fines and penalties for noncompliance with the SQP or for any other default or deficiency. Penalties can be established for defaults and deficiencies related to the bus, the bus driver, or the bus operator, or for other violations. There must also be clear guidelines for the handling of repeated defaults or deficiencies. For example, NWCMC can declare an event of default if a serious safety incident takes place more than twice.
- **Performance guarantee.** NWCMC must require the private operator to submit a performance guarantee that would cover the fines and penalties the operator might incur for noncompliance with the SQP or for any defaults or deficiencies in the services as specified. If cashed, the performance guarantee must be replaced within a given period (typically 15–30 days); otherwise, NWCMC can declare an event of default.
- **Specified bus depot location.** The physical specifications of the depot, its location, and land set aside for the depot must be stated clearly in the contract. The services of the private operator suffer from having to change bus depots frequently. The contract must state the commitment of NWCMC to hand over the bus depot site without any encumbrance and not to change its location for the duration of the contract. It must also specify the rules to be followed in case of any construction or maintenance activity on the bus depot site. A recourse to action in case NWCMC transfers the site even if the private operator is not in breach of contract must also be specified in the contract (for example, compensation equal to expenses incurred in moving to a different location).
- **Clear terms of payment.** The contract must clearly specify the payments due to NWCMC and to the private operator, with a provision for escalation in the royalty paid to NWCMC. The payment terms must include any subsidies and concessions offered as part of the agreement. The contract must also

identify the party that should pay the taxes applicable to the project (e.g., advertising taxes, octroi).

- **Bus delivery schedule**. The private operator must be required to submit a bus delivery schedule to NWCMC specifying the dates on which the buses will be delivered and they will be operational. The contract must impose penalties for delays in the procurement of buses (noncompliance with the bus delivery schedule), for example, a penalty of RsXXX per bus per day for every day's delay in the procurement of buses.
- **Enforceability of contract**. NWCMC must ensure that the contract is enforceable. This requires that important factors like the opening of an escrow account and the submission of a performance guarantee be conditions precedent to contract validity.

The assessment of the urban bus transport system in Nanded and the current PPP contract indicates that a licensing contract (see Part 4) would be the best contract for the procurement of the 30 new buses under JNNURM. This contract must take into consideration the risk allocation and mitigating measures mentioned above.

5 Public–Private Partnership Option for the Bus Depot in Rabale

As stated in Section 3.2.3, NMMT plans to expand its fleet rapidly to serve the increasing demand in the upcoming nodes of Navi Mumbai. This expansion also entails the creation of a bus depot for the parking and maintenance of buses. Navi Mumbai Municipal Transport (NMMT) now has two depots in Asudgaon (near Panvel) and Turbhe. A third depot in Rabale is being planned. The land for the depot in Rabale will have to be procured by NMMT. The project will cost an estimated Rs100 million. NMMT is exploring the PPP option for the development of this bus depot.

5.1 Bus Depot Contracts

Various interstate bus terminal PPPs in India were studied because bus terminals and bus depots are developed in similar ways. Bus terminal PPPs involve the development of real estate along with the construction of the terminals. Typically, bus depots and terminals are build–operate–transfer projects, with a commercial facility at the site. The private operator develops the facility and leases it to earn revenue, besides operating and maintaining the bus terminal and earning revenue from it. Bus terminal revenue consists mainly of the following:

- income from Adda fees for the parking of private and interstate buses,
- annual lease of parking spaces outside the terminal,
- revenue from the lease of shops, and
- advertising rights.

Bus depots that host intra-city buses generally do not earn revenue from Adda fees and advertising rights, as the buses are parked and maintained outside operating hours. The private operator stands to earn less. Thus, a bus depot developed through PPP is constructed by the private operator and transferred on a turnkey basis to the transport authority, while the commercial facility continues to be run by the private operator in an effort to recoup the capital expenditure. The typical structure is described in the next section.

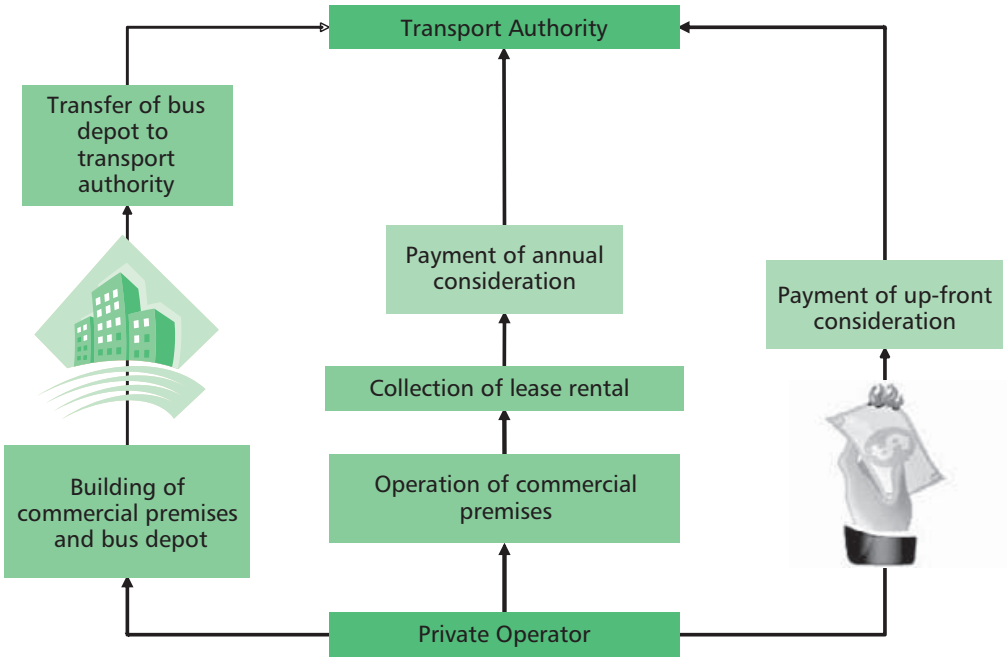
This PPP option explained below can be used for the development of the Rabale bus depot for NMMT.

5.2 Public–Private Partnership in the Bus Depot Project

The estimated cost of Rs100 million includes the payment to be made to CIDCO for the land (50% of its market value). Because of its expansion plans and its contribution toward the purchase of buses under the JNNURM schemes, NMMT does not have enough funds for the bus depot project and is therefore exploring the PPP option.[5] The methodology for the development of a bus depot through PPP is discussed below.

[5] The PPP option chosen for the development of the bus depot is based on information from NMMT officials. As no specifications for the depot were provided, the assessment of the PPP structure given here is qualitative.

Figure 12 Public–Private Partnership Contract Structure for a Bus Depot



Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

5.2.1 Public–Private Partnership Structure

The typical structure for a bus depot PPP contract is given in Figure 12.

According to Figure 16, the private operator will construct the bus depot and the commercial facility. The choice of the private operator (through bidding) will depend on either one of the following:

- **Highest up-front payment for the land.** In this case the concession period and annuity payments based on revenues are fixed.
- **Shortest concession period.** In this case the up-front payment for the land is fixed, as are the annuity payments based on revenues.

NMMT will clearly demarcate the space for the bus depot and the commercial complex, and lay down the specifications of the depot. It will transfer the development rights to the private operator once it receives the up-front payment and a performance guarantee. The private operator will also submit payment security as guarantee for its annuity payments to NMMT. The up-front payment for the land will be based on the purchase price to be remitted to City and Industrial Development Corporation (CIDCO). The private operator will submit a detailed project report with its development plans for the project to NMMT for approval, and will develop the bus depot according to NMMT's specifications and hand it over to NMMT. An independent engineer appointed by NMMT will monitor the construction of the bus depot. The private operator will also design, construct, operate, and maintain the commercial facility and collect the revenues from the venture. NMMT will either share in the revenues or receive a fixed annuity from the private operator. At the end of the concession period, the contractor will transfer back the commercial premises to NMMT, according to the terms and conditions of the agreement.

5.2.1.1 Stakeholder Obligations

Table 28 presents the key obligations of the stakeholders (NMMT and the private entity) in a bus depot contract.

Table 28 Responsibility Sharing between the Bus Transport Authority and the Private Entity

Activity	NMMT	Private Operator
Demarcation of depot and commercial space	✓	
Preparation of physical specifications of the bus depot	✓	
Transfer of lease rights to private operator	✓	
Preparation of detailed project report		✓
Capital expenditure (construction of depot and commercial facility)		✓
Operation and maintenance of bus depot	✓	
Operation and maintenance of commercial facility		✓
Collection of revenues		✓
Appointment of independent engineer	✓	

NMMT = Navi Mumbai Municipal Transport.

Source: CRISIL Risk and Infrastructure Solutions Limited.

5.2.1.2 Preparatory Work by Navi Mumbai Municipal Transport

Before it bids out the contract, NMMT must carry out the following preparatory work:

- clearly demarcate commercial and bus depot space;
- prepare the physical specifications of the bus depot and the related facilities including the fueling station, restrooms, administrative offices, and maintenance sheds;
- schedule the implementation of the bus depot;
- list allowed commercial activities; and
- make a preliminary assessment of demand for and the financial feasibility of a commercial facility at the project site.

5.2.1.3 Asset Ownership

Both the bus depot and the commercial facility will be owned by NMMT, which will enter into a lease agreement with the private operator for their development. When the contract ends, the commercial facility will be transferred back to NMMT.

5.2.1.4 Key Risks

The key risks that must be borne by the private developer and the bus transport authority are given in Table 29.

The bus depot PPP structure is explained in detail in a term sheet in Part 4.

Table 29 Risks of the Private Developer and Navi Mumbai Municipal Transport

Activity	Private Operator	Transport Authority	Comments
Commissioning Risk			
Delay in the building of the bus depot		✓	The bus depot will be built by the private operator according to the specifications provided by NMMT. If the schedule is not met, the performance guarantee submitted by the private operator will be replenished to the extent of the delay charges specified in the contract. If the bus depot does not conform to NMMT's specifications, NMMT is liable to declare an event of default.
Delay in the building of the commercial premises	✓		The construction of the commercial premises will be based on the DPR approved by NMMT. The private operator is bound to pay delay charges if there is delay in the implementation of the project.
Failure to transfer lease rights	✓		Lease rights will be transferred on the satisfactory completion of the bus depot and the commercial facility. The private operator is liable to declare an event of default if NMMT does not transfer the lease rights at that time.
Demand (Usage) Risk			
Inadequate demand for the commercial facility	✓		The private operator will pay an annuity to NMMT irrespective of demand for the project.
Performance Risk			
Unsatisfactory performance of the developer's obligations		✓	If the bus depot or the commercial facility is not built according to the standards set in the DPR then NMMT can reimburse the performance guarantee.
Financial Risk			
Nonpayment of up-front payment or annuity, or both		✓	Up-front payment is a condition precedent to the validity of the agreement. The payment security will be reimbursed in case of default on annuity payments
Default of payment of commercial rentals by lessees	✓		The private operator is solely responsible for the collection of revenues and has to remit the agreed annuity according to the agreement.
Force Majeure Risk			
Force majeure risk	✓	✓	Each party bears the risk where its own assets are concerned.
Operating Risk			
Failure to operate and maintain the commercial facility	✓		The private operator is solely responsible for the operation and maintenance of the commercial facility.

DPR = detailed project report, NMMT = Navi Mumbai Municipal Transport.

Source: Analysis made by CRISIL Risk and Infrastructure Solutions Limited.

6 Monorail Operation and Maintenance Contract

6.1 Introduction

The Mumbai Metropolitan Region Development Authority proposes to implement a proven and established monorail system in various parts of the Mumbai Metropolitan Region. The first (pilot) phase of this project is being implemented between Sant Gadge Maharaj Chowk, Wadala, and Chembur. The project is expected to be completed in 30 months. The chosen contractor is the consortium of Larsen & Toubro (L&T) and Scomi Engineering.

This turnkey contract consists of the development, construction, and commissioning of the complete monorail system in the identified corridor in Mumbai, including its operation and maintenance for at least 3 years from the start of commercial operations. The scope of work is as follows:

- detailed surveys and investigations for the project;
- preliminary and detailed design of alignment, fixed infrastructure works, communications, information technology systems, etc.;
- project construction including all system, equipment, mechanical and electrical works, construction, and project management;
- organizational setup for system operation;
- system integration, preoperational phase, trial, running, overall testing, and commissioning; and
- operation and maintenance of the system for 3 years.

The Asian Development Bank proposed the creation of an operation and maintenance term sheet to assist in the drafting of an operation and maintenance contract after the first 3 years of operation.

The existing contract for monorail operations was studied, and the main terms and conditions pertaining to the operation and maintenance of the project were analyzed. The documents that the private operator would have to submit to the transport authority, and vice versa, were listed.[6]

6.2 Main Clauses of the Operation and Maintenance Contract

6.2.1 Clauses that Apply to the Private Operator

- Adhere to the operation and maintenance rules and procedures, as well as the requirements of system safety, which incorporate the mandatory requirements of the Indian Tramways Act (1948).
- Provide safe, smooth, and uninterrupted train service during normal operating conditions.
- Adhere to operational safety, which includes quality and safety management reports.
- At all times keep a copy of all the manuals, publications supplied by the transport authority, the private operator's documents, and other communications issued under the contract.

[6] The term sheet for the monorail operation and maintenance contract is based on clauses in the existing contract.

- Adhere to the operating rules and procedures that regulate the operation and maintenance of the system.
- Adhere to the operating plan provided by the transport authority and operate services according to the timetable in the plan.
- Adhere to the emergency procedures plan in an emergency.
- Control the stations and the operation of the operations control center, which monitors the system.
- Operate the depot according to the depot operating procedure.
- Operate the ticketing and fare collection mechanism and deposit all the accruals into an escrow account, from which payments to the private operator will be processed.
- Maintain the rolling stock and employ trained and skilled professionals to operate it.

6.2.2 Clauses that Apply to the Transport Authority

- Approve the operating and maintenance plan of the private operator to ensure that it is able to start the services.
- Provide the private operator with right of access to and possession of the site as it may require to begin and proceed with the work.
- Provide reasonable assistance to the private operator at its request in obtaining the necessary permits, licenses, and approvals.
- Ensure that transport authority personnel cooperate with the private operator in a reasonable manner to allow the operator to carry out its obligations.
- Facilitate arrangements with law and order agencies for the security and safety of the system.
- Issue instructions to the private operator as needed for the performance of its obligations under the contract.
- Make available all relevant data on the site in the transport authority's possession, as well as copies of operating plans and manuals on safety management systems (like civil works, traction, and signaling), fare collection, rolling stock, electrical and mechanical signaling, operation and maintenance, environmental management, and quality assurance, and any other manuals in its possession.
- Facilitate arrangements for water and power supply to the system by issuing the necessary letters (the private operator will pay the charges).
- Submit drawings of the system as commissioned to the private operator.

The transport authority will pay the private operator each month a lump sum specified in the contract.

The detailed term sheet for the operation and maintenance contract is in Part 4 of this tool kit.

Appendix

Public–Private Partnership Option for Navi Mumbai Municipal Transport

General Assumptions													
Current	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Source of Funds (in Rs. lakhs)													
Opening balance	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger fares	1,495	3,140	5,922	6,191	6,460	8,075	8,398	8,721	10,853	11,240	11,628	14,419	14,884
Bus rentals	75	157	296	310	323	404	420	436	543	562	581	721	744
Other accruals	150	314	592	619	646	808	840	872	1,085	1,124	1,163	1,442	1,488
Other collections	75	157	296	310	323	404	420	436	543	562	581	721	744
Total Revenues	**1,794**	**3,768**	**7,106**	**7,429**	**7,752**	**9,690**	**10,078**	**10,465**	**13,023**	**13,488**	**13,954**	**17,302**	**17,861**
Growth in revenue per year over the previous year (%)		110	89	5	4	25	4	4	24	4	3	24	3
Use of Funds (in Rs. lakhs)													
Salaries	730	1,533	2,414	2,535	2,662	2,795	2,935	3,081	3,235	3,397	3,567	3,745	3,933
Other administrative expenses	50.1	52.6	55.2	58.0	60.9	63.9	67.1	70.5	74.0	77.7	81.6	85.7	90.0
Vehicle maintenance	164	343	546	579	619	663	716	773	843	927	1,029	1,152	1,314
Fuel expenses	539	1,132	1,876	1,970	2,184	2,293	2,549	2,677	2,986	3,344	3,762	4,254	4,839
CNG	539	1,132	1,876	1,970	2,184	2,293	2,549	2,677	2,986	3,344	3,762	4,254	4,839
Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
Stationery	168	176	185	195	204	214	225	236	248	261	274	287	302
Total (average workshop, property tax, government tax, RTO tax)	731	1,534	2,417	2,538	2,665	2,798	2,938	3,085	3,239	3,401	3,571	3,749	3,937

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continued

General Assumptions													
Current	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Repayment of interest	207	424	521	391	261	130	0	0	0	0	0	0	0
Total Expenditure	2,428	5,019	7,830	8,071	8,451	8,742	9,204	9,686	10,377	11,147	12,011	12,987	14,112
Operating Profit	(626)	(1,251)	(724)	(642)	(699)	948	873	779	2,647	2,342	1,943	4,316	3,748
Operating Margin (%)	(34.9)	(33.2)	(10.2)	(8.6)	(9.0)	9.8	8.7	7.4	20.3	17.4	13.9	24.9	21.0
Capital Costs (in Rs. lakhs)													
Purchase of buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Purchase of buses (non-JNNURM)	2,500	2,625	2,756	0	0	0	0	0	0	0	0	0	0
Other expenses	68	72	75	79	83	87	91	96	101	106	111	117	123
Repayment of loan	0	0	1,133	1,133	1,133	1,133	1,133	0	0	0	0	0	0
Development of depots	0	0	0	0	0	0	0	0	0	0	0	0	0
MMRDA/JNNURM consultant fee	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG kit	0	0	0	0	0	0	0	0	0	0	0	0	0
Closing balance	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,568	2,697	2,831	79	83	87	91	96	101	106	111	117	123
FCFF for NMMT	(2,987)	(3,524)	(3,034)	(330)	(521)	991	782	683	2,546	2,236	1,832	4,199	3,626
FCFE for NMMT	(1,396)	(2,060)	(2,707)	(1,854)	(1,915)	(273)	(352)	683	2,546	2,236	1,832	4,199	3,626

( ) = negative value, CNG = compressed natural gas, FCFE = Free Cash Flow for Equity, FCFF = Free Cash Flow to the Firm, JNNURM = Jawaharlal Nehru National Urban Renewal Mission, MMRDA = Mumbai Metropolitan Region Development Authority, NMMT = Navi Mumbai Municipal Transport, RTO = Regional Transport Authority.

PART IV

Term Sheets

1 Introduction

This part of the tool kit (Part 4) presents the detailed term sheets prepared for the public–private partnership (PPP) options identified for the cities analyzed in Part 3. The status of the urban bus transport system in Navi Mumbai was assessed in Part 3 and appropriate PPP structures were found for its bus transport improvement projects. The PPP structures recommended are based on a study of some PPP projects that have been implemented in India. These PPP structures can be modified to suit the needs of the projects and of the urban bus transport authority or urban local body (ULB).

1.1 Objective of the Term Sheet

The term sheet is a guide to understanding the key clauses applicable to a specific PPP structure. Its clauses will help the bus transport authority or ULB in drafting a contract for the PPP structure chosen for projects in the urban bus transport sector. The clauses are generic. Depending on the output of the detailed analysis by the urban transport authority or ULB and the unique characteristics of the PPP structure finalized for a particular city, the obligations of both the private operator and the bus transport authority or ULB, as well as the types and extent of risk and its allocation and mitigation, may change.

1.2 Contents of the Term Sheet

Offering broad guidelines to the user for the preparation of a comprehensive contract for the PPP structure identified, each term sheet covers the following areas:

- scope of the project,
- list of preparatory work to be done by the urban bus transport authority or ULB,
- tenure of the project,
- types of contract,
- conditions precedent,
- roles and responsibilities of the private operator,
- roles and responsibilities of the transport authority or ULB,
- monitoring mechanisms,
- safety provisions,
- performance standards/service quality plan (SQP),
- penalties,
- terms of payment,
- risk mitigation strategies,
- events of default,
- bidding parameters,
- criteria for the request for qualification (RFQ),
- change in scope, and
- handover of assets.

2 Cost-Plus

2.1 Problem Definition

The bus transport authority or ULB cannot provide good transport services because its fleet of buses is too old, and it does not have enough drivers, conductors, and other employees to run efficient services. Moreover, fare revenues cannot cover operating expenses.

2.2 Need for Public–Private Partnership

The bus transport authority or ULB needs PPP to provide good-quality transport services and expand the services in a short amount of time. Private participation is foreseen to improve operating efficiency, besides increasing service capacity.

2.3 Public–Private Partnership Structure

A cost-plus contract is typically a lease contract agreement. The private operator owns, operates, and maintains the buses, while the bus transport authority or ULB collects the revenue. The private operator is paid per kilometer, depending on the operating cost of each bus.

2.4 Objective of the Public–Private Partnership Structure

By introducing private participation, the public sector can improve efficiency without having to incur capital expenditure.

2.5 Detailed Term Sheet

The term sheet on the following pages details the areas covered by a cost-plus contract for the procurement of rolling stock for an urban transport undertaking, including the preparatory work to be done by the transport authority or ULB, the key obligations of the private operator and the transport authority or ULB, the monitoring mechanism, the payment structure,

Term sheet: Cost plus contract for the procurement of rolling stock for urban bus transport undertaking

Item	Description
Scope of the project	Provide buses to the urban local body (ULB) or transport authority on the basis of a lease contract and according to the physical specifications in the contract Provide a driver for each bus Provide bus services under an area or a route contract, as specified by the municipal corporation or transport authority, in a fair and unbiased manner Operate and maintain the bus services according to the performance and quality standards specified Maintain a detailed daily log of the performance of each bus Redress customer complaints and issues

continued on next page

Table *continued*

Item	Description
Scope of the project	Maintain the premises leased out for bus maintenance and repair Provide appropriate space outside and inside the buses for the display of advertisements
Information list to be prepared by the transport authority or ULB/ Preparatory work to be done by the transport authority or ULB	Comprehensive mobility plan for the area/township: current scenario of urban transport, expected growth in traffic, recommendations Physical specifications of the buses Performance and quality standards for the services to be provided Design of the route system where applicable, or the demarcation of major areas for area contracts Report on the total routes running through the town Detailed project report on the implementation of the project including its financial feasibility: capital expenditure plans, cost streams, revenue streams, market assessment, assessment of the current scenario Format of roadworthiness certificates (certificates attesting to the operable condition of the buses) to be submitted, quality and performance standard checks on buses Request for proposal (RFP) for the bidding out of the contract
Tenure of the PPP contract	Defined in terms of either number of years (generally 5–7 years) or the operating life of a bus (7.5 million kilometers)
Types of contract	Area contract A contract issued by the transport authority or ULB to a private operator giving the latter the exclusive right to run bus services in an area that forms all or a substantial part of the city. An area contract is suitable when the city has a number of relatively self-contained areas (fewer than 500 buses are required to serve a whole area) and the authority wishes the private operator to • plan the bus services in the area, subject to the approval of the authority; and • establish itself and be identified as the bus system provider for the area. Route contract A contract issued by the transport authority or ULB for the operations of one specified route or a group of routes. A route contract is suitable when the transport authority or ULB intends to • determine the routes and the daily schedule, • be identified as the bus system provider, and • offer opportunities to smaller operators to participate in the bidding.
Conditions precedent	Private operator Sign the agreement within XXX days of acceptance of the letter of award Submit a performance guarantee equivalent to RsXXX in the form of a bank guarantee Certify that all representations and warranties are true and correct Deliver the initial lot of buses according to the bus delivery schedule Transport authority or ULB Hand over the land to be used for the bus depot with the right to use the depot, within 30 days of the signing of the contract

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Table *continued*

Item	Description
Roles and responsibilities of the private operator	Pay the performance guarantee to the transport authority or ULB Buy, own, operate, and maintain the buses according to the specifications in the agreement Comply with all applicable laws, rules, and guidelines mentioned in the terms and conditions of the agreement Make the buses available as mandated by the transport authority or ULB and according to the bus delivery schedule mentioned in the agreement Maintain the space provided for the repair and maintenance of buses and not make any change in this space without the prior permission of the transport authority or ULB Make the buses available for the display of advertisements inside and outside the buses Provide trained and skilled staff to operate the buses, and qualified and competent technicians to maintain the buses Ensure the quality of the buses according to the physical specifications in the agreement, and obtain all the relevant certificates, test reports, and documents Arrange for maintenance and repairs Maintain cleanliness and a high standard of service quality by adhering to the service quality plan (SQP) parameters for the number of defaults, failures, and deficiencies Ensure the intervention of the crew for the proper display of the route information system Participate in all meetings convened by the transport authority or ULB Comply with all directives and orders of the transport authority or ULB with regard to the running of the transport services Submit a project management plan (PMP) with the schedule for the delivery of the buses, tasks to be performed by the private operator, staff allocation, maintenance schedule, business continuity plan, etc., to the transport authority or ULB for approval Accept any revision in the terms and conditions of the agreement, especially those pertaining to performance and quality standards Guarantee freedom of access, quality of service, and standards of the transport services Allow the transport authority or ULB to fit communication devices on the buses to allow it to monitor the bus operation, as well as any other devices deemed necessary for the smooth operation of the system Be joint holder of the escrow account along with the transport authority or ULB Submit the certificate of roadworthiness for each vehicle every quarter Get the permission of the transport authority or ULB before installing any equipment on the buses

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Table *continued*

Item	Description
Roles and responsibilities of the private operator	Arrange the capital funds and financing for the day-to-day operation of the bus services Be liable for any claims made and compensation awarded by the motor accidents tribunal or any other court Arrange for a comprehensive insurance policy for each of the buses in the fleet Obtain all legal permits and documents needed to run the services in the city Adhere to the safety standards specified in the SQP Give adequate training to staff in dealing with passengers Designate and appoint suitable officers to run the day-to-day activities of the transport system Allow the transport authority or ULB full and free access to the buses during office hours for inspection Comply with the project implementation milestones in the project management plan Maintain harmony and good industrial relations with the transport authority or ULB Pay the Employees State Insurance Corporation and Provident Fund contributions for the employees of the private enterprise Maintain the confidentiality of the agreement
Roles and responsibilities of the transport authority or ULB	Permit the private operator to set up a parking yard and garage for operation and maintenance Specify the requirements for the provisioning of the system according to the SQP Establish systems and procedures for the operation of the system Define service quality performance and an effective system of communication and coordination through the SQP Approve the PMP with the changes deemed appropriate by the transport authority or ULB Pay the private operator on a per-kilometer basis as stated in the contract Regulate and oversee the management, planning, and control activities of the transport authority or ULB with respect to the routes Collect all revenues (from fares, passes, advertisements) accruing from the project and deposit them in an escrow account Commit to the diligent use of the resources of the transport authority or ULB and not unduly dispose of assets that may affect the operation Guarantee the peaceful possession of premises to be used by the private operator Grant all approvals, permissions, and authorizations that the bus services provider requires to complete the services satisfactorily

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Table *continued*

Item	Description
Monitoring mechanism	Private operator Maintain the buses according to the minimum service quality standards specified in the SQP Report any breach in service quality to the transport authority or ULB with sufficient explanation Transport authority or ULB In the event of a breach of the SQP, notify the private operator, who will have to pay a fine according to the stipulated norms In the event of the same breach in service quality of a serious nature (such as safety) occurring more than three times, declare an event of default
Safety provisions	The private operator should follow prudent, nationally accepted utility practices generally and reasonably expected of a skilled and experienced bus transport operator. The bus services should be operated along the lines of the SQP.
Performance standards/SQP: Parameter, calculation, desired value (in parentheses)	Utilization of rolling stock • Fleet utilization: buses operated/buses contracted (92%–96%) • Bus productivity: kilometers operated/total number of buses held (225–275 kilometers [km]) Regularity of service • Trip efficiency: number of trips/number of trips scheduled (>98%) • Kilometer efficiency: number of kilometers operated/number of kilometers scheduled (>98%) Punctuality of operations: number of trips on time/total number of trips (>98%) Reliability of buses (per 10,000 km): number of breakdowns × 10,000/total kilometers operated (<5%) Safety of operations (per 100,000 km): number of accidents × 10,000/total kilometers operated (<1%) Cleanliness of buses (per 1,000 trips): number of buses reported dirty × 1,000/total number of trips operated (<5%) User satisfaction (per 1,000 trips): number of complaints × 1,000/ total number of trips operated (<2%) Deficiencies or defaults in service: total penalties levied × 1,000/ total trips operated (XXX) Load factor: total revenue from tickets or passes/(total paid kilometers × carrying capacity × fare per passenger per kilometer) (70%)
Defaults and deficiencies that merit penalties	Bus-related defaults and deficiencies • Damage to bus components like tires, seats, rails, saloon lights • Unclean bus • Missing medicine box

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Table *continued*

Item	Description
Defaults and deficiencies that merit penalties	Bus driver–related defaults and deficiencies • Reckless driving • Improper uniform • Running of red lights and signals Bus operator–related defaults and deficiencies • Not following route • Not submitting roadworthiness certificate • Not permitting transport authorities access to the bus or premises • Damage to fixed infrastructure like roads and bus stops Any other violation of rules prescribed by the transport authority or ULB
Terms of payment—private operator	Bound to receive a charge based on the operating charges incurred on the bus on a per-kilometer basis. A detailed breakdown of the charge must be provided in the terms specified under Detailed Breakdown of Payment Terms. Bound to receive the payment with tax deducted at source and any other taxes that are applicable Also entitled to a share of XXX% in the revenues from advertising on the bus Not entitled to any revenues other than those specified in the contract agreement
Detailed breakdown of payment terms	A detailed breakdown of the charge must be provided in terms of the following: • Staff labor costs per kilometer • Fuel, oil, and lubricant costs per kilometer • Tire costs per kilometer • Repair and maintenance costs per kilometer • Depreciation and interest charges per kilometer • Taxes, fees, and insurance per kilometer • Other charges per kilometer (including a rate of return for the operator) The payment is subject to review every quarter and if there is a ±5% change in the price of the fuel that the buses use
Risk mitigation strategies	**Transport authority or ULB** Keep the bid security of the private operator and the second-ranked bidder valid until the conditions precedent are fulfilled. If the private operator does not sign the agreement within XXX days of acceptance of the letter of award or the date mutually decided on, then the bid security shall be forfeited. The second-ranked bidder shall be issued the letter of award. Require the private operator to submit a performance guarantee (equal to RsXXX). If the private operator does not perform its obligations and does not adhere to the performance standards defined in the SQP, then the performance security will be cashed and it will have to be replenished by the private operator within 30 days; otherwise, an event of default would be declared.

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Table *continued*

Item	Description
Risk mitigation strategies	Require the private operator to pay delay charges to the order of RsXXX per bus per day if there is a delay in the delivery of the buses according to the bus delivery schedule submitted by the private operator and agreed to by the transport authority or ULB Require the private operator to submit a PMP that details the bus delivery schedule, mode of operation, tasks to be performed by the private operator, staff allocation, maintenance schedule, business continuity plan, etc. Non-submission of the PMP will be treated as an event of default. Declare an event of default if the buses supplied to the transport authority or ULB do not meet the specifications in the agreement Require the private operator to allow authorized agents of the transport authority or ULB access to the buses during office hours for inspection, failing which the transport authority or ULB would be liable to declare an event of default Require the private operator to pay the penalties and fines specified in the SQP if the regulations laid out in the document are not complied with. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Require the private operator to pay fines and penalties mentioned in the SQP if the cleanliness standards mentioned in the SQP are not met Require the private operator to pay fines and penalties mentioned in the SQP if the reliability and punctuality standards mentioned in the SQP are not met Require the private operator to pay fines and penalties mentioned in the SQP if the safety standards mentioned in the SQP are not met. The transport authority or ULB has the right to declare an event of default if noncompliance is repeated. Require the private operator to submit a roadworthiness certificate for each bus every 3 months, failing which the transport authority or ULB is liable to levy a fine of RsXXX per day. The transport authority or ULB is liable to declare an event of default if the roadworthiness certificate is not submitted twice in a row. Require the private operator to pay a penalty for not participating in meetings convened by the transport authority or ULB. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Collect a penalty from the private operator if it does not allow the transport authority or ULB to install any equipment on the buses that is deemed necessary for the smooth functioning of the transport services. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Liable to declare an event of default in case of any transfer of material deemed the intellectual property of the transport authority or ULB

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Table *continued*

Item	Description
Risk mitigation strategies	Private operator Liable to declare an event of default if, even on satisfactory completion of all conditions, the transport authority or ULB does not transfer premises to the operator for parking and maintenance Liable to recover fees at 25% interest in case of delay in the payments to be made to the operator. If the transport authority or ULB does not make the payments for the next 3 months, the private operator is liable to declare an event of default. Liable to declare an event of default if the transport authority or ULB does not provide the necessary approvals required from it to ensure the proper functioning of the services, despite the fact that the private operator is not in breach of contract
Events of default—private operator	Non-submission of the PMP Noncompliance (more than three times) with the performance standards mentioned in the SQP, for serious offenses Nonadherence to safety norms more than twice in a row Work or change carried out at bus premises allotted to private operators without the permission of the transport authority or ULB Refusal to hand over the premises to the transport authority or ULB at the completion of the contract Material breach of the agreement Insolvency of the bus operator Non-replenishment of the performance guarantee within 30 days Failure to provide the roadworthiness certificate twice in a row Failure to pay dues for 3 months Sale of intellectual property of the transport authority or ULB to a third party
Events of default—transport authority or ULB	Non-transfer of premises required for maintenance and parking of buses to the operator despite satisfactory completion of all conditions precedent
Consequences of default	In case of private operator default The performance guarantee will be cashed. The transport authority or ULB will take over the assets of the private operator in the project by paying RsXXX, which is 50% of the value of the assets of the private operator. The transport authority or ULB will also make good from the private operator any costs, expenses, or losses it may have incurred because of breach or failure on the part of the private operator. In case of transport authority or ULB default The transport authority or ULB will release the performance guarantee. The transport authority or ULB will take over the assets of the project by paying RsXXX, which is 120% of the value of the assets of the private operator.

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Item	Description
Bidding parameter	The fixed royalty of RsXXX per kilometer, to be paid by the transport authority or ULB. The private operator quoting the lowest royalty will be selected as the successful bidder.
Qualification criteria (request for qualification [RFQ], RFP)	Technical criterion The private operator should have experience in running a fleet of buses with at least XXX buses over XXX years. Financial criteria The private operator should have a minimum net worth equivalent to XXX% of the estimated project cost for which bids have been invited (according to Planning Commission guidelines). The private operator should have average net cash accruals of RsXXX million over the past 3 years.
Change in scope	The private operator has the option but is not liable to offer up to 50% more buses if the enterprise is willing to avail itself of the service.
Handover of assets	On termination of the agreement, the private operator will hand over to the transport authority or ULB the physical possession or custody of whichever premises were handed over to it, in good working condition, subject to wear and tear. The private operator shall have the right to take back ownership of the buses after the expiry of the contract, and the transport authority or ULB is liable to hand these over to the private operator without any encumbrances.

the performance standards to be adhered to by the private operator, and key clauses for risk mitigation related to the PPP structure.

2.6 Key Differences between Cost-Plus and Gross-Cost Contracts

A bus transport authority or ULB that wishes to employ the gross-cost contract can make use of all the clauses in the cost-plus contract. The key difference between the contracts is in the payment mechanisms. In a cost-plus contract, the private operator would be reimbursed its actual operating costs, whereas in a gross-cost contract the private operator would be paid a fixed amount, which is decided every year. The payment mechanism is described in the table below.

Under a gross-cost contract, no detailed breakdown of the cost incurred here (fuel costs, tire costs, maintenance costs, etc.) is required.

Item	Description
Terms of payment under a gross-cost contract	The private operator is bound to receive a fixed payment every year for the costs it incurs. A yearly escalation factor might be added to factor in inflation. The private operator is bound to receive the payment with tax deducted at source and any other applicable taxes deducted. The private operator is not entitled to any revenues other than those specified in the contract.

3 Net-Cost Contract

3.1 Problem Definition

The transport authority or ULB has very few buses and not enough employees like drivers and conductors required to run optimal urban transport services in the city. In some cases, the city might not even have a public transport system. However, there is good demand for bus transport services in the city and the fare revenues are enough to cover the operating as well as capital expenses of the urban bus transport undertaking.

3.2 Need for Public–Private Partnership

The transport authority or ULB needs PPP to expand the services and improve operating efficiency. The private entity is engaged with the sole objective of providing good service to all who use the transport system. Private participation is envisaged to improve the efficiency and scope of operations.

3.3 Public–Private Partnership Structure

A net-cost contract is typically a lease contract. The private operator procures, owns, and runs the buses for a specified period, and also collects and retains all the revenues. The authority may consider paying a subsidy to the operator if the bus services in the area are unprofitable. If the services are profitable, then the private operator can consider paying a fixed payment to the bus transport authority or ULB.

3.4 Objective of the Public–Private Partnership Structure

Such a contract brings efficiency into the running of the system and allows the transport authority to expand the services. The net-cost contract is a win–win situation for both parties, with the transport authority or ULB receiving a royalty if the operations are profitable and the city benefiting from a good public transport system. Net-cost contracts also provide an incentive to private operators to serve more passengers and to operate more efficiently, as both would bring greater profits.

3.5 Detailed Term Sheet

The term sheet on the following pages details the areas covered by a net-cost contract for the procurement of rolling stock for an urban bus transport undertaking, including the preparatory work to be done by the transport authority or ULB, the key obligations of the private operator and the transport authority or ULB, the monitoring mechanism, the payment structure, the performance standards to be adhered to by the private operator, and key clauses for risk mitigation related to the PPP structure.

Term sheet: Net cost contract for the procurement of rolling stock for urban bus transport undertaking

Item	Description
Scope of the project	Provide buses to the urban local body (ULB) or transport authority on the basis of a lease contract and according to the physical specifications in the contract Provide a driver for each bus Provide for the collection of fare revenues from the urban transport system Provide bus services under an area or a route contract, as specified by the transport authority or ULB, in a fair and unbiased manner Operate and maintain the bus services according to the performance and quality standards specified Maintain a detailed daily log of the performance of each bus Redress customer complaints and issues Maintain the premises leased out for bus maintenance and repair Provide appropriate space outside and inside the buses for the display of advertisements
Information list to be prepared by the transport authority or ULB/ Preparatory work to be done by the transport authority or ULB	Comprehensive mobility plan for the area/township • Current status of urban transport • Expected growth in traffic • Recommendations Physical specifications of the buses Performance and quality standards for the services to be provided Design of the route system where applicable, or the demarcation of major areas for area contracts Report on the total routes running through the town Assessment of demand across each of the proposed routes, and the suitability of the type of contract (area or route contract) Detailed project report on the implementation of the project including its financial feasibility • Capital expenditure plans • Cost streams • Revenue streams • Market assessment • Assessment of the current status Format of roadworthiness certificates (certificates attesting to the operable condition of the buses) to be submitted, quality and performance standard checks on buses Request for proposal (RFP) for the bidding out of the contract
Tenure of the PPP contract	Defined in terms of either number of years (generally 5–7 years) or the operating life of a bus (7.5 million kilometers [km])

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Item	Description
Types of contract	**Area contract** A contract issued by the transport authority or ULB to a private operator giving the latter the exclusive right to run bus services in an area that forms all or a substantial part of the city. An area contract is suitable when the city has a number of relatively self-contained areas (fewer than 500 buses are required to serve a whole area) and the authority wishes the private operator to • plan bus services in the area, subject to the approval of the authority; and • establish itself and be identified as the bus system provider for the area. **Route contract** A contract issued by the transport authority or ULB for the operations of one specified route or a group of routes. A route contract is suitable when the transport authority or ULB intends to • determine the routes and the daily schedule, • be identified as the bus system provider, and • offer opportunities to smaller operators to participate in the bidding.
Conditions precedent—private operator	**Private operator** Sign the agreement within XXX days of acceptance of the letter of award Submit payment security equivalent to RsXXX in the form of a bank guarantee Submit a performance guarantee equivalent to RsXXX in the form of a bank guarantee Certify that all representations and warranties are true and correct Deliver the initial lot of buses according to the bus delivery schedule **Transport authority or ULB** Hand over the land to be used for the bus depot with the right to use the depot, within 30 days of the signing of the contract
Roles and responsibilities of the private operator	Submit the payment security to the transport authority or ULB to ensure that payments are made in a timely and efficient manner Submit the performance guarantee to the transport authority or ULB to ensure that performance is up to the standards defined Make the buses available as mandated by the transport authority or ULB and according to the bus delivery schedule mentioned in the agreement Ensure the quality of the buses according to the physical specifications in the agreement, and obtain all the relevant certificates, test reports, and documents Submit a project management plan (PMP) with the schedule for the delivery of the buses, tasks to be performed by the private operator, staff allocation, maintenance schedule, business continuity plan, etc.

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Table *continued*

Item	Description
Roles and responsibilities of the private operator	Buy, own, operate, and maintain the buses according to the specifications in the agreement Operate the buses according to the route plan and timetable specified by the transport authority or ULB Use the buses only to provide public transport in the stipulated hours Ensure proper and fair collection of revenue according to the fare schedule set by the transport authority or ULB Comply with all applicable laws, rules, and guidelines mentioned in the terms and conditions of the agreement Maintain the space provided for the repair and maintenance of the buses and not make any change in this space without the prior permission of the transport authority or ULB Make the buses available for the display of advertisements inside and outside the buses Provide trained and skilled staff to operate the buses, and qualified and competent technicians to maintain the buses Arrange for maintenance and repairs including major overhauls, minor repairs, spare parts replacement Maintain cleanliness and a high standard of service quality by adhering to the service quality plan (SQP) parameters for the number of defaults, failures, and deficiencies Ensure the intervention of the crew for the proper display of the route information system Participate in all meetings convened by the transport authority or ULB Comply with all directives and orders of the transport authority or ULB with regard to the running of the transport services Accept any revision in the terms and conditions of the agreement, especially those pertaining to performance and quality standards Guarantee freedom of access, quality of service, and standards of the transport service Allow the transport authority or ULB to fit communication devices on the buses to allow it to monitor the bus operation, as well as any other devices deemed necessary for the smooth operation of the system Be joint holder of the escrow account along with the transport authority or ULB Submit the certificate of roadworthiness for each vehicle every quarter Arrange the capital funds and financing for the day-to-day operations of the bus services Arrange for a comprehensive insurance policy for each of the buses in the fleet Be liable for any claims made and compensation awarded by the motor accidents tribunal or any other court

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Table *continued*

Item	Description
Roles and responsibilities of the private operator	Obtain all legal permits and documents needed to run the services in the city Give adequate training to staff in dealing with passengers Designate and appoint suitable officers to run the day-to-day activities of the transport system Allow the transport authority or ULB full and free access to the buses during office hours for inspection Comply with the project implementation milestones in the PMP Maintain harmony and good industrial relations with the transport authority or ULB Pay the Employees State Insurance Corporation and Provident Fund contributions for the employees of the private enterprise Maintain the confidentiality of the agreement
Roles and responsibilities of the transport authority or ULB	Allot transport infrastructure like a bus depot for the parking and maintenance of buses. The transport authority may or may not recover charges for the use of these facilities. If it does, the charges will be explicitly mentioned in the RFP and the contract agreement. Specify the requirements for the provisioning of the system according to the SQP Define service quality performance and an effective system of communication and coordination through the SQP Regulate and oversee the management, planning, and control activities of the transport authority or ULB with respect to the routes Approve the PMP with the changes deemed appropriate by the transport authority or ULB Collect the advertising revenues Commit to the diligent use of the resources of the transport authority or ULB and not unduly dispose of assets that may affect the operation Guarantee the peaceful possession of premises to be used by the private operator Appoint an engineer for the bus system to undertake various duties, responsibilities, services, and activities set out by the transport authority or ULB Grant all approvals, permissions, and authorizations that the bus services provider requires to complete the services satisfactorily
Monitoring mechanism	Private operator Maintain the buses according to the minimum service quality standards specified in the SQP Report any breach in service quality to the transport authority or ULB with sufficient explanation

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Table *continued*

Item	Description
Monitoring mechanism	Transport authority or ULB In the event of a breach of the SQP, notify the private operator, who will have to pay a fine according to the stipulated norms In the event of the same breach in service quality of a serious nature occurring more than three times, declare an event of default
Safety provisions	The private operator should follow prudent, nationally accepted utility practices generally and reasonably expected of a skilled and experienced bus transport operator. The bus services should be operated along the lines of the SQP.
Performance standards/SQP: Parameter, calculation, desired value (in parentheses)	Utilization of rolling stock • Fleet utilization: buses operated/buses contracted (92%–96%) • Bus productivity: kilometers operated/total number of buses held (225–275 km) Regularity of service • Trip efficiency: number of trips/number of trips scheduled (>98%) • Kilometer efficiency: number of kilometers operated/number of kilometers scheduled (>98%) Punctuality of operations: number of trips on time/total number of trips (>98%) Reliability of buses (per 10,000 km): number of breakdowns × 10,000/total kilometers operated (<5%) Safety of operations (per 10,000 km): number of accidents × 10,000/total kilometers operated (<1%) Cleanliness of buses (per 1,000 trips): number of buses reported dirty × 1,000/total number of trips operated (<5%) User satisfaction (per 1,000 trips): number of complaints × 1,000/total number of trips operated (<2%) Deficiencies or defaults in service: total penalties levied × 1,000/total trips operated (XXX) Load factor: total revenue from tickets or passes/(total paid kilometers × carrying capacity × fare per passenger per kilometer) (70%)
Defaults and deficiencies that merit penalties	Bus-related defaults and deficiencies • Damage to bus components like tires, seats, rails, and saloon lights • Unclean bus • Missing medicine box Bus driver–related defaults and deficiencies • Reckless driving • Improper uniform • Running of red lights and signals Bus operator–related defaults and deficiencies • Not following route • Not submitting roadworthiness certificate • Not permitting transport authorities access to the bus or premises • Damage to fixed infrastructure like roads and bus stops Any other violation of rules prescribed by the transport authority or ULB

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Item	Description
Terms of payment, private operator	Pay a fixed per-kilometer charge to the transport authority or ULB. An increase in route-kilometers due to the enforcement of laws shall not be considered for-hire charges. The per-kilometer charge will be escalated by XXX% per year. Report any cancellation of services immediately to the transport authority or ULB. If the private operator cannot provide sufficient explanation for the cancellation, then the transport authority or ULB reserves the right to charge a penalty. Any cancellation of trips without any reason will not lead to a deduction in the number of kilometers traveled by the bus. Bound to have a share in revenues if the transport authority or ULB is in charge of issuing passes Entitled to make payment with tax deducted at source and any other taxes that are applicable, but would have to provide the appropriate certificate Bound to pay the motor vehicle tax and any other taxes that are applicable to the buses Also entitled to a share of XXX% in the revenues from advertising on the bus if applicable under the terms of the contract Not entitled to any revenues other than those specified in the contract agreement
Risk mitigation strategies	Transport authority or ULB Keep the bid security of the private operator and the second-ranked bidder until the conditions precedent are fulfilled. If the private operator does not sign the agreement within XXX days of acceptance of the letter of award or the date mutually decided on, then the bid security shall be forfeited. The second-ranked bidder shall be issued the letter of award. Require the private operator to submit a performance guarantee (equal to RsXXX). If the private operator does not perform its obligations and does not adhere to the performance standards defined in the SQP, then the performance security will be cashed to cover the fine and it will have to be replenished by the private operator within 30 days; otherwise, an event of default would be declared. Require the private operator to submit payment security of RsXXX to the bus operator to ensure that payments are made in a timely and efficient manner Require the private operator to pay delay charges to the order of RsXXX per bus per day if there is a delay in the delivery of the buses according to the bus delivery schedule submitted by the private operator and agreed to by the transport authority or ULB Require the private operator to submit a PMP that details the bus delivery schedule, mode of operation, tasks to be performed by the private operator, staff allocation, maintenance schedule, business continuity plan, etc. Non-submission of the PMP will be treated as an event of default. Declare an event of default if the buses supplied to the transport authority or ULB do not meet the specifications in the agreement

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Item	Description
Risk mitigation strategies	Require the private operator to allow authorized agents of the transport authority or ULB access to the buses during office hours for inspection, failing which the transport authority or ULB would be liable to declare an event of default Require the private operator to pay the penalties and fines specified in the SQP if the regulations laid out in the document are not complied with. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Require the private operator to pay fines and penalties mentioned in the SQP if the cleanliness standards mentioned in the SQP are not met Require the private operator to pay fines and penalties mentioned in the SQP if the reliability and punctuality standards mentioned in the SQP are not met Require the private operator to pay fines and penalties mentioned in the SQP if the safety standards mentioned in the SQP are not met. The transport authority or ULB has the right to declare an event of default if noncompliance is repeated. Require the private operator to submit a roadworthiness certificate for each bus every 3 months, failing which the transport authority or ULB is liable to levy a fine of RsXXX per day. The transport authority or ULB is liable to declare an event of default if the roadworthiness certificate is not submitted twice in a row. Require the private operator to pay a penalty for not participating in meetings convened by the transport authority or ULB. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Collect a penalty from the private operator if it does not allow the transport authority or ULB to install any equipment on the buses that is deemed necessary for the smooth functioning of the transport services. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Liable to declare an event of default in case of any transfer of material deemed the intellectual property of the transport authority or ULB Private operator Liable to declare an event of default if, even on satisfactory completion of all conditions, the transport authority or ULB does not transfer premises to the operator for parking and maintenance Liable to declare an event of default if the transport authority or ULB does not provide the necessary approvals required from it to ensure the proper functioning of the services
Events of default—private operator	Failure to deliver buses according to the schedule Non-submission of the PMP Noncompliance (more than three times) with the performance standards mentioned in the SQP, for serious offenses Nonadherence to safety norms more than twice in a row

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Item	Description
Events of default—private operator	Work or change carried out at bus premises allotted to private operators without the permission of the transport authority or ULB Refusal to hand over the premises to the transport authority or ULB at the completion of the contract Material breach of the agreement Insolvency of the bus operator Non-replenishment of the performance guarantee within 30 days Non-replenishment of payment security within 30 days Failure to pay dues for 3 months Failure to provide the roadworthiness certificate twice in a row Sale of intellectual property of the transport authority or ULB to a third party
Events of default—transport authority or ULB	Non-transfer of premises required for the maintenance and parking of buses to the operator despite satisfactory completion of all conditions precedent Failure to grant approvals required for operations despite satisfactory completion of all required conditions
Consequences of default	In case of private operator default The performance guarantee or payment security will be cashed. The transport authority or ULB will take over the assets of the project by paying RsXXX, which is 50% of the value of the assets of the private operator. The transport authority or ULB will also make good from the private operator any costs, expenses, or losses it may have incurred because of breach or failure on the part of the private operator. In case of transport authority or ULB default The transport authority or ULB will release the performance guarantee. The transport authority or ULB will take over the assets of the project by paying RsXXX, which is 120% of the value of the assets of the private operator as assessed by an independent valuation agency.
Bidding parameter	The fixed royalty of RsXXX per month, to be paid to the transport authority or ULB for the use of transport infrastructure services. The private operator quoting the highest royalty will be selected as the successful bidder.

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Item	Description
Qualification criteria (request for qualification [RFQ]/RFP)	Technical criterion The private operator should have experience in running a fleet of buses with at least XXX buses over XXX years. Financial criteria The private operator should have a minimum net worth equivalent to XXX% of the estimated project cost for which bids have been invited (according to Planning Commission guidelines). The private operator should have average net cash accruals of RsXXX million over the past 3 years.
Change in scope	The private operator has the option but is not liable to offer up to 50% more buses if the enterprise is willing to avail itself of the service.
Handover of assets	On termination of the agreement, the private operator will hand over to the transport authority or ULB the physical possession or custody of whichever premises and buses were handed over to it, in good working condition, subject to wear and tear.

4 Licensing Contract

4.1 Problem Definition

The transport authority or ULB has very few buses and not enough employees (like drivers and conductors) to run optimal urban transport services in the city. In some cases, the city might not even have a public transport system. However, the city is eligible for a grant under a government scheme (e.g., the Jawaharlal Nehru National Urban Renewal Mission [JNNURM]) for urban transport. The grant could be used to procure buses. Moreover, there is moderate demand for bus transport services in the city and fare revenues are enough to cover the operating expenses and a part of the capital expenses of the urban bus transport undertaking.

4.2 Need for Public–Private Partnership

The transport authority or ULB needs PPP to expand the transport services and to improve the operating efficiency of the system. The private entity is engaged with the sole objective of providing good service to all who use the transport system. Private participation is envisaged to improve the efficiency and the scope of operations.

4.3 Public–Private Partnership Structure

A licensing contract is typically an operation and maintenance contract. The bus transport authority or ULB procures the buses, usually with the help of grants from government programs like JNNURM. The private operator pays the share of the bus transport authority or ULB in the purchase price of the buses, operates and maintains the buses, collects the revenue, and remits to the bus transport authority or ULB a royalty per kilometer.

4.4 Objective of the Public–Private Partnership Structure

Such a contract brings efficiency in the running of the system and makes it possible to expand services. The licensing contract is advantageous to the parties involved, with the transport authority or ULB receiving a royalty and the city benefiting from a good public transport system. Licensing contracts also provide an incentive to private operators to spend less to procure the buses, and to serve more passengers more efficiently to bring in more profits.

4.5 Detailed Term Sheet

The term sheet on the following pages details the areas covered by a licensing contract for the procurement of rolling stock for an urban bus transport undertaking, including the preparatory work to be done by the transport authority or ULB, the key obligations of the private operator and the transport authority or ULB, the monitoring mechanism, the payment structure, the performance standards to be met by the private operator, and key clauses for risk mitigation related to the PPP structure.

Term sheet: Licensing contract for the procurement of rolling stock for urban bus transport undertaking

Item	Description
Scope of the project	Provide a driver and a conductor for each bus Provide for the collection of fare revenues from the urban transport system Provide bus services under an area or a route contract, as specified by the transport authority or ULB, in a fair and unbiased manner Operate and maintain the bus services according to the performance and quality standards specified Maintain a detailed daily log of the performance of each bus Redress customer complaints and issues Maintain the premises leased out for bus maintenance and repair Provide appropriate space outside and inside the buses for the display of advertisements
Information list to be prepared by the transport authority or ULB/ Preparatory work to be done by the transport authority or ULB	Comprehensive mobility plan for the area/township • Current status of urban transport • Expected growth in traffic • Recommendations Performance and quality standards for the services to be provided Design of the route system where applicable, or the demarcation of major areas for area contracts Report on the total routes running through the town Assessment of demand across each of the proposed routes, and the suitability of the type of contract (area or route contract) Detailed project report (also required for the application for funding from the Jawaharlal Nehru National Urban Renewal Mission [JNNURM]) on the implementation of the project and its financial feasibility • Capital expenditure plans • Cost streams • Revenue streams • Market assessment • Assessment of the current status Format of quality and performance standard checks on buses Request for proposal (RFP) for the bidding out of the contract
Tenure of the PPP contract	Defined in terms of number of years (generally 3–4 years)
Types of contract	Area contract A contract issued by the transport authority or ULB to a private operator giving the latter the exclusive right to run bus services in an area that forms all or a substantial part of the city. An area contract is suitable when the city has a number of relatively self-contained areas (fewer than 500 buses are required to serve a whole area) and the authority wishes the private operator to

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Item	Description
Types of contract	• plan the bus services in the area, subject to the approval of the authority; and • establish itself and be identified as the bus system provider for the area. **Route contract** A contract issued by the transport authority or ULB for the operation of one specified route or a group of routes. A route contract is suitable when the transport authority or ULB intends to • determine the routes and the daily schedule, • be identified as the bus system provider, and • offer opportunities to smaller opportunities to participate in the bidding.
Conditions precedent	**Private operator** Sign the agreement within XXX days of acceptance of the letter of award Submit payment security equivalent to RsXXX in the form of a bank guarantee (the payment security submitted in this case will be higher because the buses procured are only partly funded by the private operator) Submit a performance guarantee equivalent to RsXXX in the form of a bank guarantee Certify that all representations and warranties are true and correct **Transport authority or ULB** Hand over the land to be used for the bus depot with the right to use the depot, within 30 days of the signing of the contract Hand over the first lot of buses, as specified in the contract
Roles and responsibilities of the private operator	Submit payment security to the transport authority or ULB to ensure that payments are made in a timely and efficient manner Submit a performance guarantee to the transport authority or ULB to ensure that performance is up to the standards defined Submit a project management plan (PMP) with the tasks to be performed by the private operator, staff allocation, maintenance schedule, business continuity plan, etc. Operate and maintain the buses according to the specifications in the agreement Operate the buses according to the route plan and timetable specified by the transport authority or ULB Ensure proper and fair collection of revenue according to the fare schedule set by the transport authority or ULB Comply with all applicable laws, rules, and guidelines mentioned in the terms and conditions of the agreement Maintain the space provided for the repair and maintenance of the buses and not make any change in this space without the prior permission of the transport authority or ULB

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Table *continued*

Item	Description
Roles and responsibilities of the private operator	Make the buses available for the display of advertisements inside and outside the buses Provide trained and skilled staff (drivers, etc.) to operate the buses, and qualified and competent technicians to maintain the buses Arrange for maintenance and repairs including major overhauls, minor repairs, and spare parts replacement Maintain cleanliness and a high standard of service quality by adhering to the service quality plan (SQP) parameters for the number of defaults, failures, and deficiencies Ensure the intervention of the crew for the proper display of the route information system Participate in all meetings convened by the transport authority or ULB Comply with all directives and orders of the transport authority or ULB with regard to the running of the transport services Accept any revision in the terms and conditions of the agreement, especially those pertaining to performance and quality standards Guarantee freedom of access, quality or service, and standards of the transport service Allow the transport authority or ULB to fit communication devices on the buses to allow it to monitor the bus operation, as well as any other devices deemed necessary for the smooth operation of the system Be joint holder of the escrow account along with the transport authority or ULB Submit the certificate of roadworthiness for each vehicle every quarter Arrange the capital funds and financing for the day-to-day operations of the bus services Arrange for a comprehensive insurance policy for each of the buses in the fleet Be liable for any claims made and compensation awarded by the motor accidents tribunal or any other court Obtain all legal permits and documents needed to run the services in the city Give adequate training to staff in dealing with passengers Designate and appoint suitable officers to run the day-to-day activities of the transport system Allow the transport authority or ULB full and free access to the buses during office hours for inspection Comply with the project implementation milestones in the project management plan (PMP) Maintain harmony and good industrial relations with the transport authority or ULB

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Table *continued*

Item	Description
Roles and responsibilities of the transport authority or ULB	Pay the Employees State Insurance and Provident Fund contributions for the employees of the private enterprise Maintain the confidentiality of the agreement Procure the buses according to the schedule mentioned in the agreement Allot transport infrastructure like a bus depot for the parking and maintenance of buses. The transport authority may or may not recover charges for the use of these services. If it does, the charges will be explicitly mentioned in the request for proposal (RFP) and the contract agreement. Specify the requirements for the provisioning of the system according to the SQP Define service quality performance and an effective system of communication and coordination through the SQP Regulate and oversee the management, planning, and control activities of the transport authority or ULB with respect to the routes Approve the PMP with the changes deemed appropriate by the transport authority or ULB Collect the revenues from advertising Commit to the diligent use of the resources of the transport authority or ULB and not unduly dispose of assets that may affect the operation Guarantee the peaceful possession of the premises to be used by the private operator Appoint an engineer for the bus system to undertake various duties, responsibilities, services, and activities set out by the transport authority or ULB Grant all approvals, permissions, and authorizations that the bus services provider requires to complete the services satisfactorily
Monitoring mechanism	Private operator Maintain the buses according to the minimum service quality standards specified in the SQP Report any breach in service quality to the transport authority or ULB with sufficient explanation Transport authority or ULB In the event of a breach of the SQP, notify the private operator, who will have to pay a fine according to the stipulated norms In the event of the same breach in service quality of a serious nature occurring more than three times, declare an event of default
Safety provisions	The private operator should follow prudent, nationally accepted utility practices generally and reasonably expected of a skilled and experienced bus transport operator. The bus services would be operated along the lines of the SQP.

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Item	Description
Performance standards/SQP: Parameter, calculation, desired value (in parentheses)	Utilization of rolling stock • Fleet utilization: buses operated/buses contracted (92%–96%) • Bus productivity: kilometers operated/total number of buses held (225–275 kilometers [km]) Regularity of service • Trip efficiency: number of trips/number of trips scheduled (>98%) • Kilometer efficiency: number of kilometers operated/number of kilometers scheduled (>98%) Punctuality of operations: number of trips on time/total number of trips (>98%) Reliability of buses (per 10,000 km): number of breakdowns × 10,000/total kilometers operated (<5%) Safety of operations (per 100,000 km): number of accidents × 10,000/total kilometers operated (<1%) Cleanliness of buses (per 1,000 trips): number of buses reported dirty × 1,000/total number of trips operated (<5%) User satisfaction (per 1,000 trips): number of complaints × 1,000/total number of trips operated (<2%) Deficiencies or defaults in service: total penalties levied × 1,000/total trips operated (XXX) Load factor: total revenue from tickets or passes/(total paid kilometers × carrying capacity × fare per passenger per kilometer) (70%)
Defaults and deficiencies that merit penalties	Bus-related defaults and deficiencies • Damage to bus components like tires, seats, rails, saloon lights • Unclean bus • Missing medicine box Bus driver–related defaults and deficiencies • Reckless driving • Improper uniform • Running of red lights and signals Bus operator–related defaults and deficiencies • Not following route • Not submitting roadworthiness certificate • Not permitting transport authorities access to the bus or premises • Damage to fixed infrastructure like roads and bus stops Any other violation of rules prescribed by the transport authority or ULB
Terms of payment	Transport authority or ULB Entitled to receive an up-front payment equal to XXX% (amount funded by the grant) of the cost of the buses. The up-front payment will be toward the buses that have already been procured. If the buses are delivered in phases, then the share of the transport authority or ULB in the procurement price of the buses will be paid by the private operator.

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Item	Description
Terms of payment	Entitled to receive a per-kilometer royalty charge for the running of the buses. An increase in route-kilometers due to the enforcement of laws shall not be considered for-hire charges. The charge will be escalated by XXX% per year. Private operator Immediately notify the transport authority or ULB of any cancellation of services. If the private operator cannot provide sufficient explanation, then the transport authority or ULB reserves the right to charge a penalty. Any cancellation of trips without any reason will not lead to a deduction in the number of kilometers traveled by the bus. Bound to have a share in revenues if the transport authority or ULB is in charge of issuing passes Has the right to make payment with tax deductible at source and any other applicable taxes but would have to provide the appropriate certificate Bound to pay motor vehicle tax and any other taxes that are applicable to the buses Not entitled to any revenues other than those specified in the contract agreement
Risk mitigation strategies	Transport authority or ULB Keep the bid security of the private operator and the second-ranked bidder valid until the conditions precedent are fulfilled. If the private operator does not sign the agreement within XXX days of acceptance of the letter of award or the date mutually decided on, then the bid security shall be forfeited. The second-ranked bidder shall be issued the letter of award. Require the private operator to submit a performance guarantee (equal to RsXXX). If the private operator does not perform its obligations and does not adhere to the performance standards defined in the SQP, then the performance security will be cashed to cover the fine specified and it will have to be replenished by the private operator within 30 days; otherwise, an event of default will be declared. Require the private operator to submit payment security of RsXXX to the bus operator to ensure that payments are made in a timely and efficient manner Require the private operator to submit a PMP that details the mode of operations, tasks to be performed by the private operator, staff allocation, maintenance schedule, business continuity plan, etc. Non-submission of the PMP will be treated as an event of default. Require the private operator to allow authorized agents of the transport authority or ULB access to the buses during office hours for inspection, failing which the transport authority or ULB would be liable to declare an event of default

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Item	Description
Risk mitigation strategies	Require the private operator to pay the penalties and fines specified in the SQP if the regulations laid out in the document are not complied with. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Require the private operator to pay fines and penalties mentioned in the SQP if the cleanliness standards mentioned in the SQP are not met Require the private operator to pay fines and penalties mentioned in the SQP if the reliability and punctuality standards mentioned in the SQP are not met Require the private operator to pay fines and penalties mentioned in the SQP if the safety standards mentioned in the SQP are not met. The transport authority or ULB has the right to declare an event of default if noncompliance is repeated. Require the private operator to pay a penalty for not participating in meetings convened by the transport authority or ULB. The transport authority or ULB has a right to declare an event of default if the same offense is repeated more than three times in succession. Liable to declare an event of default in case of any transfer of material deemed the intellectual property of the transport authority or ULB Private operator Liable to declare an event of default if, even on satisfactory completion of all conditions, the transport authority or ULB does not transfer premises to the operator for parking and maintenance Liable to declare an event of default if the transport authority or ULB does not provide the necessary approvals required from it to ensure the proper functioning of the services
Events of default—private operator	Non-submission of PMP Noncompliance (more than three times) with the performance standards mentioned in the SQP, for serious offenses Nonadherence to safety norms more than twice in a row Work or change carried out at bus premises allotted to the private operator without the permission of the transport authority or ULB Refusal to hand over the premises to the transport authority or ULB at the completion of the contract Material breach of the agreement Insolvency of the bus operator Non-replenishment of the performance guarantee within 30 days Non-replenishment of the payment security within 30 days Nonpayment of the dues of the transport authority or ULB for 3 months Sale of intellectual property of the transport authority or ULB to a third party

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Item	Description
Events of default—transport authority or ULB	Non-transfer of premises required for the maintenance and parking of buses to the operator despite satisfactory completion of all conditions precedent Failure to grant approvals required for operations despite satisfactory completion of all required conditions
Consequences of default	In case of private operator default The performance guarantee or payment security where applicable will be cashed. The transport authority or ULB will take over the assets of the private operator in the project. The transport authority or ULB will also make good from the private operator any costs, expenses, or losses it may have incurred because of breach or failure on the part of the private operator. In case of transport authority or ULB default The transport authority or ULB will release the performance guarantee. The transport authority or ULB will take over the assets of the project. The private operator will also make good from the transport authority or ULB any costs, expenses, or losses it may have incurred because of breach or failure on the part of the transport authority or ULB. The transport authority or ULB will return the up-front payment made by the private operator.
Bidding parameter	The fixed royalty of RsXXX per month, to be paid to the transport authority or ULB for the use of transport infrastructure services. The private operator quoting the highest royalty will be selected as the successful bidder.
Qualification criteria (request for qualification [RFQ]/RFP)	Technical criterion The private operator should have experience in running a fleet of buses with at least XXX buses over XXX years. Financial criteria The private operator should have a minimum net worth equivalent to XXX% of the estimated project cost for which bids have been invited (according to Planning Commission guidelines). The private operator should have average net cash accruals of RsXXX million over the past 3 years.
Change in scope	The private operator has the option but is not liable to offer up to 50% more buses if the enterprise is willing to avail itself of the service.
Handover of assets	On termination of the agreement, the private operator will hand over to the transport authority or ULB the physical possession or custody of whichever premises and buses were handed over to it, in good working condition, subject to wear and tear.

5 Bus Depot Contract

5.1 Problem Definition

The transport authority or ULB wants to expand operations and increase the number of buses in the urban transport system. It will therefore require bus depots for the upkeep and parking of the buses. The bus depots would have to belocated strategically to minimize dead kilometers (travel back to depot with no passengers).

5.2 Need for Public–Private Partnership

The transport authority or ULB will require land for the bus depot. In most cases, the transport authority or ULB has land available but does not have the means to undertake the capital expenditure or to build the depot. The private operator is therefore engaged to build the depot and hand it over to the transport authority or ULB. The bus depot will not earn revenue from other sources (retail, advertising), as it will be used for the upkeep and parking of buses, outside operating hours. Hence, besides constructing the bus depot and transferring it to the transport authorty on a turnkey basis, the private operator would develop real estate to recover its costs of construction. The private operator would pay an annuity to the transport authority or ULB based on share of revenues from the real estate.

5.3 Public–Private Partnership Structure

The private operator would develop the bus depot and subsequently transfer it to the transport authority or ULB on a turnkey basis. The operator would, however, operate the commercial facility to help it recoup the capital expenditure incurred in the project.

5.4 Objective of the Public–Private Partnership Structure

The transport authority or ULB gets a bus depot that is fully constructed and ready to operate, as well as a steady stream of revenues from the real estate development.

5.5 Detailed Term Sheet

The term sheet on the following pages details the working of a bus depot contract in an urban transport undertaking of a bus transport authority or ULB, including the preparatory work to be done by the transport authority orULB, the key obligations of the private operator and the transport authority or ULB, the monitoring mechanism, the payment structure, the performance standards to be adhered to by the private operator, and key clauses for risk mitigation related to the PPP structure.

Term sheet: Bus depot contract for the procurement of rolling stock for urban bus transport undertaking

Item	Description
Scope of the project	Develop and construct a bus terminal facility for the parking, maintenance, and refueling of buses Construct related facilities like fueling stations, restrooms for drivers and conductors, administrative office space, canteen and mess facilities, and other required facilities Develop and construct a commercial facility on land allotted for its construction Operate and maintain the commercial facility
Information list to be prepared by the transport authority or ULB/ Preparatory work to be done by the transport authority or ULB	Requirements and specifications of the bus depot Schedule for the implementation of the bus depot project List of allowed commercial activities Preliminary assessment of demand for and financial feasibility of a commercial facility at the project site Site plan of the site identified for the bus depot
Tenure of the PPP contract	Defined in terms of the number of years quoted for the concession period (typically more than 20 years)
Conditions precedent	Private operator Sign the agreement within XXX days of acceptance of the letter of award Submit payment security equivalent to RsXXX in the form of a bank guarantee Submit a performance guarantee equivalent to RsXXX in the form of a bank guarantee Pay the up-front payment of RsXXX million to the transport authority or ULB in the form of a demand draft Certify that all representations and warranties are true and correct Transport authority or ULB Hand over the project site to the private operator within 15 days of the effective date of the contract
Roles and responsibilities of the private operator	Submit payment security to the transport authority or ULB to ensure that any annuities to be paid to the bus transport authority or ULB will be paid in a timely and efficient manner Submit a performance guarantee to cover both project construction and project development Develop, finance, design, and construct the bus depot, and also arrange for power, water, and other utilities required for the implementation of the project, at its own cost and expenses and according to the specifications of the transport authority or ULB

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Item	Description
Roles and responsibilities of the private operator	Develop, finance, design, construct, manage, operate, and maintain the commercial facility as specified in the agreement; charge, collect, and retain an appropriate premium from applicants, allottees, and lessees of the commercial area; and also arrange for power, water, and other utilities required for the implementation of the commercial facility project, at its own cost and expenses and according to the approved detailed project report (DPR) Be liable to pay delay charges of RsXXX per day for any delay in the building of the depot and the commercial premises Submit the DPR, with detailed specifications of the project, to the transport authority or ULB for approval Plan and organize the works in such a way that the bus depot is able to function in the shortest possible time and with the least disruption to bus services during the construction of the project Appoint subcontractors or agents to assist in the fulfillment of obligations in relation to the bus depot facility on its behalf Adhere to and only carry out the activities mentioned in the annex Operate and maintain the commercial built-up area, shops, kiosks, and parking lots, at its cost and expense Enter into licensing agreements (licenses, franchises, subcontracts, and similar agreements) on mutually agreed market terms and conditions Maintain the premises according to the terms and conditions of the agreement to ensure that the commercial facility is in fair condition, subject to normal wear and tear, when it is transferred back to the transport authority or ULB Dispose of all debris and construction materials at the bus terminal, at its own cost Allow the transport authority or ULB full and free access at all times to the premises of the bus depot and authorized area Ensure that the construction of the bus depot and the commercial facility uses good-quality materials and is done in good faith Ensure proper and fair collection of the revenue according to the stipulated lease rental rates Follow all the terms and conditions stipulated in the agreement Provide trained and skilled staff to operate the commercial facility Accept any revisions in the terms and conditions of the agreement, especially those pertaining to performance and quality standards Arrange the capital funds and financing for the construction and the day-to-day operations of the project Arrange for a comprehensive insurance policy for the project, which would encompass the bus depot area and the commercial area with the employees

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Item	Description
Roles and responsibilities of the private operator	Obtain all the legal paperwork needed for the implementation of the project Pay all present and future applicable taxes, rates, assessments, duties, levies, fines, cesses, penalties, and other expenditures, including municipality and property taxes Allow representatives of the transport authority or ULB to inspect the commercial facility within operating hours with reasonable notice Obtain all the legal paperwork needed for the implementation of the project Be liable for any claim that arises out of claims made for incidents on the commercial premises Meet the project implementation milestones set in the DPR Maintain harmony and good industrial relations with the transport authority or ULB Maintain the confidentiality of the agreement
Roles and responsibilities of the transport authority or ULB	Grant the private operator development rights over the premises once its conditions precedent have been fulfilled Clearly demarcate the land allotted for the bus depot and the commercial facility Study and approve the DPR, and suggest changes and modifications if necessary Provide the lease rights to the commercial facility on the successful completion of the construction of both the bus depot and the commercial facility Exert reasonable effort to assist the concessionaire in procuring the permissions required for the building of the bus depot Grant the right to the concessionaire to regulate the movement of traffic outside the commercial complex and bus depot complex Defend against any claims made against the project site Take over the operation and maintenance of the bus depot once it is handed over to the transport authority or ULB, at its own cost and expense Appoint through competitive bidding a consulting engineering firm or company of engineers with the requisite experience in similar projects, to monitor the implementation of the bus depot. The costs of the independent engineer will be borne by the private operator.
Monitoring mechanism	Appointment of an independent engineer to monitor the progress of the project and report its findings to the transport authority or ULB

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Item	Description
Terms of payment—private operator	The contract will be for a period of XXX years Make an up-front payment of RsXXX million Make an annuity payment of RsXXX (if annuity payments are to be made to the transport authority or ULB) Transfer the bus depot premises to the transport authority or ULB once construction is complete in all aspects Entitled to make payment with tax deducted at source and any other taxes that are applicable, but must provide the appropriate certificate Not entitled to any revenues other than those specified in the contract agreement
Risk mitigation strategies	Transport authority or ULB Keep the bid security of the private operator and the second-ranked bidder valid until the conditions precedent are fulfilled. If the private operator does not sign the agreement within XXX days of acceptance of the letter of award or the date mutually decided on, then the bid security shall be forfeited. The second-ranked bidder shall be issued the letter of award. Require the private operator to submit a performance security (equal to RsXXX). If the private operator does not perform its obligations and does not adhere to the specifications of the bus depot and commercial space as stated in the DPR, then the performance security may be cashed and it will have to be replenished by the private operator within 30 days; otherwise, an event of default will be declared. Require the private operator to submit payment security to the extent of the annuity the transport authority or ULB is due to receive. This payment security is cashed if the private operator fails to make the annual payments. It must then be replenished within 30 days by the private operator; otherwise, the transport authority or ULB can declare an event of default. Require the private operator to pay delay charges of RsXXX per day if there is a delay in the construction of the bus depot and the commercial premises Require the private operator to submit a DPR with the specifications of the commercial premises to be constructed, technical drawings, business continuity plan, and marketing proposal. Non-submission of the DPR will be treated as an event of default. May declare an event of default if the bus depot does not meet the specifications of the transport authority or ULB Require the private operator to get a completion certificate from the transport authority or ULB after constructing the bus depot and the commercial facilities Appoint an auditor to check the accounts of the private operator and report any discrepancy, which must be rectified within 30 days of receipt of notice Require indemnification against any losses that accrue to the project

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Item	Description
Risk mitigation strategies	Liable to declare an event of default if any material deemed the intellectual property of the transport authority or ULB is transferred to a third party Private operator Liable to declare an event of default if, even on satisfactory completion of all conditions, the transport authority or ULB does not transfer premises to the operator for parking and maintenance Liable to declare an event of default if the transport authority or ULB does not provide the necessary approvals required from it for the proper functioning of the services
Events of default—private operator	Failure to complete the bus depot and commercial facility as scheduled Failure to make annuity payments Non-submission of the DPR Nonadherence to safety norms during construction and operation Nonadherence to the specifications given for the bus depot Work or change carried out at the bus premises allotted to the private operator without the permission of the transport authority or ULB Refusal to hand over the premises to the transport authority or ULB at the completion of the contract Material breach of the agreement Insolvency of the private operator Performance guarantee not replenished within 30 days Payment security not replenished within 30 days Sale of intellectual property of the transport authority or ULB to a third party
Events of default—transport authority or ULB	Non-transfer of premises to the operator despite satisfactory completion of all conditions precedent Failure to grant approvals required for operations despite satisfactory completion of all required conditions
Consequences of default	In case of private operator default The performance guarantee or payment security where applicable will be cashed. The transport authority or ULB will take over the assets of the project by paying RsXXX, which is 50% of the value of the private operator's assets as assessed by an independent valuation agency. The transport authority or ULB will also make good from the private operator any costs, expenses, or losses it may have incurred because of breach or failure on the part of the private operator.

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Item	Description
Consequences of default	In case of transport authority or ULB default The transport authority or ULB will release the performance guarantee. The transport authority or ULB shall take over the assets of the project by paying RsXXX, which is 120% of the value of the private operator's assets as assessed by an independent valuation agency
Bidding parameter	Depends on the kind of contract: • **In case of up-front payment, the highest up-front payment quoted.** The concession period is fixed and there may be an annuity payment that is either fixed or dependent on a share in the revenues of the commercial facility. • **In case of annuity, the highest annuity quoted. The concession period is fixed.** The transport authority or ULB may consider a fixed up-front payment depending on the viability of the project. • **In case of revenue share, the highest revenue share quoted.** The concession period is fixed. The transport authority or ULB may consider a fixed up-front payment depending on the viability of the project. • **In case of concession period, the shortest concession period.** The revenue share or annuity (if applicable to contract) is fixed, and the transport authority or ULB may consider an up-front payment depending on the viability of the project.
Qualification criteria request for qualification/request for proposal	Technical criteria The private operator should have experience in constructing at least XXX,000 square feet of commercial space. The private operator should have constructed XXX other similar projects (bus depots, bus terminals, etc.). Financial criteria The private operator should have a minimum net worth equivalent to XXX% of the estimated project cost for which bids have been invited (according to Planning Commission guidelines). The private operator should have average net cash accruals of RsXXX million over the past 3 years.
Handover of assets	On termination of the agreement, the private operator will hand over the physical possession or custody of whichever premises were handed over to it, in good condition, subject to wear and tear.

6 Monorail Operation and Maintenance Contract

6.1 Problem Definition

The establishment of an operation and maintenance term sheet would facilitate the creation of a monorail operation and maintenance contract after the 3 years of operations by the incumbent operator.

6.2 Objective of the Public–Private Partnership Structure

The basis of such a contract is a typical operation and maintenance contract, which the contractor would enter into to ensure the functioning of the monorail system once the contract of the incumbent operator ends.

6.3 Detailed Term Sheet

The term sheet on the following pages details the areas covered by an operation and maintenance contract for the monorail system, with the main obligations of the private operator and the transport authority or ULB, risk sharing and mitigation, and payments.

Term sheet: Operation and maintenance contract for monorail system

Item	Description
Scope of the project	Complete the handover and transition from the private operator once the engineering, procurement, and construction agreement ends Operate and maintain the monorail system as stipulated in the specification documents Adhere to the operation and maintenance rules, which would incorporate the operation and maintenance rules in the Indian Tramways Act (1948) Adhere to the service quality standards specified by the transport authority or ULB Submit periodic reports to the transport authority or ULB on the status of the system Adhere to the operating plan and route schedule provided by the transport authority or ULB

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Item	Description
Information list to be prepared by the transport authority or ULB/ Preparatory work to be done by the transport authority or ULB	Performance requirement of operation and maintenance plan Operating plan template • Timetables • Commuter projections • Organization structure and staffing • Service quality management • Safety and incident management procedure • Failure and recovery strategy procedure • Station management • Operations control center procedure • Depot operation procedure • Systems assurance plan Maintenance plan template • Maintenance organization and engineering support developed in a structured manner • Safety management • Maintenance procedures • Strategy for dealing with reactive maintenance activities including details of the recovery plan • Duties and responsibilities • Preventive (planned) maintenance schedule including details of possession times • Human resources required, commensurate with skills development in India, and their training and competency certification • Quality assurance and testing • Safety critical licensing • Spare parts and consumable stores to avoid shortages • Health and safety of staff • Data recording and trend analysis • Documentation and reporting Asset database Operation and maintenance rules and procedures • Standards • Conduct of personnel • Service requirements • Monorail operation • Monorail control and signaling • Traction system and specifications • Building service equipment • Emergency preparedness • Incidences and security preparedness and procedures Operational safety case, conditions precedent • Quality management report • Safety management report • Technical safety report Safety management reports • Safety life cycle • Safety standards

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Item	Description
Information list to be prepared by the transport authority or ULB/ Preparatory work to be done by the transport authority or ULB	• Safety audit and assessment • Supply management • Configuration management • Project safety training Manuals • Civil works • Traction • Signaling • Communication • Fare collection • Rolling stock • Electrical and mechanical installations • Operation and maintenance • Accident and safety • Environmental • Quality assurance • Training • Emergency procedures plan
Tenure of the PPP contract	Defined in terms of number of years (typically 2–3 years)
Roles and responsibilities of the private operator	Pay performance security to the transport authority or ULB to give assurance that the operation and maintenance of the system will be timely and efficient Be responsible for the operation and maintenance of the system for a period of XXX years Be responsible for the adequacy, stability, and safety of all site operations, and the handling and functioning of the various systems and subsystems Be responsible for the security of the system during the period of the operation and maintenance contract Submit the operating plan that the private operator proposes to adopt for the functioning of the system Develop a maintenance plan identifying the resources needed to maintain the monorail system. The maintenance plan will describe the maintenance work to be done, the times and frequencies at which the work is to be carried out, and the circumstances in which maintenance intervention will be necessary. Take the handover from the previous operators of the system and undergo training from them if necessary to ensure the continuous functioning of the system. There will be a transition period of XXX months to ensure the proper handover of the system. Submit monthly progress reports to the transport authority or ULB on the operating standards of the system (quality assurance, financial collections, incidents, etc.) Keep at all times a copy of all the manuals, publications supplied by the transport authority or ULB, the private operator's documents, and other communications issued under the contract Provide safe, smooth, and uninterrupted train service during normal operating conditions

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Item	Description
Roles and responsibilities of the private operator	Follow the operating plan provided, and operate the services according to the timetable in the plan Interface with customers and the general public regarding service availability, accessibility, and other information Adhere to the service quality prescribed to ensure passenger comfort, convenience, customer care, and timeliness of service Refrain from interfering unnecessarily or improperly with the convenience of the public and access to and occupation of all roads and footpaths Comply with the quality assurance system in accordance with the details stated in the contract, and allow the transport authority or ULB or its representatives to audit the system Adhere to the operation and maintenance rules and procedures, as well as the requirements of system safety, which incorporate mandatory requirements of the Indian Tramways Act (1948) Adhere to the operational safety case, which includes quality and safety management reporting Follow the emergency procedures plan in any emergency Control the stations and the operation of the operations control center, which monitors the system Operate the depot according to the depot operating procedure Be responsible for its own equipment Submit details of each type of its equipment on-site to the transport authority or ULB Operate the ticketing and fare collection mechanism, and deposit all the accruals into an escrow account, from where payments to the operator will be processed Make all arrangements for the hiring of duly qualified staff and labor, local or otherwise, and comply with labor laws Maintain the rolling stock and employ trained and skilled professionals to operate it Maintain, repair, and replace components and materials that are not in accordance with the contract and as required for the continuous safe operation of the monorail system during the operation and maintenance period Comply with all applicable laws including any statutes relating to the works or system, regulations, and bylaws of any local authority in whose jurisdiction the operation and maintenance of the system is to be performed Comply with all safety procedures and regulations, and ensure the safety and security of all persons entitled to be on-site Prevent unauthorized entry and encroachment, with the help of law and order agencies Insure the whole system and the people against injury and damage to property

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Item	Description
Roles and responsibilities of the private operator	May not subcontract the whole system, and will be deemed responsible for any default on the part of subcontractors Even if the performance is partly or fully forfeited and unless the contract is terminated, the private operator's obligations will still hold
Roles and responsibilities of transport authority or ULB	Approve the operating plan and maintenance plan of the private operator to allow the latter to start the services on time Give the private operator access to and possession of the site as the operator may require to start and proceed with the work Provide reasonable assistance to the private operator at its request to obtain permits, licenses, and approvals Ensure reasonable cooperation between its personnel and the private operator to allow the latter to carry out its obligations Facilitate arrangements with law and order agencies for the security and safety of the system May issue to the private operator instructions that the latter may need to perform its obligations under the contract Make available all relevant data and manuals in its possession concerning the site and copies of standard operating procedures including operating plans, safety management systems like civil works, traction, signaling, fare collection, rolling stock, electrical and mechanical, operation and maintenance, environmental, and quality assurance manuals Facilitate by giving necessary letters for arrangement of water and power to the system. The contractor would be responsible for payment of the respective charges. In case the transport authority or ULB provides electricity and water supply it will be provided at one point. Submit to the private operator drawings of the systems as commissioned Pay the contractor each month a lump sum decided on the terms of the contract
Performance standards	The service quality standard will be based on adherence to the service quality manuals (e.g., safety management case and operational safety case)
Terms of payment—private operator	Submit a performance security of RsXXX million to give assurance that the performance will be in line with standards Deemed to have satisfied itself as to the sufficiency and correctness of the contract price, which would be a lump-sum annuity to be paid fortnightly from the escrow account containing the collections from the metro Pay all taxes, duties, fees, royalties, rents, octroi, cess, value-added tax, and other local taxes that it is required to pay under the contract and according to the laws applicable at the time of the contract. The contract price will not be adjusted for any of these costs.

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Item	Description
Terms of payment—private operator	Raise a bill for the operation and maintenance payments every fortnight, at the start of the month and the 15th. These bills will be paid from the proceeds in the escrow account. Any shortfall will be made good by the transport authority or ULB. Not entitled to any revenues other than those specified in the contract agreement
Risk mitigation strategies	Transport authority or ULB Keep the bid security of the private operator and the second-ranked bidder valid until the conditions precedent are met. If the contractor does not sign the agreement within XXX days of acceptance of the letter of award or the date mutually decided on, then the bid security shall be forfeited. The second-ranked bidder shall be issued the letter of award. Require the private operator to submit performance security (equal to RsXXX) and to prepare an operation and maintenance plan from the operating plan and maintenance plan templates and have the plan approved by the transport authority or ULB. If the private operator does not perform its obligations. Require the private operator to adhere to all the stipulations in the operation and maintenance plan Require the private operator to comply with all the operating procedures and manuals provided. The transport authority or ULB may issue a notice to the private operator if it observes any instance of nonadherence to the operating procedures and manuals. Entitled to appoint an auditor to check the accounts of the private operator and report any discrepancy, which must be rectified within 30 days of receipt of notice Liable to declare an event of default in case of any transfer of material deemed the intellectual property of the transport authority or ULB Private operator Liable to declare an event of default if, even on satisfactory completion of all conditions, the transport authority or ULB does not hand over the operations Liable to declare an event of default if the transport authority or ULB does not provide the necessary approvals required from it for the proper functioning of the service
Events of default—private operator	Failure to comply with a directive of the transport authority or ULB to correct actions Abandonment of system or plain intent to stop performing obligations Failure to operate and maintain the system without any reasonable excuse Subcontracting of the entire system Insolvency Bribery of the personnel of the transport authority or ULB Disregard of the transport authority's or ULB's instructions

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Table *continued*

Item	Description
Events of default—private operator	Failure to mobilize personnel, equipment, and other resources Obstruction of site inspections by representatives of the transport authority or ULB Failure to comply with statutory provisions
Events of default—transport authority or ULB	Failure to pay the private operator the payments due it for 3 months Bankruptcy or insolvency of the transport authority or ULB
Consequences of default	In case of private operator default The performance guarantee will be cashed. The transport authority or ULB will take over the assets of the project. The transport authority or ULB will also make good from the private operator any costs, expenses, or losses it may have incurred because of breach or failure on the part of the private operator. In case of transport authority or ULB default The transport authority or ULB will release the performance guarantee. The transport authority or ULB will take over the assets of the project. The private operator will also make good from the contractor any costs, expenses, or losses it may have incurred because of breach or failure on the part of the transport authority or ULB.
Bidding parameter	The lump-sum payment of RsXXX million per month for the maintenance of the system. The bidder with the lowest quote will be declared the successful bidder.
Change in scope	The transport authority or ULB has the right to increase the scope of the project. If it makes such a change, the private operator will have the right to renegotiate the terms of the contract that pertain to the increase or variation in scope.
Handover of assets	The assets will be handed over to the transport authority or ULB at the end of the contract period.

Tool Kit for Public–Private Partnerships in Urban Bus Transport for the State of Maharashtra, India

The sustained economic growth of India depends on sustainable infrastructure development in all sectors of the economy. An estimate has indicated that for the economy to continue to grow at 8% yearly, infrastructure sectors need investments of approximately $500 billion in 2007–2012, 30% of which would have to be from the private sector, as government resources alone are inadequate to meet such huge investments.

Public–private partnerships (PPPs) have been proven to catalyze both investments, for bridging investment gaps and improving efficiencies in delivery of services. The Government of India (GOI) and the Asian Development Bank (ADB), through a pioneering PPP Initiative "Mainstreaming PPPs in India," have therefore been supporting selected state PPP cells in creating an enabling environment by developing capacities, facilities, and PPP model structures for specific sectors.

Improvements in urban infrastructure both for enhancing the quality of life and for increased productivity are critical. Developing mass transit solutions for the urban population is especially a crucial element of this. The Urban Development Department of the Government of Maharashtra was therefore supported under the GOI–ADB PPP Initiative for identifying and developing possible PPP structures for urban bus transport-based solutions in four selected sample cities.

Assessments of national and international best practices, local circumstances, and consultations with municipal and private stakeholders have led to this PPP tool kit. The tool kit should be useful for public entities in the State of Maharashtra for developing PPP-based projects in urban bus transport and could also provide a reference point for use in other cities, across the country, for project development.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.8 billion people who live on less than $2 a day, with 903 million struggling on less than $1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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