

CLOSURE REPORT
PUBLIC TRANSPORT PERFORMANCE
EVALUATION: WEB-BASED TOOLKIT TO
EVALUATE THE FLEET OPERATIONS DATA

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Executive Summary

Bus based public transport is the backbone of road-based mobility in our country. Currently, there are 59 STUs owned and regulated by respective state governments. There can be multiple STUs in one state. STUs are accountable for funds they receive from central and state governments; hence, they maintain their performance data in terms of capital investment, revenue, bus services and maintenance, which are collected and published by Central Institute of Road Transport (CIRT), India on an annual basis. Association of State Road Transport Undertakings (ASRTU) is responsible for undertaking advocacy for public transport issues in general and STUs in particular.

Out of 59 existing STUs in India, 30 are corporations, 7 come under municipal undertaking, 9 are run by government departments, and 13 are government companies. According to MoRTH's latest annual publication - Review of The Performance of State Road Transport Undertakings (Passenger Services) for April 2013 - March 2014 - 44 reporting STUs in India owned more than 1.4 lakhs buses as on March 2014. With overall fleet utilization of 89.5%, roughly 1.25 lakhs buses were on road daily covering 15.5 billion revenue-earning kms carrying more than 6.8 crore passengers per day.

The average buses held by STUs and average buses on road have increased by 1.55% and 0.08% respectively during 2013-14 as compared to 2012-13. However, fleet utilization has declined marginally from 90.8% in 2012-13 to 89.5% in 2013-14. The total number of passengers carried by the reporting STUs during 2013-14 has decreased by 1.6% as compared to the previous year. The passenger km offered, and passenger km performed also declined by 0.9% and 4.2% respectively during 2013- 14. The average occupancy ratio dipped from 70.2% in 2012-13 to 67.9% in 2013-14.

To avoid this trend, ASRTU needs a tool, which can evaluate the fleet operations data collected by different depots and STUs. Also, provide the comparative status of other similar Depots and or STUs for performance threshold of critical parameters, which can help STUs better their performance. The designed tool is to be user friendly and easily accessible to all STUs. This tool can help STUs to increase their fleet efficiency and generate more revenue by utilizing all available resources. TRIPP, IIT Delhi is developing this web-based tool for ASRTU.

As a first step towards the development of this tool, depots categorization basis area of operation, i.e. Urban, Mofussil and Hilly, was developed. Following this secondary data and existing reports on evaluation of STU indicators were assessed. This assessment was used to compile a list of indicators to be accommodated in the tool and used in the performance evaluation of STU. These indicators were categorised as passenger, operator and societal.

In the other dimension, they were categorised as indicators which are useful for evaluation by ASRTU (or at the National Level comparison between STUs), at the STU level (comparison between depots) and at the depot level (comparison of performance with other depots or past years).

In the following step, input data required for all indicators was identified and divided into data to be input at depot level (by individual depot managers) and data to be input at STU level (by STU managers). All formulas for estimation of indicators, their input, and output units were also reviewed. Additionally, output type for use by different stakeholders was discussed and developed. For example, the output at National level is a comparison of all (or selected) indicators between STUs, a selected indicator between STU's and on time series and all (or selected) indicators of a STU across different years (time series).

In the final step of the study, the defined methodology for analysis, evaluation and comparison in the tool is converted to a web-based version. The web site has been titled as 'Trims4STU'. The forms for data collection at STU and depot level have been finalised and the same has been and is being shared with STU and/or CIRT for testing and dummy data collection. The dummy site has also been shared with stakeholders to gather feedback on user-friendliness and utility of the same.

It is envisaged that the data collected and sorted/presented by this web-based tool will not only provide insights for improvement and policy as well as planning action by both ASRTU and individual STUs, but that it will also help develop benchmarking for different indicators, allowing comparative evaluation, and setting practical targets for improvement. This web site will also ensure data availability to a larger audience including students, academicians and researchers, encourage research which will have potential to benefit STUs, which shall in turn help make bus based public transport more attractive to commuters, attracting higher patronage.

The link and short description of the revised version of the toolkit has been discussed with ASRTU officials and few STUs namely MSRTC, APSRTC, DIMTS, MTC, BSRTC, TSRTC and BMTC have been approached to fill in the web-based forms (which require data input of annual STU and depot level data) to test the working and user friendliness of the tool. In meeting with MSRTC, suggestions were given to revise the web-based form as per the format in which depot managers' report their data to make it user friendly from depot manager's perspective.

Based on the feedback from above mentioned STUs, changes have been updated in web-based form yet getting the data from depots remains a challenge. Once the data will be available, the final version of the toolkit can be developed with updated graphical representation.

IIT Delhi have somehow been successful in fulfilling the objective of this project and effectively captured the target audience i.e., ASRTU in liking the idea of creating this web-based toolkit. During discussions with ASRTU officials, it was noted that ASRTU is envisaging developing an online portal for accessing all the annual bus performance data which are currently being published by CIRT in their annual handbook. And as a result of the discussion, it has been suggested by ASRTU to move forward in creating the online portal by taking this toolkit as a base.

Further developments which are required can now be taken care of in the next phase of the project. The concerns which were raised by the ASRTU officials (which includes upgradation

of script technology and flexibility requirement in data input) are beyond the capacity of the current project but are likely to be resolved in the next grant.

Hence, in order to upgrade this toolkit from research based (demonstrative) mode to a live mode, it is advisable that ownership of this web-based tool shall now completely be taken up by ASRTU. As a part of the next grant, IIT Delhi proposed to provide the technical assistance or hand holding support to ASRTU for further upgrading this toolkit (including extracting and testing the depot and STU level data from partner STUs) and finally to create an online portal for collecting, measuring the performance and publishing the annual data from all the partner STUs for larger audience.

1 Introduction

Bus based public transport is the backbone of road-based mobility in our country. Currently, there are 59 STUs owned and regulated by respective state governments. There can be multiple STUs in one state. STUs are accountable for funds they receive from central and state governments. Hence, they maintain their performance data in terms of capital investment, revenue, bus services and maintenance, which are collected and published by Central Institute of Road Transport (CIRT), India on an annual basis. Association of State Road Transport Undertakings (ASRTU) is responsible for undertaking advocacy for public transport issues in general and STUs in particular.

Out of 59 existing STUs in India, 30 are corporations, 7 come under municipal undertaking, 9 are run by government departments, and 13 are government companies. According to MoRTH's latest annual publication - Review of The Performance of State Road Transport Undertakings (Passenger Services) for April 2013 - March 2014 - 44 reporting STUs in India owned more than 1.4 lakhs buses as on March 2014 (MoRTH, 2015). With overall fleet utilization of 89.5%, roughly 1.25 lakhs buses were on road daily covering 15.5 billion revenue-earning kms, carrying more than 6.8 crore passengers per day.

The average buses held by STUs and average buses on road have increased by 1.55% and 0.08% respectively during 2013-14 as compared to 2012-13. However, fleet utilization has declined marginally from 90.8% in 2012-13 to 89.5% in 2013-14. The total number of passengers carried by the reporting STUs during 2013-14 has decreased by 1.6% as compared to the previous year. The passenger km offered, and passenger km performed also declined by 0.9% and 4.2% respectively during 2013- 14. The average occupancy ratio dipped from 70.2% in 2012-13 to 67.9% in 2013-14.

To avoid this trend, ASRTU need a tool which can evaluate the fleet data collected by different STUs. And provide the solutions which can help STUs for better performance of their fleet. The designed tool should be user friendly and easily accessible to all STUs. This tool can help STUs to increase their fleet efficiency and generate more revenue by utilizing all available resources.

2 Objective

The objective is to develop web tool for STUs, to help bus fleet owners evaluate their performance and improve their services (that can be hosted by ASRTU).

2.1 Key components

1. Reviewing the current parameters and practices of bus performance by ASRTU
2. Suggesting the more useful and important parameters to improve services
3. Formulation of web-based tool to evaluate the fleet and operational data collected by STU that can be easily understood and used to improve operations by bus operators and fleet managers

3 Methodology and Key Activities Planned

The scope of work for public transport performance evaluation has been divided in to five components. Methodology to undertake each of these components is given below:

3.1 Comments on existing report

1. Evaluating the existing reports to derive the following:
 - a. Finalized list of Key Performance Indicator (KPI) and the method of deriving the same from data collected by different STU's
 - b. Evaluation of findings on data collection practices by STU's in order to determine the number/percentage of KPI (from the finalized list of KPIs) related data collected by what number/percentage of STU's
 - c. Categorize finalized KPIs on the basis of data availability
 - d. Understand international case studies and best practices documented in the reports
 - e. Comment on the finalized list of KPIs in terms of applicability in the proposed tool
2. Finalize key requirements for the tool, such as:
 - 1) Intended audience
 - 2) Outputs required
 - 3) Inputs desired

3.2 Flow chart design for excel based toolkit

1. Finalize the conceptual working of the tool as flow chart
2. Finalize any formulas or estimation methodologies required for the tool
3. With the help of designed flow charts prepare excel based toolkit V.1 which can be easily available and user friendly for STU staff
4. Apply the tool on 5 urban and regional STU data

3.3 Excel based toolkit V.2 finalization and framework formulation of web-based toolkit V.1

1. Finalize the excel-based toolkit V.2 and design the framework for web-based toolkit V.1
2. The tool shall have following four components/sheets
 - Input Dashboard
 - Output Dashboard
 - Default values, including any assumptions
 - The calculation engine

3.4 Web-based toolkit formulation Version 1 and reviews from stakeholders

1. Formulate a web-based toolkit V.1 with its user manual
2. Share the tool V.1 with 4-5 selected stakeholders for their inputs

3.5 Finalization of web-based toolkit after feedbacks.

1. On the basis of the feedbacks from trials and reviews, a final web-based toolkit V.2 will be generated and finalized.

4 Work Plan: Quarter-wise

Quarter	Broad scope	Activities	Outputs	Status
1	Case studies states and best practices formal collaboration	<ul style="list-style-type: none"> Evaluating the existing reports for upgradation of performance indicators. Evaluating findings on data collection practices by STUs Categorize finalized KPIs on the basis of data availability 	Rationale note and MoUs	Done
2	Toolkit framework (architecture approved)	<ul style="list-style-type: none"> Finalizing key requirements for the tool. Formulating an excel-based toolkit V.1 with its user manual 	Framework for discussions and a report	Done
3	Toolkit V1 (excel-based for trials)	<ul style="list-style-type: none"> Sharing the tool V.1 with 4-5 selected stakeholders for their inputs Finalizing the excel-based toolkit V.2 and design the framework for web-based toolkit V.1 	V1 uploaded for trials	Done
4, 5 & 6	Toolkit V2 launched and adopted	On the basis of the feedbacks from trials and reviews, a final web-based	Final Report 1 - Stakeholder review and V2 developed	In Process – beta version is ready, and link has been

		toolkit V.2 will be generated and finalized.		disseminated to few STU for filling in the data but there has been delay in terms of getting depot data from STUs due to which upgraded version of the tool is on hold.
7	Creating the central unit to develop basic and critical analytics regularly (especially for small and medium bus service providers)	Short note for cell creation to provide support to cities w.r.t monitoring	Implementation with help of ASRTU	-Meetings were conducted with ASRTU officials and it was suggested that the developed tool shall be java based
8	Testing the ASRTU support centre (with complete web-based data upgradation – preferably quarterly)	Delayed due to transfer and change of key officials -Delay in response from the case state STU /Depots	Final report- 2 –	

5 Brief on Previous Reports

5.1 Background

As part of first steps of this project, literature review was conducted. Both national and international best practices were reviewed and commonly used performance indicators among Indian STUs and International agencies were investigated. The brief details of the same have been given in the following section.

5.2 Summary of Literature Review

In case of Indian STUs, their poor performances have augmented owing to government regulations and control (Singh, S. 2005). However, strict regulations were not the only reason. Since 90% of the passenger movement is covered by road transport sector and only 28.7% of the total buses are publicly owned; it was always difficult, but an only option for government, to maintain the transport services despite of money-losing operations to provide services to economically backward section of society; only 3 STUs made profit in the FY 2012-13 (CIRT

2014 and Deb, K. et al. 2002). STUs like BSRTC had 100% of their fleet over aged and average age being 11.8 years (MoRTH, 2015). It is evident that resources were not utilized optimally.

Performance measurement system is developed and practiced in order to identify how well service is being provided to customers, the areas of improvement and effects of actions previously taken. It helps in driving the organization towards set targets by supported decision-making. It is also needed to communicate results to organization’s stakeholders in the context of accountability (TRB 2003 and 2011).

In a large and complex system like PT, it is difficult to monitor its performance (Gandhi, S. 2013). Often, wrong choice of indicators misguides the experts and its further evaluation. It is necessary to link indicators to goals while considering different perspectives of stakeholders (community issues, customer-oriented, etc.) (TRB 2003).

After reviewing existing literature, it is understood that a successful performance measurement system is based on achieving the goals and objectives set by the PT agency. The goals and objectives defined by a PT agency should be used to help categorize performance indicators. TRB (2003) had the most comprehensive guide to finding and defining PT performance indicators. It lays out a progressive process for PT agencies to establish a performance measurement system. The report outlines both traditional and non-traditional performance indicators that are recommended based on PT agency goals. Annexure 12.1 summarizes important conclusions from the literature on performance measurement of PT system.

After a transportation agency has identified its goals and has chosen its performance indicators (PI), it can compare the performance with peers and benchmark the performance. LTA (2011) recognizes the importance of comparing the performances in identifying best practices around the world. Based on comparison of data maintenance practices among Indian and International agencies, Table 1 **Error! Reference source not found.** shows the most widely used KPIs in performance measurement of a PT system.

Table 1: Commonly used PI among the Indian STUs and International Agencies

S. No.	Indicators	Example User Agency
Category I – Capacity		
1.	Fleet Size	KDOT, SMRT
2.	Vehicle Seat Capacity	DDOT, TfL
Category II – Serviceability		
3.	Revenue kms	FDOT, DDOT, SMRT
4.	Passenger kms	US DOTs, MTR (HK)
5.	Load Factor	LACMTA
6.	Passengers Carried	SMRT, US DOTs
7.	No. of Routes	SMRT, LTA
Category III – Safety		
8.	No. of Accidents	LTA, US DOTs, TfL, MTR (HK)
9.	No. of Fatalities	

S. No.	Indicators	Example User Agency
10.	No. of Injuries	
Category IV – Productivity		
11.	Operating Cost	SMRT, US DOTs
12.	Cost per km	US DOTs
13.	Maintenance Cost	SMRT
14.	Traffic Revenue	SMRT, US DOTs
15.	Non-Traffic Revenue	LTA, TfL
16.	Operating Ratio	US DOTs
17.	Cost Recovery	MTR (HK), LTA, US DOTs
Category V – Effectiveness		
18.	Passenger Load	LTA
19.	Bus Utilization	US DOTs
Category VI – Reliability		
20.	Trips Scheduled	SMRT
21.	Regularity	SMRT
22.	Actual Trips Operated	SMRT
23.	Punctuality (Departure, Arrival)	SMRT
24.	No. of Breakdowns	MTA-NYCT
25.	Rate of Breakdowns	Houston-Metro
Category VII – Comfort		
26.	Average Age of Fleet	CTDOT, NJDOT, VADOT

5.3 Review on Existing Practices of STUs

The published data provides detailed figures on both the financial and physical performance of the STUs. The financial performance indicators are grouped in terms of capital, liabilities, assets, cost, taxes, interest and revenue. Since financial performance (profitability) of the system depends on physical performance to a wide extent, this study focuses largely on physical performance indicators, which are mainly categorized in terms of fleet utilization, capacity utilization, quality of service, manpower productivity, and material performance (includes fuel, oil, tyre, battery, spring, etc.).

Diversity of data maintained by STUs is wide, expanding from make of buses (Leyland, Tata, Volvo, etc.) to attributes related to spare parts of the bus (springs, batteries, tyres and tubes, their cost and replacement details, etc.). Naturally, this comes at a cost (salaries, manpower and time). If these data are utilized to its potential, spending of money, manpower and time is justified.

A closer look on the publications from CIRT and MoRTH shows that for a particular year, number of STUs reporting to CIRT and MoRTH are different. For the year 2012-13, CIRT (2014) claims that 25 STUs have reported data to them. On the other hand, for the same period, MoRTH (2014) says 38 STUs have reported their data. The publications reviewed in this study revealed that not all the STUs report data to CIRT consistently. In the latest annual publication (2014) it has been observed that 25 STUs out of 53 (now 59) had reported data whereas in the year before i.e. 2013, 28 STUs had reported. Similarly, MoRTH (2015) showed that 44 STUs had reported their data for the year 2013-14 but MoRTH (2014) acknowledged 38 STUs for reporting their data. Within the reporting STUs, there were few dissimilarities in the type of

data reported. For example, under financial performance, personnel cost incurred by STUs was divided into sub-categories viz. drivers, conductors, traffic supervisory, workshop and maintenance staff, admin and others. However, few STUs (TNSTC-SLM, APSRTC, STHAR, etc.) only reported personnel cost as a total of aforementioned sub-categories of the staff while, some STUs (GSRTC, MSRTC, etc.) also mentioned the cost sub-category wise. Similar observation in the case of material cost, interests on loan and other physical performance parameters which include cancelled kms and no. of breakdowns and their sub-categories (CIRT 2013).

Some indicators are consistently being reported by all the reporting STUs. These are measures of fleet utilization, serviceability, operational productivity and manpower productivity. The list of indicators reported by all the reporting STUs are as follows:

- a) Buses held
- b) Buses off road
- c) Fleet utilization
- d) Effective, dead and gross kms
- e) Bus Utilization per day
- f) Carrying capacity kms
- g) Passenger kms
- h) Load factor
- i) Passenger lead
- j) Passengers carried
- k) Passengers per bus on road per day
- l) Staff per bus ratio

Additionally, there were some indicators which few STUs doesn't report at all. The measure of punctuality in departure and arrival of bus from and to the depot were least reported by STUs. Out of 36 STUs and 41 indicators which were taken into consideration from CIRT (2014), it was found that 20 STUs do not maintain records of punctuality. Second most under reported indicator was number of public complaints reported by 50% of the STUs in consideration. 3 STUs are found to have identical reporting pattern. They are NBSTC, SBSTC and BSRTC. The reported and unreported indicators were exactly same for these STUs except 2 indicators i.e. seat kms and occupancy ratio, which were not being reported by NBSTC. STUs from north-east part of the country were among the least reporting STUs. They were SKNT, TRPTC, MZST and MEGTC. This may be attributed to their scale of operation which was very small compared to other STUs in the country. Hence, the organization structure and management may not be equipped enough to practice performance measurement.

Measures of safety like accidents, fatalities and injuries were not reported at all by KSRTC, SKNT, TRPTC, MZST and MEGTC. Some STUs report them partially and inconsistently; they are STHAR, NBSTC, BSRTC and CSTC.

There is only a handful no. of STUs which report all the indicators. They are TNSTC (KUM), TNSTC (SLM), SETC (TN), MTC-CNI and RSRTC. Other STUs which report >90% of indicators

are UTC, BEST, PMPML, KMTU, TMTU, BMTC, OSRTC, KDPCC, NEKnRTC, TNSTC (CBE), TNSTC (VPM), TNSTC (MDU), NWKnRTC, KnSRTC and APSRTC.

Annexure 12.2 is a compiled chart of 41 indicators and 36 STUs. It shows the pattern in reporting data for the period 2010-14. The figure '1' signifies data has been reported consistently for the period under consideration. '0' signifies not reported at all and a blank space () means either not applicable or inconsistent reporting.

6 Toolkit Framework

6.1 Identification of Indicators

This part of the study was focused on identifying indicators which may serve as an accurate indicator to the health and performance of each STU, and which can be used to compare the STUs against each other as well against identified benchmarks. Thus, all reported data (STUs annually report performance data to ASRTU) have been weighed against these objectives and selected for inclusion in the proposed STU performance evaluation tool. Apart from this literature review has been undertaken to identify and include critical indicators. Additional new indicators have been formulated/identified, in order to report performances against core objectives of STUs and bus-based transport in a state.

6.2 Categorization of Indicators

A Study of bus performance measures (TRIPP, 2016); (Tiwari, 2016), evaluates multiple literature, research and technical papers, to propose a categorization of bus performance indicators under three heads namely Societal, Passenger and Operator indicators, prepared for Shakti Sustainable Energy Foundation (SSEF). Under each of these categories, there are subcategories of indicators which relate to the objectives and expected minimum performance requirements of STUs. For example, in terms of serving the overall requirements of the society as a whole STUs should ensure a good safety record in terms of reduced accidents, minimised external cost on the environment in terms of reduced emissions and improving accessibility for the citizens in terms of improved coverage.

Similarly, passenger sub indicators include, reduced travel cost in terms of per km fare, reduced journey time in terms of waiting time i.e. reduced headway, reduced access/egress time in terms of road network served by bus service and increased journey time saving in the bus in terms of increased journey speed. Additional passenger sub indicator includes journey comfort. This can be measured in terms of comfortable buses and passenger infrastructure. A proxy measure for the same is the number of bus terminals and depots per bus (or number of buses per bus depot, bus terminal/bus stop in state) and number of passengers per bus in terms of occupancy ratio.

Operator sub indicators includes service efficiency in terms of operational efficiency, fleet utilization, vehicle utilization, average mileage per unit of fuel used and occupancy ratio. It also includes economic efficiency in terms of cost to revenue ratio, operating cost per km, etc. The third sub operator indicator is management efficiency like staff to bus ratio etc.

Following is the list of identified categories and subcategories of STU performance indicators:

1. Societal Indicators

- a. Safety
- b. Emissions
- c. Service Coverage

2. Passenger Indicators

- a. Journey cost
- b. Journey time
- c. Journey comfort

3. Operator Indicators

- a. Service efficiency
- b. Economic efficiency
- c. Management efficiency

The following sections details the classification of identified indicators as well reported data into the identified categories and subcategories.

6.3 Definition of Finalized Key Performance Indicators

The first part of this study was comprised of identifying indicators which may serve as an accurate indicator to the health and performance of each STU, and which can be used to compare the STU's against each other. Thus, all reported data (STUs annually report performance data to ASRTU) were documented and reviewed to identify and include critical indicators. Additionally, some new indicators were formulated/identified, in order to report performance against core objectives of STUs and bus-based transport in a state.

In second part of this study, based on the identified indicators (both reported and new), a list having all finalized indicators have been formulated against their respective category and sub-category i.e., Societal, Passenger and Operational. To further elaborate and calculate these indicators, definition of each key performance indicator has been consolidated.

The definitions of all identified key performance indicators have been presented in Annexure 12.3.

6.4 Key Performance Indicators

In this section, the inputs and outputs of key performance indicators at National level, STU level and Depot level have been discussed. For each level, and for each category three types of areas have been considered. These are Urban, Non-Urban and Hilly area. The calculation of each KPIs have been presented in the form of a flow chart which consists of two parts. The first part is basically showing the data inputs from various sources like Census or STU data which are being reported at depot level, and then compiled at STU level. Whereas the second part of this chart shows the output. These data inputs are further categorized in hierarchical order, which will be used to compare the particular indicator between depots and STUs, Also, each depot and STU can be compared on its time frame as per requirement.

6.5 Flow Charts and presentation of data

The flow charts at national level and STU level have been presented in Figure 1 and Figure 2.

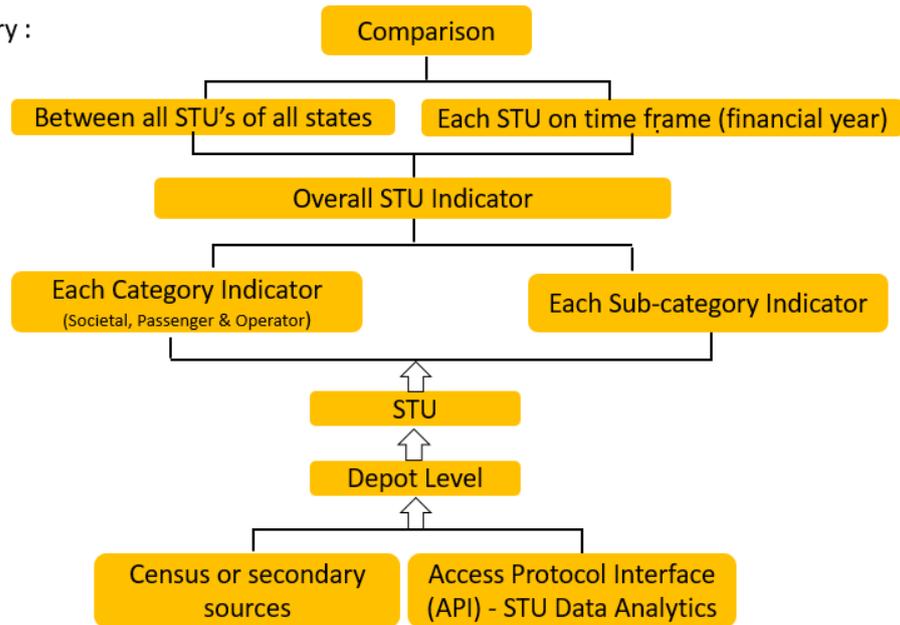
A. National Level

Figure 1: National Level - Flow chart

At National Level

For each category :

- Urban
- Non-Urban
- Hilly



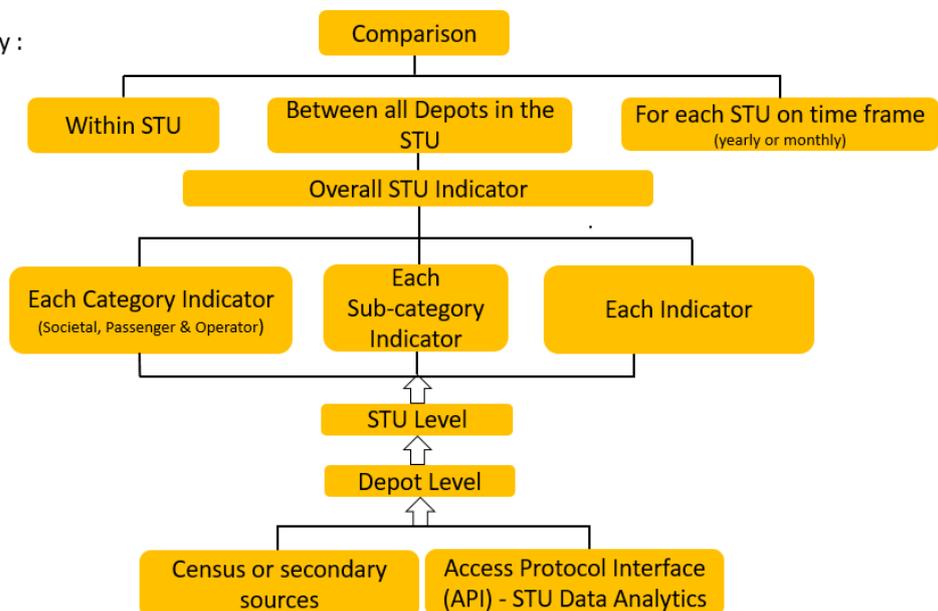
B. STU Level

Figure 2: STU Level - Flow chart

At State/STU Level

For each category :

- Urban
- Non-Urban
- Hilly



The collected data from census or STUs through web-based form will be presented as shown in flow charts above. The details of the flow charts and data presentation are as follows:

- a. Data input form will be created at depot level to feed depot data collected from various STUs.
 - At National level, data will be presented as aggregated data for all STUs (data aggregated from depot level) & presented as Hilly, Non-Urban or Urban comparison (as per filter selection in level 2).
 - At STU level, data will be presented as annual depot data for selected Hilly, Non-Urban or Urban depots.
- b. Data will be collected using the forms as depot level annual aggregated data against all defined parameters (minimum number parameters against which data is to be collected, to be accounted for). This data will be sorted in three categories for each STU i.e., Hilly, Non-Urban and Urban by the web tool.
- c. All data presentation will be categorized as following:
 - Level 1 selection: National level or STU level
 - Level 2 selection: Category wise i.e., Hilly, Non-Urban or Urban
 - Level 3 selection: Presentation i.e., indicator wise or depot wise (depending on National or STU level selection) or year wise

Inputs/filters will define the selection level i.e., particular indicator, STU / depot or year, along with range of the remaining two parameter. For example: if national is selected at level 1, hilly is selected at level 2 and indicator wise is selected in level 3, then number of STUs and number of years for which data for the selected indicator is to be presented is shown, will be selected in range fields. A user may select one or two dimensions for defining range. The data for this example will be presented as aggregated depot data for all hilly depots, for each STU, for each year for the selected indicator. Data will be presented in tabular and graphical form. The excel format of data presentation have been given in Figure 3.

Figure 3: Excel based tool interface

Excel Based tool - Key Performance Indicators																								
S.no.	Indicators	STU1				STU 2						STU 1			STU 2			NATIONAL			LEVEL			Comments
		Urban Depot 1	Mofussil Depot 1	Mofussil Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Mofussil Depot 1	Mofussil Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Mofussil	Hilly	Urban	Mofussil	Hilly	Urban	Mofussil	Hilly	National	State/STU	Depot	
Societal:																								
<i>[A] Safety</i>																								
1	Accidents per lakh effective kms per year	0.07	0.01	0.01	0.03	0.21	0.09	0.13	0.12	0.02	0.04	0.07	0.02	0.03	0.30	0.12	0.07	0.19	0.07	0.10	✓	✓	✓	accidents per lakh effective vehicle km
<i>[B] Emission</i>																								
6	Fuel efficiency / Energy consumption – HSD/CNG/Electric											0.00	0.00	0.00	0.00	0.00	0.00				*	✓	✓	
<i>[C] Service Coverage</i>																								
9	Buses per lakh population											0.72	54.09	1.36	0.37	0.09	1.09	0.55	27.09	2.44	✓	✓	*	
Passenger:																								
<i>[A] Journey Cost</i>																								
17	Average fare per passenger-km	3.984	3.188	10.869	2.318	1.879	3.322	9.771	3.604	2.825	2.907	3.984	14.057	2.318	5.201	13.375	5.732	4.59	13.72	8.05	✓	✓	*	
<i>[B] Journey Time</i>																								
18	Avg. Headway											0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.00	*	*	✓	
<i>[C] Journey Comfort</i>																								
19	Occupancy Ratio	0.74	0.69	0.67	0.68	0.72	0.70	0.67	0.69	0.72	0.71	0.738	1.361	0.681	1.427	1.359	0.00	1.08	1.36	0.68	✓	✓	✓	
Operator:																								
<i>[A] Service Efficiency</i>																								
25	Operational efficiency	97%	90%	91%	90%	95%	95%	89%	91%	94%	96%	97%	181%	90%	190%	180%	190%	1.43	1.81	2.80	✓	✓	✓	
<i>[B] Economic Efficiency</i>																								
43	Minimum operational cost											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	✓	✓	*	
<i>[C] Management Efficiency</i>																								
56	Area per bus in bus terminals											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*	✓	✓	

6.6 Categorization & sub-categorization of KPIs

The categorization of Societal, Passenger and Operator indicator under their respective categories and sub-categories at all levels have been presented in Figure 4, Figure 5 and Figure 6.

A. Societal - At all levels

Figure 4: Societal Indicator (Sub-category – Safety, Emissions & Service Coverage)

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category	Societal		
Sub-category			
Safety	<ol style="list-style-type: none"> Accidents per lakh effective kms per year Accidents per lakh vehicle kms per year Fatal accidents per lakh effective kms per year Fatal accidents per lakh vehicle kms per year 	<ol style="list-style-type: none"> Accidents per lakh effective kms per year Accidents per lakh vehicle kms per year Fatal accidents per lakh effective kms per year Fatal accidents per lakh vehicle kms per year 	<ol style="list-style-type: none"> Accidents per lakh effective kms per year Accidents per lakh vehicle kms per year Fatal accidents per lakh effective kms per year Fatal accidents per lakh vehicle kms per year No. of fatalities per year
Emissions		<ol style="list-style-type: none"> Energy efficiency / Energy consumption – HSD/CNG/Electric No. of vehicles complying to BSIV or above and BS VI or above 	<ol style="list-style-type: none"> Energy efficiency / Energy consumption – HSD/CNG/Electric No. of vehicles complying to BSIV or above and BS VI or above
Service Coverage	<ol style="list-style-type: none"> Buses per lakh population % Villages served % Town served % Cities served Percentage of trips carried by STUs Percentage of PT & IPT trips carried by STUs Route length served per Sq. Km Length of total routes / Km of road network 	<ol style="list-style-type: none"> Buses per lakh population % Villages served % Town served % Cities served Trips per lakh population = Percentage of trips carried by STUs Percentage of PT & IPT trips per lakh population carried by STUs Route length served per Sq. Km of state Length of total routes / Km of road network 	<ol style="list-style-type: none"> Road Network – SH/NH/MDR (Separate for Urban & Rural)

B. Passenger - At all levels

Figure 5: Passenger Indicator (Sub-category – Journey Cost, Time and Comfort)

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category	Passenger		
Sub-category			
Journey Cost	<ol style="list-style-type: none"> Avg. fare per passenger-km 	<ol style="list-style-type: none"> Avg. fare per passenger-km 	
Journey Time	<ol style="list-style-type: none"> Avg. pass. waiting time Avg. Headway 	<ol style="list-style-type: none"> Avg. pass. waiting time Avg. Headway 	<ol style="list-style-type: none"> Avg. Headway
Journey Comfort	<ol style="list-style-type: none"> Occupancy Ratio 	<ol style="list-style-type: none"> Occupancy Ratio Number of buses per depot infrastructure Total number of Bus Terminals / Route Km ITS Enabled terminals Total no. of low floor buses available 	<ol style="list-style-type: none"> Occupancy Ratio Area of depot as per functionality = total depot area/no. of buses Total no. of stops

C. Operator - At all levels

Figure 6: Operator Indicator (Sub-category – Service, Economic and Management Efficiency)

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category Sub-category	Operator		
Service Efficiency	<ol style="list-style-type: none"> Operational efficiency Vehicle Utilization Stations/km of routes Annual ridership per bus Annual ridership per bus station 	<ol style="list-style-type: none"> Fleet utilization per day Load Factor Operating cost per passenger km HSD or CNG consumed Operational Efficiency Breakdown per 10000 eff kms Vehicle Utilization Punctuality Annual ridership per bus Passenger per effective kms Average passenger km per vehicle km Annual ridership per bus station 	<ol style="list-style-type: none"> Fleet utilization per day Dead Km Load Factor Operating cost per passenger km HSD or CNG consumed Operational Efficiency Breakdown per 10000 eff kms Vehicle Utilization Punctuality Annual ridership per bus Passenger per effective kms Engine oil top up Engine oil KMPL Average passenger km per vehicle km Annual ridership per bus station

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category Sub-category	Operator		
Economic Efficiency	<ol style="list-style-type: none"> Total earning per bus per day Total cost per bus per day Operating Ratio Total road accident- Compensation per accident Major & serious accident - Compensation per accident Minor road accident - Compensation per accident Profit/loss 	<ol style="list-style-type: none"> Personnel cost Material cost Traffic revenue Non traffic revenue Total earning per bus per day Total cost per bus per day Surplus before tax Profit/ Loss % Operating ratio Taxes Misc. & others Interests Depreciation Total road accident - Compensation per accident 	<ol style="list-style-type: none"> Personnel cost Material cost Traffic revenue Non traffic revenue Total earning per bus per day Total cost per bus per day Surplus before tax Profit/ Loss % Operating ratio Taxes Misc. & others Interests Depreciation Total road accident - Compensation per accident

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category Sub-category	Operator		
Economic Efficiency		<ol style="list-style-type: none"> Major & serious accident - Compensation per accident Minor road accident - Compensation per accident Avg. fare per boarding Revenue per passenger Farebox ratio Operating cost per trip Operating cost per passenger km Operating cost per boarding Reimbursement of Fare Concessions % return on capital employed % return on capital invested Payment to HB Scheduled earning more than total cost 	<ol style="list-style-type: none"> Major & serious accident - Compensation per accident Minor road accident - Compensation per accident Avg. fare per boarding Revenue per passenger Farebox ratio Operating cost per trip Operating cost per passenger km Operating cost per boarding Reimbursement of Fare Concessions % return on capital employed % return on capital invested Payment to HB Scheduled earning more than total cost

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category Sub-category	Operator		
Economic Efficiency		28. Scheduled earning between total & variable cost 29. Subsidy Reimbursement	28. Scheduled earning between total & variable cost 29. Subsidy Reimbursement

Type	National Level Indicators	State Level Indicators	Depot Level Indicators
Category Sub-category	Operator		
Management Efficiency	1. Number of buses per terminal infrastructure 2. Number of buses per depot infrastructure	1. Staff ratio per bus 2. Average salary/ employee/ day 3. Seating Capacity 4. Manpower productivity per day 5. Occupancy Ratio 6. Number of spare buses 7. Number of buses per depot infrastructure 8. Number of buses per terminal infrastructure 9. Scheduled services	1. Traffic staff 2. Workshop & Maintenance Staff 3. Staff ratio per bus 4. Average salary/ employee/ day 5. Seating Capacity 6. Manpower productivity per day 7. Effective kms per crew member per day 8. Occupancy Ratio 9. Number of spare buses 10. Number of buses per terminal infrastructure 11. Scheduled services

7 MS Excel Based Tool

To help bus fleet owners to evaluate their performance and improve their services (that can be hosted by ASRTU), MS Excel based tool have been formulated.

7.1 Methodology to develop Excel based tool

As a first step towards the development of this tool, depots categorization basis area of operation, i.e. Urban, Non-Urban and Hilly, was developed. Following this secondary data and existing reports on evaluation of STU indicators were assessed. This assessment was used to compile a list of indicators to be accommodated in the tool and used in the performance evaluation of STU. These indicators were categorised as passenger, operator and societal. In the other dimension, they were categorised as indicators which are useful for evaluation by ASRTU (or at the National Level comparison between STUs), at the STU level (comparison between depots) and at the depot level (comparison of performance with other depots or past years).

In the following step, input data required for all indicators was identified and divided into data to be input at depot level (by individual depot managers) and data to be input at STU level (by STU managers). All formulas for estimation of indicators, there input, and output units was also finalised. Additionally, output type for use by different stakeholders was finalised. For example, the output at National level can be a comparison of all (or selected) indicators between STUs, a

selected indicator between STU's and on time series and all (or selected) indicators of a STU across different years on time series).

The database contains total 212 inputs (including both reported and proposed measures) from all three types of areas where STU buses operate their services i.e., in Urban, Non-Urban and hilly area. From these 212 inputs (Annexure 12.4), key performance indicators have been categorized under three heads, namely Societal, Passenger and Operator indicators. Under each of these categories, there are subcategories of indicators. Following is the list of identified categories and subcategories of STU performance indicators:

- 1. Societal Indicators**
 - a. Safety
 - b. Emissions
 - c. Service Coverage
- 2. Passenger Indicators**
 - a. Journey cost
 - b. Journey time
 - c. Journey comfort
- 3. Operator Indicators**
 - a. Service efficiency
 - b. Economic efficiency
 - c. Management efficiency

To make the interface user friendly, colour coding has been used to represent the STU level data along with their categories and sub-categories. Figure 7 shows colour coding representation of excel based tool.

Figure 7: Legend for Colour coding of excel based tool

S. No.	Indicator	Sub - Indicators		
1	Societal:	[A] Safety	[B] Emission	[C] Service Coverage
2	Passenger:	[A] Journey Cost	[B] Journey Time	[C] Journey Comfort
3	Operator:	[A] Service Efficiency	[B] Economic Efficiency	[C] Management Efficiency

As per explanation mentioned above in section Societal - At all levels A, B and C, the key performance indicators have been calculated at depot level and STU level. The output generated from these calculations will help identifying those indicators which may serve as an accurate indicator to the health and performance of each STU, and which can be used to compare the STUs against each other. The interface of the tool have been presented in Figure 3.

7.2 Calculation of Key Performance Indicators

Along with the definition of all Key Performance Indicators (mentioned in section 6.3), the procedure to calculate each indicator is given in Annexure 12.1. It basically shows the parameters

i.e., data input 1 and data input 2 to calculate the value for that particular indicator. Apart from the data inputs, status of data collected (i.e., whether the data has already been reported by STU or it is the new type of data that needs to be collected). Also, its relevance (i.e., Urban and Non-Urban) and units have been mentioned. Using the above-mentioned formulas and dummy database, the tool has been generated to calculate the STU wise key performance indicators. The detailed excel sheet have been presented in Annexure 12.6.

8 Web-based Tool

8.1 Conversion of excel based tool to web-based tool

In the final step of the study, the defined methodology for analysis, evaluation and comparison in the tool have been converted to a web-based version. The website has been titled as 'Trims4STU'. The forms for data collection at STU and depot level have been finalised and the same is being shared with STU and/or CIRT for testing and dummy data collection. Also, the link of web-based tool has been shared with stakeholders to gather feedback on user-friendliness and utility of the same. The format of web-based form have been presented in Annexure 12.5.

It is envisaged that the data collected and sorted/presented by this web-based tool will not only provide insights for improvement and policy as well planning action by both ASRTU and individual STUs, but that it will also help develop benchmarking for different indicators, allowing comparative evaluation, and setting practical targets for improvement. This website will also ensure data availability to a larger audience including students, academicians and researchers, encourage research which will have potential to benefit STUs, which shall in turn help make bus based public transport more attractive to commuters, attracting higher patronage.

To operate the web-based toolkit, the step by step explanation of the toolkit with their visuals have been explained in Annexure 8.3, 8.4, 8.5 and 8.6.

8.2 Brief Introduction and update on web-based toolkit

Brief Introduction about the tool: **Trims4STU** (Transit Information Management System for STU) is a web-based tool which is developed for reporting bus related Key Performance Indicators (KPI) periodically at depot level for ASRTU. This tool can help STUs to increase their fleet efficiency and generate more revenue by utilizing all available resources. It can help in evaluating the fleet data collected by different STUs and provide the solutions which can help STUs for better performance of their fleet. The designed tool is user friendly and easily accessible to all STUs.

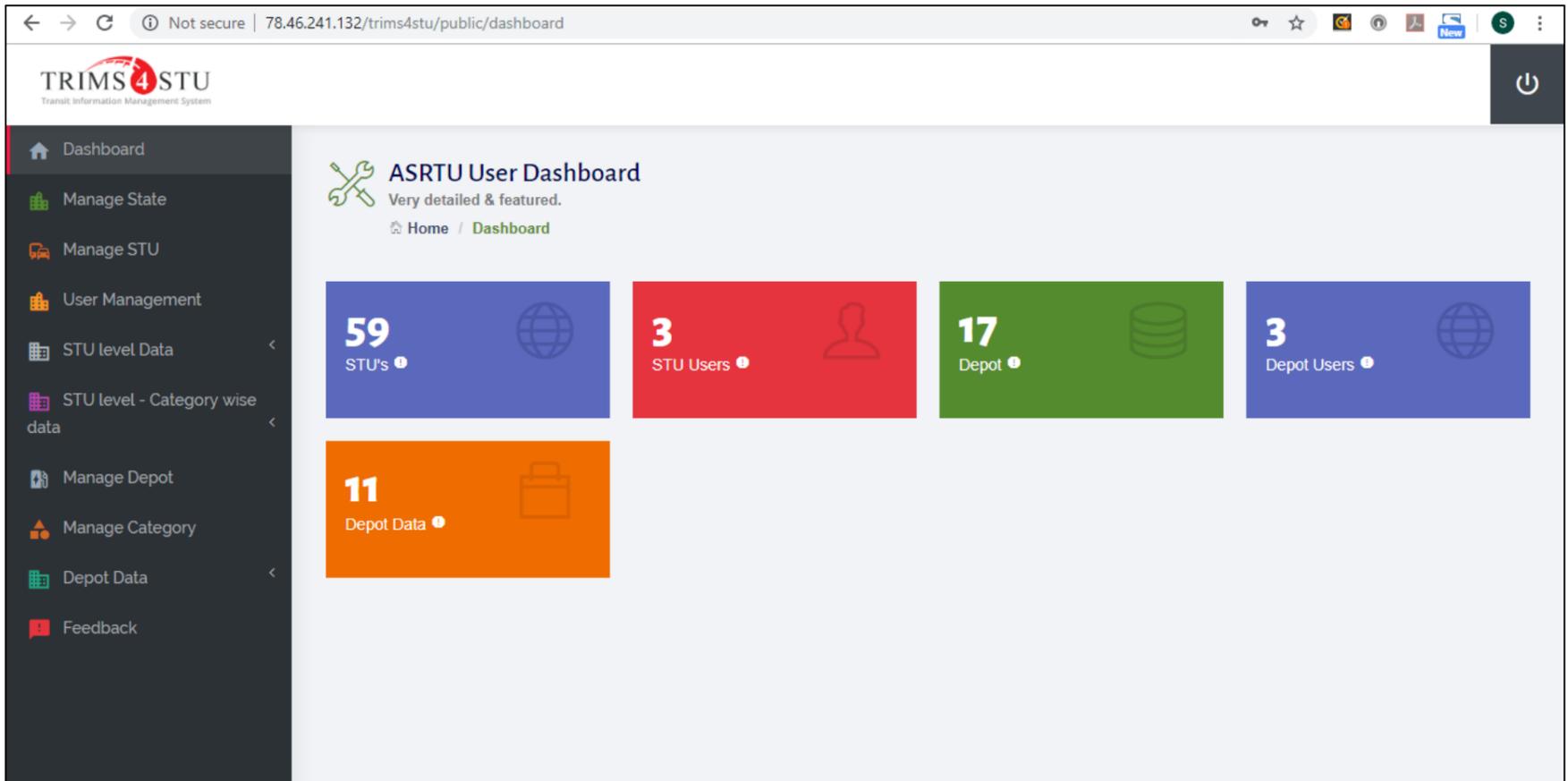
- The tool is developed as a data input structure which is in dis-aggregated format so that comparison can be generated at three levels: at depot level, at STU level and category wise – Urban, Non-Urban and Hilly.
- There are total 59 STUs. Total of 212 Inputs/parameters are to be filled in 9 step web-form whereas total Indicators (*both existing and newly developed*) are 55 in numbers.
- With this data input, it is possible to generate indicators which is already there in the published annual CIRT report plus few additional indicators which has been identified (based on best practices as discussed in earlier section). The data input in this web-based tool is to be done at depot level and STU level.
- Indicator calculation of all 55 Indicators have been completed, testing for the graphical representation of the same is required which can take place only after getting web-form data.

- Web-forms have been circulated to few STUs to fill in the required depot and STU level data
- The revised links for the web-based tool kit are as follows:
 - Home Page Link: <http://trims4stu.com/>
 - Indicator Link: <http://trims4stu.com/indicator-calculation>
 - Login Link: <http://trims4stu.com/login>

8.3 Web-Based Tool Visuals – ASRTU Level

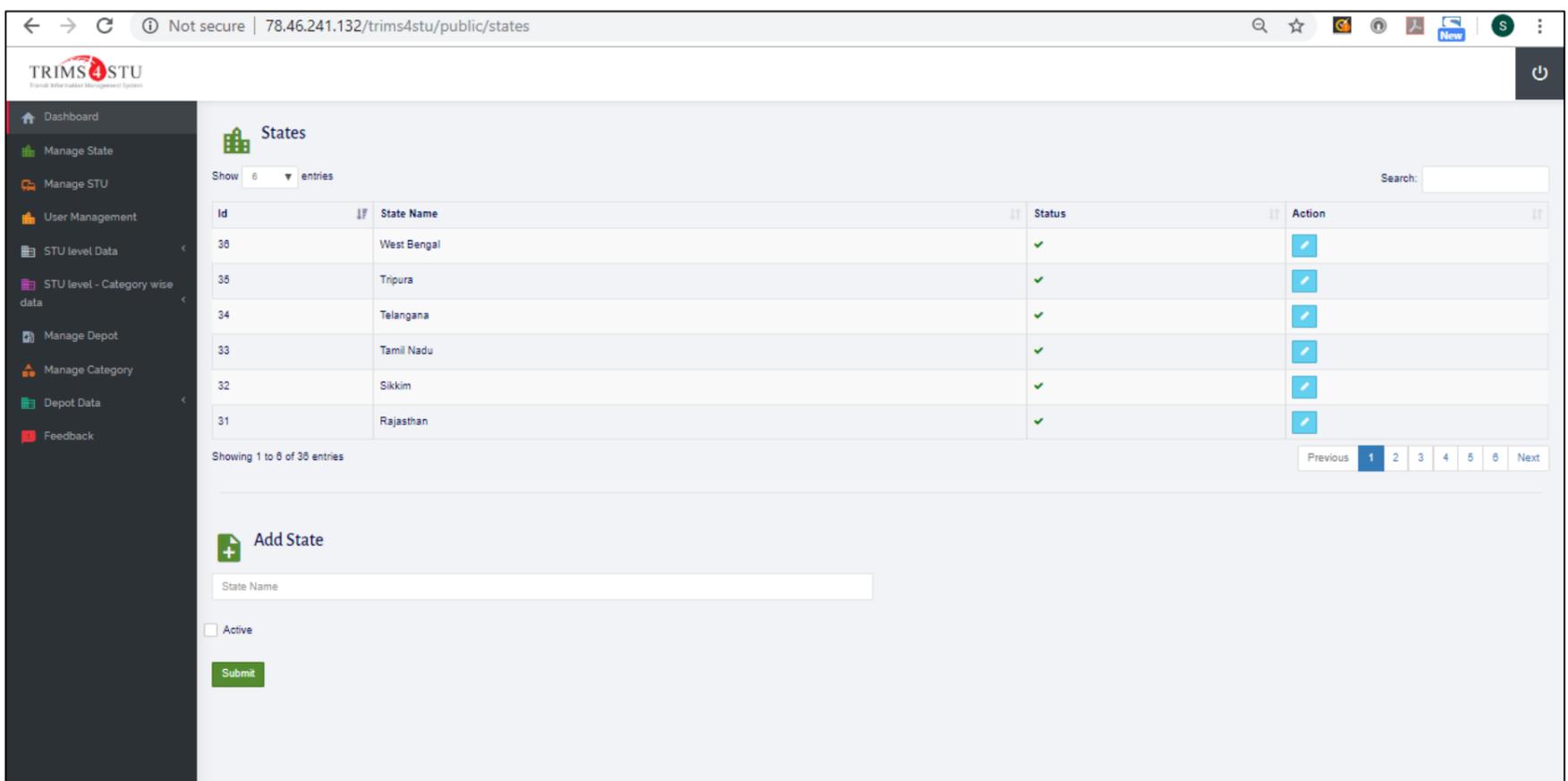
The web-based portal (i.e. visual basic application) of tool which have been created with support of website developer - WEMONDE is presented in stepwise visuals (with brief explanation of every step) in the following sections at all levels:

8.3.1 Web-Based Tool - Dashboard



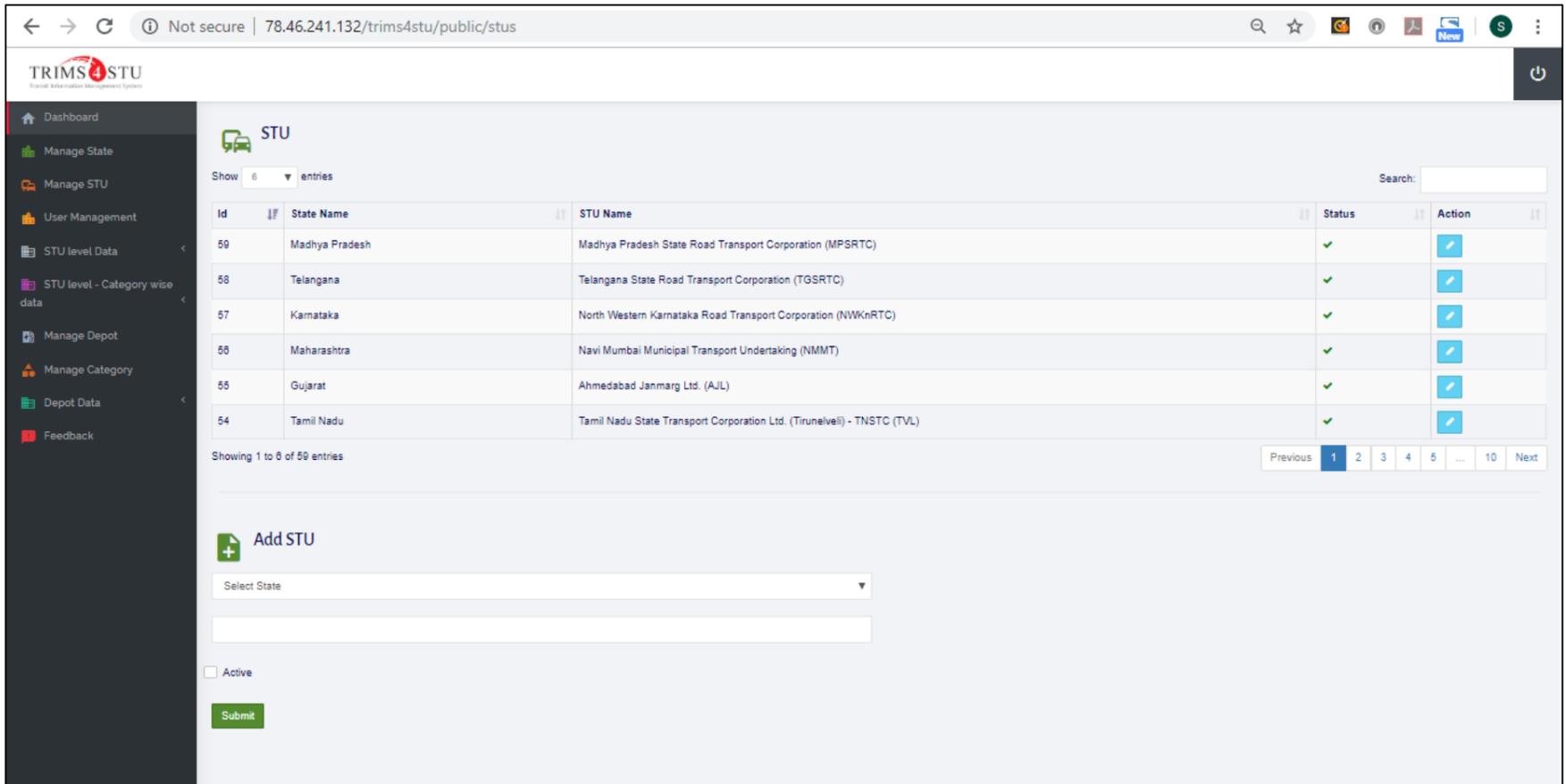
This is the main dashboard after logging in with ASRTU login details. The dashboard shows the information of how many STUs are there under ASRTU at present and how many STU Users, Depots and depot data have been created in this portal.

8.3.2 Web-Based Tool – Manage State



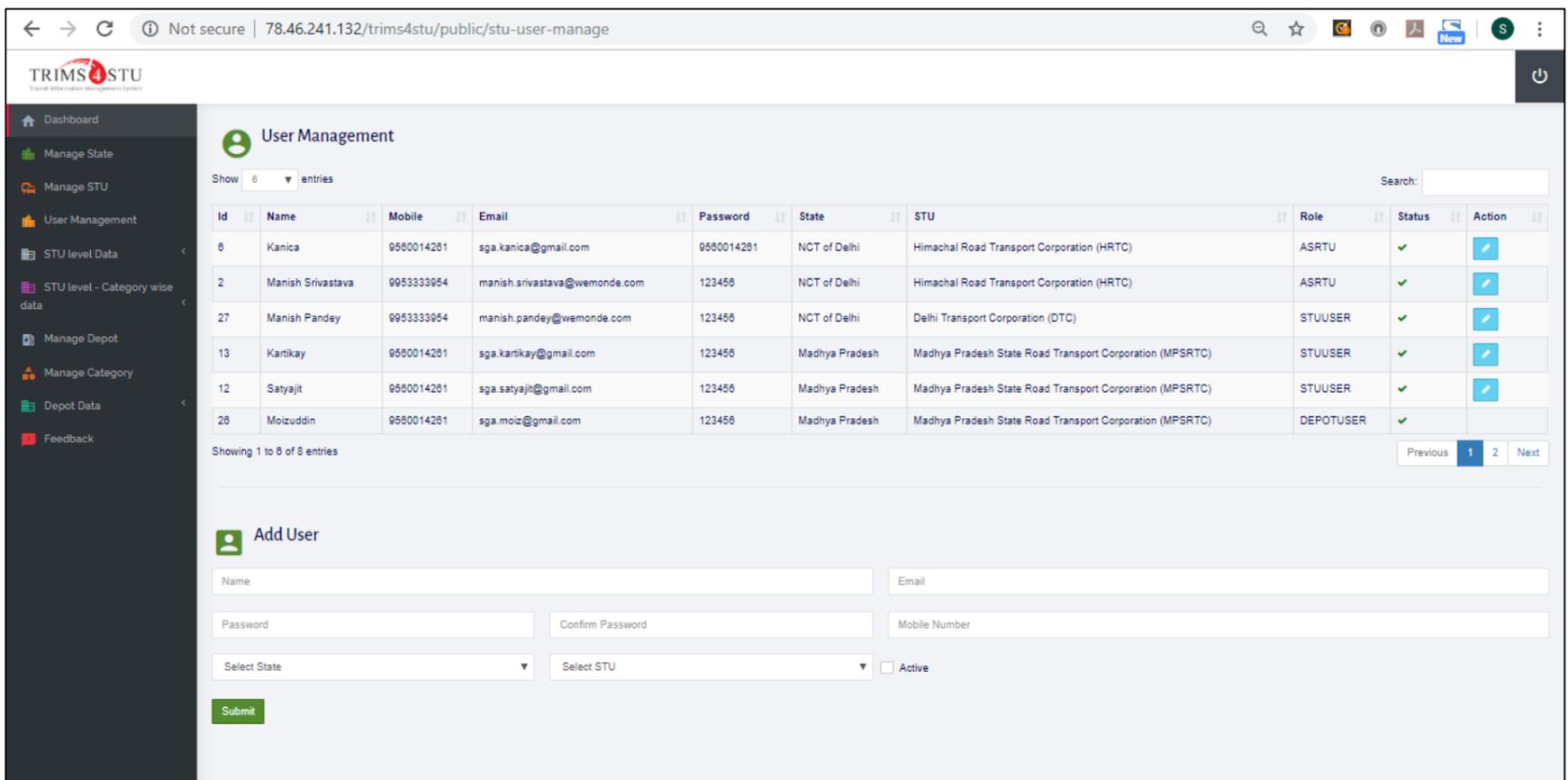
In this, ASRTU admin can see and add all Indian states so that STUs can be created under each state. To add any state, user must click on add state and write the name and make it active and submit.

8.3.3 Web-Based Tool – Manage STU



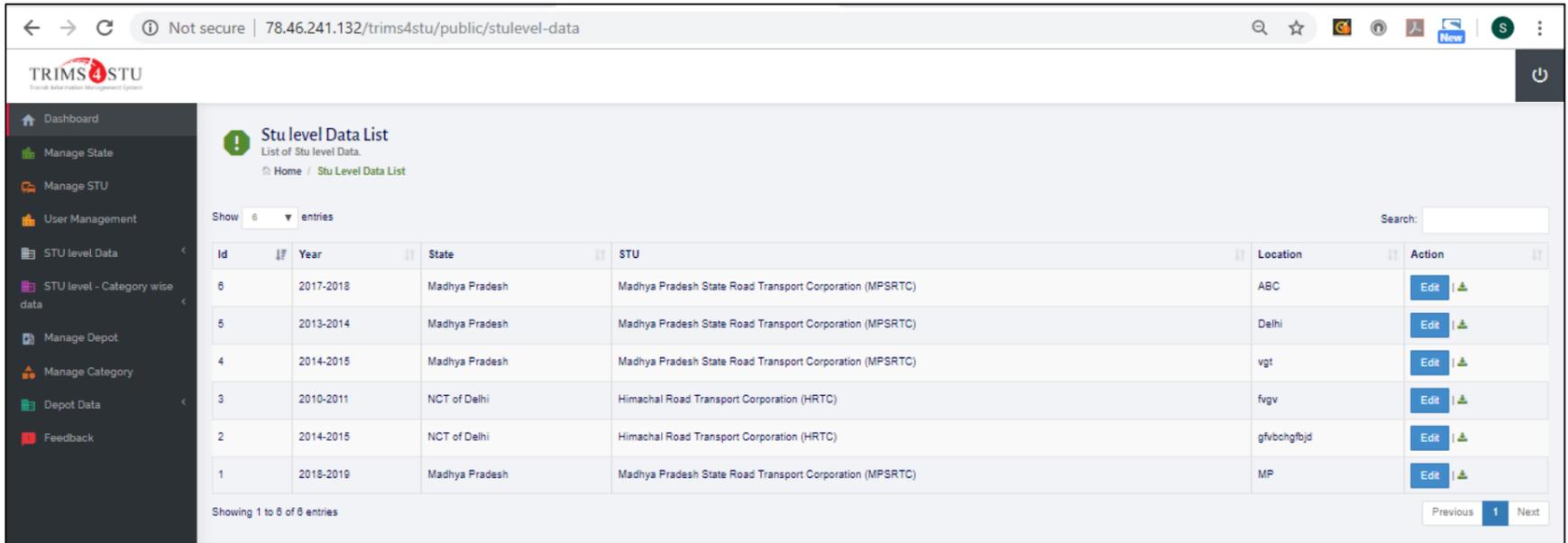
Under this, ASRTU admin can add STUs in each state. To add, we must click on add STU and select the state from drop down menu and then finally submit.

8.3.4 Web-Based Tool – User Management



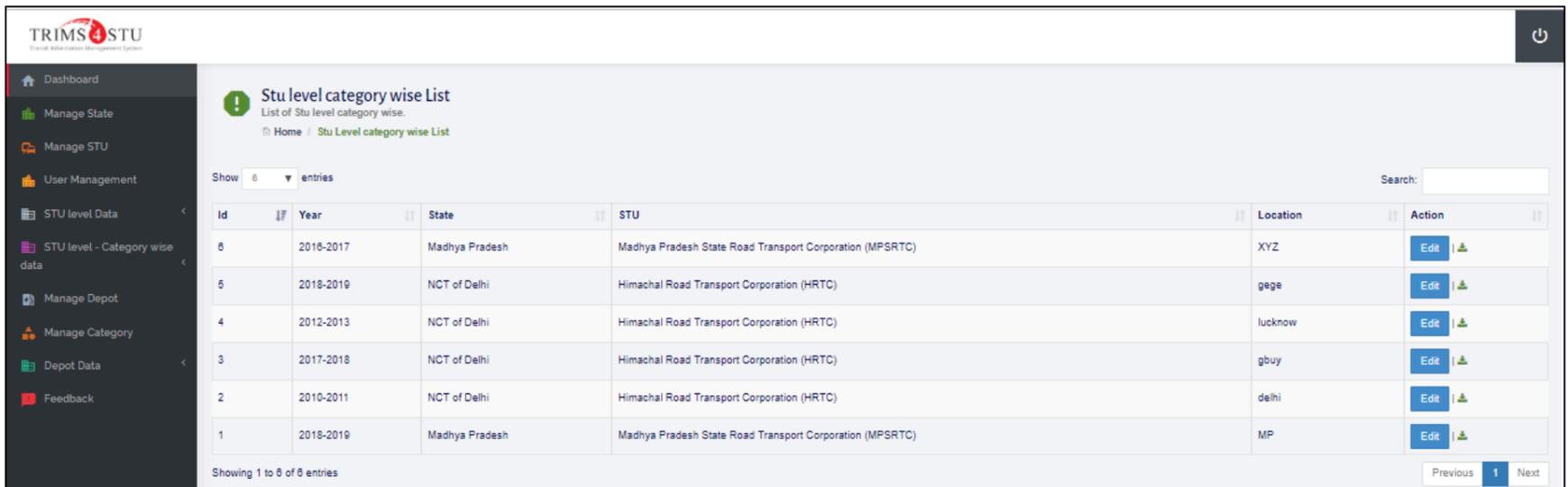
In this tab, ASRTU admin have the access to all the User IDs created for STUs and Depots along with their role. Also, new User IDs can be added by clicking onto Add User tab.

8.3.5 Web-Based Tool – STU Level data _ STU level data list



In this particular tab, ASRTU admin can see and download the data which have been added by STU Users.

8.3.6 Web-Based Tool – STU level category-wise data



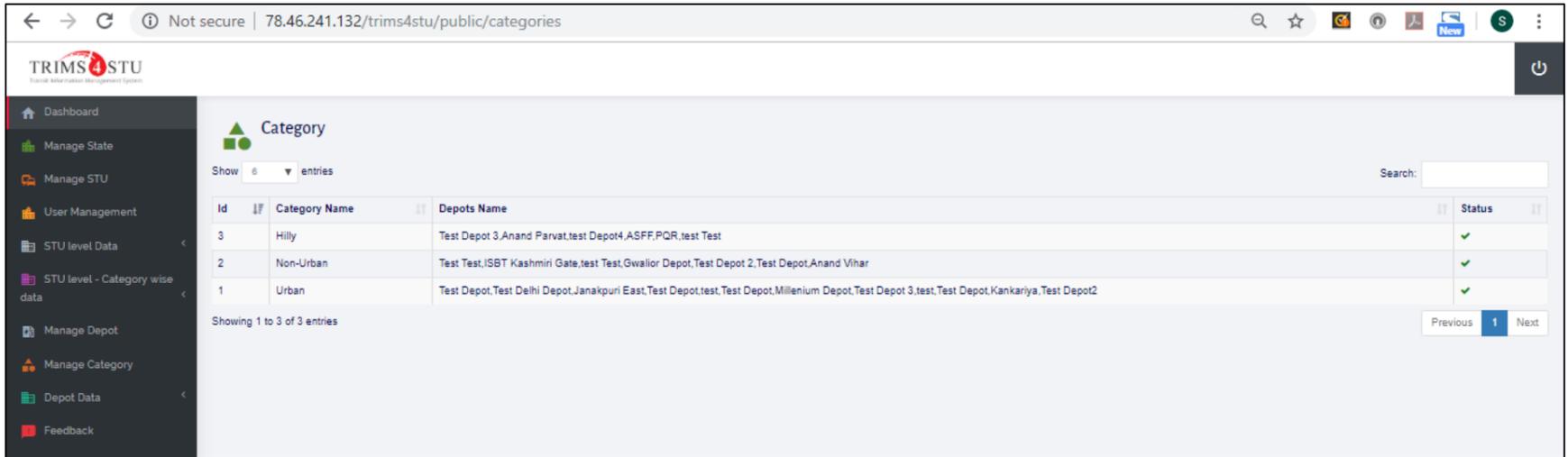
In this tab, ASRTU admin can see and download the STU level category wise data which have been added by STU Users.

8.3.7 Web-Based Tool – Manage Depot



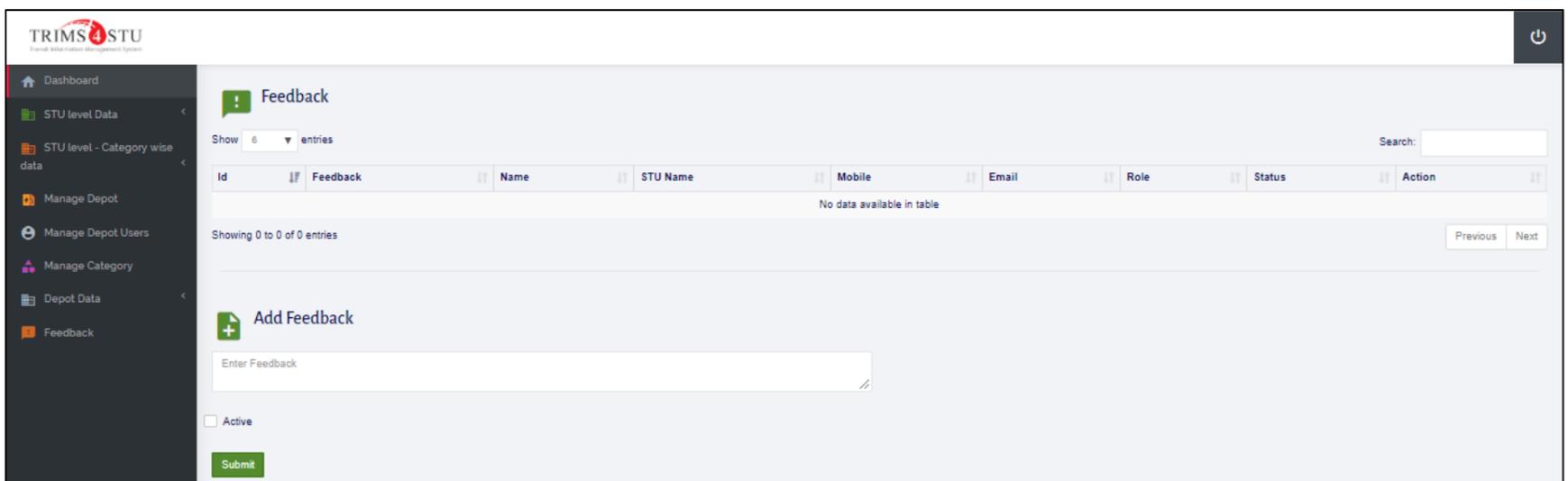
In this tab, ASRTU admin can see how many Depots (along with their category) have been created by depot manager

8.3.8 Web-Based Tool – Manage Category



In this tab, total number of categories and the name of all the depots which have been created under these categories can be seen.

8.3.9 Web-Based Tool – Feedback

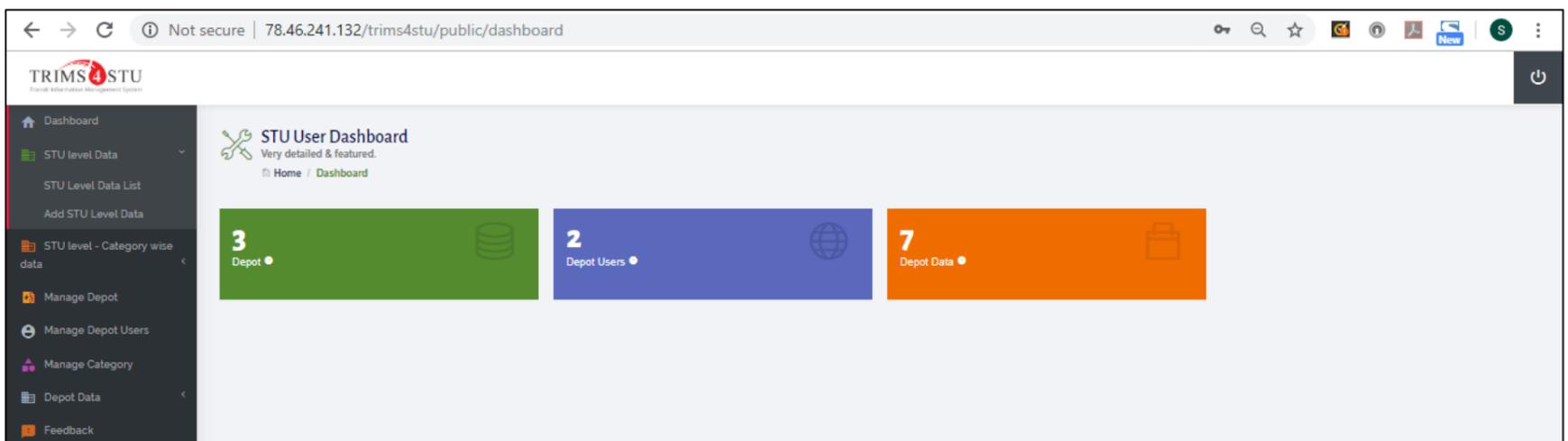


Under this tab, feedback can be given to any particular STU and depot. This feedback will be visible at all levels.

8.4 Web-Based Tool Visuals – STU Level

The visual basic application of tool at STU Level have been presented as follows:

8.4.1 Web-Based Tool – STU User Dashboard



The hierarchy of the portal is same as of ASRTU admin. But in this STU User dashboard, access is only given to the STU users. In this, with their given ID password, STU user can add their own STU level data and similarly category wise data can also be created.

8.4.2 Web-Based Tool – Manage Depot Users

The screenshot displays the 'Depot User Management' page. At the top, there is a search bar and a 'Show 6 entries' dropdown. Below this is a table with the following data:

ID	Name	Mobile	Email	Password	State	STU	Depot	Role	Status	Action
28	Moizuddin	9500014261	sga.moiz@gmail.com	123456	Madhya Pradesh	Madhya Pradesh State Road Transport Corporation (MPSRTC)	PQR	DEPOTUSER	✓	
14	Antons	9500014261	sga.antons@gmail.com	123456	Madhya Pradesh	Madhya Pradesh State Road Transport Corporation (MPSRTC)	Gwallor Depot	DEPOTUSER	✓	

Below the table, there is a pagination control showing 'Showing 1 to 2 of 2 entries' and 'Previous 1 Next'. Underneath is the 'Add User' form with the following fields:

- Name:
- Email:
- Password:
- Confirm Password:
- Mobile Number:
- State:
- STU:
- Depot:
- Category:
- Active
-

Under this tab, STU admin can add depot user with their unique ID and Password and make them active, which can then be shared with depot manager to fill in the depot level data.

8.5 Web-Based Tool Visuals – Depot Level

The visual basic application of tool at Depot Level have been presented as follows:

The screenshot shows the 'Depot User Dashboard'. The main content area features a large orange box with the number '3' and the text 'Depot Data'. The page title is 'Depot User Dashboard' and it includes a breadcrumb trail 'Home / Dashboard'.

This is admin dashboard for depot level login. Under this, depot manager can see how many data points of their own depot have been added.

8.5.1 Web-Based Tool – Depot Data: Depot Data List

The screenshot displays the 'Depot Data List' page. At the top, there is a search bar and a 'Show 6 entries' dropdown. Below this is a table with the following data:

ID	Year	State	STU	Category	Depot	Location	Completed	Action
3	2016-2017	Madhya Pradesh	Madhya Pradesh State Road Transport Corporation (MPSRTC)	Non-Urban	Gwallor Depot	nirvana	Y	
2	2017-2018	Madhya Pradesh	Madhya Pradesh State Road Transport Corporation (MPSRTC)	Urban	Gwallor Depot	Test location of Urban	Y	
1	2018-2019	Madhya Pradesh	Madhya Pradesh State Road Transport Corporation (MPSRTC)	Urban	Gwallor Depot	Test location of Urban	Y	

Below the table, there is a pagination control showing 'Showing 1 to 3 of 3 entries' and 'Previous 1 Next'.

In this tab, list of depot data of all the years of all the depots of their STU is visible. Also, other depot data can be seen.

8.5.2 Web-Based Tool –Depot Data: Add Depot Data

In this add depot data tab, nine steps web-based form is available. This contains all the 212 parameters which is required to calculate the indicators which have been finalized to measure the performance of STUs.

8.6 Web-Based Tool Visuals - Indicator Calculation Portal

The visual basic application of Indicator calculations have been presented as follows:

8.6.1 Web-Based Tool – Home Page

Trims4STU is a web-based tool which is developed for reporting bus related Key Performance Indicators (KPI) periodically at depot level for ASRTU. This tool helps in evaluating the fleet data collected by different STUs and provide the solutions which help in improving their fleet efficiency and generate more revenue by utilizing all available resources. It can help in evaluating the fleet data collected by different STUs and provide the solutions which help in improving their performance of their fleet. The designed tool is user friendly and easily accessible to all STUs. TRIPP, IIT Delhi has developed this web-based tool in collaboration with SGArchitects funded by Shakti Sustainable Energy Foundation.

It is envisaged that the data collected, sorted and presented by this web-based tool will provide insights for improvement and decision making for planning action by individual STUs. Additionally, it will also help ASRTU develop benchmarking for different indicators, allowing comparative evaluation, and setting practical targets for improvement. This web tool will also ensure data availability to a larger audience including students, academicians and researchers, encourage research which will have potential to benefit STUs, which shall in turn help make bus based public transport more attractive to commuters, attracting higher patronage.

TRIPP
The Transportation Research and Injury Prevention Programme (TRIPP) at the Indian Institute of Technology (Delhi) is an interdisciplinary programme focussing on the reduction of adverse health effects of road transport. TRIPP attempts to integrate all issues concerned with transportation in order to promote safety, cleaner air, and energy conservation.
<http://tripp.iitd.ernet.in>

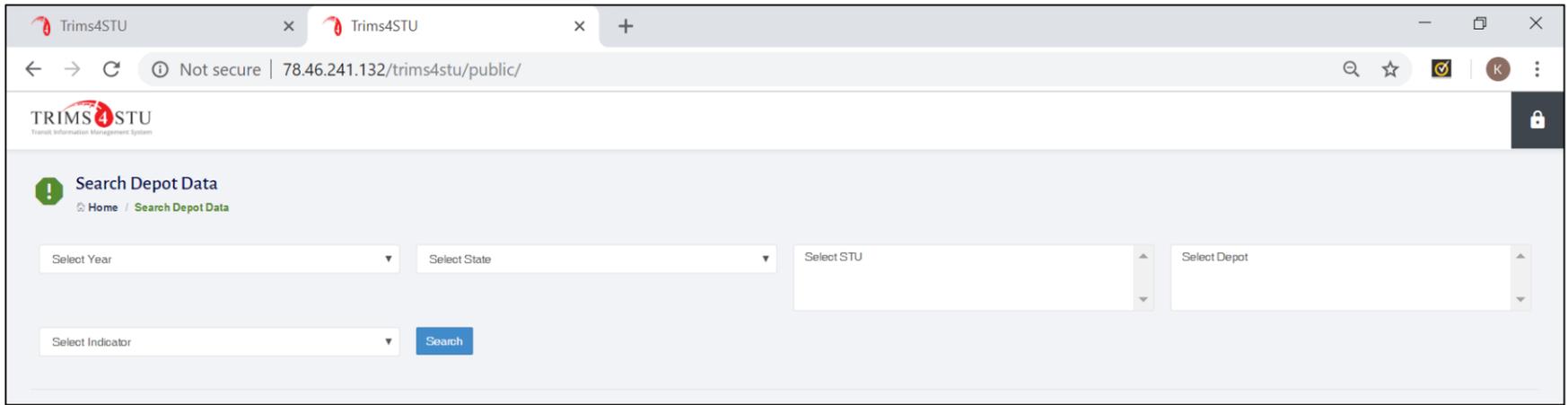
SHAKTI SUSTAINABLE ENERGY FOUNDATION
Shakti Sustainable Energy Foundation works to strengthen the energy security of the country by aiding the design and implementation of policies that encourage energy efficiency, renewable energy and sustainable mobility.
www.shaktifoundation.in

SGArchitects
www.sgarchitects.in
S G Architects (SGA) provides planning and design solutions for Sustainable Urban Transport, including Non-Motorized and Public transport. SGA and its team has more than ten years' experience in Cycling and pedestrian (NMT) as well BRTS infrastructure design, which includes contribution to eight NMT and BRTS corridor development projects in Six Indian Cities.
www.sgarchitect.in

This is the home page of **TRIMS4STU** website. To go further, user can click on getting started and select from the two given options:

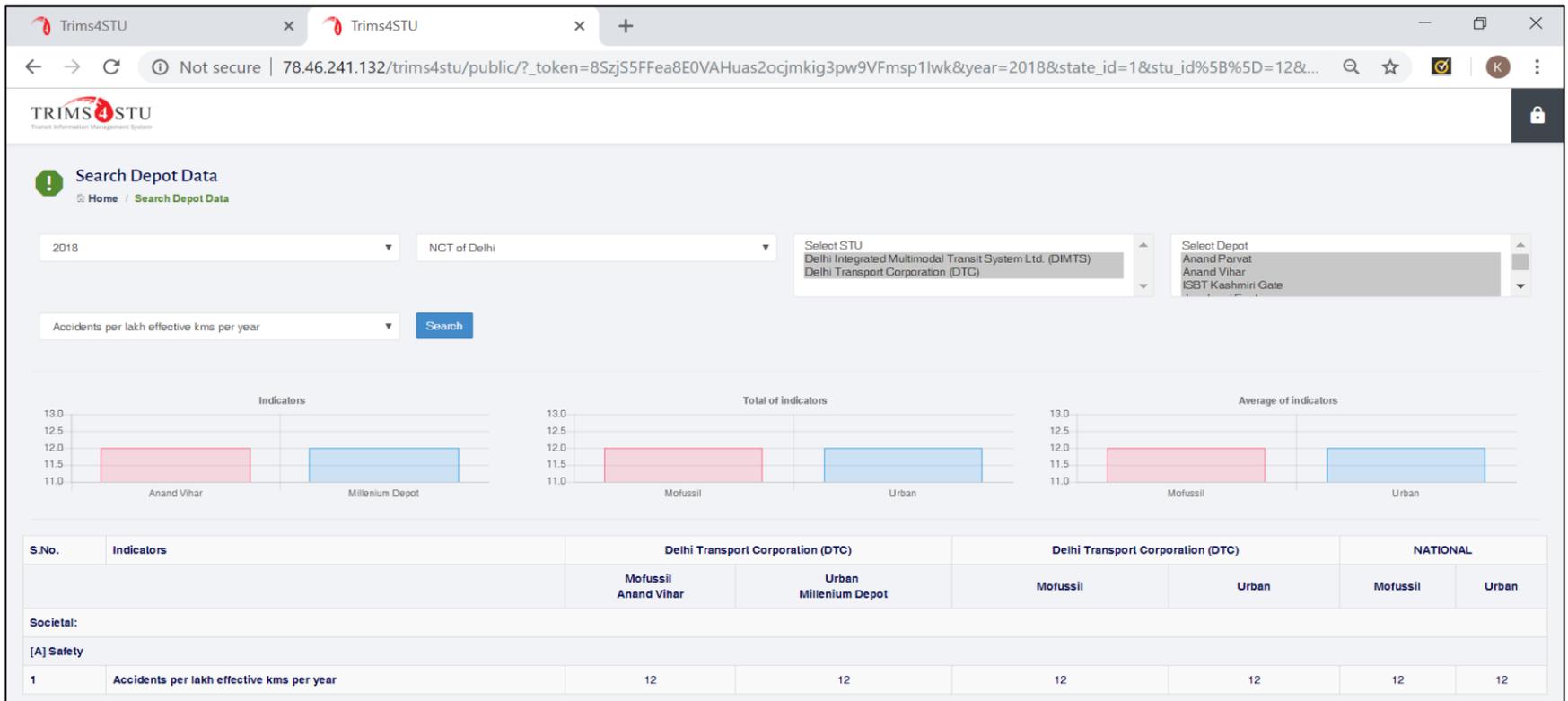
- 1) I am STU official if he/she have user ID and Password on any level – ASRTU admin or STU admin or Depot admin.
- 2) I am visitor which will open up a page where all the indicators can be seen by selecting the choices one wants to check.

8.6.2 Web-Based Tool – Indicator Calculation



Here the visitor can select the options from drop down menu regarding the year for which data one wants to check followed by selecting state, STU, depot and Indicator.

8.6.3 Web-Based Tool – Indicator Visual Representation



Based on the applied filters, user can see the graphical representation or table (whichever is applicable for those data sets) of the selected indicator.

9 Key Findings, Learnings and Challenges

- I. This toolkit has been developed by working out a data input structure in disaggregated format so that comparison can be generated at three levels:
 - a) at depot level,
 - b) STU level and
 - c) Category wise - Urban, Non-Urban and Hilly
- II. With this data input, it is possible to generate indicators, out of which many are already being published by CIRT annual report plus few additional indicators have been identified (based on national and international best practices). This has been discussed in previous workshops with ASRTU at many occasions.
- III. The data input in this web-based tool must be done at depot level and the current requirement is to test the developed indicators.

This web-based toolkit has been discussed and evolved by having multiple interactive sessions and reviews at various occasions with different stakeholders. In one of the stakeholder workshops, which was held at IIT Delhi in October 2018, the presentation was given on the excel based toolkit developed for the project and all the indicators and parameters which has been used (including existing modified parameters, new estimated parameters with existing data and new data collected and reported), were discussed. Discussions were also held on the issues which were raised for under reported data, such as punctuality, complaints, safety. Subsequently, after various feedbacks and revisions in the web-based forms and identified indicators, the web-based toolkit for bus fleet operations was developed.

For presenting and explaining the working of the toolkit to ASRTU, two meetings were held at TRIPP, IIT Delhi and ASRTU office. In that meeting, the tool was presented to the ASRTU officials and various points were discussed on how to take things forward. Also, discussions were held with ASRTU official for approaching STUs to get the depot level data. Minutes of the meetings of the same are presented in Annexure **Error! Reference source not found.** and **Error! Reference source not found.**

Few main points which were raised in the meetings by ASRTU officials are as follows:

- Flexibility is required in data input structure, i.e., the system should be dynamic and not static so that at any point of time any new parameters can directly be added by ASRTU officials (without any external support) as and when required.
- Tool should be developed in Java technology as currently it is in PHP technology. According to ASRTU - IT official, PHP technology is not reliable to take on the load which might be required, when numerous IDs and passwords will be issued to all the STUs. As with PHP technology, there is a possibility of site getting crashed due to excessive load which is likely to happen if many STUs login to the site at the same time.

However, these concerns which have been raised by ASRTU officials (mentioned above) can now only be taken care of in the next grant as current grant of the project is near to close and budget is exhausted.

The link of web-based form was disseminated to various STUs to fill in the required data (depot level and STU level parameters) for testing the working of the developed tool. Based on the discussion with Maharashtra State Road Transport Corporation (MSRTC) official, a formal request was sent to the Vice Chairman and Managing Director of MSRTC for filling in the depot level annual data in developed web-based forms and evaluating the toolkit. Similarly, Bangalore Metropolitan Transport Corporation (BMTC), Delhi Integrated Multimodal Transit System Limited (DIMTS), Bihar State Road Transport Corporation (BSRTC), Telangana State Road Transport Corporation (TSRTC), Andhra State Road Transport Corporation (APSRTC) and Metropolitan Transport Corporation (Chennai) Limited (MTC) have been approached for the same.

In response to the requests sent, TRIPP, IIT associate, visited the MSRTC Central office, Mumbai to explain the working of the web tool and assisting the officials to fill in the web-based form. As per discussion, it was communicated by MSRTC officials that the depot level data is not readily available in the required format. MSRTC Official mentioned that depot level data is collated at regional level on daily and monthly basis. The official suggested to approach CIRT Officer to get the format of depot data, which is reported by depots and accordingly, redesign the web-based form. Minutes of the meeting is presented in Annexure **Error! Reference source not found.** Based on the feedback from MSRTC, few changes which were suggested have been made to the data input form but getting the annual level depot data remains a challenge.

Major challenges, which the team has come across while moving forward with this project, are:

1. At organization level, the main challenge, which team has faced is to get the required annual data of depots and STUs. For getting depot level data, STU's must issue the order to the concerned officials for filling in/ providing the data as depots cannot be contacted directly.
2. There has been a delay to create the upgraded version of the toolkit due to various issues. Out of those, the main reason is, requirement of annual depot level data from STUs which is necessary to fill in the web-based forms so that the working of the toolkit can be tested, and the lacunas can be identified and corrected accordingly. Once the web-based forms will be filled, the data can be populated for all STUs and calculations can be checked, and the graphical representation can be improved and consequently the revised version of the tool can be generated.

10 Forward Linkages

Beta version of the tool is ready at present. To test the working of this web-based tool, website developer seeks depot level annual data from certain STUs. The links of the web-tool is as follows:

Login Link: <http://trims4stu.com>

As mentioned in above section, in meeting with MSRTC official, it has been suggested to revise the web-based form as per the format in which depot managers report their data to make it user friendly from depot manager's perspective.

11 Way Forward

IIT Delhi have somehow been successful in fulfilling the objective of this project and effectively capturing the target audience i.e., ASRTU in liking the idea of creating this web-based toolkit. During discussions with ASRTU officials, it was noted that ASRTU is envisaging on developing an online portal for accessing all the annual bus performance data which are currently being published by CIRT in their annual handbook. And as a result of the discussion, it has been suggested by ASRTU to move forward in creating the online portal by taking this toolkit as a base.

Based on the feedback of MSRTC and ASRTU, the major challenges which are of concern and can be resolved in next phase of this project are:

1) Improvement in Web architecture:

As per meeting with MSRTC, the main concern is to fetch the annual depot level data which is currently being collected by depots on daily and monthly basis. This can only be possible if STUs either agreed to report the depot level data in the prescribed format or if the prescribed format is not suitable to STUs, then the handholding support of STUs is required for amending the parameters and the architecture of web forms can be revised.

2) Testing of the tool kit:

Once the web architecture will be finalized, the testing of the data input from various depots can take place and technical glitches can be identified and rectified for indicator calculations. Thereafter, the graphical representation of the same can be improvised (if required).

3) Upgradation of Technology used:

As per discussion with ASRTU officials, it has been noted that the upgradation of script technology and flexibility requirement in data input is needed which is beyond the capacity of the current project and can only be taken care of in the next grant of the project.

Hence, in order to upgrade this toolkit from research based (demonstrative) mode to a live mode, it is advisable that ownership of this web-based tool shall now completely be taken up by ASRTU. As a part of the next grant, IIT Delhi proposed to provide the technical assistance or hand holding support to ASRTU for further upgrading this toolkit (including extracting and testing the depot and STU level data from partner STUs) and finally to create an online portal for collecting, measuring the performance and publishing the annual data from all the partner STUs for larger audience.

12 Annexure

12.1 Consolidation of Important Conclusions from Literature Review

S. No.	Article Name	Publication Year	Author/ Publisher	Important Conclusions
1.	TCRP Report 88 A Guidebook for Developing a Transit Performance-Measurement System	2003	TRB	A large variety of Performance Indicators categorized in terms of organizational goals and perceptions of different stakeholders (user, operator, staff environmental and authority); factors influencing choice of performance indicators; characteristics and uses of performance measurement system and case studies of successful systems.
2.	Public Health Benefits of Strategies to Reduce Greenhouse-gas Emissions: Urban Land Transport	2009	Woodcock J. et al.	Advantages of PT and NMT and promoting them to decrease adverse health impacts of Greenhouse-gas emissions of which transportation sector is a significant contributor.
3.	NCHRP Research Results Digest - State DOT Public Transportation Performance Measures: State of the Practice and Future Needs	2011	TRB	Indicators used by various State DOTs; current and best practices in performance measurement and advantages of using performance measurement system.
4.	Census of India 2011	2012	MHA	Detailed description of India's demographics; population size of small, medium and big cities.
5.	Performance Indicators for An Objective Measure of Public Transport Service Quality	2012	Eboli L. and Mazzulla G.	The importance of holistic approach (subjective and objective) to identify and consistently maintain performance indicators for ensuring continuous increase in service quality of PT.
6.	Service Level Benchmarks for Urban Transport	2013	MoUD	Tool for Benchmarking of Urban Transport in specific categories and calculating overall level of service.
7.	Development of Bus Performance Measures (Master's Thesis)	2013	Gandhi S. (Student) and Tiwari G. (Supervisor)	Choice of performance indicators is important while considering all the stakeholders of a PT system. This can affect the evaluation and further decision-making.
8.	STU Profile and Performance	2014	CIRT	Financial, Physical and Material performance of the STUs from 2009-13; Patterns in using, collecting and reporting performance data.
9.	Best Practices in Evaluating Transit Performance (Final Report)	2014	FDOT	Standard Performance Indicators used by FDOT; use of performance data for planning and strategic decision-making.
10.	Journeys	2014	LTA	Consistently used performance indicators; comparison of modal share among 28 cities in the world including Ahmedabad, Bengaluru, Delhi and Mumbai and comparison of performance under specific indicators of PT operators from Singapore, Hong Kong, Shanghai, Taipei, Tokyo, Sydney, London, Dublin, Barcelona, Stockholm, New York, Washington, Vancouver, and Chicago.
11.	Review of the Performance of State Road Transport Undertakings (Passenger Services) for April 2013 – March 2014	2015	MoRTH	Policy makers are concerned with adverse impacts of rapidly increasing private modes of transport and want to change user perception towards PT to increase PT ridership and also do better business.
12.	Analysis of Factors Influencing the Use of Public Buses in Delhi	2016	Suman H., Bolia N. and Tiwari G.	Need of policy interventions to retain public bus ridership; use of public buses limited to captive users and reason(s) for non-attractiveness of people to public buses in Delhi.

12.2 Reporting pattern of various STUs

Parameter	APSRTC	MSRTC	GSRTC	UPSRTC	KSRTC	NWKSRTC	TNSTC(MDU)	TNSTC(KUM)	TNSTC(VPM)	TNSTC(CBE)	TNSTC(SLM)	SETC (TN)	MTC-CNI	NEKSRTC	KSRTC	RSRTC	STHAR	NBSTC	SBSTC	BSRTC	KDTC	OSRTC	UTC	SKNT	TRPTC	MEGTC	MZST	BEST	DTC	BMTC	CSTC	PNPML	AMTS	CHNTU	KMTU	TMTU	% of STUs reporting this KPI		
Buses held	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
Buses off road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Buses on road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Fleet Utilization	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Scheduled services	1	0	1	0	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	1	0	53	
Scheduled kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	1	67	
Effective kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
Dead kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
Gross kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
% of cancelled kms. to scheduled kms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	1	67	
Bus utilization per day (kms.)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	

Parameter																											% of STUs reporting this KPI												
	APRTC	MSRTC	GSRTC	UPSRTC	KnRTC	NWKnRTC	TNSTC(MDU)	TNSTC(KUM)	TNSTC(VPM)	TNSTC(CBE)	TNSTC(SLM)	SETC (TN)	MTC-CNI	NEKnRTC	KSRTC	RSRTC	STHAR	NBRTC	SBRTC	BSRTC	KDTC	OSRTC	UTC	SKNT	TRPTC	MEGTC		MZST	BEST	DTC	BMTC	CSTC	PMPML	AMTS	CHNTU	KMTU	TMTU		
Seating capacity	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	92
No. of standees	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	69
Seat kms.	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	83
Carrying capacity kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Passenger kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Occupancy Ratio	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	83
Load factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Passenger lead	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Passengers carried	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Passengers per bus on road per day	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Trips to be operated	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	1	1	1	0	1	1	64
Actual trips operated	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	1	0	1	1	1	1	0	1	1	1	0	1	1	69
Regularity	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	1	1	1	0	1	1	64
No. of breakdowns	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	1	1	1	0	1	1	67
	APRTC	MSRTC	GSRTC	UPSRTC	KnRTC	NWKnRTC	TNSTC(MDU)	TNSTC(KUM)	TNSTC(VPM)	TNSTC(CBE)	TNSTC(SLM)	SETC (TN)	MTC-CNI	NEKnRTC	KSRTC	RSRTC	STHAR	NBRTC	SBRTC	BSRTC	KDTC	OSRTC	UTC	SKNT	TRPTC	MEGTC	MZST	BEST	DTC	BMTC	CSTC	PMPML	AMTS	CHNTU	KMTU	TMTU	% of STUs reporting this KPI		
Breakdown per 10,000 eff. kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	0	1	1	0	1	0	1	1	67
Punctuality	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	44
Fatal accidents	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	83
Major & serious accidents	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	83
Minor accidents	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	83
Accidents per lakh eff. kms.	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	89
No. of person injured	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0	1	0	0	0	0	1	1	58
No. of fatalities	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0	1	1	0	1	0	0	1	67
No. of public complaints	0	0	0	0	1	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	1	0	1	1	0	1	1	50
Traffic Staff	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	97
Workshop and Maintenance Staff	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	97
Administration and other staff	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	97
Staff ratio per bus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
Manpower Productivity per day	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	92
Avg. salary/employee/day	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	94
Eff.kms./crew member/day	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	89
% of reported KPIs	95	88	88	73	98	98	95	100	95	93	100	100	90	61	70	76	71	66	66	99	99	99	49	59	63	63	93	88	98	88	63	93	83	68	95	98			

12.3 Definition of Key Performance Indicators (KPIs)

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	STU	Depot
1	Societal	Safety	Accidents per lakh effective kms per year	This indicator is the measure of safety. It measures number of accidents per lakh effective km driven per year.	Total number of accidents	Already being collected	Per lakh effective Kms	Already being collected	Yes	Yes	?	?	?
2	Societal	Safety	Accidents per lakh vehicle kms per year	This indicator is the measure of safety. It measures number of accidents per lakh vehicle km driven including dead km per year.	Total number of accidents	Already being collected	Gross Kms	Already being collected	Yes	Yes	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	STU	Depot
3	Societal	Safety	Fatal Accidents per lakh effective kms per year	This indicator is the measure of safety. It measures number of fatal accidents per lakh effective km driven per year.	Total number of fatal accidents	Already being collected	Per lakh effective Kms	Already being collected	Yes	Yes	?	?	?
4	Societal	Safety	Fatal Accidents per lakh vehicle kms per year	This indicator is the measure of safety. It measures number of fatal accidents per lakh vehicle km driven including dead km per year.	Total number of fatal accidents	Already being collected	Per lakh vehicle Kms including dead km	Already being collected	Yes	Yes	?	?	?
5	Societal	Safety	No. of fatalities per year	This indicator is the measure of safety. It is the ratio of passengers killed to the number of passengers carried per year.	Total passengers killed	Already being collected	Total passengers carried per year	Already being collected	Yes	Yes	?	?	?
6	Societal	Emissions	Fuel efficiency in terms of fleet specifications	It is measured by the percentage of fleet to the total fleet with respect to age	Percentage of fleet which is older than 8, 10 & 12 years	Available with STUs but not published	Total fleet	Already being collected	Yes	Yes	?	?	?
7	Societal	Emissions	% of vehicles complying to BSIV or above & BS VI or above	This indicator is another measure of emissions. It is the ratio of vehicles complying to BS IV and above & VI and above norms to the total no. of vehicles per year.	Total vehicles which are newer than BS IV or above and BS VI or above	Available with STUs but not published	Total fleet size	Already being collected	Yes	Yes	?	?	?
8	Societal	Service Coverage	Buses per lakh population	It is the ratio of total number of buses to the per lakh population in a particular year. It measures the coverage of service in a particular area and time.	Total number of buses on road	Already being collected	Per lakh population	Can be extracted from census data	No	Yes	?	?	?
9	Societal	Service Coverage	Route length served per sq. km	This indicator measures the service coverage based on the ratio of total route length to the total state/STU area.	Total route length	Already being collected	total state/STU area	Can be extracted from census data	Yes	Yes	?	?	?
10	Societal	Service Coverage	Total Route Length / Km of road network [Road Network – SH/NH/MDR (Separate for Urban & Rural)]	This indicator is the ratio of total route length to the total state/STU road network.	Total route length	Already being collected	Total state/STU road network	Can be extracted from census data	Yes	Yes	?	?	?
11	Passenger	Journey Cost	Average fare per passenger-km	This indicator suggests how cost effective; the journey cost is from passenger's perspective. It is calculated by dividing the total traffic revenue to the total passenger km. It measures how much a commuter pays for one km he/she travels in the PT system.	Total traffic revenue	Already being collected	Total passenger Kms	Already being collected	Yes	Yes	?	?	?

Key Bus Performance Indicator

S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	STU	Depot
12	Passenger	Journey Time	Average Achieved Headway	This indicator measures the frequency of a bus. It helps in calculating the waiting time of passenger. It can be calculated route-wise (for scheduled and achieved). It is calculated as (Average Route Length x Average Bus Operational Hours x Total Operational Buses) / (Total Number of Daily Scheduled Bus Trips x Total Km Operated in a day) x 60	Average Route Length x Average Bus Operational Hours x Total Operational Buses	Already being collected	(Total Number of Daily Scheduled Bus Trips x Total Km Operated in a day)*60	Already being collected	Yes	Yes	?	?	?
13	Passenger	Journey Comfort	Occupancy Ratio	This indicator measures the journey comfort as well as management efficiency. It is a measure of capacity utilization or passengers per seat. It is calculated by total passenger kms to the ratio of total seat kms. As a measure of comfort, it is more suitable for intercity services because the journey is fairly longer than that in intra-city services.	Total Passenger Kms	Already being collected	Total Seat Kms	Already being collected	Yes	Yes	?	?	?
14	Passenger	Journey Comfort	Area per bus in a depot	It is the ratio of total depot area to the buses held. This indicator suggests the area to be provided per depot as per its functionality. This helps in calculating infrastructure required per depot.	Depot area	New type of data to be collected	Buses held	Already being collected	Yes	Yes	?	?	?
15	Passenger	Journey Comfort	Total number of Bus Terminals / Route Km	It is the ratio of total number of terminals to the total route length. This indicator suggests state wise presence of bus terminal infrastructure.	No. of bus stations or terminals	Already being collected	Total route length	Already being collected	Yes	Yes	?	?	?
16	Passenger	Journey Comfort	Informative terminals	This indicator suggests the ratio of ITS enabled bus terminals to the total no. of bus terminals. It helps in tapping the Passenger information.	ITS enabled terminals	New type of data to be collected	Total no. of bus terminals	Already being collected	Yes	No	?	?	?
17	Passenger	Journey Comfort	Informative bus stops	This indicator suggests the ratio of ITS enabled bus stops to the total no. of bus tops. It helps in live tracking of Passenger information.	ITS enabled stops	New type of data to be collected	Total no. of bus stops	Already being collected	Yes	No	?	?	?
18	Passenger	Journey Comfort	Total no. of low floor buses available	It is the ratio of low floor buses to the total fleet. This indicator measures the passenger comfort and safety.	No. of low floor buses	Available with STUs	Buses held	Already being collected	Yes	No	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	S T U	Depot
19	Operator	Service Efficiency	Operational efficiency	This indicator measures the actual trips operated to the scheduled trips or % of cancelled kms. to scheduled kms. Higher the value, higher is the system efficiency and vice versa.	Actual trips	Already being collected	Trips to be operated	Already being collected	Yes	Yes	?	?	?
20	Operator	Service Efficiency	Average Bus Utilization	Bus utilization is defined as kilometres done per bus on road per day	Total effective kms done on a day	Already being collected	Total buses on road on that day	Already being collected	Yes	Yes	?	?	?
21	Operator	Service Efficiency	Annual ridership per bus station	This indicator normalizes the ridership by the number of bus stations. A higher value suggests a better utilization of the system.	Total passengers carried	Already being collected	No. of bus stations or terminals	Already being collected	Yes	Yes	?	?	?
22	Operator	Service Efficiency	Annual ridership per bus	It is the ratio of total passengers carried to the total number of buses on road. This indicator normalizes bus ridership by bus fleet size and reflects the asset utilization. A higher value means that on average, a bus carries more passengers and suggests better asset utilization.	Total passengers carried	Already being collected	Total number of buses on road	Already being collected	Yes	Yes	?	?	?
23	Operator	Service Efficiency	Passengers per effective km	This indicator measures passengers moved per effective km. Higher value suggests higher system efficiency or better revenue generation.	Total passengers carried	Already being collected	Total effective Kms	Already being collected	Yes	Yes	?	?	?
24	Operator	Service Efficiency	Fleet utilization (%)	It is the percentage of number of buses on road to the number of buses held by the unit x 100	Number of Buses on road	Already being collected	Number of Buses held X 100	Already being collected	Yes	Yes	?	?	?
25	Operator	Service Efficiency	Load Factor	This indicator measures serviceability or capacity utilization. It is based on total carrying capacity (seats + standing spaces) in the bus.	Total Passenger kms	Already being collected	total carrying capacity (seats + standing spaces)	Already being collected	Yes	Yes	?	?	?
26	Operator	Service Efficiency	Operating cost per passenger-km	This indicator measures the cost required to deliver every kilometre a passenger travels. As operating cost is largely fixed (e.g. manpower cost, fuel cost) once the route and schedule are determined, a higher ridership and longer trip distance would lead to higher operational efficiency.	Total Operating cost	Already being collected	Total passenger Kms	Already being collected	Yes	Yes	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	STU	Depot
27	Operator	Service Efficiency	Average passenger km per vehicle km	This indicator measures the average system loading, in other words, how well the operating capacity has been utilized. A higher value suggests better utilization.	Total Passenger kms	Already being collected	Total effective Kms	Already being collected	Yes	Yes	?	?	?
28	Operator	Service Efficiency	Highest KMPL	It is the ratio of KMPL on gross Kms	Gross Km	Already being collected	Litres consumed	Already being collected	Yes	Yes	?	?	?
29	Operator	Service Efficiency	Maximum Improvement in KMPL	The improvement in KMPL is worked out as difference in the current year to the previous year.	KMPL in current year	Already being collected	KMPL in base year	Already being collected	Yes	Yes	?	?	?
30	Operator	Service Efficiency	Breakdown per 10000 eff kms	This indicator is a measure of quality of service. It gives an indication of the standard of maintenance as well as of general fleet condition. The older and less well maintained a fleet, the lower the number of kilometres per breakdown is likely to be. It is calculated as total number of kilometres operated over a period (scheduled and unscheduled), divided by the number of breakdowns incurred in that period.	Total effective kms	Already being collected	Total no. of breakdowns in a year	Already being collected	Yes	Yes	?	?	?
31	Operator	Service Efficiency	Punctuality	It is the percentage of reliability of arrival and departure services in a depot	Already reported by STUs at present				Yes	Yes	?	?	?
32	Operator	Service Efficiency	Highest vehicle productivity	It is the ratio of effective kms operated to buses held per day. It shall be calculated against each category i.e., Urban, Non-Urban and hilly.	Total effective kms	Already being collected	Buses held per day	Already being collected	Yes	Yes	?	?	?
33	Operator	Service Efficiency	Maximum improvement in vehicle productivity	It is the comparison in the vehicle productivity of the STUs with that of base year. It is calculated by applying weightage for incremental productivity using formula $y=2x+5$ where x is the value corresponding to the increment in vehicle productivity.	Current year vehicle productivity	To be derived from 2 indicators which are already being collected	Base year vehicle productivity	To be derived from 2 indicators which are already being collected	Yes	Yes	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	S T U	Depot
34	Operator	Service Efficiency	Highest Tyre Performance	It is calculated as the number of new standard tyres consumed per lakh effective kms and then three years moving average of tyre consumption is calculated from the base year to find out improvement in tyre performance. Since STUs use various types of tyres, hence, they are converted into standard tyre using formula - $9 \times 20, 14 \text{ PR nylon tyre}$. The average price of each tyre furnished by the reporting STUs is used for computing conversion factor. Then the three years moving average of standard tyres consumed per lakh effective kms is calculated from the base year. The highest tyre performance is evaluated on the lowest tyre consumption per lakh effective km. This shall be calculated for each category i.e., Urban, Non-Urban and Hilly.	Take moving average of New tyres consumed per lakh km for 3 consecutive years including current year			Already being collected	Yes	Yes	?	?	?
35	Operator	Service Efficiency	Maximum Improvement in tyre performance	It is the improvement in consumption of new tyres per lakh effective kms. A weightage of mark y is assigned for the incremental tyre performance using the formula $Y = 2x + 5$, where x is the value corresponding to the increment in tyre performance	Average of Tyre performance in current year	To be derived from 2 indicators which are already being collected	Average of Tyre performance in previous year	To be derived from 2 indicators which are already being collected	Yes	Yes	?	?	?
36	Operator	Economic Efficiency	Minimum operational cost	This is calculated by arranging the data on lowest operational cost per effective km without the element of tax in ascending order. It shall be calculated according to the fleet strength of each category of STUs i.e., Urban, Non-Urban and Hilly.	Cost without tax (lakhs) or total operating cost	Already being collected	Effective kms (lakhs)	Already being collected	Yes	Yes	?	?	?
37	Operator	Economic Efficiency	Total earning per bus per day	It is the ratio of total earnings to the total number of buses on the road.	Already being collected				Yes	Yes	?	?	?
38	Operator	Economic Efficiency	Total cost per bus per day	It is the ratio of total operating cost to the total number of buses on the road.	Already being collected				Yes	Yes	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	STU	Depot
39	Operator	Economic Efficiency	Operating ratio / Cost recovery ratio	Percentage operating ratio is defined as the percentage of the operating costs to the total traffic revenue. It may most conveniently be expressed as a percentage. If it equals 100%, the operation as a whole is breaking even; if it exceeds 100% it is earning a surplus, while if it is below 100% the operation is losing money.	Total cost - (Interest + Taxes) or total operating cost	Already being collected	Traffic revenue	Already being collected	Yes	Yes	?	?	?
40	Operator	Economic Efficiency	Total road accident- Compensation per accident	This indicator measures average compensation paid for an accident occurred. As an aspect of safety, it can be reduced thereby reducing net losses.	Total road accident compensation	Already being collected	Total no. of accidents	Already being collected	Yes	Yes	?	?	?
41	Operator	Economic Efficiency	Major & serious accident - Compensation per accident	This indicator measures average compensation paid for major and serious accident occurred. As an aspect of safety, it can be reduced thereby reducing net losses.	Total road major and serious accident compensation	Already being collected	Total no. of major or serious accidents	Already being collected	Yes	Yes	?	?	?
42	Operator	Economic Efficiency	Minor road accident - Compensation per accident	This indicator measures average compensation paid for minor road accident occurred. As an aspect of safety, it can be reduced thereby reducing net losses.	Total minor road accident compensation	Already being collected	Total no. of minor accidents	Already being collected	Yes	Yes	?	?	?
43	Operator	Economic Efficiency	Avg. fare per boarding	This indicator measures average fare per trip directly. The comparison of this indicator is still meaningful as commuters usually would not compute how long they have travelled; instead, they care more for how much they have been charged for a trip. This indicator can also be interpreted as average fare per passenger trip because of its unlinked nature in STUs.	Total traffic revenue	Already being collected	Total passengers carried	Already being collected	Yes	Yes	?	?	?
44	Operator	Economic Efficiency	Revenue per passenger	This indicator measures average money paid by each passenger for using the service. It will help consider whether or not to revise fare structure. Higher value suggests better amount drawn from passenger.	Total traffic revenue	Already being collected	Total passengers carried	Already being collected	Yes	Yes	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	S T U	Depot
45	Operator	Economic Efficiency	Farebox ratio	This indicator measures the financial viability of an operator without subsidy. A ratio above 1 suggests that the operator is able to recover its total cost from fare (traffic) revenue.	Total traffic revenue	Already being collected	Total cost	Already being collected	Yes	Yes	?	?	?
46	Operator	Economic Efficiency	Operating cost per trip	This indicator measures average cost to run a scheduled trip from origin to destination. Lower value suggests better cost efficiency.	Total Operating cost	Already being collected	Total actual trips operated	Already being collected	Yes	Yes	?	?	?
47	Operator	Economic Efficiency	Operating cost per passenger km	This indicator measures the cost required to deliver every kilometre a passenger travels. As operating cost is largely fixed (e.g. manpower cost, fuel cost) once the route and schedule are determined, a higher ridership and longer trip distance would lead to higher operational efficiency.	Total Operating cost	Already being collected	Total passenger kms	Already being collected	Yes	Yes	?	?	?
48	Operator	Economic Efficiency	Operating cost per boarding or passengers	This indicator measures the operating cost for every passenger boarding. A higher value refers to lower efficiency.	Total Operating cost	Already being collected	Total passengers carried	Already being collected	Yes	Yes	?	?	?
49	Operator	Management Efficiency	Area per bus in bus terminals	It is the ratio of total bus terminal area to the total number of buses held. This indicator suggests the area to be provided per terminal as per its functionality. This helps in calculating infrastructure required per terminal.	Bus terminal area	New type of data to be collected as	Buses held	Already being collected	Yes	Yes	?	?	?
50	Operator	Management Efficiency	Staff ratio	It is the ratio of total number of staffs employed to the number of buses on road. It includes drivers, conductors, checkers & traffic supervisory staff, workshop & maintenance, administration and others.	Total number of staffs	Already being collected	Number of buses on road	Already being collected	Yes	Yes	?	?	?
51	Operator	Management Efficiency	Average salary per employee per day	It is the ratio of total salary to the total number of employees	Already being collected				Yes	Yes	?	?	?
52	Operator	Management Efficiency	Occupancy Ratio	It is a measure of capacity utilization i.e., passengers per seat. It is the ratio of total passenger km to the total seat km. It is more suitable for intercity services i.e., where journey is longer.	Total passenger Kms	Already being collected	Total seat Kms	Already being collected	Yes	Yes	?	?	?

Key Bus Performance Indicator													
S.No.	Category	Sub-category	Indicator	Definition	Data input				Relevance		Level		
					Input 1	Status	Input 2	Status	Urban	Non - Urban	National	S T U	Depot
53	Operator	Management Efficiency	Fleet utilization (%)	It is the percentage of number of buses on road to the number of buses held by the unit	Number of Buses on road	Already being collected	Number of Buses held X 100	Already being collected	Yes	Yes	?	?	?
54	Operator	Management Efficiency	Percent seated capacity	The percentage of seated capacity (total seats as a percentage of total passenger places) is a useful indicator of service quality. A high proportion of seated passengers provides more comfort but requires more vehicles to carry a given number of passengers. Therefore, the cost per passenger is higher.	Passenger seats	Already being collected	Total carrying capacity (seats + standing spaces)	Already being collected	Yes	Yes	?	?	?
55	Operator	Management Efficiency	Manpower productivity	This indicator is a measure of employee productivity. In effect it combines the vehicle productivity and staff per bus indicators and is influenced by the same factors. It is the total effective kilometres operated for a period divided by total man days paid for	Total effective kms operated	Already being collected	Total man days paid for	Already being collected	Yes	Yes	?	?	?

12.4 Data Inputs

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
1	Total Cost (in Lakh)	7275.72	8448.49	5632.33	284.3.31	4712.02	1885.81	4117.25	1788.64	1421.65	3411.97	7275.72	1408.0.81	284.3.3	6597.82	5905.89	483.3.6	2419.9.84	17337.33
	Total operating cost (Rs in Lakh)	3628.77	3287.28	2191.52	271.1.64	4440.89	1777.36	3721.19	1616.58	1355.82	3253.97	3628.77	5478.80	271.1.6	6218.25	5337.77	460.9.7	1181.9.21	16165.81
	Personnel Cost (Rs in Lakh) per depot per year	2194.48	1965.54	1310.36	136.2.18	1971.19	788.48	1613.40	700.91	681.09	1634.61	2194.48	3275.89	136.2.1	2759.67	2314.31	231.5.7		
1.1	Drivers	550.01	418.73	279.15	327.53	493.99	197.59	343.26	149.12	163.76	393.03	550.01	697.88	327.53	691.58	492.38	556.79		
1.2	Conductors	609.37	456.14	304.09	356.79	547.29	218.92	373.93	162.44	178.39	428.14	609.37	760.23	356.79	766.21	536.37	606.53		
1.3	Traffic Supervisory	117.22	89.24	59.49	69.80	105.28	42.11	73.16	31.78	34.90	83.76	117.22	148.73	69.80	147.39	104.94	118.66		
1.4	Total Traffic Staff	1276.60	964.11	642.74	754.11	1146.56	458.62	790.35	343.35	377.06	904.94	1276.60	1606.85	754.11	1605.18	1133.69	128.1.9		
1.5	Workshop/Maintenance	357.40	523.93	349.29	213.90	321.00	128.40	429.50	186.59	106.95	256.68	357.40	873.22	213.90	449.40	616.09	363.62		
1.6	Admin & Others	191.84	146.05	97.37	257.85	172.30	68.92	119.73	52.01	128.93	309.42	191.84	243.42	257.85	241.22	171.74	438.35		
1.7	P.F. Welfare etc.	368.63	331.45	220.96	136.32	331.34	132.53	273.83	118.96	68.16	163.58	368.63	552.41	136.32	463.87	392.78	231.74		
2	Material Cost (in Lakh) per depot per year	906.35	1005.70	670.47	122.2.99	1970.93	789.37	1611.29	699.98	611.49	1467.58	906.35	1676.17	122.2.9	2760.31	2311.27	207.9.0		
2.1	Fuel	656.87	706.75	471.17	972.12	1428.41	571.37	1167.76	507.31	486.06	1166.54	656.87	1177.91	972.12	1999.78	1675.07	165.2.6		
2.2	Lubricants	17.72	31.29	20.86	17.82	38.53	15.41	31.50	13.68	8.91	21.38	17.72	52.15	17.82	53.94	45.18	30.29		
2.3	Springs	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00		
2.4	Auto Spare Parts	203.05	222.56	148.38	204.17	441.54	176.62	360.97	156.81	102.09	245.01	203.05	370.94	204.17	618.16	517.78	347.09		
2.5	Tyres & Tubes	19.12	32.59	21.73	19.22	41.57	16.63	33.98	14.76	9.61	23.07	19.12	54.32	19.22	58.20	48.75	32.68		
2.6	Batteries	3.01	4.64	3.09	3.02	6.54	2.61	5.34	2.32	1.51	3.63	3.01	7.73	3.02	9.15	7.67	5.14		
2.7	General Items	0.57	1.01	0.68	0.58	1.25	0.50	1.02	0.44	0.29	0.69	0.57	1.69	0.58	1.75	1.47	0.98		
2.8	Reconditioned Items	6.02	6.86	4.57	6.06	13.10	5.24	10.71	4.65	3.03	7.27	6.02	11.43	6.06	18.34	15.36	10.30		
3	Taxes (in Lakh) per depot per year	33.89	223.04	148.69	67.88	136.90	54.76	284.83	123.74	33.94	81.46	33.89	371.73	67.88	191.66	408.57	115.40		
3.1	M.V. Tax	17.92	26.17	17.45	67.88	136.90	54.76	284.83	123.74	33.94	81.46	17.92	43.62	67.88	191.66	408.57	115.40		
3.2	Passenger Tax	0.00	100.11	66.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	166.85	0.00	0.00	0.00	0.00		
3.3	Special Road Tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
3.4	Misc. & Other Tax	15.97	96.75	64.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.97	161.25	0.00	0.00	0.00	0.00		
4	Interest (in Lakh) per depot per year	3613.06	4938.18	3292.12	63.78	134.23	53.69	111.23	48.32	31.89	76.54	3613.06	8230.29	63.78	187.92	159.55	108.43		

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
4.1	To Central Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
4.2	To State Government	3613.06	4938.18	3292.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3613.06	8230.29	0.00	0.00	0.00	0.00		
4.3	On Borrowings	0.00	0.00	0.00	63.78	134.23	53.69	111.23	48.32	31.89	76.54	0.00	0.00	63.78	187.92	159.55	108.43		
5	Misc & Others (in Lakh) per depot per year	158.85	123.00	82.00	7.40	274.30	109.72	284.61	123.64	3.70	8.87	158.85	204.99	7.40	384.02	408.25	12.57		
6	Payment to Hired Buses	0.00	0.00	0.00	8.57	0.00	0.00	0.00	0.00	4.28	10.28	0.00	0.00	8.57	0.00	0.00	14.57		
7	Depreciation (in Lakh) per depot per year	369.09	193.05	128.70	110.52	224.47	89.79	211.89	92.05	55.26	132.62	369.09	321.75	110.52	314.26	303.94	187.88		
7.1	On Buses	343.42	175.45	116.97	100.99	205.12	82.05	193.62	84.12	50.49	121.19	343.42	292.41	100.99	287.17	277.74	171.68		
7.2	On Other Assets	25.68	17.60	11.73	9.53	19.35	7.74	18.26	7.93	4.76	11.43	25.68	29.33	9.53	27.09	26.20	16.19		
8	Total Revenue (in Lakh) per depot per year	2214.47	1938.08	1292.05	271.08	4300.28	1720.11	4059.30	1763.47	1355.54	3253.30	2214.47	3230.13	271.08	6020.39	5822.77	4608.84		
8.1	Traffic Revenue (Rs in lakh)	1827.61	1797.83	1198.55	203.89	3356.95	1342.78	3404.43	1478.98	1019.48	2446.76	1827.61	2996.38	203.89	4699.72	4883.41	3466.24	6862.96	13049.38
8.2	Reimbursement of Fare Concession	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8.3	Subsidy	109.35	0.00	0.00	548.44	899.52	359.81	488.92	212.40	274.22	658.13	109.35	0.00	548.44	1259.32	701.33	932.36		
8.4	Non-traffic Revenue	277.50	140.25	93.50	123.67	43.82	17.53	165.94	72.09	61.84	148.41	277.50	233.75	123.67	61.34	238.03	210.24		
9	Profit/Loss (in Lakh) per depot per year	-1008.86	-1279.78	-8531.85	-188.44	151.43	60.57	-226.16	-98.25	-94.22	-226.13	-1008.86	-2132.96	-188.44	212.01	-324.41	-320.35		
9.1	Surplus before tax	-5027.37	-6287.37	-4191.58	-60.28	144.17	57.67	-29.34	12.75	30.14	-72.34	-5027.37	-1047.89	-60.28	201.83	42.08	-102.48		
9.2	Profit/loss	-5061.26	-6510.41	-4340.27	-128.16	7.27	2.91	-255.50	-110.99	-64.08	-153.79	-5061.26	-1085.06	-128.16	10.17	-366.49	-217.87		
10	Financial Ratios (in Lakh) per depot																		
10.1	Total earnings per bus (on road) per day	151.34	1654.25	1102.83	376.06	260.40	104.16	83.80	36.41	188.03	451.27	151.34	2757.08	376.06	364.56	120.21	639.29	3284.48	1124.06
10.2	Total cost per bus (on road) per day	497.22	7210.75	4807.17	393.83	260.00	104.00	89.08	38.70	196.92	472.60	497.22	1201.79	393.83	364.00	127.77	669.52	1290.89	1161.29
10.3	% operating ratio	198.55	182.85	182.85	132.99	132.29	132.36	109.30	109.30	132.99	132.99	198.55	182.85	132.99	132.31	109.30	132.99	172.22	123.88
10.4	% return on capital employed	-0.72	-0.35	-0.23	1.72	-0.32	-0.13	-0.16	-0.07	-0.86	-2.06								
10.5	% return on capital invested	-0.72	-0.35	-0.23	1.16	-0.27	-0.11	-0.14	-0.06	-0.58	-1.39								
10.6	Operating cost per trip (Rs per trip)	1069.59	1818.69	1818.69	938.64	503.05	503.33	1170.15	1170.15	9386.44	9386.44	1069.59	1818.69	938.64	503.13	1170.15	938.64	1836.97	952.62
10.7	Operating cost per passenger-km (Rs per passenger-km)	1.85	1.36	1.36	0.94	0.46	0.46	0.49	0.49	0.94	0.94	1.85	1.36	0.94	0.46	0.49	0.94	1.33	0.55
10.8	Operating cost per boarding (Rs per boarding)	9.72	7.56	7.56	3.13	2.29	2.30	6.43	6.43	3.13	3.13	9.72	7.56	3.13	2.29	6.43	3.13	6.02	3.23

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
10.9	Farebox Ratio	0.25	0.21	0.21	0.72	0.71	0.71	0.83	0.83	0.72	0.72	0.25	0.21	0.72	0.71	0.83	0.72	0.28	0.75
10.10	Revenue per passenger (Rs per passenger)	4.90	4.14	4.14	2.35	1.73	1.73	5.89	5.89	2.35	2.35	4.90	4.14	2.35	1.73	5.89	2.35	3.49	2.60
10.11	Total road accident compensation (Rs in Lakh)	4.33	88.79	59.19	22.19	395.30	158.12	74.59	32.40	11.09	26.62	4.33	147.98	22.19	553.42	106.99	37.71	174.49	698.13
10.12	Fatal accident compensation (in Lakh)	0.87	17.76	11.84	4.44	79.06	31.62	14.92	6.48	2.22	5.32								
10.13	Major or serious accident compensation (Rs in Lakh)	1.30	26.64	17.76	6.66	118.59	47.44	22.38	9.72	3.33	7.99	1.30	44.39	6.66	166.03	32.10	11.31	52.35	209.44
10.14	Minor accident compensation (in Lakh)	2.17	44.39	29.60	11.09	197.65	79.06	37.29	16.20	5.55	13.31	2.17	73.99	11.09	276.71	53.49	18.86	87.25	349.06
10.15	Compensation per accident (lakhs Rs per accident)	0.69	59.19	88.79	6.44	16.97	16.97	4.73	4.73	6.44	6.44	0.69	68.30	6.44	16.97	4.73	6.44	14.63	11.42
11	Utilization of Fleet																		
11.1	Buses held (Count)	141.46	69.00	46.00	112.44	245.80	98.32	126.79	55.08	56.22	134.93	141.46	115.00	112.44	344.12	181.87	191.16	368.91	717.15
11.2	Diesel	70.73	34.50	23.00	56.22	122.90	49.16	63.40	27.54	28.11	67.47								
11.2.1	Fleet age < 8 years	28.29	13.80	9.20	22.49	49.16	19.66	25.36	11.02	11.24	26.99	28.29	23.00	22.49	68.82	36.37	38.23	73.78	143.43
11.2.2	Fleet age 8-10 years	21.22	10.35	6.90	16.87	36.87	14.75	19.02	8.26	8.43	20.24	21.22	17.25	16.87	51.62	27.28	28.67	55.34	107.57
11.2.3	Fleet age >10-12 years	21.22	10.35	6.90	16.87	36.87	14.75	19.02	8.26	8.43	20.24	21.22	17.25	16.87	51.62	27.28	28.67	55.34	107.57
11.3	CNG	70.73	34.50	23.00	56.22	122.90	49.16	63.40	27.54	28.11	67.47								
11.3.1	Fleet age < 8 years	28.29	13.80	9.20	22.49	49.16	19.66	25.36	11.02	11.24	26.99	28.29	23.00	22.49	68.82	36.37	38.23	73.78	143.43
11.3.2	Fleet age 8-10 years	21.22	10.35	6.90	16.87	36.87	14.75	19.02	8.26	8.43	20.24	21.22	17.25	16.87	51.62	27.28	28.67	55.34	107.57
11.3.3	Fleet age >10-12 years	21.22	10.35	6.90	16.87	36.87	14.75	19.02	8.26	8.43	20.24	21.22	17.25	16.87	51.62	27.28	28.67	55.34	107.57
11.4	Electric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
11.4.1	Fleet age < 8 years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.4.2	Fleet age 8-10 years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.4.3	Fleet age >10-12 years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	% of vehicles complying to BSIV or above & BS VI or above																		
12.1	Vehicles complying less than BS-IV	56.59	27.60	18.40	44.98	98.32	39.33	50.72	22.03	22.49	53.97	56.59	46.00	44.98	137.65	72.75	76.46	147.56	286.86
12.2	Vehicles complying BS-IV	42.44	20.70	13.80	33.73	73.74	29.50	38.04	16.52	16.87	40.48	42.44	34.50	33.73	103.24	54.56	57.35	110.67	215.14
12.3	Vehicles complying BS-VI and above	42.44	20.70	13.80	33.73	73.74	29.50	38.04	16.52	16.87	40.48	42.44	34.50	33.73	103.24	54.56	57.35	110.67	215.14
12.4	Buses off road (Count)	23.22	1.00	0.67	2.39	13.85	5.54	4.11	1.79	1.19	2.87	23.22	1.67	2.39	19.39	5.90	4.06	27.28	29.35
12.5	Number of spare buses (Count)	0.22	73.50	49.00	0.11	1.15	0.46	4.10	1.78	0.06	0.13								

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
12.6	Buses on road (numbers)	118.24	68.00	45.33	110.06	231.95	92.78	122.68	53.30	55.03	132.07	118.24	113.33	110.06	324.73	175.97	187.09	341.63	687.80
12.7	Fleet Utilization (%)	83.59%	98.55%	98.55%	97.88%	94.37%	94.37%	96.76%	96.76%	97.88%	97.88%	83.59%	0.99	98%	94%	97%	98%	93%	96%
12.8	Scheduled services	123.15	99.75	66.50	178.33	230.90	92.36	121.33	52.71	89.17	214.00								
12.9	Scheduled kms. (in lakh)	99.70	66.55	44.37	91.90	260.86	104.34	230.14	99.98	45.95	110.28								
12.10	Effective Km (in lakh)	85.28	60.44	40.29	90.43	228.25	91.30	180.47	78.40	45.21	108.51	85.28	100.73	90.43	319.56	258.87	153.73	276.44	732.15
12.11	Eff kms operated in a day (in lakhs)	0.23	0.17	0.11	0.25	0.63	0.25	0.49	0.21	0.12	0.30								
12.12	Dead Km (in lakh)	1.66	0.00	0.00	1.47	1.81	0.72	1.19	0.52	0.74	1.76	1.66	0.00	1.47	2.54	1.71	2.50	3.13	6.75
12.13	Gross Km (in lakh)	86.94	60.44	40.29	91.90	230.07	92.03	181.66	78.92	45.95	110.28	86.94	100.73	91.90	322.09	260.58	156.23	279.57	738.90
12.14	Cancelled kms (in lakh)	14.42	6.11	4.07	0.08	19.17	7.67	10.93	4.75	0.04	0.10								
12.15	Average Bus utilization (Km/day)	197.59	243.51	243.51	225.11	269.61	269.61	403.03	403.03	225.11	225.11	197.59	243.51	225.11	269.61	403.03	225.11	221.69	291.64
13	Quality of Service																		
13.1	No. of breakdowns (number) annual	2065.51	803.50	535.67	178.33	246.95	98.78	129.76	56.37	89.17	214.00	2065.51	1339.17	178.33	345.73	186.14	303.17	3583.01	835.03
13.2	Breakdown per 10,000 eff. kms. (number)	0.41	0.75	0.75	5.07	9.24	9.24	13.91	13.91	5.07	5.07	0.41	0.75	5.07	9.24	13.91	5.07	0.77	8.77
14	Capacity Utilization																		
14.1	Seating capacity (number)	48.00	48.00	48.00	44.00	44.36	44.36	48.52	48.52	44.00	44.00	48	48.00	44.00	44.36	48.52	44.00		
14.2	No. of Standees (number)	20.00	20.00	20.00	12.00	10.09	10.09	18.00	18.00	12.00	12.00	20	20.00	12.00	10.09	18.00	12.00		
14.3	Seat Kms (in lakhs)	2563.17	2498.09	1665.39	3978.82	11392.88	4557.15	10881.86	4727.37	1989.41	4774.59	2563.17	4163.48	3978.82	15950.04	15609.22	6764.00	10705.47	38323.26
14.4	Carrying capacity Km (Lakhs)	3847.80	3706.89	2471.26	5063.96	13984.28	5593.71	10881.86	4727.37	2531.98	6076.75	3847.80	6178.15	5063.96	19577.99	15609.22	8608.72	15089.90	43795.94
14.5	Passenger Kms (lakhs)	1962.97	2421.15	1614.10	2886.45	9732.10	3892.84	7615.39	3308.33	1443.23	3463.75	1962.97	4035.25	2886.45	13624.94	10923.72	4906.97	8884.67	29455.64
14.6	Occupancy Ratio	0.77	0.97	0.97	0.73	0.85	0.85	0.70	0.70	0.73	0.73	0.77	0.97	0.73	0.85	0.70	0.73	0.83	0.77
14.7	% Load factor	51.02	65.31	65.31	57.00	69.59	69.59	69.98	69.98	57.00	57.00	51.02	65.31	57.00	69.59	69.98	57.00	58.88	67.26
14.8	Passenger lead (in KM)	5.26	11.14	11.14	101.53	10.05	10.05	26.33	26.33	101.53	101.53								
14.9	Passengers carried (in lakhs)	373.33	434.72	289.81	865.94	1935.87	774.35	578.40	251.27	432.97	1039.12	373.33	724.53	865.94	2710.2222	829.68	1472.09	1963.79	5011.99
14.10	Passengers per bus (on road) per day (numbers)	863.00	873.00	873.00	84.00	638.00	638.00	638.00	638.00	84.00	84.00								
14.11	Annual ridership per bus (lakhs passenger per bus)	3.16	6.39	6.39	7.87	8.35	8.35	4.71	4.71	7.87	7.87								
14.12	Passenger trips per effective vehicle km (Trips/eff. Veh km)	4.38	7.19	7.19	9.58	8.48	8.48	3.21	3.21	9.58	9.58	4.38	7.19	9.58	8.48	3.21	9.58	7.10	6.85
14.13	Avg. passenger-km per vehicle-km	23.02	40.06	40.06	31.92	0.04	42.64	42.20	42.20	31.92	31.92	23.02	40.06	31.92	42.64	42.20	31.92	32.14	40.23

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
14.14	Annual ridership per bus station (Lakhs passenger per bus station)											0.47	1.11	5.59	9.03	2.48	10.51	1.23	6.47
14.15	Passenger per effective vehicle km	4.38	7.19	7.19	9.58	8.48	8.48	3.21	3.21	9.58	9.58	4.38	7.19	9.58	8.48	3.21	9.58	7.10	6.85
15	Manpower Productivity																		
15.1	Staff ratio per bus	8.00	7.15	7.15	4.29	6.67	6.67	7.13	7.13	4.29	4.29	8.00	7.15	4.29	6.67	7.13	4.29	6.52	6.14
15.2	Traffic Staff	945.76	486.25	324.17	471.78	1547.25	618.90	874.25	379.80	235.89	566.13	945.76	810.42	471.78	2166.15	1254.04	802.02	2227.95	4222.21
15.2.1	Drivers	362.00	165.00	110.00	161.28	628.70	251.48	329.58	143.18	80.64	193.53	362.00	275.00	161.28	880.18	472.77	274.17	798.28	1627.12
15.2.2	Conductors	365.51	165.00	110.00	162.39	653.35	261.34	318.50	138.36	81.19	194.87	365.51	275.00	162.39	914.69	456.86	276.06	802.90	1647.62
15.2.3	Checkers & Traffic Supervisory Staff	42.39	33.00	22.00	9.50	63.40	25.36	42.84	18.61	4.75	11.40	42.39	55.00	9.50	88.76	61.45	16.15	106.89	166.36
15.2.4	Workshop & Maintenance Staff	120.20	57.25	38.17	90.11	167.90	67.16	129.60	56.30	45.06	108.13	120.20	95.42	90.11	235.06	185.91	153.19	305.72	574.16
15.2.5	Administration	55.66	66.00	44.00	34.44	32.70	13.08	46.95	20.40	17.22	41.33	55.66	110.00	34.44	45.78	67.35	58.56	200.10	171.69
15.2.6	Others	0.00	0.00	0.00	14.06	1.20	0.48	6.76	2.94	7.03	16.87	0.00	0.00	14.06	1.68	9.70	23.89	14.06	35.28
	Total Man days paid for	948.21	484.46	322.97	473.07	4776.42	1910.57	1258.81	546.86	236.54	567.69	948.21	807.44	473.07	6686.99	1805.67	804.22	2228.71	9296.89
15.3	Manpower Productivity	24.64	34.18	34.18	52.37	13.09	13.09	39.28	39.28	52.37	52.37	24.64	34.18	52.37	13.09	39.28	52.37	33.98	21.58
15.4	Avg. salary/employee/day	778.97	778.97	778.97	886.63	593.09	593.09	593.09	593.09	886.63	886.63	778.97	778.97	886.63	593.09	593.09	886.63	814.86	690.94
15.5	Eff. kms/crew member/day	32.81	32.81	32.81	76.33	68.62	68.62	68.62	68.62	76.33	76.33								
16	Operational Information																		
16.1	Total No. of Schedules (annually)	20.32	275.25	183.50	178.33	24.50	9.80	33.41	14.51	89.17	214.00								
16.2	Classification of schedules																		
16.2.1	Earning more than total cost (no.)	0.39	54.25	36.17	8.28	1.60	0.64	5.31	2.31	4.14	9.93								
16.2.2	Earning between total & variable cost (no.)	19.80	217.50	145.00	60.11	13.50	5.40	14.03	6.09	30.06	72.13								
16.2.3	Earning less than variable cost (no.)	0.12	3.50	2.33	109.94	9.40	3.76	14.07	6.11	54.97	131.93								
16.3	No. of depots (numbers)	41.00	2.00	3.00	6.00	10.00	25.00	53.00	122.00	12.00	5.00	41.00	5.00	6.00	35.00	175.00	17.00	52.00	227.00
16.4	No. of Bus Stations or terminals (numbers)	STU wise				STU wise						795.00	650.00	155.00	300.00	335.00	140.00	1600.00	775.00
16.5	Total no. of routes (numbers)	13.32	5.25	3.50	113.61	82.35	32.94	60.08	26.10	56.81	136.33	13.32	8.75	113.61	115.29	86.17	193.14	135.68	394.60
16.6	Average route length (in KM)	28.40	42.80	42.80	60.00	13.06	13.06	126.60	126.60	60.00	60.00	28.40	42.80	60.00	13.06	126.60	60.00	43.73	66.55
16.7	Total Route Length (in KM)	378.20	224.70	149.80	681.667	1075.49	430.20	7605.55	3304.05	3408.33	8180.00	378.20	374.50	681.667	1505.69	10909.61	88.33	5933.66	26262.13
16.8	% of total kms	93.53	6.47	6.47	100.00	15.90	15.90	66.62	66.62	100.00	100.00								
16.9	No. of Bus Shelters or Stops (numbers)	3275.10	109.17	254.73	3.60	95.93	223.84	468.37	1092.86	6.00	2.40	3275.10	363.90	3.60	319.77	1561.23	8.40	3642.60	1889.40

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
17	Material Performance																		
17.1	Total HSD consumed (kiloliters)	3013.43	2094.97	1396.65	3185.38	4631.00	1852.40	5351.48	5701.87	1270.89	3050.13	3013.43	3491.62	3185.38	6483.40	11053.35	4321.02	9690.43	21857.77
17.2	Total CNG consumed (Kg)	6500.00	0.00	5900.00	0.00	0.00	0.00	8800.00	7200.00	0.00	0.00	6500.00	5900.00	0.00	0.00	16000.00	0.00	1240.00	16000.00
17.3	Total Electricity consumed (KWh)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17.4	KMPL Kiloliters	2.90	3.93	3.93	0.00	4.73	0.00	0.00	4.73	0.00	0.00	2.90	3.93	0.00	2.37	2.37	0.00	2.28	1.58
17.5	CNG km per kg	0.00	0.00	0.00	3.30	0.00	2.41	2.62	0.00	3.93	2.97	0.00	0.00	3.30	1.21	1.31	3.45	1.10	1.99
17.6	Electricity kwh per km	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17.7	Engine oil top-up (kilolitres)	27.82	634.70	423.13	68.06	213.56	85.43	181.59	78.89	34.03	81.67								
17.8	Engine oil KMPL	57.76	764.50	509.67	22.89	49.30	19.72	12.86	5.59	11.44	27.47								
17.9	Battery life (Months)	24.00	42.00	42.00	38.00	24.00	24.00	40.00	40.00	38.00	38.00								
17.10	Gearbox oil (in Kilolitres)																		
17.10.1	Top up	0.07	0.19	0.13	0.02	0.30	0.12	0.01	0.00	0.01	0.03								
17.10.2	Oil Change	0.22	1.14	0.76	0.07	0.91	0.36	0.04	0.02	0.04	0.09								
17.11	Engine Life (in Lakh KM)																		
17.11.1	New	0.12	1.88	1.25	0.08	0.35	0.14	0.07	0.03	0.04	0.10								
17.11.2	Reconditioned (R/C)	0.02	0.87	0.58	0.04	0.16	0.07	0.03	0.01	0.02	0.05								
17.12	Fuel injection pump life (in Lakh KM)																		
17.12.1	New	0.11	1.12	0.74	0.07	0.22	0.09	0.04	0.02	0.03	0.08								
17.12.2	R/C	0.05	0.55	0.36	0.03	0.11	0.05	0.02	0.01	0.02	0.04								
17.13	Piston assembly life (in Lakh KM)	0.12	0.93	0.62	0.08	0.19	0.07	0.04	0.02	0.04	0.10								
17.14	Engine oil used /oil change (in Lakh KM)	27.82	634.70	423.13	68.06	213.56	85.43	181.59	78.89	34.03	81.67								
17.15	New tyres consumed/lakh KM (rate)	2.74	4.42	4.42	6.57	3.32	3.32	3.44	3.44	6.57	6.57	2.74	8.84	6.57	6.64	6.88	13.14	18.15	27
17.16	Spring/lakh km (in KG)	50.00	47.47	47.47	98.00	31.00	31.00	54.00	54.00	98.00	98.00							144.00	120
17.17	Retreaded tyres consumed/lakh KM (rate)	4.69	14.64	14.64	34.46	7.43	7.43	8.75	8.75	34.46	34.46							12.32	11.24
17.18	Differential oil (in litres)																		

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
17.18.1	Top up	425.61	1104.00	736.00	19.44	872.50	349.00	41.66	18.10	9.72	23.33								
17.18.2	Oil Change	1364.15	6103.75	4069.17	84.44	2796.50	1118.60	230.33	100.06	42.22	101.33								
17.19	Crown wheel & pinion life (in Lakh KM)	0.12	0.43	0.29	0.04	0.48	0.19	0.02	0.01	0.02	0.05								
17.20	Gearbox life (in Lakh KM)																		
17.20.1	New	0.08	2.01	1.34	0.06	0.34	0.14	0.08	0.03	0.03	0.07								
17.20.2	R/C	0.02	0.94	0.62	0.02	0.14	0.06	0.04	0.02	0.01	0.03								
17.21	Clutch plate life (in Lakh KM)	0.01	0.04	0.75	0.03	0.03	0.01	0.06	0.03	0.02	0.04								
18	Quality of Service																		
18.1	Trips to be operated (lakhs per year)	4.69	1.96	1.31	0.55	9.22	3.69	3.32	1.44	0.55	0.55	4.69	3.26	0.55	12.90	4.76	1.10	8.50	18.76
18.2	Actual trips operated (lakhs per year)	3.39	1.81	1.21	0.03	8.83	3.53	3.18	1.38	0.01	0.03	3.39	3.01	0.03	12.36	4.56	0.05	6.43	16.97
18.3	Regularity (%)	72%	92%	92%	95%	96%	96%	96%	96%	95%	95%								
18.4	Punctuality																		
18.5	Departure (%)	97.44%	94.00%	94.00%	96.70%	96.65%	97.69%	96.08%	97.42%	96.70%	96.70%	97.44%	94.00%	96.70%	97.17%	96.75%	96.70%	96%	97%
18.6	Arrival (%)	97.42%	94.50%	94.50%	97.00%	97.45%	97.27%	95.14%	98.19%	97.00%	97.00%	97.42%	94.50%	97.00%	97.36%	96.67%	97.00%	96%	97%
18.7	Fatal accidents (numbers)	1.73	0.50	0.33	0.17	8.55	3.42	5.25	2.28	0.08	0.20	1.73	0.83	0.17	11.97	7.54	0.28	2.73	19.79
18.8	Major & serious accidents (number)	0.54	0.50	0.33	0.78	7.85	3.14	6.22	2.70	0.39	0.93	0.54	0.83	0.78	10.99	8.92	1.32	2.15	21.23
18.9	Minor accidents (numbers)	4.05	0.50	0.33	2.50	6.90	2.76	4.31	1.87	1.25	3.00	4.05	0.83	2.50	9.66	6.18	4.25	7.38	20.09
18.10	Total Accidents (numbers)	6.32	1.50	0.67	3.44	23.30	9.32	15.78	6.86	1.72	4.13	6.32	2.17	3.44	32.62	22.64	5.86	11.93	61.12
18.11	Accidents per lakh eff. kms.	0.002	0.01	0.003	0.002	0.01	0.002	0.001	0.000	0.001	0.003	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.01
18.12	No. of person injured (annually)	6.63	0.50	0.33	14.00	19.55	7.82	19.96	8.67	7.00	16.80								
18.13	No. of fatalities (annually)	1.83	1.00	0.67	12.17	18.50	7.40	12.19	5.30	6.08	14.60	1.83	1.67	12.17	25.90	17.48	20.68	15.66	64.07
18.14	No. of public complaints (annually)	50.84	1042.25	694.83	242.06	274.60	109.84	51.81	22.51	121.03	290.47								
18.15	Accidents per day	0.02	0.00	0.00	0.01	0.06	0.03	0.04	0.02	0.00	0.01								
18.16	Fatal Accidents per day	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00								
18.17	Fatal Accidents per lakh vehicle km per year	0.02	0.01	0.01	0.00	0.04	0.04	0.03	0.03	0.00	0.00	0.020	0.01	0.02	0.037	0.029	0.00	0.01	0.03
18.18	Fatalities per lakh passenger per year	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.01	0.01								
18.19	Injuries per lakh passengers	0.02	0.00	0.00	0.02	0.01	0.01	0.03	0.03	0.02	0.02								

S.n o.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2	
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly			
18.20	Average fare per passenger-km (Rs per passenger km)	0.93	0.74	0.74	0.71	0.34	0.34	0.45	0.45	0.71	0.71	0.93	0.74	0.71	0.34	0.45	0.71	0.77	0.44	
18.21	Avg. fare per boarding (Rs per boarding)	4.90	4.14	4.14	2.35	1.73	1.73	5.89	5.89	2.35	2.35	4.90	4.14	2.35	1.73	5.89	2.35	3.49	2.60	
18.22	Access / Egress Time (min)	6.35	6.30	4.90	5.90	6.35	5.30	5.90	5.50	5.86	6.20									
18.23	Access / Egress Distance (in km)	0.51	0.60	0.70	0.50	0.51	0.30	0.46	0.50	0.40	0.60									
18.24	Average Passenger Waiting Time (min)	6.20	5.50	7.00	6.00	8.90	8.00	8.00	7.50	5.00	11.00									
18.25	Average Passenger Transit Time (min)	24.00	22.00	21.00	28.00	25.00	30.00	30.00	32.00	25.00	22.00									
18.26	No. of transfers (count)	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00									
18.27	Informative bus stops (number)	10.00	7.00	9.00	5.00	12.00	9.00	10.00	12.00	6.00	6.00	10.00	16.00	5.00	21.00	22.00	12.00	31.00	55.00	
18.28	Average Headway (min)	29.43	70.03	113.13	232.61	4.10	11.83	68.14	169.93	232.61	232.61									
18.29	Buses per lakh population (number)	0.71	0.41	0.27	0.66	1.38	0.55	0.73	0.32	0.33	0.79							2.04	1.38	
18.30	Density of Bus Route (km per sq km)	1.13	1.68	1.68	1.34	1.45	1.58	1.80	1.60	1.98	1.25							3.98	0.11	
19	Environment																			
19.1	Noise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
19.2	Emissions																			
19.3	CO	26519.99	30942.74	31488.44	30976.00	29222.72	30771.45	33060.78	26570.00	25678.00	28764.00									
19.4	CO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
19.5	NOx	52170.48	60870.96	61944.48	61256.00	57487.32	60534.00	65037.60	67098.00	56734.00	54321.00									
19.6	HC	7651.67	8927.74	9085.19	6789.00	8431.47	8878.32	9538.85	8767.00	7987.00	8790.00									
19.7	PM	1130.36	1318.87	1342.13	1578.00	1245.56	1311.57	1409.15	1340.00	1567.00	1276.00									
19.8	SOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
19.9	VOCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
20	Informative Terminals	STU wise				STU wise						15.00	15.00	8.00	18.00	20.00	12.00	38.00	50.00	
21	Low floor buses	25.00	8.00	6.00	4.00	18.00	14.00	7.00	8.00	6.00	5.00	25.00	14.00	4.00	32.00	15.00	11.00	43.00	50.00	
22	STU Population (in lakhs)	STU wise				STU wise						167.50			497.00			167.50	497.00	
23	STU Area (sq.km)	STU wise				STU wise						1490.36			240928.00			1490.36	240928.00	
24	STU Road Network (km)	STU wise				STU wise						58655.00			359456.00			58655.00	359456.00	
25	STU Road Network URBAN (km)	STU wise				STU wise						29087.00			76475.00			29087.00	76475.00	

S.no.	Inputs	STU 1				STU 2						STU1			STU2			STU 1	STU 2
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly		
26	STU Road Network NON-URBAN (km)	STU wise				STU wise						29087.00			87350.00			29087.00	87350.00
27	STU Road Network SH (km)	STU wise				STU wise						0.00			7876.00			0.00	7876.00
28	STU Road Network NH (km)	STU wise				STU wise						0.00			7818.00			0.00	7818.00
29	STU Road Network ODR/MDR (km)	STU wise				STU wise						481.00			179937.00			481.00	179937.00
30	Depot area	2051.20	1000.50	6670.00	163.04	3564.10	1425.64	1838.91	7986.89	8152.22	1956.53	2051.20	1667.50	163.04	4989.74	26371.79	277.17	5349.16	10398.67
31	Total HSD consumed (kiloliters) in previous year	4151.85	2917.79	1945.20	443.28	4631.00	1852.40	3351.48	4301.87	1270.89	3050.13	4151.85	2431.49	443.28	3241.70	3826.68	216.05	3672.07	3076.30
32	Total CNG consumed (Kg) in previous year	5500.00	0.00	4900.00	0.00	0.00	0.00	6800.00	5800.00	0.00	0.00	5500.00	2450.00	0.00	0.00	6300.00	0.00	2650.00	2100.00
33	Total Electricity consumed (KWh) in previous year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	Gross Km (in lakh) in previous year	78.26	55.00	36.67	83.56	208.82	83.61	165.25	71.66	41.78	100.31	78.26	91.67	83.56	292.43	236.91	142.09	253.49	671.43
35	Dead Km (in lakh) in previous year	0.66	0.00	0.00	1.27	1.11	0.52	1.02	0.32	0.64	1.56	0.66	0.00	1.27	1.64	1.34	2.20	1.93	5.18
36	Effective kms in previous year (in lakhs)	77.60	55.00	36.67	82.29	207.71	83.08	164.22	71.34	41.14	98.75	77.60	91.67	82.29	290.80	235.57	139.89	251.56	666.26
37	Buses held in previous year (number)	130.15	63.48	42.32	103.45	226.14	90.45	116.65	50.68	51.72	124.14	130.15	105.80	103.45	316.59	167.32	175.86	339.40	659.78
38	New tyres consumed per lakh kms in 2015	2.35	3.79	3.79	5.63	2.85	2.85	2.95	2.95	5.63	5.63	2.35	7.58	5.63	5.69	5.90	11.27	15.56	23
39	New tyres consumed per lakh kms in 2016	2.47	3.99	3.99	5.93	3.00	3.00	3.10	3.10	5.93	5.93	2.47	7.98	5.93	5.99	6.21	11.86	16.38	24
40	New tyres consumed per lakh kms in 2017	2.60	4.20	4.20	6.24	3.15	3.15	3.27	3.27	6.24	6.24	2.60	8.40	6.24	6.31	6.54	12.48	17.24	25
41	Terminal Site Area (sq.m)	STU wise				STU wise						5400.00	4560.00	454.00	1198.00	121809.80	916.12	1450.00	33331.20
42	Depot Site Area (sq.m)	2051.20	1000.50	6670.00	163.04	3564.10	1425.64	1838.91	7986.89	8152.22	1956.53	2051.20	1667.50	163.04	4989.74	26371.79	277.17	5349.16	10398.67
43	Average Bus operational hours (hours)	16.00	13.00	14.00	8.00	13.00	15.00	12.00	13.00	8.00	8.00	16.00	13.50	8.00	14.00	12.50	8.00	12.50	11.50

Depot Level Data Input Form

Generic Details - 1

Name of State		Year	<i>Note: It should be Financial Year</i>
Name of STU		Category	Urban / Non-Urban / Hilly (choose one only)
Name of Depot		Location of Depot (address and Latitude and Longitude)	

Cost And Revenue - 2

S. No	Parameter	Range	Units	Information for chosen category	Priority indicators
1	Total operating cost	0-10000	Rs in lakhs	Please fill the annual operating cost without taxes and interests per depot per year (i.e., Total cost - Taxes - Interests)	
2	Drivers	0-600	Rs in lakhs	Please fill total annual salary of all drivers in a depot	
3	Conductors	0-600	Rs in lakhs	Please fill total annual salary of all conductors in a depot	
4	Traffic Supervisory	0-300	Rs in lakhs	Please fill total annual salary of traffic supervisory in a depot	
5	Total Traffic Staff	0-1500	Rs in lakhs	It is the total annual salary of traffic staff which includes annual salary of drivers, conductors and traffic supervisory (i.e., addition of drivers + conductors + traffic supervisory) in a depot	97%
6	Workshop/Maintenance	0-600	Rs in lakhs	It is the cost of workshop and maintenance expenses in a depot	97%
7	Admin & Others	0-500	Rs in lakhs	It is the cost of other administrative expenses in a depot	97%
8	P.F. Welfare etc.	0-400	Rs in lakhs	It is the total cost of all the benefits given to the staff in a depot	
9	Personnel Cost	0-3000	Rs in lakhs	This should be filled per depot per year. It is the total annual cost of Drivers, conductors, traffic supervisory, workshop/maintenance, admin and others and P.F. Welfare (i.e. drivers + conductors + traffic supervisory + workshop and maintenance + admin & others + P.F. welfare)	100%
10	Fuel	0-2000	Rs in lakhs	Please fill the annual expenditure on fuel in a depot	
11	Lubricants	0-100	Rs in lakhs	Please fill the annual expenditure on lubricants in a depot	
12	Springs	0-100	Rs in lakhs	Please fill the annual expenditure on springs in a depot	
13	Auto Spare Parts	0-250	Rs in lakhs	Please fill the annual expenditure on auto spare parts in a depot	
14	Tyres & Tubes	0-250	Rs in lakhs	Please fill the annual expenditure on tyres & tubes in a depot	
15	Batteries	0-100	Rs in lakhs	Please fill the annual expenditure on batteries in a depot	
16	General Items	0-100	Rs in lakhs	Please fill the annual expenditure on general items in a depot	
17	Reconditioned Items	0-100	Rs in lakhs	Please fill the annual expenditure on lubricants in a depot	
18	Material Cost	0-3000	Rs in lakhs	This should be filled per depot per year. (It is the addition of the cost of fuel + lubricants + springs + auto spare parts + tyre & tubes + batteries + general items + reconditioned items)	100%
19	M.V. Tax	0-500	Rs in lakhs	Please fill annual cost of motor vehicle tax in a depot	
20	Passenger Tax	0-300	Rs in lakhs	Please fill annual cost of passenger tax in a depot	
21	Special Road Tax	0-300	Rs in lakhs	Please fill annual cost of special road tax in a depot	
22	Misc. & Other Tax	0-400	Rs in lakhs	Please fill annual cost of misc. & other tax in a depot in a depot	
23	Taxes	0-1500	Rs in lakhs	Please fill annual cost of all taxes in a depot (i.e., M.V Tax + Passenger tax + special road tax + misc.& other tax)	97%
24	To Central Government	0-500	Rs in lakhs	Please fill the annual interest to central government in a depot	
25	To State Government	0-5000	Rs in lakhs	Please fill the annual interest to state government in a depot	
26	On Borrowings	0-1000	Rs in lakhs	Please fill the annual interest on borrowings in a depot	
27	Interest	0-6500	Rs in lakhs	It is the total annual interest from State & Central government and on borrowings in a depot	83%
28	Misc & Others	0-1000	Rs in lakhs	Please fill any other annual miscellaneous cost (if any) in a depot	97%
29	Payment to Hired Buses	0-500	Rs in lakhs	Please fill the total annual cost of hired buses in a depot	
30	Depreciation on Buses	0-600	Rs in lakhs	Please fill annual depreciation value on buses in a depot	
31	Depreciation on other Assets	0-400	Rs in lakhs	Please fill annual depreciation value on other assets in a depot	
32	Total Depreciation	0-1000	Rs in lakhs	This is the total annual cost of depreciation on buses and any other asset in a depot	
33	Total Cost	0-18000	Rs in lakhs	Please fill the addition of all annual cost which includes total Personnel cost, Material cost, Taxes, Interests, Miscellaneous, payment to Hired buses and Depreciation (i.e., addition of personnel cost + material cost + taxes + interest + misc. & others + payment to hired buses + depreciation) in a depot	
34	Traffic Revenue	0-5000	Rs in lakhs	Please fill annual traffic revenue generated in a depot	100%
35	Reimbursement of Fare Concession	0-1000	Rs in lakhs	Please fill annual reimbursement of fare concession given to the depot	
36	Subsidy	0-1000	Rs in lakhs	Please fill annual subsidy provided to the depot	
37	Non-traffic Revenue	0-500	Rs in lakhs	Please fill annual non-traffic revenue generated in a depot	97%
38	Total Revenue	0-7500	Rs in lakhs	It is the sum total of revenue generated in a depot. It includes annual traffic revenue + reimbursement of fare concession + subsidy + Non-traffic revenue	
39	Surplus before tax	-10000 to 10000	Rs in lakhs	Please fill the amount of annual surplus before tax in a depot	100%
40	Profit / loss	-10000 to 10000	Rs in lakhs	Please fill the annual amount of profit/loss in a depot	100%

41	Profit / Loss per depot	-20000 to 20000	Rs in lakhs	It is the sum total of annual surplus before tax + profit/loss of a depot	
42	Financial Ratios				
42.1	Total earnings per bus (on road) per day	0-5000	Rs in lakhs	Please write the total annual earnings per bus (on road buses = fleet held - back up buses) and then divide it by 365 in a depot	100%
42.2	Total cost per bus (on road) per day	0-10000	Rs in lakhs	Please write the total annual cost per bus (on road buses = fleet held - back up buses) and then divide it by 365 in a depot	100%
42.3	% operating ratio	0-1000	Ratio	Please calculate it by dividing (total annual operating cost by traffic revenue) x 100 in a depot	100%
42.4	% return on capital employed	-500 to 500	%	It is calculated by dividing (net profit + interest paid on capital + interest paid on short and long term loans - interest earned on investment) to the capital employed in a depot	
42.5	% return on capital invested	-500 to 500	%	It is calculated by dividing (net profit + interest paid on capital + long term loans) to the capital invested in a depot	
42.6	Operating cost per passenger	0-200	Rs	It can be calculated as total annual operating cost divided by Passengers carried in a depot	
42.7	Operating cost per passenger-km	0-200	Rs per passenger-km	It can be calculated as total annual operating cost divided by Passenger km in a depot	
42.8	Operating cost per boarding	0-200	Rs per boarding	It can be calculated as total annual operating cost divided by Passengers carried in a depot	
42.9	Farebox Ratio	0-1	Ratio	It can be calculated as annual traffic revenue divided by total annual cost in a depot	
42.10	Revenue per passenger	0-10	Rs per passenger	It can be calculated by dividing traffic revenue to the passengers carried in a depot	
42.11	Total road accident compensation	0-500	Rs in lakhs	Please fill the annual amount given as compensation for road accidents in a depot	
42.12	Fatal accident compensation	0-200	Rs in lakhs	Please fill the annual amount given as compensation for fatal accidents in a depot	
42.13	Major or serious accident compensation	0-250	Rs in lakhs	Please fill the annual amount given as compensation for major and serious accidents in a depot	
42.14	Minor accident compensation	0-250	Rs in lakhs	Please fill the annual amount given as compensation for minor accidents in a depot	
42.15	Compensation per accident	0-200	lakhs Rs per accident	It can be calculated by dividing total road accident compensation to the total road accidents in a depot	

Administrative Details - 3

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Staff ratio per bus	0-10	number	It is the ratio of the total staff employed per bus to the number of buses on road in a depot	100%
2	Drivers	0-1000	number	Please fill the total number of drivers employed in a depot	
3	Conductors	0-1000	number	Please fill the total number of conductors employed in a depot	
4	Checkers & Traffic Supervisory Staff	0-750	number	Please fill the total number of checkers & traffic supervisory employed in a depot	
5	Workshop & Maintenance Staff	0-750	number	Please fill the total number of workshop & maintenance staff employed in a depot	
6	Administration	0-750	number	Please fill the total number of administrative staff employed in a depot	
7	Others	0-750	number	Please fill the total number of other staff members employed in a depot	
8	Traffic Staff	0-5000	number	Total number of traffic staff (it is the addition of total number of drivers, conductors, checkers & traffic supervisory & workshop and maintenance staff, administration and others) in a depot	
9	Manpower Productivity	0-200	kms per man day	Please fill total number of traffic staff per daily operational km. In order to obtain daily operational kms, divide the total operational kms by 365 in a depot	92%
10	Avg. salary / employee / day	0-1000	rupees	Please calculate the average salary of all the employees and then convert it into daily average salary by dividing it by 365 in a depot	94%
11	Eff. Kms / crew member / day	0-200	km / member / day	Please calculate daily effective kms per crew member by dividing annual eff. kms with 365 (where total effective kms = gross km minus dead kms) and crew members includes drivers & conductors in a depot	89%

Operational Characteristic - 4

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Buses held (Count)	0-500	Count	Please fill the total number of buses in a depot including Diesel, CNG and Electric	100%
1.1	Diesel				
1.1.1	Fleet age < 8 years	0-500	Count	Please fill number of buses in a depot having fleet age less than 8 years	
1.1.2	Fleet age 8-10 years	0-500	Count	Please fill number of buses in a depot having fleet age between 8-10 years	
1.1.3	Fleet age >10-12 years	0-500	Count	Please fill number of buses in a depot having fleet age between 10-12 years	
1.2	CNG				

1.2.1	Fleet age < 8 years	0-500	Count	Please fill number of buses in a depot having fleet age less than 8 years	
1.2.2	Fleet age 8-10 years	0-500	Count	Please fill number of buses in a depot having fleet age between 8-10 years	
1.2.3	Fleet age >10-12 years	0-500	Count	Please fill number of buses in a depot having fleet age between 10-12 years	
1.3	Electric				
1.3.1	Fleet age < 8 years	0-500	Count	Please fill number of buses in a depot having fleet age less than 8 years	
1.3.2	Fleet age 8-10 years	0-500	Count	Please fill number of buses in a depot having fleet age between 8-10 years	
1.3.3	Fleet age >10-12 years	0-500	Count	Please fill number of buses in a depot having fleet age between 10-12 years	
2	% of vehicles complying to BSIV or above & BS VI or above				
2.1	Vehicles complying less than BS-IV	0-500	Count	Please fill number of buses in a depot having engine less than BS-IV	
2.2	Vehicles complying BS-IV	0-500	Count	Please fill number of buses in a depot having BS-IV engine	
2.3	Vehicles complying BS-VI and above	0-500	Count	Please fill number of buses in a depot having engine BS-VI or more	
3	Buses off road	0-200	Count	Annual Buses which are under maintenance and not plying on the road in a depot. It can be calculated as Buses held - buses on road - spare buses	100%
4	Number of spare buses	0-200	Count	Please fill number of extra buses in a depot for stand by	
5	Buses on road	0-500	Count	Please fill average number of buses which performs effective km in a depot	100%
6	Fleet Utilization	0-100%	%	Please calculate by dividing number of buses on road to the number of buses held x 100	100%
7	Scheduled services	0-500	Count	Total services planned for operation as per the published timetable (if no published time table then please calculate an estimated average of planned frequency over a day)	
8	Scheduled km	0-150000	in lakhs	Please fill the total effective kms required to be operated by a depot annually	
9	Effective Km	0-150000	in lakhs	Please fill the difference of gross km and dead kms in a year per depot	100%
10	Dead Km	0-10000	in lakhs	These are the kms used for taking bus from terminating point of the route to the depot/ terminal or for maintenance/ repair or for taking bus from depot to terminal per depot	100%
11	Gross Km	0-160000	in lakhs	It is the sum of total effective kms and dead kms in a depot	100%
12	Cancelled kms	0-150000	in lakhs	Please fill the kms which were cancelled in a depot	
13	Average Bus utilization	0-500	Km/day	It is calculated by dividing total effective km done on a day to the total number of buses on road on that day in a depot	100%
14	Quality of Service				
14.1	No. of breakdowns	0-5000	number	Please fill the annual data of number of bus breakdowns in a depot	
14.2	Breakdown per 10,000 eff. kms.	0-10	number	It can be calculated by dividing annual effective kms to the total number of breakdowns in a depot	
15	Capacity Utilization				
15.1	Seating capacity	0-100	number	Please fill the average number of seats available in a bus to the passengers excluding the seats allotted to driver and conductor in a depot	92%
15.2	No. of Standees	0-100	number	Please fill the number of people standing in a bus in a depot	
15.3	Seat Kms	0-20000	in lakhs	It can be calculated by multiplying the average seating capacity and effective kilometres in a depot	83%
15.4	Carrying capacity Km	0-20000	in lakhs	It can be calculated by multiplying the average carrying capacity (i.e., [total seating capacity of all buses + total standees permitted in all buses] / total number of buses) and effective kilometres in a depot	100%
15.5	Passenger Km	0-20000	in lakhs	Please fill the annual average of kms travelled by passengers in a depot	100%
15.6	Occupancy Ratio	0-200	Ratio	It is calculated by total passenger km to the ratio of total seat km in a depot	83%
15.7	Load factor	0-100	%	It is calculated by dividing passenger kms to the total carrying capacity in a depot	100%
15.8	Passenger lead	0-500	in kms	It is calculated by dividing total passenger kms to the total number of passengers carried in a depot	100%
15.9	Passengers carried	0-5000	in lakhs	Please fill the total number of passenger tickets sold in a year in a depot	100%
15.10	Passengers per bus (on road) per day	0-1500	numbers	Calculate by dividing total number of passengers to the total number of buses (on road) and then divide it by 365 in a depot	100%
15.11	Annual ridership per bus	0-15	Lakhs passenger per bus	It is calculated by dividing total number of passengers carried in a year to the total number of buses (average on road) per depot	
15.12	Passenger trips per effective vehicle km	0-15	Trips/eff. Veh km	It is calculated by dividing total number of passengers carried in a year to the annual effective kms per depot	
15.13	Avg. passenger-km per vehicle-km	0-100	count	It is calculated by dividing total passenger kms in a year to the annual effective kms per depot	

15.14	Passenger per effective vehicle km	0-15	count	It is calculated by dividing total number of passengers carried in a year to the annual effective kms per depot	
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Service Performance - 5

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Trips to be operated (scheduled trips)	0-15	lakhs	It is the total number of trips planned for operation as per the published timetable (it includes bazar, fair and festival trips) in a depot	
2	Actual trips operated	0-15	lakhs	It is the total number of actual trips operated out of total scheduled trips in a depot	
3	Regularity	0-100%	%	Please fill the percentage of how regular bus services in a depot are	
4	Punctuality				
4.1	Departure	0-100%	%	Please fill the percentage of reliability of departure services in a depot	
4.2	Arrival	0-100%	%	Please fill the percentage of reliability of arrival services in a depot	
5	Fatal accidents	0-500	number	Please fill the number of fatal accidents occurred annually in a depot	83%
6	Major & serious accidents	0-1000	number	Please fill the number of major & serious accidents occurred annually in a depot	83%
7	Minor accidents	0-1000	number	Please fill the number of minor accidents occurred annually in a depot	83%
8	Total Accidents	0-2500	number	Please fill the number of total accidents occurred annually in a depot	
9	Accidents per lakh eff. kms.	0-50	number	It can be calculated by dividing total accidents to the per lakh effective km (per lakh effective km can be calculated by dividing effective km by 100000) per depot	89%
10	No. of person injured	0-2000	number	Please fill the number of persons injured in a year as a result of any incident that requires immediate medical attention away from the scene in a depot	
11	No. of fatalities	0-2000	number	Please fill the number of fatalities in a year due to any accident which involves buses per depot	
12	No. of public complaints	0-5000	number	Please fill total number of public complaints made in a year per depot	
13	Fatal Accidents per lakh vehicle km per year	0-100	fatal accidents / lakh vehicle km	It can be calculated by dividing total fatal accidents by gross kms (annually) per depot	
14	Fatalities per lakh passenger per year	0-100	fatalities / lakh passengers	It can be calculated by dividing the total number of fatalities to the total number of passengers carried in a year in a depot	
15	Injuries per lakh passengers	0-100	injuries / lakh passenger	It can be calculated by dividing the number of persons injured to the per lakh passengers carried (per lakh passengers = passengers carried in a year/100000) annually per depot	
16	Average fare per passenger-km	0-20	Rs per passenger km	It can be calculated by dividing the total annual traffic revenue to the passenger km per year in a depot	
17	Avg. fare per boarding	0-20	Rs per boarding	It can be calculated by dividing the total annual traffic revenue to the passengers carried per year in a depot	
18	Average Achieved Headway	0-500	minutes	Please fill the average frequency (time) between two buses (STU wise). It can be calculated as (Total Route Length x Average Bus Operational Hours x Total Operational Buses) / (Total Number of Daily Actual Trips x Total Km Operated in a day) x 60	

Scheduling and Route details - 6

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Total No. of Schedules	0-1500	number	Please fill the average number of planned trips per day per depot	
2	Classification of schedules				
2.1	Earning more than total cost	0-500	number	Please fill the number of routes which are earning more than total cost (refer parameter1) in a depot	
2.2	Earning between total & variable cost	0-500	number	Please fill the number of routes which are earning between total and variable cost - to be filled depot wise [Variable cost are those costs which vary with the changes in the volume of effective kms viz. Diesel, engine oil, other lub. oils, tyres, tubes, flaps, batteries, auto spares and other consumable stores, depreciation on bus charged, on km basis, reconditioning and complete overhauling cost on assemblies and buses, tickets and traffic stationary, daily wages crew employed for extra and seasonal traffic and overtime paid for extra traffic]	
2.3	Earning less than variable cost	0-500	number	Please fill the number of routes which are earning less than variable cost (to be filled depot wise)	
3	Total no. of routes	0-1000	number	Please fill the total number of depot routes	
4	Average route length	0-1500	in kms	Please fill the average length of all routes covered in a depot	
5	Total Route Length or route km	0-15000	in kms	Please fill the sum total of all routes covered in a depot	
6	% of total kms in depot	0-100%	%	Please fill the percentage of depot route length to the total STU route length in a depot	
7	No. of Bus Shelters (Stops)	0-5000	number	Please fill the total number of bus shelters (or stops) in a depot	

STU Demographics - 7

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	STU Area	0-1000000	sq.km	Please fill the total area under STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
2	STU Population	0-10000	in lakhs	Please fill the total population under STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
3	Buses per lakh population (number)	0-50	number	It can be calculated by dividing the total number of buses on road to the per lakh population of the STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
4	Density of Bus Route	0-50	km per sq km	It can be calculated by dividing total route length to the total STU area (Overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
5	STU Road Network	0-1000000	km	Please fill the total road network of the STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
6	STU Road Network (Urban)	0-500000	km	Please fill the total road network of the STU which falls under urban area (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
7	STU Road Network (Non-Urban)	0-500000	km	Please fill the total road network of the STU which falls under non-urban area (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
8	STU Road Network SH	0-10000	km	Please fill the total state highway road network under STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
9	STU Road Network NH	0-10000	km	Please fill the total national highway road network under STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
10	STU Road Network ODR & MDR	0-10000	km	Please fill the total ODR & MDR road network (if any) under STU (overall STU wise data to be filled - aggregate of all categories i.e, Urban+Non-Urban+Hilly)	
11	No. of depots	0-5000	number	Please fill the total number of bus depots (STU wise + Category wise)	83%
12	No. of Bus Stations / terminals	0-5000	number	Please fill the total number of bus terminals (STU wise + Category wise)	
13	Terminal Site Area	0-5000000	sq.m	Please fill the total terminal land bank/area of STU (STU wise + Category wise)	
14	Informative Terminals	0-5000	number	Please fill data of number of bus terminals having passenger information system (STU wise + category wise)	
15	Annual ridership per bus station (terminals)	0-15	Lakhs passenger per bus station	It is calculated by dividing total number of passengers carried in a year to the total number of bus stations (terminals) (STU wise + category wise data to be filled)	
16	Passenger Access / Egress Time	0-60	minutes	Please fill the average passenger access or egress time to the bus (STU wise + category wise data to be filled)	
17	Passenger Access / Egress Distance	0-2	km	Please fill the average passenger access or egress distance to the bus (STU wise + category wise data to be filled)	
18	Average Passenger Waiting Time (min)	0-60	minutes	Please fill the average passenger waiting time for the bus (STU wise + category wise data to be filled)	
19	Average Passenger Transit Time (min)	0-500	minutes	Please fill the average passenger journey time within a bus (STU wise + category wise data to be filled)	
20	No. of transfers	0-5	count	Please fill average number of bus transfers from one bus to another for the given depot (STU wise + category wise data to be filled)	

Infrastructural Information - 8

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Depot Site Area	0-50000	sq.m	Please fill the total depot land bank/area of a depot	
2	Average bus operational hours	0-24	hours	Please fill the average hours buses are operating on road in a depot	
3	Informative bus stops	0-5000	number	Please fill data of number of bus stops having passenger information system in a depot	
4	Low floor buses	0-500	number	Please fill number of low floor buses in a depot	

Service and Maintenance Information - 9

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Total HSD consumed (kiloliters)	0-250000	Kl	It is the sum total of Diesel consumed by buses (depot wise)	100%
2	Total CNG consumed (Kg)	0-250000	Kg	It is the sum total of CNG consumed by buses (depot wise)	
3	Total Electricity consumed (KWh)	0-250000	KWh	It is the sum total of Electricity consumed by buses (depot wise)	
4	KMPL Kiloliters	0-20	KMPL Kl	It can be calculated by dividing gross kms to the diesel consumed by all buses (depot wise)	

5	CNG km per kg	0-20	km per kg	It can be calculated by dividing gross kms to the CNG consumed by all buses (depot wise)	
6	Electricity (kWh/km)	0-20	km per kWh	It can be calculated by dividing gross kms to the electricity consumed by all buses (depot wise)	
7	Engine oil top-up	0-2000	kilolitres	Please fill the quantity in engine oil top up required in depot in a year	
8	Engine oil KMPL	0-2000	kmpl	Please fill average mileage of bus (for engine oil) kmpl in a depot in a year	
9	Battery life	0-5Lkm	lakh kms	It is the total kms given by a battery from the date of its fitment to its removal for scrapping gives its life in kms. Please fill the average life of a battery (depot wise)	
10	Gearbox oil				
10.1	Top up	0-30	kilolitres	Please fill the quantity of gearbox oil top up required in a year (depot wise)	
10.2	Oil Change	0-30	kilolitres	Please fill the quantity of gearbox oil change required in a year (depot wise)	
11	Engine Life				
11.1	New	0-20	in lakh km	Please fill the average life of a new engine in a year (depot wise)	
11.2	Reconditioned (R/C)	0-20	in lakh km	Please fill the average life of a reconditioned engine in a year (depot wise)	
12	Fuel injection pump life				
12.1	New	0-20	in lakh km	Please fill the average life of a new engine in a year (depot wise)	
12.2	R/C	0-20	in lakh km	Please fill the average life of a reconditioned engine in a year (depot wise)	
13	Piston assembly life	0-20	in lakh km	Please fill the average piston assembly life in a year (depot wise)	
14	Engine oil used /oil change	0-3000	in lakh km	Please fill the quantity of engine oil used or engine oil change required in a year (depot wise)	
15	New tyres consumed/ lakh KM (rate)	0-20	number	Please fill the rate of new tyres consumed per lakh kms (depot wise)	
16	Spring/lakh km	0-500	in kg	Please fill the quantity of springs consumed per lakh kms in kg (depot wise)	
17	Retreaded tyres consumed/lakh KM (rate)	0-50	number	Please fill the rate of retreaded tyres consumed per lakh kms (depot wise)	
18	Differential oil				
18.1	Top up	0-10000	in litres	Please fill the quantity of differential oil top up required in a year (depot wise)	
18.2	Oil Change	0-10000	in litres	Please fill the quantity of differential oil change required in a year (depot wise)	
19	Crown wheel & pinion life	0-15	in lakh km	Please fill the average crown wheel and pinion life in a year (depot wise)	
20	Gearbox life				
20.1	New	0-15	in lakh km	Please fill the average new gearbox life in a year (depot wise)	
20.2	R/C	0-15	in lakh km	Please fill the average life of a reconditioned engine in a year (depot wise)	
21	Clutch plate life	0-15	in lakh km	Please fill the average clutch plate life in a year (depot wise)	

Environmental Factors - 10

S.N o.	Parameter	Range	Units	Comments/ Explanation	Priority indicators
1	Noise	0-100	decibels	Please fill the noise level generated by bus	
2	Emissions				
2.1	CO	0-50000	gm/km	Please fill the annual emission of CO grams per km	
2.2	CO ₂	0-50000	gm/km	Please fill the annual emission of CO ₂ grams per km	
2.3	NO _x	0-50000	gm/km	Please fill the annual emission of NO _x grams per km	
2.4	HC	0-50000	gm/km	Please fill the annual emission of HC grams per km	
2.5	PM	0-50000	gm/km	Please fill the annual emission of PM grams per km	
2.6	SO _x	0-50000	gm/km	Please fill the annual emission of SO _x grams per km	
2.7	VOCs	0-50000	gm/km	Please fill the annual emission of VOCs grams per km	

Note:

1. All values to be filled annually until and unless mentioned in description.

2. Depot wise data to be filled until and unless mentioned in description.

12.6 Key Performance Indicator Excel Calculation Tool

Excel Based tool - Key Performance Indicators																					
S. no	Indicators	STU1				STU 2						STU 1			STU 2			LEVEL			Units
		Urban Depot 1	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Urban Depot 1	Urban Depot 2	Non-Urban Depot 1	Non-Urban Depot 2	Hilly Depot 1	Hilly Depot 2	Urban	Non-Urban	Hilly	Urban	Non-Urban	Hilly	National	STU	Depot	
Societal:																					
[A] Safety																					
1	Accidents per lakh effective kms per year	0.002	0.005	0.003	0.002	0.005	0.002	0.001	0.000	0.001	0.003	0.002	0.008	0.002	0.007	0.001	0.004	ü	ü	ü	accidents per lakh effective km
2	Accidents per lakh vehicle kms per year	0.073	0.025	0.017	0.037	0.101	0.101	0.087	0.087	0.037	0.037	0.073	0.022	0.037	0.101	0.087	0.037	ü	ü	ü	fatal accidents per lakh vehicle km
3	Fatal Accidents per lakh effective kms per year	0.020	0.008	0.008	0.002	0.037	0.037	0.029	0.029	0.002	0.002	0.020	0.008	0.002	0.037	0.029	0.002	ü	ü	ü	fatal accidents per lakh effective vehicle km
4	Fatal Accidents per lakh vehicle kms per year	0.020	0.008	0.008	0.002	0.037	0.037	0.029	0.029	0.002	0.002	0.020	0.008	0.002	0.037	0.029	0.002	ü	ü	ü	fatal accidents per lakh vehicle km
5	No. of fatalities per year	1.829	1.000	0.667	12.167	18.500	7.400	12.189	5.295	6.083	14.600	1.829	1.667	12.167	25.900	17.484	20.683	û	û	ü	number
[B] Emission																					
6	Fuel efficiency in terms of fleet specifications																				
6a	Diesel																				
1	Fleet age < 8 years	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	û	ü	ü	%
2	Fleet age 8-10 years	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	û	ü	ü	%
3	Fleet age >10-12 years	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	û	ü	ü	%
6b	CNG																				
1	Fleet age < 8 years	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	û	ü	ü	%
2	Fleet age 8-10 years	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	û	ü	ü	%
3	Fleet age >10-12 years	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	û	ü	ü	%
6c	Electric																				
1	Fleet age < 8 years	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	û	ü	ü	%
2	Fleet age 8-10 years	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	û	ü	ü	%
3	Fleet age >10-12 years	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	û	ü	ü	%
7	% of vehicles complying to BSIV or above & BS VI or above																				

7a	Vehicles complying less than BS-IV	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	ü	ü	ü	%	
7b	Vehicles complying BS-IV	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	ü	ü	ü	%	
7c	Vehicles complying BS-VI and above	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	ü	ü	ü	%	
[C] Service Coverage																						
8	Buses per lakh population	Overall STU wise											2.04	1.38	ü	ü	ü	Number				
9	Route length served per sq. km	Overall STU wise											3.98	0.11	ü	ü	ü	km per sq.km				
10	Total route length / Km of road network [Road Network – SH/NH/MDR (Separate for Urban & Non-Urban)]																				km	
10a	Total route length / Km of road network (urban)	Overall STU wise											0.20	0.34	ü	ü	ü	km				
10b	Total route length / Km of road network (Non-Urban)	Overall STU wise											0.20	0.30	ü	ü	ü	km				
Passenger:																						
[A] Journey Cost																						
11	Average fare per passenger-km	0.93	0.74	0.74	0.71	0.34	0.34	0.45	0.45	0.71	0.71	0.93	0.74	0.71	0.34	0.45	0.71	ü	ü	ü	Rupees per passenger-km	
[B] Journey Time																						
12	Average Achieved Headway	1.98	1.45	1.57	1836.45	1.29	1.48	15.59	16.89	###	1836.45	1.98	1.51	###	1.39	16.24	###	ü	ü	ü	Minutes	
[C] Journey Comfort																						
13	Occupancy Ratio	76.58	96.92	96.92	72.55	85.42	85.42	69.98	69.98	72.55	72.55	76.58	96.92	72.55	85.42	69.98	72.55	ü	ü	ü		
14	Area per bus in a depot	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	ü	ü	ü	Sq.m	
15	Total number of Bus Terminals / Route Km	STU wise + category wise											2.10	1.736	0.023	0.199	0.0307	0.012	ü	ü	ü	Number
16	Informative terminals	STU wise + category wise											15.0	15.0	8.0	18.0	20.0	12.0	ü	ü	ü	Number
17	Informative bus stops	10.0	7.0	9.0	5.0	12.0	9.0	10.0	12.0	6.0	6.0	10.0	16.0	5.0	21.0	22.0	12.0	ü	ü	ü	Number	
18	% of low floor buses available	18%	12%	13%	4%	7%	14%	6%	15%	11%	4%	18%	12%	4%	9%	8%	6%	ü	ü	ü	%	
Operator:																						
[A] Service Efficiency																						
19	Operational efficiency	72.37%	92.34%	92.34%	5.25%	95.78%	95.78%	95.82%	95.82%	2.63%	6.30%	72.37%	92.34%	5.25%	###	95.82%	4.46%	ü	ü	ü	%	
20	Average Bus Utilization	197.59	243.51	243.51	225.11	269.61	269.61	403.03	403.03	225.11	225.11	197.59	243.51	225.11	269.61	403.03	225.11	ü	ü	ü	km/day	
21	Annual ridership per bus station	STU wise											0.47	1.11	5.59	9.03	2.48	10.51	ü	ü	ü	Lakhs passenger per bus station

22	Annual ridership per bus	3.16	6.39	6.39	7.87	8.35	8.35	4.71	4.71	7.87	7.87	3.16	6.39	7.87	8.35	4.71	7.87	û	ü	ü	Lakhs passenger per bus
23	Passengers per effective km	4.38	7.19	7.19	9.58	8.48	8.48	3.21	3.21	9.58	9.58	4.38	7.19	9.58	8.48	3.21	9.58	û	ü	ü	Passengers per effective km
24	Fleet utilization	83.59%	98.55%	98.55%	97.88%	94.37%	94.37%	96.76%	96.76%	###	97.88%	83.59%	98.55%	97.88%	###	96.76%	97.88%	û	ü	ü	%
25	% Load Factor	51.02%	65.31%	65.31%	57.00%	69.59%	69.59%	69.98%	69.98%	###	57.00%	51.02%	65.31%	57.00%	###	69.98%	57.00%	û	ü	ü	%
26	Operating cost per passenger-km	1.85	1.36	1.36	0.94	0.46	0.46	0.49	0.49	0.94	0.94	1.85	1.36	0.94	0.46	0.49	0.94	û	ü	ü	Rupees per km
27	Average passenger km per vehicle km	23.02	40.06	40.06	31.92	42.64	42.64	42.20	42.20	31.92	31.92	23.02	40.06	31.92	42.64	42.20	31.92	û	ü	ü	
28	Fuel Efficiency - Highest KMPL in current year																				
28a	KMPL Kiloliters	2.89	2.89	2.89	2.89	4.97	4.97	3.39	1.38	3.62	3.62	2.89	2.89	2.89	4.97	2.36	3.62	û	ü	ü	KMPL KI
28b	CNG kms per kg	1.34	0.00	0.68	0.00	0.00	0.00	2.06	1.10	0.00	0.00	1.34	1.71	0.00	0.00	1.63	0.00	û	ü	ü	km per kg
28c	Electric kwh per km	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	û	ü	ü	km per kwh
29	Maximum Improvement in KMPL																				
29a	Max. improvement in KMPL Kiloliters	1.00	1.00	1.00	1.00	0.46	0.45	-1.54	-0.28	0.33	0.33	1.00	-0.89	1.00	-4.05	-3.83	-2.96	û	ü	ü	KMPL KI
29b	Max. improvement in CNG kms per kg	-0.09	0.00	-0.07	0.00	0.00	0.00	-0.37	-0.14	0.00	0.00	-0.09	-2.03	0.00	0.00	-2.13	0.00	û	ü	ü	km per kg
29c	Max. improvement in Electric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	û	ü	ü	km per kwh
30	Breakdown per 10000 eff kms	0.41	0.75	0.75	5.07	9.24	9.24	13.91	13.91	5.07	5.07	0.41	0.75	5.07	9.24	13.91	5.07	û	ü	ü	Number
31	Punctuality	97.43%	94.25%	94.25%	96.85%	97.05%	97.48%	95.61%	97.81%	###	96.85%	97.43%	94.25%	96.85%	###	96.71%	96.85%	û	ü	ü	%
32	Highest vehicle productivity	165.16	239.98	239.98	220.33	254.42	254.42	389.95	389.95	220.33	220.33	165.16	239.98	220.33	254.42	389.95	220.33	ü	ü	û	Eff. Kms/vehicle held/day
33	Maximum improvement in vehicle productivity	1.80	2.61	2.61	2.39	2.77	2.77	4.24	4.24	2.39	2.39	1.80	2.61	2.39	2.77	4.24	2.39	ü	ü	û	Eff. Kms/vehicle held/day
34	Highest Tyre Performance	2.61	4.20	4.20	6.25	3.16	3.16	3.27	3.27	6.25	6.25	2.61	8.41	6.25	6.31	6.54	12.49	ü	ü	û	Tyre consumed per lakh eff. Kms
35	Maximum Improvement in tyre performance	0.13	0.21	0.21	0.31	0.16	0.16	0.16	0.16	0.31	0.31	0.13	0.42	0.31	0.32	0.33	0.62	ü	ü	û	Tyre consumed per lakh eff. Kms
[B] Economic Efficiency																					

36	Minimum operational cost	42.55	54.39	54.39	29.99	19.46	19.47	20.62	20.62	29.99	29.99	42.55	54.39	29.99	19.46	20.62	29.99	ü	ü	û	Rupees per km
37	Total earning per bus (on road) per day	151.34	1654.25	1102.83	376.06	260.40	104.16	83.80	36.41	188.03	451.27	151.34	2757.08	376.06	364.56	120.21	639.29	ü	ü	ü	Rupees per bus per day
38	Total cost per bus per day	497.22	7210.75	4807.17	393.83	260.00	104.00	89.08	38.70	196.92	472.60	497.22	### ### #	393.83	364.00	127.77	669.52	ü	ü	ü	Rupees per bus per day
39	% Operating ratio or Cost recovery ratio	198.55	182.85	182.85	132.99	132.29	132.36	109.30	109.30	132.99	132.99	198.55	182.85	132.99	132.31	109.30	132.99	ü	ü	ü	
40	Total road accident- Compensation per accident	0.69	59.19	88.79	6.44	16.97	16.97	4.73	4.73	6.44	6.44	0.69	68.30	6.44	16.97	4.73	6.44	ü	ü	ü	Lakhs rupees per accident
41	Major & serious accident - Compensation per accident	2.42	53.27	53.27	8.56	15.11	15.11	3.60	3.60	8.56	8.56	2.42	53.27	8.56	15.11	3.60	8.56	ü	ü	ü	Lakhs rupees per accident
42	Minor road accident - Compensation per accident	0.53	88.79	88.79	4.44	28.65	28.65	8.65	8.65	4.44	4.44	0.53	88.79	4.44	28.65	8.65	4.44	ü	ü	ü	Lakhs rupees per accident
43	Avg. fare per boarding	4.90	4.14	4.14	2.35	1.73	1.73	5.89	5.89	2.35	2.35	4.90	4.14	2.35	1.73	5.89	2.35	û	ü	ü	Rupees per boarding
44	Revenue per passenger	4.90	4.14	4.14	2.35	1.73	1.73	5.89	5.89	2.35	2.35	4.90	4.14	2.35	1.73	5.89	2.35	û	ü	ü	Rupees per passenger
45	Farebox ratio	0.25	0.21	0.21	0.72	0.71	0.71	0.83	0.83	0.72	0.72	0.25	0.21	0.72	0.71	0.83	0.72	û	ü	ü	
46	Operating cost per trip	1069.59	1818.69	1818.69	### ###	503.05	503.33	1170.15	1170.15	### ### #	### ### #	1069.59	1818.69	### ###	503.13	1170.15	### ###	û	ü	ü	Rupees per trip
47	Operating cost per passenger km	1.85	1.36	1.36	0.94	0.46	0.46	0.49	0.49	0.94	0.94	1.85	1.36	0.94	0.46	0.49	0.94	û	ü	ü	Rupees per passenger-km
48	Operating cost per boarding	9.72	7.56	7.56	3.13	2.29	2.30	6.43	6.43	3.13	3.13	9.72	7.56	3.13	2.29	6.43	3.13	û	ü	ü	Rupees per boarding

[C] Management Efficiency

49	Area per bus in bus terminals	STU wise											3817.24	3965.22	### ###	### ##	6697.47	### ###	ü	ü	û	Sq.m
50	Staff ratio per bus	8.00	7.15	7.15	4.29	6.67	6.67	7.13	7.13	4.29	4.29	8.00	7.15	4.29	6.67	7.13	4.29	û	ü	ü		
51	Average salary per employee per day	778.97	778.97	778.97	886.63	593.09	593.09	593.09	593.09	886.63	886.63	778.97	778.97	886.63	593.1	593.09	886.63	û	ü	ü	Rupees	
52	Occupancy Ratio	0.77	0.97	0.97	0.73	0.85	0.85	0.70	0.70	0.73	0.73	0.77	0.97	0.73	0.85	0.70	0.73	û	ü	ü		
53	Fleet utilization	83.59%	98.55%	98.55%	97.88%	94.37%	94.37%	96.76%	96.76%	### ##	97.88%	83.59%	98.55%	97.88%	### ##	96.76%	97.88%	û	ü	ü	%	
54	Percent seated capacity	70.59%	70.59%	70.59%	78.57%	81.47%	81.47%	72.94%	72.94%	### ##	78.57%	70.59%	70.59%	78.57%	### ##	72.94%	### ###	û	ü	ü	%	
55	Manpower productivity	24.64	34.18	34.18	52.37	13.09	13.09	39.28	39.28	52.37	52.37	24.64	34.18	52.37	13.09	39.28	52.37	û	ü	ü	kms per man day	

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