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OFFICE OF THE STATE TRANSPORT COMMISSIONER
PUNJAB, CHANDIGARH

EOI

Office of State Transport Commissioner, SCO 177-178, Sector 17-C Chandigarh with a view to professionalize Road worthiness Certification of Transport Vehicles invites Expression of Interest supported by a Project Report covering Space, Technical and Financial Arrangements on PPP basis by _____, for setting up Authorised Testing Stations (ATS), from those fulfilling requirements as laid down below:

- Section 56 of the Central Motor Vehicle Act, 1988
- Clause 62 to 72 of Central Motor Vehicle Rules, 1989 and
- Report of Central Institute of Road Transport, Pune
- Fee chargeable will be as notified from time to time by Government of India,
- under Rule 81 of Central Motor Vehicle Rules, 1989

• Detailed Expression of Interest prepared by CIOT.
Invitation
All 6 documents are available at www.punjabtransport.org

Initial authorisation will be for a period of 10 years which may be renewed by government considering performance and other factors.

1. **ATS for Heavy and Light Transport Vehicles** (one to be set up on a 3 acre site, in each of Gurdaspur, Patiala, Mohali, Jalandhar, Ludhiana, Bathinda, Ferozepur, Kapurthala on a state highway or national highway within 3 km of municipal limits).

56. Certificate of fitness of transport vehicles. - (1) Subject to the provisions of sections 59 and 60, a transport vehicle shall not be deemed to be validly registered for the purpose of section 39, unless it carries a certificate of fitness in such form containing such particulars and information as may be prescribed by the Central Government, issued by the prescribed authority, or by an authorized testing station mentioned in sub-section (2), to the effect that the vehicle complies for the time being with all the requirements of this Act and the rules made thereunder:

Provided that where the prescribed authority or the "authorized testing station" refuses to issue such certificate, it shall supply the owner of the vehicle with its reasons in writing for such refusal.

(2) The "authorized testing station" referred to in sub-section (1) means a vehicle service station or public or private garage which the State Government, having regard to the experience, training and ability of the operation of such station or garage and the testing equipment and the testing personnel therein, may specify in accordance with the rules made by the Central Government for regulation and control of such stations or garages.

(3) Subject to the provisions of sub-section (4), certificate of fitness shall remain effective

44 The Motor Vehicles Act, 1988, Section 57

tive for such period as may be prescribed by the Central Government having regard to the objects of this Act.

(4) The prescribed authority may for reasons to be recorded in writing cancel a certificate of fitness at any time, if satisfied that the vehicle to which it relates no longer complies with all the requirements of this Act and the rules made thereunder; and on such cancellation the certificate of registration of the vehicle and any permit granted in respect of the vehicle under Chapter V shall be deemed to be suspended until a new certificate of fitness has been obtained :

¹[Provided that no such cancellation shall be made by the prescribed authority unless such prescribed authority holds such technical qualification as may be prescribed or where the prescribed authority does not hold such technical qualification on the basis of the report of an officer having such qualifications.]

(5) A certificate of fitness issued under this Act shall, while it remains effective be valid throughout India.

(3) Where the registered owner has refused to deliver the certificate of registration to the financier or has absconded then the registering authority shall issue a notice to the registered owner of the vehicle in Form 37.

Certificate of fitness

62. **Validity of certificate of fitness.**—(1) A certificate of fitness in respect of a transport vehicle granted under section 56 shall be in Form 38 and such certificate when granted or renewed shall be valid for the period as indicated below:

- | | | |
|--------------------|--|--|
| (a) | new transport vehicle | two years |
| (b) | renewal of certificate of fitness in respect of vehicles mentioned in (a) above ¹ [***] | one year |
| ² [(ba) | renewal of certificate of fitness in respect of E-rickshaw and E-cart | three years] |
| ³ [(c) | renewal of certificate of fitness in respect of vehicles covered under rule 82 of these rules | one year] |
| (d) | fresh registration of imported vehicles | same period as in the case of vehicles manufactured in India having regard to the date of manufacture: |

⁴[Provided that the renewal of a fitness certificate shall be made only ⁵[after an ⁶[Inspecting Officer] or authorised testing stations as referred to in sub-section (1) of section 56 of the Act] has carried the tests specified in the Table given below, namely:—

⁷[TABLE

Sl. No.	Item	Check Fitment	Check make/type/rating, etc. as per original equipment recommendations	Check conditions	Check functioning	Test	Remarks
1	2	3	4	5	6	7	8
(1)	Spark Plug/Suppressor cap/High Tension cable	Yes	Yes	Yes	No	No	—

- Certain words omitted by G.S.R. 933(E), dated 28th October, 1989 (w.e.f. 28-10-1989).
- Ins. by G.S.R. 709(E), dated 8th October, 2014 (w.e.f. 8-10-2014).
- Subs. by G.S.R. 589(E), dated 16th September, 2005, for clause (c), (w.e.f. 16-9-2006). Clause (c), before substitution, stood as under:
“(c) renewal of a certificate in respect of vehicles covered under rule 82 of these rules
three years”.
- Added by G.S.R. 221(E), dated 28th March, 2001 (w.e.f. 28-3-2001). Earlier proviso was added by G.S.R. 684(E), dated 5th October, 1999 (w.e.f. 22-10-1999) and omitted by G.S.R. 76(E), dated 31st January, 2000 (w.e.f. 31-1-2000).
- Subs. by G.S.R. 1096(E), dated 28th November, 2016, for “after the inspecting officer” (w.e.f. 28-11-2016).
- Subs. by G.S.R. 845(E), dated 27th December, 2002 (w.e.f. 27-12-2002).
- Subs. by G.S.R. 345(E), dated 19th May, 2014, for TABLE (w.e.f. 19-5-2014).

1	2	3	4	5	6	7	8
(2)	Head Lamp Beams	Yes	No	Yes	Yes	Check	(a) Beam focus as per Annexure VII; (b) in case of authorised testing station using headlight tester, testing procedure and requirement shall be as per AIS-128:2014.
(3)	Other Lights	Yes	No	Yes	Yes	No	Also ensure that unauthorized lights are not fitted
(4)	Reflectors	Yes	No	Yes	No	No	Ensure colour of reflectors and reflective tapes are as per rule 104
(5)	Bulbs	Yes	Yes	Yes	No	No	Ensure that head light bulbs wattage, especially halogen, is not higher than those indicated in IS 1606-1993 and also ensure that halogen bulbs with P45t caps are not used in all vehicles
(6)	Rear View Mirror	Yes	No	Yes	No	No	—
(7)	Safety Glass	Yes	Yes	Yes	No	No	Laminated wind- screen glass is used for vehicles manufactured from April, 1996 onwards
(8)	Horn	Yes	No	Yes	Yes	No	—
(9)	Silencer	Yes	No	Yes	Yes	No	Ensure no leakage
(10)	Dash Board equipment	Yes	No	Yes	Yes	No	—
(11)	Wind shield wiper	Yes	No	Yes	Yes	No	—
(12)	Exhaust emission	No	No	No	No	Yes	Pollution Under Control Certificate
(13)	Braking System	Yes	No	Yes	Yes	Yes	(a) As per rule 96(8); (b) in case of authorised testing station using roller brake tester, testing procedure, and requirements shall be as per AIS-128:2014.
(14)	Speedometer	Yes	No	Yes	Yes	No	As per rule 117
(15)	Steering gear	Yes	No	Yes	Yes	Check free play	Check freeplay as per rule 98 for vehicles with steering wheel.]

¹[Provided further that in case of E-rickshaw and E-cart, the renewal of fitness certificate shall be made only after carrying out tests specified in the Table given below:—

TABLE

Items	Check Fitment	Check make or Type rating, etc., as per original equipment recommendation	Check conditions	Check functioning	Test	Remarks
Maximum speed	No	No	No	No	Yes	The vehicle shall be driven in unladen condition (with full charge and at full accelerator position) on straight or flat road and when the vehicle attains full speed, the maximum speed shall be calculated by measuring time taken to travel fixed distance (say 50 metres).]

²[Provided also that if the tests specified in the Table under the first proviso are conducted by an Inspecting Officer or authorised testing station in a State/Union Territory other than the State/Union Territory where the vehicle is registered, the Inspecting Officer who conducted the tests shall, on the same day or on the following working day, upload his inspection report in Form 38A at the portal <http://parivahan.gov.in/vahan> and also send the inspection report signed under his hand and seal to the registering authority by speed post for issue of certificate of fitness by the registering authority within fifteen days from the date of the inspection report, if the vehicle is found by the Inspecting Officer to be in compliance with the provisions of the Act and rules and a copy shall be given to the driver of the vehicle:

Provided also that the next fitness certificate is obtained from the inspecting officer or an authorised testing station in the State/Union Territory of the registering authority where the vehicle is registered.]

Explanation.—“Inspecting Officer” means an Officer ³[appointed by a State Government] under section 213 of the Act.]

(2) The fee for the grant or renewal of a certificate of fitness shall be specified in rule 81.

²[(3) The fee for testing of a vehicle when tested by an Inspecting Officer or authorised testing station, other than the Inspecting Officer in the office of the registering authority, shall be as specified in rule 81.]

63. Regulation and control of authorised testing station.—(1) No operator of an authorised testing station shall issue or renew a certificate of fitness to a transport vehicle

1. Ins. by G.S.R. 709(E), dated 8th October, 2014 (w.e.f. 8-10-2014).

2. Ins. by G.S.R. 1096(E), dated 28th November, 2016 (w.e.f. 28-11-2016).

3. Subs. by G.S.R. 1096(E), dated 28th November, 2016, for “appointed by the State Government” (w.e.f. 28-11-2016).

under section 56 without a letter of authority in Form 39 granted by the registering authority.

(2) An application for grant or renewal of a letter of authority under sub-rule (1) shall be made in Form 40 to the registering authority having jurisdiction in the area in which the service station or garage is situated and shall be accompanied by,—

- (a) the appropriate fee as specified in rule 81;
- (b) a security deposit of ¹[rupees one lakh] in such manner as may be specified by the State Government.

Explanation—For the purpose of this rule and rules 64 to 72, the registering authority means an officer not below the rank of the regional transport officer of the Motor Vehicles Department established under section 213.

(3) A registering authority shall, when considering an application for the grant or renewal of a letter of authority, have regard to the following matters, namely:—

- (a) the applicant or at least one of the members of the staff employed by him for the inspection of transport vehicles for the purpose of issue or renewal of certificate of fitness possesses the following minimum qualifications:—
 - (i) a ²[three years] diploma in automobile engineering or mechanical engineering or an equivalent qualification;
 - (ii) experience of minimum service of five years in an automobile workshop undertaking repairs of heavy goods vehicles, heavy passenger motor vehicles, medium motor vehicles and light motor vehicles;
 - (iii) a driving licence to drive motorcycles, heavy passenger motor vehicles and heavy goods vehicles with a minimum driving experience of not less than five years;
 - (iv) thorough knowledge of the Act and the rules made thereunder, especially the Chapters relating to registration of motor vehicles and construction, equipment and maintenance of motor vehicles;
- (b) the premises where the authorised testing station is to be housed is either owned by the applicant or is taken on lease by him or is hired in his name and it has ¹[minimum of one acre of land] for administrative section, reception room and ¹[sanitary block and space for erection] of testing equipments and other apparatus;
- (c) inspection lanes are provided adjacent to the building in the same compound or at other places approved by the registering authority;
- (d) testing equipments and apparatus are installed in such manner that vehicles may pass through with ease and speed;
- ³(e) the applicant maintains in good condition, the equipment and apparatus for undertaking test pertaining to ⁴[exhaust gas, engine tuning, engine analysis] smoke emission, brake system, head-lights, wheel alignments, compressors, speedometers and other like components;
- (f) the financial resources of the applicant are sufficient to provide for its continued maintenance.
- (g) The applicant maintains an up-to-date copy of the Act, these Rules and the concerned State Motor Vehicles Rules.

(4) The registering authority shall also, when considering an application under this rule, take into consideration the fact that the setting up of the authorised testing station will improve the availability of testing facilities in the area both in relation to the number of vehicles and proximity to such facilities.

(5) The registering authority may, on receipt of an application under sub-rule (2) and after satisfying himself that the applicant has complied with the requirements of sub-rules (3) and (4), grant or renew the letter of authority in Form 39:

1. Subs. by G.S.R. 338(E), dated 26th March, 1993 (w.e.f. 26-3-1993).
2. Ins. by G.S.R. 338(E), dated 26th March, 1993 (w.e.f. 26-3-1993).
3. Subs. by G.S.R. 933(E), dated 28th October, 1989 (w.e.f. 28-10-1989).
4. Subs. by G.S.R. 214(E), dated 18th March, 1999 (w.e.f. 18-3-1999).

Provided that no application for a letter of authority shall be refused by the registering authority unless the applicant is given an opportunity of being heard and reasons for such refusal are given in writing by the registering authority.

64. Duration of letter of authority.—A letter of authority granted or renewed shall be effective for a period of five years from the date of grant or renewal.

65. General conditions to be observed by the holder of letter of authority.—The holder of a letter of authority shall—

- (a) maintain a register with a separate page for each vehicle containing the registration number of the vehicle for which the certificate of fitness is granted or renewed, the make and model of the vehicle, the engine number and the chassis number of the vehicle along with the pencil point of the chassis number, the name and address of the owner of the vehicle, particulars of any permit of such vehicle, period of validity of certificate of fitness granted or renewed and the signature of the owner of the vehicle or his authorised representative;
- (b) forward the particulars of the transport vehicles for which certificates of fitness have been granted or renewed and the period of validity of such certificate, within two days of grant or renewal of the certificate of fitness, to the authority which has granted the permit and where the transport vehicle is not covered by a permit, to the transport authority in whose jurisdiction the vehicle is kept;
- (c) issue to every transport vehicle satisfying the requirements of section 56, a certificate of fitness in accordance with the provisions of rule 62;
- (d) not shift the place of business mentioned in the letter of authority without the prior approval in writing of the registering authority which granted the letter of authority;
- (e) keep the premises of the testing station and the records and registers maintained by it and all the machinery, equipment and apparatus in the premises at all reasonable times open for inspection by the registering authority or any person of the Motor Vehicles Department of the State Government established under section 213 authorised in this behalf by the registering authority;
- (f) display at a prominent place in its main office the following:—
 - (i) the letter of authority in original issued to the authorised testing station by the registering authority;
 - (ii) the name and address of the person authorised to issue or renew the certificate of fitness;
 - (iii) the qualifications of the persons referred to in clause (a) of sub-rule (3) of rule 63;
- (g) not charge a fee for inspection of a vehicle for the purpose of issue or renewal of the appropriate certificate of fitness in excess of the fee specified in rule 81;
- (h) surrender to the Regional Transport Authority having jurisdiction over the area, the register referred to in clause (a) as soon as entries in all the pages in the register are completed and in any case not later than two days after such completion.

66. Issue of duplicate letter of authority.—(1) If at any time the letter of authority granted or renewed under sub-rule (5) of rule 63 is lost or destroyed, the holder of the letter of authority shall report to the police station in the jurisdiction of which the loss or destruction has occurred and intimate the fact in writing to the registering authority which granted or renewed the letter of authority and shall apply for a duplicate.

(2) On receipt of an application along with the appropriate fee as specified in rule 81, the registering authority may issue a duplicate letter of authority clearly marked "Duplicate".

(3) If after the issue of a duplicate letter of authority, the original is traced, the same shall be surrendered forthwith to the registering authority by which it was issued.

67. Supervision of authorised testing stations.—The registering authority or any officer of the Motor Vehicles Department of the State Government duly authorised in this behalf by the registering authority may, at any time, conduct test checks at the premises of the authorised testing station with a view to ensure that the vehicles are properly tested by the authorised testing station.

68. Power of registering authority or Regional Transport Authority to call for information.—The authorised testing station shall submit to the registering authority or the Regional Transport Authority having jurisdiction in the area, such information or returns as may be called for by such authority from time to time.

69. Power of registering authority to suspend or cancel the letter of authority or forfeit security deposit.—(1) If the registering authority is satisfied after giving the holder of a letter of authority an opportunity of being heard, that he has—

- (a) failed to maintain the equipment, machinery and apparatus referred to in sub-clause (e) of sub-rule (3) of rule 63 in good condition; or
- (b) failed to comply with the other requirements laid down in sub-rule (3) of rule 63; or
- (c) failed to observe correct standards of testing before granting or renewing certificates of fitness as noticed at the time of test-checking referred to in rule 67 or the frequency of accidents involving transport vehicles covered by certificates of fitness granted or renewed by the authorised testing station attributable to any mechanical defect of the vehicle,

it may—

- (i) suspend the letter of authority for a specified period; or
- (ii) cancel the letter of authority; or
- (iii) order forfeiture of the security deposit furnished by the authorised testing station.

(2) Where the letter of authority is suspended or cancelled under sub-rule (1), the holder of the letter of authority shall surrender the same to the registering authority forthwith.

(3) Where the security deposit is forfeited under sub-rule (1), the holder of the letter within thirty days of the receipt of the order of forfeiture, remit to the registering authority the amount ordered to be forfeited so that the requirement of sub-rule (2) of rule 63 in relation to deposit of security is complied with.

70. Appeal.—Any person aggrieved by an order of the registering authority under sub-rule (5) of rule 63 or sub-rule (1) of rule 69, may, within thirty days of the receipt of the order, appeal to the Head of the Motor Vehicles Department of the State Government established under section 213.

71. Procedure for appeal.—(1) An appeal under rule 70 shall be preferred in duplicate in the form of a memorandum, setting forth the grounds of objections to the order of the registering authority and shall be accompanied by the appropriate fee as specified in rule 81 and a certified copy of such order.

(2) The appellate authority may, after giving an opportunity to the parties to be heard and after such enquiry as it may deem necessary, pass appropriate orders.

72. Voluntary surrender of letter of authority.—(1) The holder of a letter of authority may, at any time, surrender the letter of authority issued to him, to the registering authority which has granted the letter of authority and on such surrender, the registering authority shall cancel the letter of authority forthwith.

(2) On cancellation of the letter of authority under sub-rule (1), the registering authority shall refund to the holder of the letter of authority, the amount of security deposit referred to in sub-rule (2) of rule 63 in full and without any interest.

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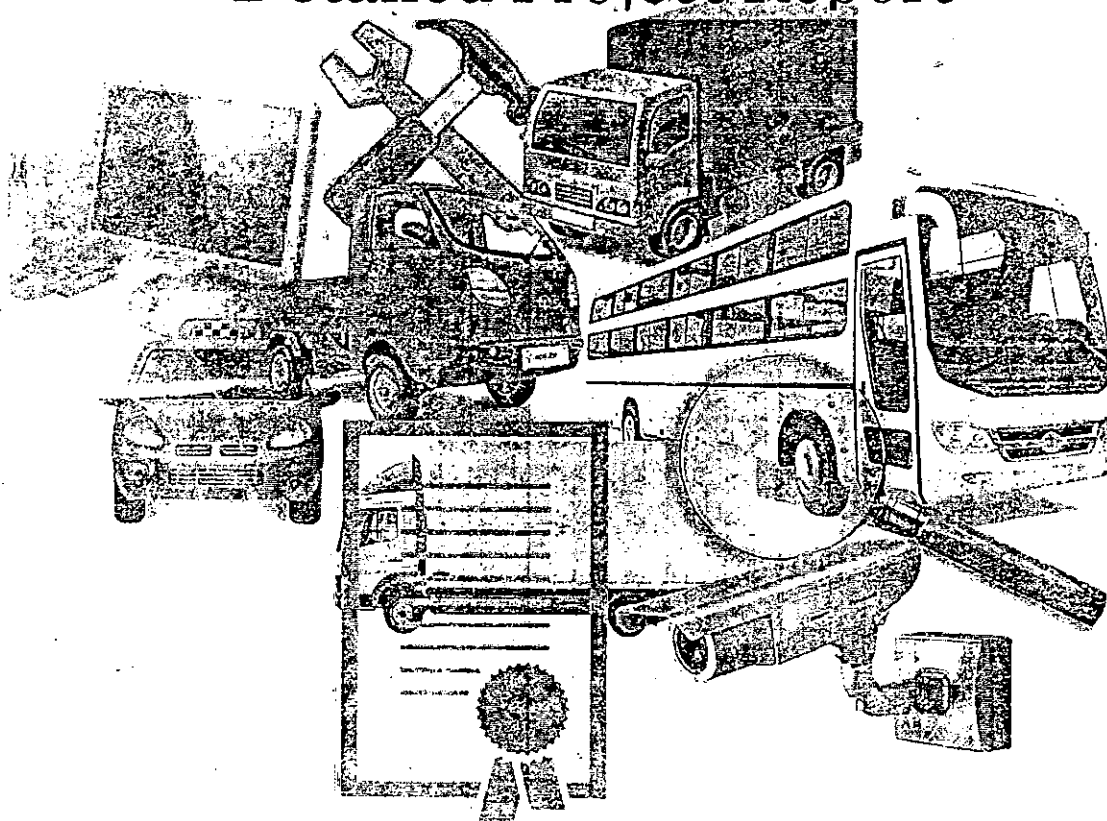
Excellence in Transport

AUTOMATED TESTING STATIONS (ATS)

ON PPP MODE

IN PUNJAB

Detailed Project Report



Research & Consultancy Center
Central Institute of Road Transport

Post Box No. 1897
Pune Nasik Road
Pune - 411026, India
Tel: +91 2067315300
Fax: +91 2067315107
Website: www.cirtindia.com

DETAILED PROJECT REPORT

FOR

ESTABLISHMENT OF AUTOMATED TESTING
STATIONS (ATS) ON PPP MODE
IN PUNJAB

FINAL REPORT

January 2016

Prepared by

CENTRAL INSTITUTE OF ROAD TRANSPORT

Pune

Team Composition

<i>Team Leader</i>	Ms G Subhashini
<i>Team Members</i>	<ul style="list-style-type: none">• Shri Umesh Suryawanshi• Shri Harishkumar Jadhav• Ms Prithvi Bhat• Ms Kokila Arora• Shri Nitin Shinde
<i>Office Assistants</i>	<ul style="list-style-type: none">• Ms Ajitha Narayanan• Shri Arun Rawat

Acknowledgements

CIRT expresses its appreciation and gratitude to, **Shri Ajit Singh Kohar**, Hon. Transport Minister, Punjab State for showing keen interest in the project in the interest of all stakeholders. CIRT extends its deep sense of gratitude to **Shri Venkat Ratnam**, IAS Principal Secretary (Transport), Government of Punjab for awarding the project to CIRT considering the project benefits. Special thanks are extended **Shri Harmail Singh Sra**, IAS Transport Commissioner, Government of Punjab, for extending constant support to the team, his involvement in the project and providing important inputs during the preparation of the report. The study team thanks **Shri Abhay Damle**, IRS, Joint Secretary, MoRTH for his continuous encouragement and guidance during the project.

Thanks are also due to **Shri Asish Misra**, Director, CIRT for the cooperation extended to the study team for the project.

The study team thanks the staff of the Consultancy and Computer Centre, CIRT for their cooperation in the data entry process and compilation of report. We also thank our technology partners for their valuable inputs.

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Chapter i

Introduction

1.1 Overview

Indian regulatory laws have always emphasized on the importance of vehicle fitness as vehicle's safety performance plays a crucial role in road safety. Substantial number of vehicles in India do not meet the roadworthiness requirements and can be rightly considered as the cause of significant number of road accidents. As per statistics, 28 accidents were caused due to vehicle defect alone in Punjab. The numbers are much more nationally. Poor maintenance and servicing of old vehicles not only damage the environment but also pose threat to road safety. With rapid increase in motorized vehicle usage, it is extremely essential to improve the vehicle performance, serviceability and also reduce its impact on environment, specifically on air quality.

The present practice of the State Transport Departments is to issue Fitness Certificate to each Commercial Vehicle in Form 38 as per CMVR Rule 62 Section 56 depending upon its road worthiness in order to ensure safety and health of citizens. Such certificate when granted or renewed shall be valid for the period as indicated below:

- a) Fitness Certificate for new transport vehicle is valid for 2 years
- b) Renewal of certificate of fitness new transport vehicle valid for 1 year
- c) Renewal of certificate of fitness for new transport vehicle covered under tourist permits is valid for 1 year
- d) Fresh registration of imported vehicles: Same period as in the case of vehicles manufactured in India having regard to the date of manufacture.

The Fitness Certificate is to be issued after the overall inspection of the vehicle. The components to be tested include:

1. Sparkplug/ Suppressor cap/High Tension cable
2. Head Lamp Beams
3. Other Lights
4. Reflectors
5. Bulb
6. Rear View Mirror
7. Safety Glass
8. Horn
9. Silencer
10. Dash Board Equipment
11. Windshield Wiper
12. Other Lights
13. Braking system
14. Speedometer
15. Steering gear

The CMVR provides detailed procedure to be followed for the vehicle inspection. Special emphasis is laid on the tests related to braking system and steering gear. To certify the braking system, officers are required to take a test drive on a dry level hard road in good condition.

The present practice is to assess these specified fitness parameters only visually. This is due to the unavailability of adequate infrastructure with the departments required for a scientific inspection. This practice of manual inspection is unable to meet the quality requirements and is found to be deficient in reaching the objectives of the underlying certification mechanism. In order to maintain air quality standards and further improve it, the compliance of vehicles with emission norms need to be enforced through an effective vehicle inspection system.

The process of fitness renewal of the vehicles has also been a recurring issue in CMVR. Substantial number of vehicles do not appear for fitness certificate renewals and tracking such vehicles also is a difficult task. Judicial forums have been adversely commenting on the state of affairs followed by the Regional Transport Authorities for fitness certification. An effective vehicle inspection system can alone help all the stakeholders in improving road safety, pollution levels and road worthiness of in-use vehicles.

In this regard, the Government of Punjab has agreed to take assistance from CIRT for expertise and knowledge in Transport sector with respect to testing and consultancy services in establishing Automated Testing Stations (ATS) in Punjab.

1.2 Objective

The main objective of setting up of Automated Testing Stations is to scientifically test the road worthiness of the in-service transport vehicles as per rule 62 of CMVR as against visual examination in vogue. It will in turn ensure the safety and security of the vehicles but general public at large besides enhancing cleaner environment.

1.3 Road safety

Road Safety is a multispectral and multidimensional issue. It incorporates the development and management of road infrastructure, provision of safer vehicles, legislation and law enforcement, mobility planning. The unplanned and rapid development in the urban domains has inflated challenges with respect to the transport system such as traffic congestion, increase in the pollution levels and road traffic accidents. Despite of substantial efforts to improve personal mobility and freight management, the local bodies are facing difficulties in controlling the increasing rate of private motorization. Road traffic injuries accounted for 2.2% of all global deaths, making them the ninth leading cause of deaths in the world. Accidents impose significant costs of accidents around 3% of GDP in India.

It is distressing to note that on an average 10 persons are killed in road accidents every day in Punjab. Besides causing unfold misery to the victims' families, casualties in road accidents cause huge economic loss to the society. The present road fatality death rate per lakh population in Punjab is 12 compared to 12.8 of India and 24 of Haryana.

The total number of accidents and persons killed during 2013 were 6323 and 4588 respectively. Following table 1.1 will clarify the accident scenario of the state for past five years.

Table 1-1 Accident Scenario in Punjab

Year	Number of accidents	Fatal Accidents	Non-Fatal Accidents
2011	6513	4931	4081
2012	6341	4820	3997
2013	6323	4588	4383

(Source: Statistics Abstract of Punjab, 2014)

Table 1-2 Severity of Road Accidents

Person killed per 100 accidents			
2009	2010	2011	2012
65.9	64.3	75.7	76

Statistics of road accident analysis has shown that In Punjab nearly 65% of those involved in road accidents in the state are in the age group of 25-40 years and in 60% cases, the accident occurred due to driver error. In Punjab 30% accidents occurred on the national highways, 25% on state highways and the rest on other roads. Road accident analysis shows that cars have the maximum share of 25% as the type of vehicles followed by MAV at 24.7% for total number of accidents happens in Punjab as presented in figure 1.1.

% SHARE OF TYPE OF VEHICLES FOR TOTAL ROAD ACCIDENTS

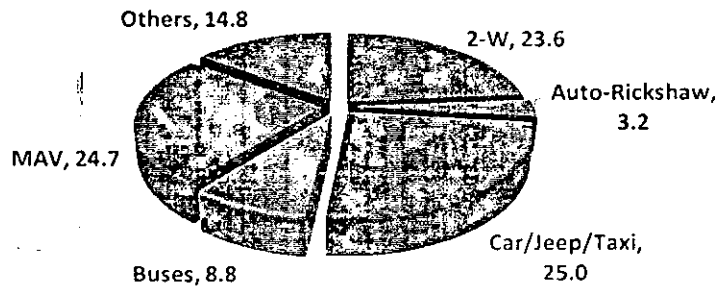


Figure 1-1 Total Number of Road Accidents According to Type of Vehicles

(Source: Road accident year book 2012)

1.4 The Need

Road accidents are resulting in the untimely and needless death and injuries of many persons every year. With the driver & Vehicle being responsible for a significant share of road accidents, many of these casualties would have been avoided with proper maintenance of vehicles. Road safety has greatly been improved through the utilisation of effective technologies.

Keeping in view the road safety requirements and objectives, Punjab state road transport department is planning to establish Automated Testing Stations on PPP mode, where all the commercial vehicles (HCVs, LCVs, MCVs, taxis & 3 wheelers) can be tested for fitness parameters like Brakes, Headlight, Suspension, Alignment, Emissions, and Speedometer including above and under carriage inspection. CIRT is assisting the State Government in setting up a network of Automated Testing Stations all over the state.

1.5 Vision

This projects proposes establishment of automated centers around the State of Punjab, which would scientifically evaluate to the fitness of in-service transport vehicles with minimal human intervention. A fully computerized testing mechanism would be adopted to ensure a transparent system that would work towards maintaining adequate safety and environmentally acceptable standards for commercial vehicles. The DPR proposes to improve road safety of Punjab by reducing the number of road accidents. This can be achieved by establishing the Automated Testing Stations.

The core objectives:

1. Scientifically test the road worthiness of in-service transport vehicles as per Rule 62 of CMVR as against visual examination in vogue
2. Ensure safety and security of the vehicles to reduce accidents.
3. Less pollution, cleaner environment and reduce the vehicle operating cost.
4. Facilitate in establishing end of life of vehicles, presently missing in the rules and introduce concept of scrapping of old vehicles running on roads

1.6 A Backdrop of the State

1.6.1 General / Historical background

Punjab is a north-western state of India bordered by the Indian states of Jammu & Kashmir to the north, Himachal Pradesh to the east, Haryana to the south and southeast and Rajasthan to the southwest as well as the Pakistani province of Punjab to the west as depicted in Figure 1-2.

After the partition of India in 1947, the Punjab province of British India was divided between India and Pakistan. The Indian Punjab was divided in 1966 with the formation of the new states of Haryana and Himachal Pradesh, as well as the present state of Punjab. Chandigarh, which is a union territory is the state capital and also the capital of the neighbouring state of Haryana. Punjab is an inland delta of five converging rivers. The word Punjab is from Sanskrit and Persian

words which roughly mean "Land of Five Rivers". The five rivers are the Beas, Sutlej, Ravi, Chenab and Jehlum.

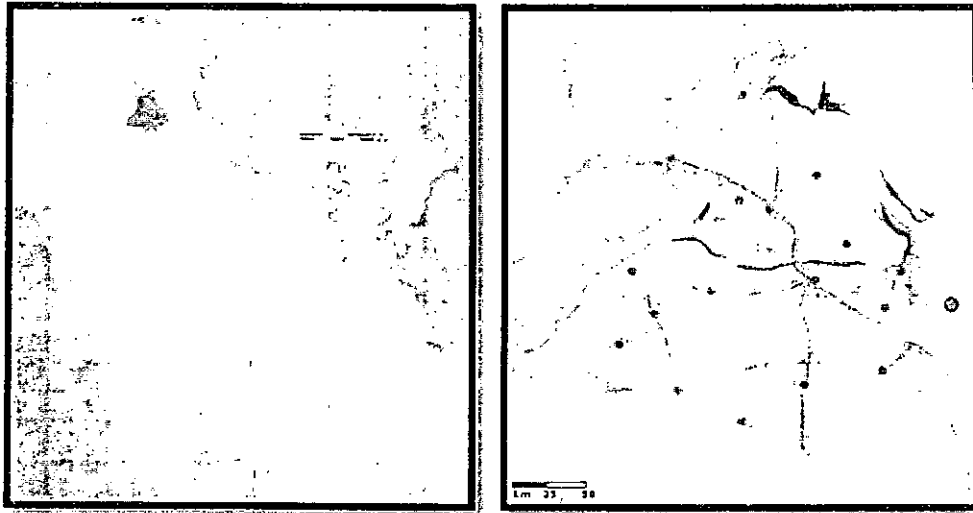


Figure 1-2: Punjab Location, Climate, physical setting, regional linkages

1.6.2 Administration

The state of Punjab has 22 districts which comprise of sub-divisions, tehsils and blocks. There are 22 cities and 157 towns in Punjab. The major cities of Punjab include Amritsar, Jalandhar, Ludhiana, Patiala, Tarn Taran, Nawanshahr, Firozepur, Bathinda and Hoshiarpur

1.6.3 Geography

Punjab has an area of 78,360 km². It extends from 29.30° N to 32.32° N latitudes and 73.55° E to 76.50° E longitudes. Most of the Punjab lies in a fertile plain, alluvial plain with many rivers and an extensive irrigation canal system. A belt of undulating hills extends along the northeastern part of the state at the foot of the Himalayas. Its average elevation is 300 meters above sea level, with a range from 180 meters in the southwest to more than 500 meters around the northeast border. The southwest of the state is semiarid, eventually merging into the Thar Desert. The Shiwalik Hills extend along the northeastern part of the state at the foot of the Himalayas.

The soil characteristics are influenced to a limited extent by the topography, vegetation and parent rock. The variation in soil profile characteristics are much more pronounced because of the regional climatic differences. Punjab is divided into three distinct regions on the basis of soil types (southwestern, central and eastern).

1.6.4 Climate

Punjab's has both climate conditions (extreme hot and extreme cold). Annual temperatures in Punjab range from 2 to 40°C (min/max), but can reach 47°C in summer and 0°C in winter. The northeast area lying near the foothills of the Himalayas receives heavy rainfall, whereas the area lying further south and west receives less rainfall and experiences higher temperatures. Average annual rainfall ranges between 960 mm in the sub-mountain region and 460 mm in the plains.

Punjab has three seasons:

- Summer (April to June), when temperature typically rise as high as 47°C.
- Monsoon season (July to September), when a majority of rainfall occurs.
- Winter (December to February), when temperatures typically fall as low as 0°C.

1.6.5 Population

According to the 2011 Indian Census, the population of Punjab is 27,704,236 with 14,634,819 males and 13,069,417 females. The literacy rate in Punjab is 75%, male literacy being 80.23% and female literacy 68.36%. Being an agricultural state, a large part of the population lives in the rural area. Roughly 66% of the people live in rural areas while the rest of the 34% are urban residents. The scheduled caste population is 28.3%, the highest percentage in a state in India.

1.6.6 Language

Punjabi language is the official language of the state. The language is popular across India and the wider world due to the large scale migration of Punjabis and the rich Punjabi music. It is also the second official language in the Indian states of Haryana, Himachal Pradesh, and the National capital of Delhi. Punjabi is the most spoken immigrant language in England and the fourth most spoken language in Canada according to official census. Punjabi is the 10th most spoken language in the world and 4th most spoken language in Asia. The major dialects of Punjabi spoken in Indian Punjab are Majhi, Malwi, Pwadhi and Doabi.

1.6.7 Religion

Punjab is the only state in India with a majority Sikh population. Sikhism is the predominant faith in Punjab followed by 60% of the populace. The holiest of Sikh shrines, the Sri Harmandir Sahib (or Golden Temple), is in the city of Amritsar. Hinduism is the second most practised faith in Punjab forming 37% of the population. A large segment of Punjabis who are categorized as Punjabi Hindus continue heterogeneous religious practices with spiritual kinship with Sikhism. Other religions such as Islam (1.5%) and Christianity (1.2%) are also followed alongside Buddhism (0.17%) and Jainism (0.16%).

1.6.8 Economy

Agriculture is the largest industry in Punjab; it is the largest single producer of wheat in India. Other major industries include the manufacturing of scientific instruments, agricultural goods, electrical goods, financial services, machine tools, textiles, sewing machines, sports goods, starch, tourism, fertilizers, bicycles, garments, and the processing of pine oil and sugar. Punjab also has the largest number of steel rolling mill plants in India, which are located in Steel Town Mandi Gobindgarh, District Fatehgarh Sahib.

Punjab has been recognized as the best overall state by India Today since 2003 and has been able to retain the top position every year. It affords the best quality of life to its residents. According to the India State Hunger Index, Punjab has the lowest level of hunger in India. Punjab has the best infrastructure in the country. Although it has a huge shortage of electricity due to high demand, all major cities in Punjab benefit from this and have some of the lowest tariffs in India. All of Punjab's villages have been provided electricity and have been connected to the state electrical power grid since 1974. Punjab is one of the most fertile regions on earth. The region is ideal for wheat-growing. Rice, sugar cane, fruits and vegetables are also grown. Indian Punjab is called the "Granary of India" or "India's bread-basket". It produces 10.26% of India's cotton, 19.5% of India's wheat, and 11% of India's rice. The Fazilka and Ferozpur Districts

are the largest producers of wheat and rice in the state. In worldwide terms, Indian Punjab produces 2% of the world's cotton, 2% of its wheat and 1% of its rice. The largest cultivated crop is wheat. Other important crops are rice, cotton, sugarcane, pearl millet, maize, barley and fruit. Rice and wheat are double cropped in In The state has been awarded the National Productivity Award for agriculture extension services for ten years from 1991-92 to 1998-99 and from 2001 to 2003-04.

1.6.9 Transportation

The infrastructure of Punjab has been rated the best in India. Public transport in Punjab is provided by buses, auto rickshaws, Indian railways and an international rail connection to Pakistan. The state has a large network of multimodal transportation system:

a) Air

Punjab has six major airports. Domestic airports are at Ludhiana, Patiala, Pathankot, Ajitgarh. The international airport, Sri Guru Ram Dass Jee International Airport in Amritsar is the largest and most important airport in the state and is also the second busiest in North India after Delhi Airport.

b) Rail

Almost all the major as well as smaller cities of the state are linked through railways. Amritsar is the largest railway station having trains connecting to all major cities. Shatabdi Express connects Amritsar to Delhi. The railway junction in Bathinda is the largest in Asia. The length of rail routes passing through the state is around 3,726 km.

c) Road

Punjab has always accorded top priority to infrastructure development. The road length in Punjab is 44,076 km out of which provincial roads are 42,589 km while national highways are 1,557 km. All villages of the state have been linked with metalled road. All the cities and towns of Punjab are connected with four-lane roads National Highway. The Grand Trunk Road also called as NH1 connects Calcutta to Peshawar passing through Jalandhar and Amritsar. Another major national highway connects Punjab to Jammu passing through Hoshiarpur and Pathankot. The state road conditions are the finest in India. The national highways passing through the state with a total length of 1557 km are ranked the best in the country with widespread road networks that serve isolated towns as well as the border region.

1.7 Current Transport Scenario in the State

The following details preferably for the last five financial years may be included:

1.7.1 Vehicle registrations

As per the available statistics as shown in Table 1-3, Punjab has about 5274254 vehicle registrations as on March 2010. Details of the same are provided in table 1.1 given below. 95% of the vehicles belong to the Non-Transport Category. Two wheelers contribute to 75% of the total vehicles in Punjab. As on March 2011, Punjab had about 1766 buses in the public transport sector which is a mere 6.5% of the total 27146 buses plying in Punjab.

Table 1-3: Vehicles Registered in Punjab as on March 2010

Sl. No.	Vehicle Category	Type of vehicle	Total Registered Vehicles	Share
1	Transport	Multi-axled/articulated vehicles/Trucks & Lorries	149367	2.8%
		Light Motor Vehicle (Goods)	20186	0.4%
		Buses	27146	0.5%
		Taxis	15837	0.3%
		Light Motor Vehicle (Passenger)	57879	1.1%
		Total	270415	5.1%
2	Non-Transport	Two Wheelers	3956279	75.0%
		Cars	484064	9.2%
		Jeeps	54798	1.0%
		Tractors	497551	9.4%
		Trailers	966	0.0%
		Others	10181	0.2%
		Total	5003839	94.9%
Grand Total			5274254	100%

1.7.2. Trends in vehicular growth

The total number of vehicles registered in Punjab during 2002-2010 is given in the following table. During this period, vehicles have been growing at an average rate of 6.9%.

Table 1-4: Vehicular Growth in Punjab during 2002-10

Sl. No.	Year	Total Registered Vehicles	Annual Growth Rate
1	2002	3103000	-
2	2003	3308000	6.6%
3	2004	3529000	6.7%
4	2005	3876000	9.8%
5	2006	4035000	4.1%
6	2007	4294000	6.4%
7	2008	4573000	6.5%
8	2009	4832000	5.7%
9	2010	5274000	9.1%

Chapter 2

Data Collection

Introduction

The accurate determination of number of Centers and number of test lanes required for ATS in the state of Punjab requires huge amount of data and rigorous analysis of the data in hand. The following data have been collected from each RTOs within the state in this direction:

Secondary Data
<ul style="list-style-type: none">• Vehicle Registrations• Fitness Certificates Levels

As a progressive step towards Establishment of ATS Centers in Punjab, a meeting has been held with the Transport Commissioner and representatives from the Punjab Transport Department in May, 2015 at Chandigarh.

Secondary Data

In an attempt to identify the number of ATS test centers & lane requirements, the following data was collected and studied:

2.1.1 Vehicle Registration

The category wise vehicle registrations in the transport category in each of the RTOs upto 31st of March of every year from 2012 to 2015 was collected. Analysis has been conducted to study the category wise annual growth rate of transport vehicles in an attempt to use the same for projecting the future vehicle registrations.

2.1.2 Fitness Certification Levels

As per the discussion with the Transport Department of Punjab the Fitness level considered was 75% for projecting the future vehicle fitness certifications. Due to the non-availability of category wise fitness certifications of the transport vehicles in each RTO.

Working Assumptions for ATS Centers

1. A failure rate of 20% is assumed of the vehicles coming for test. This 20% is assumed to reappear for the fitness test.
2. The annual lane capacities have been assessed considering the following 12 working hours per day
3. Equipment & Utility Infrastructure Replacement every 10 years
4. Equipment cost with 2 years warranty and 5 years comprehensive AMC increases @3% per annum
5. Civil Construction Costs for Replacement increase @ 7% per annum. After 10 years about 25% reinvestment is required for maintenance of building.

6. Utility Costs increase @ 3% per annum
7. Project Management charges increase @ 5% per annum
8. Operational Costs increase @ 5% per annum
9. CIRT Project Monitoring Fee @ 2% of Traffic Revenue
10. Revenue from VAS @ 5% of testing revenue every year
11. Test fee increases @ 25% every 5 years
12. Annual Lane Capacities

Annual Lane Capacities						
Years -->	1-4 years		5-9 years		10-14 years	
Type of Lane -->	LD	HD	LD	HD	LD	HD
No. of Vehicles checked/hour/lane	7	5	8	6	8	6
No. of Working Hours/Day	10	10	10	10	10	10
No. of Vehicles checked/day/lane	70	50	80	60	80	60
No. of Working Days/Year	300	300	300	300	300	300
Operating Efficiency (%)	90	90	90	90	90	90
Capacity of single Lane/Annum	18900	13500	21600	16200	21600	16200
Occupancy (%)	85	85	85	85	85	85
No. of Vehicles checked/Lane/Annum	16065	11475	18360	13770	18360	13770

a) Areas Estimates

1 LD Lane Area (32x5 along with HD lane or 24x5 if only LD lane)	160	sqmt
1 HD Lane Area	192	sqmt
LD Parking Area	1056	sqmt
HD Parking Area	1200	sqmt
Utility area (Inner) per lane	20	sqmt
Common Circulation area	160	sqmt

Building Area			
Record Room	6.00	6.00	36
MVI, Staff, HOD & Payment Counters	6.00	6.00	36
Forms & Enquiry Counter	6.00	3.00	18
Toilet & Water Provision	11.50	6.55	75
Sub-total			165

Passage Area	10%		17
Under Ground Water Tank	5	5	25
Total Area			207

Circulation Area			
Details	L (m)	W (m)	Area (sqmt)
Common Circulation	32	5	160
LD Turning	20	5	100
HD Turning	40	5	200

Waiting Area per Lane			
Type of Lane	No. of Persons	Area per person (sqmt)	Total Area (sqmt)
LD Lane	24	1	20
HD Lane	18	1	15

Total Area (sqmt)		
Per LD Area	1356	
Per HD Area	1627	
Common Area	Admin	207
	Circulation	160
	Utilities (Outer)	50

b) I&C Area Requirements (in acres)

No. of LD Lanes	No. of HD Lanes															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.00	0.63	1.13	1.64	2.14	2.64	3.14	3.65	4.15	4.65	5.15	5.66	6.16	6.66	7.16	7.67
1	0.54	1.05	1.55	2.06	2.56	3.06	3.56	4.07	4.57	5.07	5.57	6.08	6.58	7.08	7.58	8.09
2	0.94	1.47	1.97	2.47	2.98	3.48	3.98	4.48	4.99	5.49	5.99	6.49	7.00	7.50	8.00	8.51
3	1.35	1.89	2.39	2.89	3.40	3.90	4.40	4.90	5.41	5.91	6.41	6.91	7.42	7.92	8.42	8.92
4	1.75	2.31	2.81	3.31	3.81	4.32	4.82	5.32	5.82	6.33	6.83	7.33	7.84	8.34	8.84	9.34
5	2.16	2.73	3.23	3.73	4.23	4.74	5.24	5.74	6.24	6.75	7.25	7.75	8.25	8.76	9.26	9.76
6	2.57	3.14	3.65	4.15	4.65	5.15	5.66	6.16	6.66	7.17	7.67	8.17	8.67	9.18	9.68	####
7	2.97	3.56	4.07	4.57	5.07	5.57	6.08	6.58	7.08	7.58	8.09	8.59	9.09	9.59	####	####
8	3.38	3.98	4.48	4.99	5.49	5.99	6.50	7.00	7.50	8.00	8.51	9.01	9.51	####	####	####
9	3.79	4.40	4.90	5.41	5.91	6.41	6.91	7.42	7.92	8.42	8.92	9.43	9.93	####	####	####
10	4.19	4.82	5.32	5.83	6.33	6.83	7.33	7.84	8.34	8.84	9.34	9.85	####	####	####	####
11	4.60	5.24	5.74	6.24	6.75	7.25	7.75	8.25	8.76	9.26	9.76	####	####	####	####	####

12	5.01	5.66	6.16	6.66	7.17	7.67	8.17	8.67	9.18	9.68	####	####	####	####	####	####
13	5.41	6.08	6.58	7.08	7.58	8.09	8.59	9.09	9.59	####	####	####	####	####	####	####
14	5.82	6.50	7.00	7.50	8.00	8.51	9.01	9.51	####	####	####	####	####	####	####	####
15	6.23	6.91	7.42	7.92	8.42	8.92	9.43	9.93	####	####	####	####	####	####	####	####

13. Test Charges

Revised fees for automated fitness and other tests are considered from Sharma Committee report as shown below:

Vehicle Type	Existing Test Charges			Proposed Test Charges		
	Fitness	PUC	Total	Fitness	PUC	Total
3W -G/LPG/CNG	100	30	130	600	30	630
3W -Diesel	100	80	180	600	80	680
LMV	200	100	300	600	100	700
MMV	300	100	400	1000	100	1100
HMV	400	100	500	1000	100	1100

14. Project Cost

Cost Heads	4 Lanes	2 lanes		single lane	
		1 LD + 1 HD	LD	HD	HD
Equipment for four lanes with two year warranty and 5 years AMC (comprehensive)	272.5	136.2	68.6	67.6	
Common Equipment Cost	46.7	23.4	11.7	11.7	
Civil Construction (Building, internal RCC roads, parking, firefighting, drainage, etc.)	400.0	200.0	80.0	120.0	
Common Construction Cost	45	22.5	11.3	11.3	
Utility Cost (DG sets, compressor, furniture, air-condition, etc)	100.0	60.0	50.0	50.0	
Project management fee (38.8 Per Center)	18.2	9.1	4.6	4.6	
Operation Cost	240.0	120.0	60.0	60.0	
Total cost	1122.4	571.2	286.2	325.2	

(All amounts are indicated in Rs lakhs)

Chapter 3

Data Analysis & Results

Introduction

The Punjab Motor Vehicles Department was established with a vision to provide safe transportation of goods & passengers along with prompt & citizen friendly services relating to Motor Vehicles. For smooth operation and administration, the Transport Department Punjab has been divided into four regions. Details of the data analysis undertaken for Punjab state is given in the subsequent paragraphs.

The data analysis was carried out after a detailed validation of the collected data. Due to inconsistency observed in the data and limitations of the study, certain assumptions were considered for analysis to determine the number of test lanes required to cater to the fitness certifications of transport vehicles in Punjab for 15 years from now.

Data Analysis & Results

3.1.1 Transport Vehicle Registrations & Fitness Certification

The total number of registered transport vehicles in Punjab as on 31st March 2015 is 423885. The Fitness certification levels considered is 75% after the discussion with Transport department and the average annual growth rates of transport vehicle registrations is 8.01% taken from Road Transport Year Book (2011-12).

The projected the future vehicle registrations and fitness certificates to be issued during 2016-32 are shown in Figure 3.1.

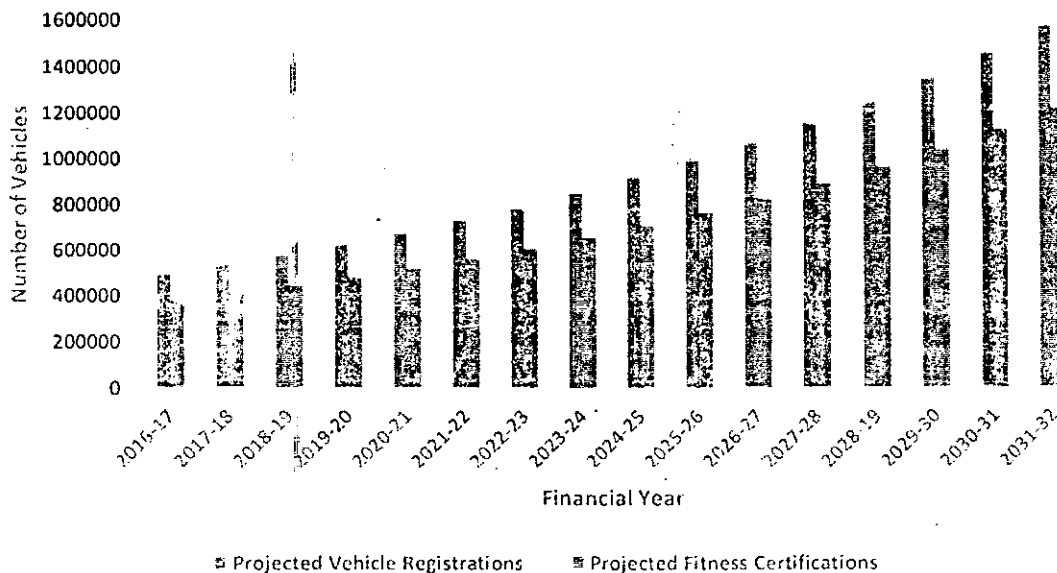


Figure 3-1: Projected Statistics in Punjab

The data analysis on the vehicle registration and fitness certification, trends and projections for the next 15 years reveals the ATS lane requirements for the project provided in the following Table 3-1. Constructing Centers at each location is not financially viable considering this parameter clustering of the location is done. While clustering of the locations the main criteria consider is the distance between the location, care is taken to not to exceed 100km between the location. ATS locations with clusters and distance are shown in figure 3.2.

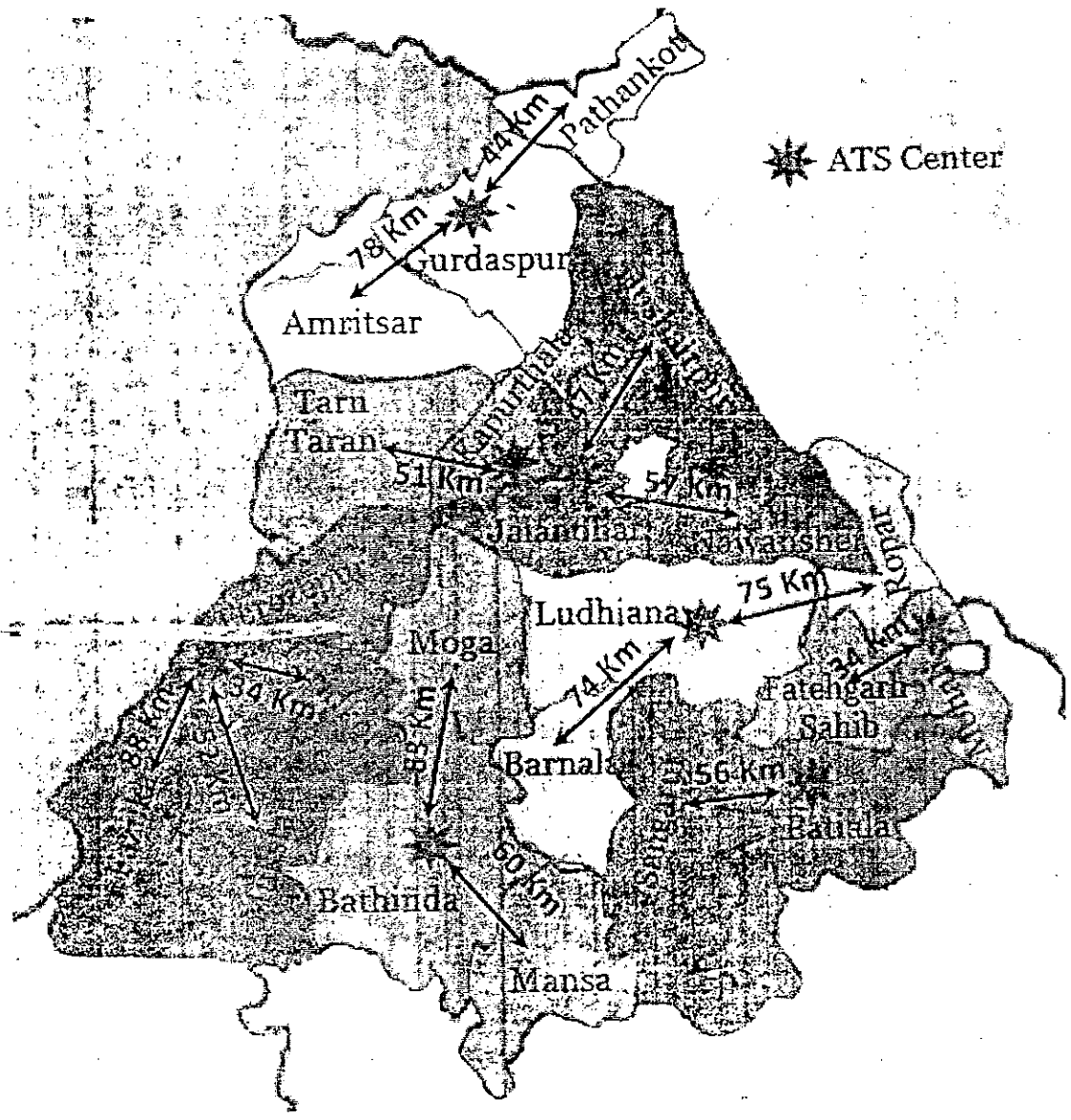


Figure 3-2 ATS locations with clusters and distances.

Table 3-1: ATS Center Project Requirements in Punjab

Division	RTO Office	Vehicle Categories	Lanes to be Constructed By			Area Required By		
			2016 17	2021 22	2026 27	2016 17	2021 22	2026 27
Bathinda	Bathinda	LD	4	2	3	2.31	1.47	1.35
		HD	1	1	0			
	Mansa	LD	Clustered with Bathinda			Clustered with Bathinda		
		HD						
	Moga	LD	Clustered with Bathinda			Clustered with Bathinda		
		HD						
Jalandhar	Kapurthala	LD	Constructed by MORTH			Constructed by MORTH		
		HD						
	Jalandhar	LD	Clustered with Kapurthala			Clustered with Kapurthala		
		HD						
	Amritsar	LD	Clustered with Gurdaspur			Clustered with Gurdaspur		
		HD						
	Gurdaspur	LD	2	1	2	1.47	0.54	1.47
		HD	1	0	1			
	Pathankot	LD	Clustered with Gurdaspur			Clustered with Gurdaspur		
		HD						
Hoshiarpur	LD	Clustered with Jalandhar			Clustered with Jalandhar			
	HD							
Jalandhar	LD	4	2	3	2.31	1.47	1.35	
	HD	1	1	0				
Nawansheri	LD	Clustered with Jalandhar			Clustered with Jalandhar			
	HD							
Patiala	Mohali	LD	2	1	1	1.47	0.54	0.54
		HD	1	0	0			
	Fatehgarh Sahib	LD	Clustered with Mohali			Clustered with Mohali		
		HD						
	Patiala	LD	4	1	3	3.31	1.05	1.89
		HD	3	1	1			
	Sangrur	LD	Clustered with Patiala			Clustered with Patiala		
		HD						
	Ludhiana	LD	3	2	2	1.89	1.47	1.47
		HD	1	1	1			
Ropar	LD	Clustered with Ludhiana			Clustered with Ludhiana			
	HD							
Barnala	LD	Clustered with Ludhiana			Clustered with Ludhiana			

DPR for Establishment of I&C Centers in Punjab

Division	RTO Office	Vehicle Categories	Lanes to be Constructed By			Area Required By		
			2016-17	2021-22	2026-27	2016-17	2021-22	2026-27
		HD						
Ferozepur	Muktsar	LD	Clustered with Ferozepur			Clustered with Ferozepur		
		HD	Clustered with Ferozepur			Clustered with Ferozepur		
	Faridkot	LD	Clustered with Ferozepur			Clustered with Ferozepur		
		HD	Clustered with Ferozepur			Clustered with Ferozepur		
	Ferozepur	LD	5	3	3	2.73	1.35	1.89
		HD	1	0	1			
	Fazilka	LD	Clustered with Ferozepur			Clustered with Ferozepur		
		HD	Clustered with Ferozepur			Clustered with Ferozepur		

Chapter 4

ATS Equipment**Overview**

Indian regulatory laws have always emphasized on the importance of vehicle fitness as vehicle's safety performance plays a crucial role in road safety. Substantial number of vehicles in India do not meet the roadworthiness requirements and can be rightly considered as the cause of significant number of road accidents. Poor maintenance and servicing of old vehicles not only damage the environment but also pose threat to road safety. With rapid increase in motorized vehicle usage, it is extremely essential to improve the vehicle performance, serviceability and also reduce its impact on environment, specifically on air quality.

The present practice of the State Transport Departments is to issue Fitness Certificate to each Commercial Vehicle in Form 38 as per CMVR Rule 62 Section 56 depending upon its road worthiness in order to ensure safety and health of citizens. Such certificate when granted or renewed shall be valid for the period as indicated below:

- Fitness Certificate for new transport vehicle is valid for 2 years
- Renewal of certificate of fitness new transport vehicle valid for 1 year
- Renewal of certificate of fitness for new transport vehicle covered under tourist permits is valid for 1 year
- Fresh registration of imported vehicles: Same period as in the case of vehicles manufactured in India having regard to the date of manufacture.

The Fitness Certificate is to be issued after an overall inspection of the vehicle. The components to be tested include:

- Sparkplug/ Suppressor cap/High Tension cable
- Head Lamp Beams
- Other Lights
- Reflectors
- Bulb
- Rear View Mirror
- Safety Glass
- Horn
- Silencer
- Dash Board Equipment
- Windshield Wiper
- Other Lights
- Braking system
- Speedometer
- Steering gear

The CMVR provides detailed procedure to be followed for the vehicle inspection. Special emphasis is laid on the tests related to braking system and steering gear. To certify the braking system, officers are required to take a test drive on a dry level hard road in good condition. The

present practice is to assess these specified fitness parameters only visually. This is due to the unavailability of adequate infrastructure with the departments required for a scientific inspection. This practice of manual inspection is unable to meet the quality requirements and is found to be deficient in reaching the objectives of the underlying certification mechanism. In order to maintain air quality standards and further improve it, the compliance of vehicles with emission norms need to be enforced through an effective vehicle inspection system.

The process of fitness renewal of the vehicles has also been a recurring issue in CMVR. Substantial number of vehicles do not appear for fitness certificate renewals and tracking such vehicles also is a difficult task. Judicial forums have been adversely commenting on the state of affairs followed by the Regional Transport Authorities for fitness certification. An effective vehicle inspection system can alone help all the stakeholders in improving road safety, pollution levels and road worthiness of in-use vehicles.

Inspection & Maintenance Programme

The kind and type of Inspection & maintenance programme to be implemented in a country differs from country to country as vehicle fleet varies. The main aim is to build a sustainable Inspection & certification system to reduce emissions and improve the safety. The vehicle owners are required to inspect and maintain their vehicles as per the national governing laws of each country. The success of the I&C programme in any country depends upon the effective implementation of nationwide awareness programme and law and enforcement effectiveness of concerned authorities. A well designed I&C regime, which is properly implemented, regulated and enforced, would provide the desired results in improvement in safety and emission performance of the vehicles running on road. A list of items that shall be included in the centralized test center is listed below.

• Visual inspection

- Inspection of legal documents, insurance and identification of the vehicle
- Steering play
- Chassis / frame integrity
- CNG / LPG Safety inspections
- Fuel tank and piping
- Exhaust pipe
- Catalytic converter (mounting, heat shield damages, presence) Engine mountings
- Battery (terminals, mounting, etc) Seatbelts (presence, integrity) Condition of Tyres including spare tyre Lighting and signaling devices
- Oil leakages (engine, transmission)
- Leaf springs integrity, shock absorbers
- Visual inspection
- Wind screen, wipers & doors, Horn
- Availability of Tool Box, First Aid kit, Fire Extinguisher and Warning
- Triangle
- Registration plates

Tests with Automated Equipment		
Test Items	Tests	Equipment
Service brakes	Brake test	Roller Brake tester
Parking brakes		
Speedometer	Speedometer test	Speedometer tester
Headlight	Headlight test	Headlight tester
Side slip	Side slip test	Side slip tester
Suspension Test	Suspension test	Suspension Tester

Emission Inspection		
Vehicles	Test	Equipment Required
Diesel	Free Acceleration test	Opacity meter
Petrol / CNG / LPG	Idle Test	Gasoline (4 Gas Analyser)

While the present PUC emission testing will be continued in the vehicle inspection and certification centers with prevailing test procedures and audit systems.

Objective

The main objective of setting up of Automated Vehicle Inspection & Certification Centers is to scientifically test the road worthiness of the in-service transport vehicles as per rule 62 of CMVR as against visual examination in vogue. It will in turn ensure the safety and security of the vehicles but general public at large besides enhancing cleaner environment.

Approximate Land Requirement

A typical I&C center consisting of 4 lanes required a Land area of approximately 3 acres. This covers Lane & control cabin, utilities & stores, admin office, etc. Area required for idle parking for waiting around 20 LMV and 12 HMV vehicles at a time with sufficient turning and movement space, has been considered in the present layout. However, if land availability permits, more parking space to cover one hour average waiting period and canteen facilities may be included.

Utilities Requirement

Each center would need following broadly described utilities:

- Power supply for general areas
- UPS for data centers
- Ventilation and air conditioning for designated customer area
- Ventilation for Lanes
- Fire safety and first aid station.
- Water
- Security, upkeep, anti-mosquito/pesticide, and anti-rodents measures

Typical I&C Test Centre

The Inspection and Certification (I&C) center will be initially set up to inspect and certify the in-use transport vehicles for its safety and emission compliance as per CMVR, 1989. A center would house inspection lanes for testing various categories of vehicles. The inspection lane would have test equipment arranged like a production line through which the vehicles go through for the inspections. A typical test center layout is given in Figure 4-1.

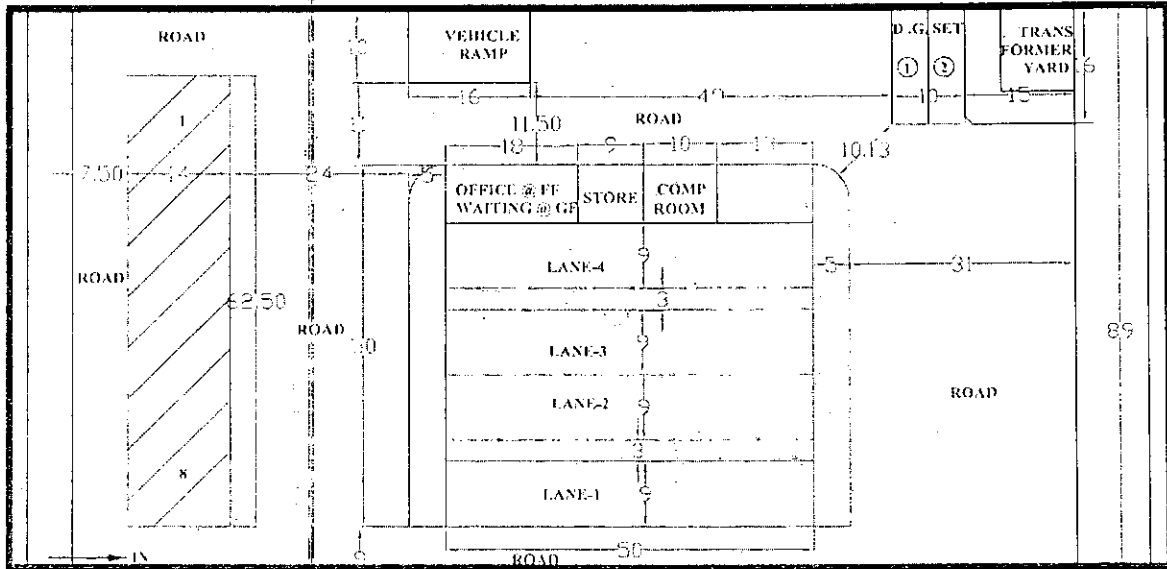


Figure 4-1: Typical Layout Plan of the I&C Lanes

The safety and emission inspection can be conducted in the inspection lane in 3 stages wherein the vehicle is driven through a series of test equipment and the required inspections are conducted. The pass / fail decision on the inspections are entered in the computer network and at the end of the lane, the test report is generated.

Based on the capability of the vehicle inspection equipment in terms of maximum axle weight and load / force measuring capacity and the kind of vehicles, the vehicle inspection lanes can be classified into two categories such as Heavy Duty (HD) and Light Duty (LD). The LD vehicle inspection lane is for testing of transport vehicles (Three Wheelers and Taxis, LCVs) up to 3500 kg Gross Vehicle Weight (GVW). The HD duty vehicle lane is for testing transport vehicles (Trucks and Busses) above 3500kg GVW. I&C center will consist of Vehicle inspection lanes, Administration Office and Parking space for vehicles waiting for testing. The I&C center will have sufficient parking space for vehicles waiting for inspection for at least one hour.

The number of inspection lanes and kind/type of inspection lane in a center will depend on the commercial vehicle population in that city.

Inspection Lanes

The inspection lane is where the required test equipment are laid out such a way the vehicles are tested one after other. The arrangement of the equipment should be aimed to achieve maximum vehicle test throughput (i.e. More no. of vehicles tested per hour). The inspection centers will be

designed to check all Transport Vehicles. Basically output through each individual test center will primarily depend upon the vehicle mix of that particular city.

4.1.1 General Purpose of Inspection Lane

The purpose of the testing lane is to perform all the tests needed in a standard vehicle inspection station including covering all CMVR requirements. The technical specifications include requirements for overall test performance, test lane layout, equipment interfacing, lane throughput and data networking.

4.1.2 Tests to be performed

The vehicles to be inspected in the facilities shall be divided into:

- Three wheelers
- Passenger Cars(PC) / Taxis
- Light Commercial Vehicles (LCV)
- Medium Commercial Vehicles (MCV)
- Heavy Commercial Vehicles (HCV)

The main tests to be performed are:

- Measurement of braking force in the wheels of each specific axle: To be performed on 3W, PC, LCV, MCV & HCV on the Roller Brake Tester.
- Check of the behaviour of the suspension system in each one of the vehicle's axles for vehicle upto 3.5 tons GVW excluding 3W: To be performed on the Suspension Tester.
- Measurement of convergence and divergence between the wheels of the same axle: To be performed on PC, LCV, MCV & HCV on the Side Slip Tester.
- Inspection of the tolerance existing between the different devices linked with the wheels: To be performed on PC, LCV, MCV & HCV on the Joint Play Tester.
- Head lamp beam alignment check: To be performed on 3W, PC, LCV, MCV & HCV using the Head Light Tester.
- Measurement of exhaust gas opacity in diesel engines: To be performed on 3W, PC, LCV, MCV & HCV using the Opacimeter as per CMVR 115 (2).
- Measurement of specific components generated in the exhaust gas in Gasoline / CNG / LPG engined vehicles: To be performed on 3W, PC, LCV, using the Exhaust Gas Analyzer per CMVR 115 (2).
- Vehicle Speedometer inspection: To be performed on 3W, PC, LCV, MCV & HCV using the Speedometer.
- Visual Safety inspection of CNG and LPG vehicles, if any, as per AIS 024 to 028
- Visual inspection, such as reflectors, rear view mirror, Steering system, glass, horn, lights, underbody, and interior etc. including all other tests for roadworthiness mentioned in CMVR for in-use vehicles: To be performed on 3W, PC, LCV, MCV & HCV.
- Stationary noise measurement to be performed on 3W, PC, LCV, MCV & HCV using Sound Level meter

Test Configuration

4.1.3 Inspection sequence LD

Station 1.	<ul style="list-style-type: none"> • Collection of fee • Registration of Vehicle manually or through link provided by DoT. • Issue the token
Station 2.	<ul style="list-style-type: none"> • Exhaust Gas measurement • Under body inspection • Outer body inspection • Inside body inspection
Station 3.	<ul style="list-style-type: none"> • Speedometer test • Verification of taxi fare meter • Sound level measurement
Station 4.	<ul style="list-style-type: none"> • Brake Test • Weight Measurement • Side slip test • Suspension Test
Station 5.	<ul style="list-style-type: none"> • Issue of Report and return of the Token

4.1.4 Inspection sequence HD

Station 1.	<ul style="list-style-type: none"> • Collection of fee • Registration of Vehicle manually or through link provided by DoT.
Station 2.	<ul style="list-style-type: none"> • Exhaust Gas measurement • Under body inspection • Outer body inspection
Station 3.	<ul style="list-style-type: none"> • Speedometer test • Sound level measurement
Station 4.	<ul style="list-style-type: none"> • Brake Test • Weight Measurement • Side slip test
Station 5.	<ul style="list-style-type: none"> • Issue of Report and return of the Token

IT Platform

The equipment described in this document shall comply with the following requirements:

- Selection of vehicle category as defined above such as 3W/ Multi-axle vehicles etc.
- Data Acquisition and results shall be performed directly by the equipment and its control computer, and sent to a central storage PC for final evaluation without the intervention of the user
- All results shall be traceable, with information on the operator involved in each test and

step of the inspection process

- The data and traceability shall be secured, and a record of the actions made and the results obtained shall not be editable and should be tamperproof.
- The storage of all data and results shall be secured, and shall not be physically accessible by the users/operators. The central server in the station should have access to all the data generated from the test lanes in a structured manner as may be decided by Executing Agencies from time to time.
- Minimum hardware requirements: PC per lane, upgradability for additional lanes/test benches. LAN or higher communicating networks, server with sufficient and reliable storage capacity, Sticker printer etc. to be expandable.
- Each station must have capability of reading RFID/smart card/equivalent device.
- Operation of the each test at every station must be remotely operated so as to minimise operator's physical movement.
- Capability for fine tuning the test procedures shall be included. When access granted by the higher authority, calculations and procedures, limit values and all test parameters shall be customisable and storable.
- For ease of operation, sequencibility of tests shall be the key to lane design.
- Report generation based on all information available in the database shall be customisable by the executing agencies officials in a predefined format/pre-printed stationary, for delivery to customer.
- Various MIS reports need to be generated for DoT. Format of these reports would be finalised during design review.
- Advanced operations on the data management system shall be done from central server in a remote area. The system shall be based on the Windows Operating System. For the report generation each lane shall be equipped with printer at the end of the test lane and the server room shall also have a printer.
- The system shall be equipped with the data mining, data back-up and achieving capability.
- The software shall have the calibration and maintenance plan for each equipment of the lane incorporated. The software shall display the same at the computer to inform the lane operator for the same in advance by display warning signals. The calibration data shall be stored in the central computer. All measurements shall be in Metric System. Measured value of each test to be provided in the test report along with permissible range.

Technical Description

There shall be two types of inspection lanes, lanes capable of testing Light Duty vehicles up to 3.5 tonnes GVW and Passenger Cars and lanes capable of testing MCV's and HCV's.

- Light duty vehicles (vehicles less than or equal to 3500 kg GVW) - Two lanes
- Heavy duty vehicles (vehicles above 3500 kg GVW) - Two lanes

The station, devoted to the inspection of 3W, Passenger Cars, Light Duty, Medium Duty and Heavy Duty Transport Vehicles, shall have at least the following equipment and shall fulfil the following requirements.

Technical Specifications

All the supplied equipment shall meet the European Regulations (Product Safety 2001/95, Electromagnetic Compatibility 89/336 (as amended by 92/31/EEC, 93/68/EEC and 2004/108/EC) as well as the regulation 60950-1:2006 on Safety and Information technology Equipment. If the equipment does not fulfil all the above regulations, the Bidder shall present all the documents necessary to prove that the regulations met are equivalent. All the supplied equipment shall be designed to meet the following good engineering criteria:

- shall be easy to use,
- shall allow improvements and upgradation and
- shall have a low maintenance cost. Force application system shall be hydraulic type.

Common Equipment

The equipment described below is only used in some cases. Therefore it will be shared by all the lines in the IM station.

4.1.5 Free Wheel Trolley

Device used to perform correctly Roller Brake Tests or Speedometer Tests on AWD PC, LCV, MCV & HCV.

Description:

- Portable device devoted to allow driven axels to turn without touching the floor.
- It shall be composed of a chassis with free turning wheels mounted onto it.
- This portable device can be substituted by any other technically proved system to accomplish the purpose previously stated.
- The device shall be designed to ensure safety of the people that could be nearby and the vehicle so a proper restraint system shall be proposed.

4.1.6 Calibration Equipment Set

Calibration Equipment Set shall be available at the station. Two point calibration system will be provides, as applicable. All the lanes may use the same calibrating devices. All the measuring equipment shall be calibrated.

- Emission measurement system for diesel/gasoline vehicles
- Roller brake
- Speedometer
- Head light tester
- Suspension measurement
- Taxi fare meter
- Side slip tester
- Axle weight measurement

4.1.7 Sound Level Meter

The specifications for sound level meter will be as follows:

200

- Recommended as per IEC 60651.
- Measuring level ≤ 30 dB to ≥ 120 dB
- Frequency A & C
- Accuracy - ± 1.5 dB
- Tripod stand mounted
- Build battery for power source of charging from outlet of 220V AC
- Time weighting characteristics designated SLOW (S), Fast (F), Impulse (I).
- Connectivity with lane software with requisite port like RS 232.
- Environmental range
- Temp range 0°C to 50°C
- Humidity greater than 90%
- Dust: Typical Indian testing condition

Inspection Lane LD

4.1.8 Visual Inspection

All visual inspection will be carried out at least as mentioned in Rule 62 of CMVR.

(a) Roller Brake Tester – Light Vehicles and Three Wheelers

Device devoted to the measurement of braking force in the wheels of a specific axle taking into account the brake power applied on the brake pedal. Service, emergency and parking brakes shall be tested. This equipment shall be used to test Light Duty Vehicles including Three-wheeled vehicles and Passenger Cars, upto 3.5 tons GVW.

Technical Specifications

- Rollers for Passenger Cars and Light Duty Vehicles:
 - It shall allow working with three-wheelers.
 - Maximum load per axle 3.0T.
 - Maximum measurable brake load is at least of 6kN
 - Difference in left & right braking efficiency
 - Brake load resolution ≤ 100 N
 - Approximate Testing speed: 5 km/h \pm 1 km/h
 - Tracking width: min 780, max. 2400 mm
 - Minimum Roller diameter should be 200 mm
 - Minimum Roller axle separation 400 mm
- The measurement accuracy required shall be the specified according to the regulations to meet
- Axle Weight Measurement
 - Weighing scale for measurement of each axle weight is required. The system should determine by adding together the axle weight, tare weight/Kerb weight of the vehicle.
 - Technical specifications of the weight system should be:
 - Measuring range: 20 – 3500 kg
 - Resolution: 5 kg
 - Accuracy $\pm 1\%$

- For Three Wheeler
 - Separate roller set with one independent pair of rollers integrated with dynamic axle load weighing system for testing the front wheel of 3-Wheelers.
 - Minimum Roller axle separation 380mm for single roller set

4.1.9 Suspension Tester – Light Vehicles

Equipment devoted to check the behaviour of the suspension system in each one of the vehicle's axles (dampers, helper springs, tyres and auxiliary equipment) determining the damping of the oscillations amplitude exteriorly. This equipment shall be used to test Passenger Cars including other Light Duty Vehicles upto 3.5 tons GVW.

Technical specifications:

- Maximum load per axle, 3.0T.
- Amplitude of excitation : 6.5 mm +/- 5 mm
- Minimum Tracking width: 880 mm
- Maximum Tracking width: 2400 mm
- If Damping Rate 'D' is used - Testing Range : 0.02 – 0.3 (w/o Unit)
- Working based on any of the prevailing technologies will be acceptable

4.1.10 Side Slip Tester – Light Vehicles

Equipment devoted to the measurements of alignment of the wheels of a same axle. This equipment shall be used to test Passenger Cars and Light Duty vehicles upto 3.5 tons GVW.

Technical specifications:

- Maximum load per axle 3 T.
- Minimum Length of the Track Plate : 1000 mm
- Minimum Width of the Track Plate : 450 mm
- Maximum Height of the Track Plate: 100mm
- Measuring range: ± 20 m/km
- Measuring resolution: 1 m/km
- Accuracy shall be ± 1.0 m/km

4.1.11 Joint Play Tester – Light Vehicles

Equipment devoted to the inspection of the play between different elements of the wheels, bars and tie rods, shock absorber systems, brakes, and linkages between two specific components and the chassis of the vehicle. This equipment shall be used to test Passenger Cars.

Technical specifications:

- Maximum load capacity per axle of at least 3 T.
- Maximum Force per plate is at least of 10 kN
 - Maximum movement on each side : 100 mm
 - Minimum Length of the Test Plate : 600 mm
 - Minimum Width of the Test Plate : 600 mm
- Maximum Height of the Test Plate : 150mm

- Maximum Angular movement of the plate ± 30 deg

4.1.12 Automatic Head Light Tester

Equipment devoted to check the horizontal and vertical light flux orientation, low beam pattern of the Head Lamp. This device shall be capable of measuring the Head Lamp's light intensity and inclination. Preferable checking could be based on spotting the headlamp reference point. This equipment shall be used to test Light Duty Vehicles including Passenger Cars, up to 3.5 tons GVW.

Technical specifications

- Light Intensity range measure (min): 0-100,000 cd
- Illumination Intensity range measure: 0-200 lux
- Centre of Lens above floor - Minimum height: ≤ 225 mm
- Centre of Lens above floor - Maximum height: ≥ 1500 mm
- Vertical and horizontal measuring range: ± 50 cm/10 m (± 5 %)
- Intensity maximum deviation: ± 5 %
- Inclination (vertical orientation) maximum deviation: ± 0.1 %

4.1.13 Opacimeter

Equipment devoted to the measurement of exhaust gas opacity in diesel engines. This equipment shall be used to test diesel fuelled vehicles as per CMVR 115/116.

Technical specifications

- Equipment shall comply as per the requirements mentioned in the TAP 115/ 116.
- Bidder to provide valid type approval certificate at the time of installation and commissioning as per CMVR at Bidder's own cost.
- The device shall perform the free acceleration test measurements using partial flow techniques.
- The equipment software shall allow changing the inspection procedure when necessary.
- Facility for calibration using neutral density filter, the value of which is known to better than 0.05/m and is traceable to national / international standard
- The equipment shall be able to measure the following variables (measuring units to be used in brackets):
 - Opacity (%) or absorption (m⁻¹)
 - Oil Temperature (°C)
 - Revolutions per minute (rpm)
- The equipment shall have capability to interface all above specified data to control panel.
- The effective length of the chamber shall be 0.43m, +/- 0.005m
- Measuring range:
 - Opacity: 0 - 99 % (0-10/m)
 - Absorption: 0 - 9.9 m⁻¹
 - Oil Temperature: 0 - 150 °C
 - RPM Counter: 400-6000 rpm
- Resolution:

- Opacity: 0.1 %,
- Absorption: 0.01 m⁻¹
- Oil Temperature: 1°C
- RPM Counter: 10 rpm
- The accuracy of smoke measurement shall be $\pm 0.1/m$
- The accuracy allowed when measuring the oil temperature shall be $\pm 2^\circ\text{C}$.
- The temperature sensor shall be suitable for different types of diesel vehicles with variable oil dip stick length & suitable holding arrangement.
- The sensor length shall be minimum 2m with cable length minimum 5m with metal braiding/ conduit for ruggedness.
- The engine rpm measurement must have an accuracy of ± 20 rpm or $\pm 2\%$ of the reading, whichever is greater. The sensor preferably battery operated having cable length minimum 5m with metal braiding/ conduit for ruggedness.
- The maximum deviation allowed by the opacimeter shall be determined by the regulations it must meet.
- Specifications shall meet the requirement as given in TAP document and approved by authorised test agency for use in India.
- The equipment must be certified to MoRTH/CMVR/TAP 115/116

4.1.14 Exhaust Gas Analyzer

This equipment will be used for measurements of exhaust emissions of gasoline, CNG and LPG vehicles as per CMVR 115/116.

Technical specifications

- Equipment shall comply as per the requirements mentioned in the CMVR 116(3) (International standard certificate to be available at time of bidding. Bidder to provide certification as per CMVR 116 (3) once it is installed, for commissioning at Bidder's own cost)
- This equipment shall be capable measuring the CO, CO₂ and O₂ percentage concentration, the HC (ppm vol), the lambda value (for various fuel types including CNG, LPG & gasoline) and shall be prepared for upgradation to measure NO_x.
- The software of the equipment shall allow the modification of the inspection system when necessary.
- This equipment shall have an rpm counter.
- The equipment shall be able to measure the following variables (measuring units are indicated in brackets):
 - CO Concentration (%)
 - CO₂ Concentration (%)
 - HC Concentration (ppm)
 - O₂ Concentration (%)
 - Lambda Value
 - Revolution counter (rpm)
- The equipment shall transmit automatically all the data above specified to a PC and to a centralised storage system once the test is over.

- At least, precision type I.
- Measuring range:
 - CO: 0 - 10 %
 - CO₂: 0 - 16%
 - HC: 0 - 10000 ppm in Hexane
 - O₂: 0 - 21%
 - NO_x: 0 - 4000 ppm
 - Lambda: 0.7 to 1.7
 - RPM counter : 400- 8000 rpm
- Resolution:
 - CO: 0.01%
 - CO₂: 0.1%
 - HC: 1 ppm
 - O₂: 0.02% for measured values \leq 4% values &
 - 0.1% for measured values \geq 4%
 - NO_x: 1 ppm
 - Lambda: 0.001
 - RPM counter: 10 rpm
- Response time shall be less than 15 sec with probe for 0 to 95 % for CO, HC and
- CO₂ and less than 60 secs for O₂.
- The maximum deviation allowed in the gas analyser shall be the ones indicated in
- Regulation ISO 3930:2000.
- The maximum deviation allowed in the rpm counter shall be \pm 20 rpm or \pm 2 % of the reading, whichever is greater.
- Specifications shall meet the requirement as given in TAP document and approved by authorised test agency for use in India
- Must be certified as per MoRTH/CMVR/TAP 115/116

4.1.15 Speedometer Tester – Light Vehicles

Device to measure the functioning of the speedometer of the vehicle. It measures speed and distance covered by a vehicle. It shall be able to test Passenger Cars, 3 wheeled vehicles and vehicles up to 3.5 tons GVW to be integrated into roller brake tester, if possible.

Technical Specifications

- Maximum load capacity per axle, minimum 3 T.
- Track width: min 780 mm, max. 2400 mm
- Minimum Roller diameter should be 200 mm
- Minimum Roller axle separation 400 mm
- Measuring range: 20 – 160 km/h
- Resolution: 1 km/h
- Accuracy \pm 1 % of indicated reading

4.1.16 Inspection Lane HD

All visual inspection will be carried out at least as mentioned in Rule 62 of CMVR. All the equipment shall be able to test Medium and Heavy Commercial Vehicles

4.1.17 Roller Brake Tester (Including Axle Weight Measurement)

Technical Specifications

- Maximum load charge per axle is at least of 18 T.
- Maximum measurable brake load is at least of 40 kN.
- Minimum Roller Diameter : 200 mm o Minimum Roller Separation: 450 mm o Roller Length : 1000 mm
- Roller surface
 - o Minimum frictional coefficient 0.6
 - o Service life – minimum 25000 hrs
- Brake load resolution $\leq 100\text{N}$
- Approximate Testing speed: minimum 2.5 km/h
- The measurement accuracy required shall be as per specified regulations.

4.1.18 Axle Weight Measurement

Weighing scale for measurement of each axle weight is required. The system should determine by adding together axle weight, tare weight/Kerb weight of the vehicle Technical specifications of the weight system should be:

- Measuring range: 3500 kg – 18000 kg
- Resolution: 5 kg
- Accuracy $\pm 1\%$

4.1.19 Side Slip Tester

Equipment devoted to the measurements of alignment of the wheels of a same axle.

Technical specifications

- Maximum load per axle 18T.
- Measuring range: ± 20 m/km
- Measuring resolution: 1 m/km
- Accuracy shall be $\pm 1.0\text{m/km}$
- Track Plate Length : 1000 to 1400mm
 - o Minimum Track Plate Width :750 mm
 - o Maximum Track Plate Height : 150mm

4.1.20 Joint Play Tester

Equipment devoted to the inspection of the play between different elements of the wheels, bars and tie rods, shock absorber systems, brakes, and linkages between two specific components and the chassis of the vehicle.

Technical specifications

- Maximum load capacity per axle of at least 18 T.
- Maximum Force per plate is at least of 40kN
- Length of the Test Plate : 1000 to 1400 mm
- Minimum Width of the Test Plate : 750 mm

- Maximum Height of the Test Plate : 150 mm
- Maximum angular movement of the plate ± 30 deg

4.1.21 Automatic Head Light Tester

Equipment devoted to check the horizontal and vertical light flux orientation, low beam pattern of the Head Lamp. This device shall be capable of measuring the Head Lamp's light intensity and inclination. Preferable checking could be based on spotting the headlamp reference point.

Technical specifications

- Light Intensity range measure: 0-100,000 cd
- Illumination Intensity range measure: 0-200 lux
- Minimum height: <250 mm
- Maximum height: >1500 mm
- Vertical and horizontal measuring range: ± 500 mm/10 m (± 5 %)
- Intensity maximum deviation: ± 5 %
- Inclination(vertical orientation) maximum deviation: ± 0.1 %

4.1.22 Opacimeter

Equipment devoted to the measurement of exhaust gas opacity in diesel engines. This equipment shall be used to test diesel fuelled vehicles as per CMVR 115/116.

Technical specifications

- Equipment shall comply as per the requirements mentioned in the TAP 115/ 116.
- Bidder to provide valid type approval certificate at the time of installation and commissioning as per CMVR at Bidder's own cost.
- The device shall perform the free acceleration test measurements using partial flow techniques.
- The equipment software shall allow changing the inspection procedure when necessary. .
- Facility for calibration using neutral density filter, the value of which is known to better than 0.05/m and is traceable to national / international standard
- The equipment shall be able to measure the following variables (measuring units to be used in brackets) :
 - Opacity (%) or absorption (m-1)
 - Oil Temperature (°C)
 - Revolutions per minute (rpm)
- The equipment shall have capability to interface all above specified data to control panel.
- The effective length of the chamber shall be 0.43m. +/- 0.005m
- Measuring range:
 - Opacity: 0 - 99 % (0-10/m)
 - Absorption: 0 - 9.9 m-1
 - Oil Temperature: 0 - 150 °C
 - RPM Counter: 400-6000 rpm
- Resolution:
 - Opacity: 0.1 %, 1

- Absorption: 0.01 m⁻¹
- Oil Temperature: 1°C
- RPM Counter: 10 rpm
- The accuracy of smoke measurement shall be ± 0.1/m
- The accuracy allowed when measuring the oil temperature shall be ±2°C.
- The temperature sensor shall be suitable for different types of diesel vehicles with variable oil dip stick length & suitable holding arrangement.
- The sensor length shall be minimum 2m with cable length minimum 5m with metal braiding/ conduit for ruggedness.
- The engine rpm measurement must have an accuracy of ±20 rpm or ± 2 % of the reading, whichever is greater. The sensor preferably battery operated having cable length minimum 5m with metal braiding/ conduit for ruggedness.
- The maximum deviation allowed by the opacimeter shall be determined by the regulations it must meet.
- Specifications shall meet the requirement as given in TAP document and approved by authorised test agency for use in India.
- The equipment must be certified to MoRTH/CMVR/TAP 115/116

4.1.23 Exhaust Gas Analyzer

This equipment will be used for measurements of exhaust emissions of CNG vehicles as per CMVR 115/116.

Technical specifications

- Equipment shall comply as per the requirements mentioned in the CMVR 116(3) (International standard certificate to be available at time of bidding. Bidder to provide certification as per CMVR 116 (3) once it is installed, for commissioning at Bidder's own cost)
- This equipment shall be capable measuring the CO, CO₂ and O₂ percentage concentration, the HC (ppm vol), the lambda value and shall be prepared for upgradation to measure NO_x.
- The software of the equipment shall allow the modification of the inspection system when necessary.
- This equipment shall have an rpm counter.
- The equipment shall be able to measure the following variables (measuring units are indicated in brackets):
 - CO Concentration (%)
 - CO₂ Concentration (%)
 - HC Concentration (ppm)
 - O₂ Concentration (%)
 - Lambda Value
 - Revolution counter (rpm)
- The equipment shall transmit automatically all the data above specified to a PC and to a centralised storage system once the test is over.
- At least, precision type 1.
 - Measuring range:

- CO: 0 - 10 %
- CO₂: 0 - 16%
- HC: 0 - 10000 ppm in Hexane
- O₂: 0 - 21%
- NO_x: 0 - 4000 ppm
- Lambda: 0.7 to 1.7
- RPM counter : 400- 8000 rpm
- Resolution:
 - CO: 0.01%
 - CO₂: 0.1%
 - HC: 1 ppm
 - O₂: 0.02% for measured values \leq 4% values &
 - 0.1% for measured values \geq 4%
 - NO_x: 1 ppm
 - Lambda: 0.001
 - RPM counter: 10 rpm
- Response time shall be less than 15 sec with probe for 0 to 95 % for CO, HC and CO₂ and less than 60 secs for O₂.
- The maximum deviation allowed in the gas analyser shall be the ones indicated in Regulation ISO 3930:2000.
- The maximum deviation allowed in the rpm counter shall be \pm 20 rpm or \pm 2 % of the reading, whichever is greater.
- Specifications shall meet the requirement as given in TAP document and approved by authorised test agency for use in India
- Must be certified as per MoRTH/CMVR/TAP 115/116

4.1.24 Speedometer Tester

Device measure the functioning of the speedometer of the vehicle .It measures speed and distance covered by a vehicle. To be integrated into roller brake tester if possible.

Technical Specifications

- Maximum load capacity per axle, minimum 18 T.
- Measuring range: 25 - 100 km/h
- Resolution: 1 km/h
- Accuracy \pm 1 % of indicated reading
- Roller Diameter: approx. 270mm
- Minimum Roller axle separation :450mm
- Track width: min 1000mm, max 2400mm

Software Considerations

In order to guarantee the certainty of the obtained values and to save the information, it is required that all the equipment which measures a value is connected to the central unit. A device is considered automatically connected when the result of the test is automatically obtained, transmitted to the central unit and evaluated. The database shall be stored in SQL data

management software platform to enable easy exchange and analysis of data with other platforms. Suitable software shall be developed from time to time as required by Executing Agencies with an overall objective of meeting the test requirements, the operation of the Centre and meeting all the requirement of regulating authorities. Each input, whether automatic or manual, shall be identified with the inspector's reference and stored together with all the results of the tests performed on the vehicle which shall be transmitted automatically to the central unit. The inspection pass fail criteria of a test must be automatic and not editable by the inspector. The following equipment shall be connected automatically to the central unit:

- Roller brake tester
- Suspension tester
- Side slip tester
- Opacimeter
- Exhaust gas analyzer
- Speedometer
- Automatic Head light tester
- Sound level Meter

The software shall be able to receive the results from the following inspections that will be introduced manually in any computer in the lane or the central computer.

- Visual inspection
- Any inspection from the described above not connected automatically. The software shall verify the status of all the equipment and subsystems specified.

The software shall allow templates for easier preparation of the inspection. It shall also prepare the test file in XLS export file type or similar reports. The software shall allow to view and to obtain a printout of the results of each test separately. Measured value of each test to be provided in the report. The printout and the software operation shall be so developed as required by Executing Agencies from time to time. For each test the information shall be recorded and it shall be available from all the computers in the station along with the access control.

Safety Systems

- Personal safety systems: All the equipment supplied shall be equipped with all the safety protections required for the normal usage of the equipment and for the security of the people who work in each machine.
- Power cut-off protection device: The safety procedure should take into account the fact of the power cut-off. In the case of occurring during a test measurement, the system shall be able to resume the test once electrical supply is back without any data loss.

Centralisation of Vehicle Inspection Data

Though there are variety of standalone garage type equipment are available in the market for performing the tests described above, it is important to have an integrated lane for effective operation. The lane software which controls the functions of the equipment and integrates the

test information is a critical component in the entire centre. This software shall be flexible, user friendly and would require up-gradation for addition of new test sequence, change of pass/fail criteria, data analysis, changes in the test report generated and introduction of new tests. Competent operator can operate the lane once the entire lane is installed and commissioned. The auditing of the entire centre can be taken at regular intervals by CIRT.

Inspection Process Flow

Each test lane shall be designed to facilitate 3-4 individual test positions to achieve the maximum test throughput. The following narrative is to describe a typical lane operation.

- Vehicle Reception: The inspector receives the first vehicle at the entrance of the station with related documents. Asks the client to go to the waiting area and positions the vehicle on the lane. Enters the IT system to generate the Work order.
- Position 1: Emissions Test, Speedometer Test, Visual inspection External
- Position 2: Vehicle Weight, Roller brake Test, Visual inspection lighting and indicating devices, Gap test.
- Position 3: Headlamp test, underbody visual inspections
- Generation of test reports & issue of sticker which could be easily located (preferably on front side of wind screen indicating the validity of test certificate.

Chapter 5

Project Financials**Project Costs**

The overall project cost can be broadly divided into two categories. These categories include the capital costs and operating costs. The capital costs consist of civil costs for infrastructure creation, material costs (procurement of material including software procurement) along with service costs (deployment, installation and integration) and project management fees. The operating costs consists of manpower expenses, AMC charges, utility payments and monitoring fees. The subsequent part of this chapter provides details of the total project costs for the ATS project.

Equipment Cost

Sl. No.	Description of item	Qty	Cost
Common Equipment			
1	Free Wheel Trolley	1	3.27
2	Calibration Equipment set	1	1.49
3	Automatic Tyre pressure filler and indicator	1	0.59
4	Digital Camera with on line connectivity to the PC	2	1.45
5	CCTV	4	0.55
6	Server, LAN network	1	39.37
	Sub-total		46.70
Equipment for LD Lane			
7	Roller brake tester	1	25.71
8	Suspension tester	1	5.98
9	Side slip tester	1	3.66
10	Joint Play tester	1	7.62
11	Head light tester	1	7.89
12	Smoke Opacimeter	1	2.75
13	Exhaust gas analyzer	1	3.96
14	Speedometer Tester	1	10.23
15	Sound level Meter	1	0.82
	Sub-total		68.62

Sl. No.	Description of item	Qty.	Cost
Equipment for HD Lane			
16	Roller brake tester	1	28.15
17	Joint Play tester	1	8.89
18	Side slip tester	1	3.82
19	Head light tester	1	7.89
20	Smoke Opacimeter	1	2.75
21	Exhaust gas analyzer	1	3.96
22	Speedometer	1	11.33
23	Sound Level Meter	1	0.82
	Sub-total		67.61

Capital Costs

Cost Heads	4 Lanes	2 lanes		Single Lane	
		TD	HD	TD	HD
Equipment for four lanes with two year warranty and 5 years AMC (comprehensive)	272.5	136.2	68.6	67.6	
Common Equipment Cost	46.7	23.4	11.7	11.7	
Civil Construction (Building, internal RCC roads, parking, firefighting, drainage, etc.)	400.0	200.0	80.0	120.0	
Common Construction Cost	45	22.5	11.3	11.3	
Utility Cost (DG sets, compressor, furniture, air-condition, etc)	100.0	60.0	50.0	50.0	
Project management fee (38.8 Per Center) †	18.2	9.1	4.6	4.6	
Operation Cost	240.0	120.0	60.0	60.0	
Total cost	1122.4	571.2	286.2	325.2	

(All amounts are in Rs lakhs)

5.1.1 Total Capital Costs

The total capital expenses for the identified ATS centers at seven locations is Rs 7858.3 lakhs in the year 2015-16 as shown Table 5-1.

Table 5-1: Capital Cost for ATS

Financial Details		2015-16
Lanes to be Constructed in the year	LD Lane	24
	HD Lane	9
Total Lanes	LD Lane	24
	HD Lane	9
No. of Centers		7
Infrastructure Costs	Equipment	Rs. 2582 lakhs
	Civil Construction	Rs 3315 lakhs
	Utility Cost)	Rs 1650 lakhs
	Project Management	Rs 310.98 lakhs
Total		Rs 7858.3 lakhs

(All amounts are in Rs lakhs)

DPR for Establishment of I&C Centers in Punjab

Cost Benefit Analysis

Year		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
Column		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Total Vehicles	LD	291069	317630	343079	370567	400258	432327	466966	504380	544791	588441	635588	686512	741517	800928	865100	934413
	HD	68792	74304	80258	86688	93633	101136	109239	117991	127445	137656	148685	160598	173465	187364	202376	218590
Lanes to be Contracted	LD Lane	24					12					17					
	HD Lane	9					4					4					
Total Lanes	LD Lane	24	24	24	24	24	36	36	36	36	36	53	53	53	53	53	53
	HD Lane	9	9	9	9	9	13	13	13	13	13	17	17	17	17	17	17
No. of Centers		7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Infrastructure Costs	Equipment cost with 2 years warranty and 5 years comprehensive AMC	258.4					1,306					1,989					
	Civil Construction @25%	3315					2161.6					3572					
	Utility Cost (DG Sets, Compressor, Furniture, Air-Conditioning etc)	1650					965					1453					
	Project Management	310.98					64					84					
	Sub-total (i)	7859.3					4486.5					7399.5					
Infrastructure Replacement	Equipment cost with 2 years warranty and 5 years comprehensive AMC											3,470					
	Civil Construction @25%											1,630					

DPR for Establishment of I&C Centers in Punjab

Year	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
Column	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Utility Cost (DG Sets, Compressor, Furniture, Air Conditioning etc)											2,217					
Project Management											597					
Sub-total (2)											7,825					
Operational Cost	2340.0	1980.0	2007.0	2007.0	2007.0	2007.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0
Sub-total (3)	1080.0	2007.0	2007.0	2007.0	2007.0	2007.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0	2070.0
Sub-total (4)	8764.9	9838.3	10064.9	10064.9	10064.9	10064.9	10634.9	10634.9	10634.9	10634.9	10634.9	10634.9	10634.9	10634.9	10634.9	10634.9
Project Monitoring Fee	36.4	37.1	37.9	38.6	39.4	40.2	41.0	41.8	42.6	43.5	44.4	45.3	46.2	47.1	48.0	49.0
Total Costs	9874.7	2044.1	2044.9	2045.6	2046.4	7506.7	3020.0	3020.8	3021.6	3022.5	19519.7	4296.3	4297.2	4298.1	4299.0	4300.0
Revenue with 25% increase in fees every 5 years	2815.2	3040.8	3284.4	3547.5	3831.8	5173.5	5688.0	6035.7	6510.3	7041.6	9507.3	10269.0	11091.8	11980.5	12940.4	17471.5
Aditi Revenue from VAS	5%	140.8	150.0	164.2	177.4	191.6	208.7	229.4	301.8	326.0	352.1	475.4	513.5	554.6	599.0	847.0
Total Revenue	2956.0	3192.8	3448.6	3724.9	4023.4	5432.1	5867.4	6337.5	6845.3	7393.7	9982.6	10782.5	11646.4	12579.5	13587.4	18345.0
Net Revenue	-698.8	1148.7	1403.7	1679.3	1977.0	2973.5	2842.4	3316.7	3813.6	4371.2	9557.1	6486.2	7349.2	8281.4	9288.4	14045.0
IRR		-83%	-46%	-20%	-4%	#NUM!	0%	10%	15%	19%	9%	16%	20%	22%	23%	26%

Generally for any project to be viable financially the IRR should be taken as 14% to 16% in order to fix the concessionaire period. From the above Cost benefit analysis the optimal IRR is obtained within 10 years of the commissioning of the ATS centers. In addition to the monetary benefits the stakeholders of the project would benefit from various other intangible benefits such as social, technical and environmental. Some of them have been discussed below:

i. Social Benefits

- Regular and effective testing regime for vehicles would ensure improved technical condition of vehicles. This would further have influence on safety of vehicles
- The detailed evaluation of vehicle fitness will increase safety awareness among drivers / vehicle owners
- Fit and safe vehicles would directly impact road safety by reducing road accident injuries and casualties
- Regularly checked vehicles would help in monitoring the vehicular emissions and considerable reduction of CO & HC thus improve environment and
- Improved fuel efficiency of the regularly evaluated vehicles can be achieved and reduction in fuel consumption by 5% in HCVs can be observed
- The critical diagnosis of the actual maintenance requirements helps in providing preventive maintenance of vehicles

ii. Indirect Economic Benefits

- Due to consistent checking of vehicles and their fitness maintenance the resale value of such vehicles are also enhanced which is beneficial to the vehicle owners
- In the long run, there is considerable reduction in the repair cost of fitness certified vehicles and improved roadworthiness of vehicles would be achieved
- Establishment of such centers would eventually provide a platform for operational training of Motor Vehicle Inspectors on Testing Station and also influence the growth of vehicle garages and workshops thereby
- Improving creation of jobs in the field of vehicle inspections
- Increased trade of garage / vehicle test equipment
- Increase in workload for privately owned workshops / garages
- Improved fitness standard of vehicles would ultimately reduce road accidents and thereby reduced financial cost would be spent due to accidents (medical cost, absence from work, etc.)

Chapter 6

Project Implementation Plan**Project Implementation Unit (PIU)**

The Motor Vehicles Department, Government of Punjab shall set up a Project Implementation Unit (PIU) with the following composition for monitoring the implementation of the project.

Sl.	Officers	Designation
1	Transport Commissioner	PIU - Head
2	Mechanical Engineer	Member
3	Systems Analyst	Member
4	Coordinating officer for exclusively managing the project	Member
5	Supporting officers at the implementation site	Member
6	Controller of Stores and Purchases	Member/ Procurement Specialist
7	Chief Accounts Officer	Member/ Financial Manager
8	Director, CIRT	Member
9	Head Training & Consultancy, CIRT	Member

Project Management Agency (PMA)

To ensure professional management of the project the project implementation is outsourced to CIRT, a professional agency for ensuring smooth and successful implementation of the project. The Project management agency needs to address the following key functional dimensions:

- Integration Management
- Scope Management
- Time Management
- Cost Management
- Quality Management
- HRM
- Communications Management
- Risk Management
- Procurement Management

The project management needs to cover the key project phases:

- (a) Initiating
- (b) Planning
- (c) Executing
- (d) Controlling and

(e) Closing as represented in the following

Figure 6-1

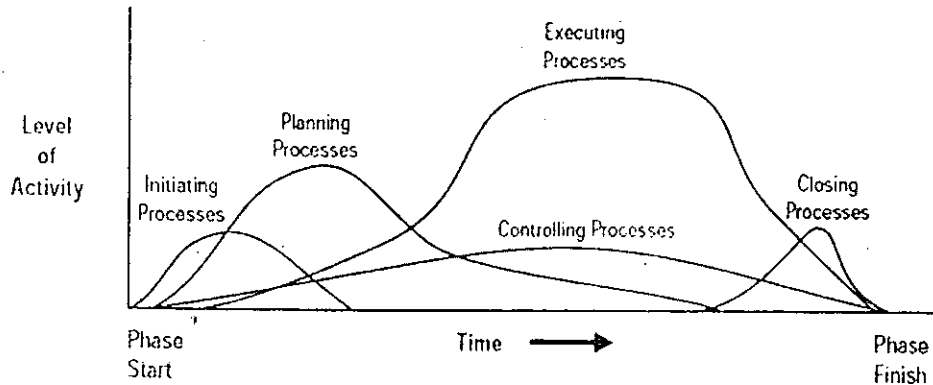


Figure 6-1: PM - Right sizing of project personnel

In each of the project phases covering – initiating, planning, executing, controlling and closing, application of the 6-Q framework will ensure that the tasks under each of the phases are carried out for a definite purpose using the best of techniques and methodologies covering all the stakeholders' interest in a timely manner and at appropriate places. This is detailed in the following Table 6-1:

Table 6-1: 6-Q Framework

Project Phases	Why	What	How	When	Where	Who / Which	Whom
Initiating	Define Project outcomes	Identify steps / activities for Project approval	Committing the organization	Identify timelines for project completion	Identify locations for project completion	Resources – (4M) Men, machines, materials & money required	Identify decision authorities whose approval is internally required
Planning	Establish goals	Scope Planning Scope Definition Scope limitations (boundaries)	Organization Planning Tools & techniques Cost estimating & budgeting Resource Planning Quality Planning Communication Planning Risk Planning – Identification, Quantification Legal implications	Activity duration estimating Schedule Development Milestones definition	Identify locations where action is to happen	Identify the broad areas of responsibility and roles Identify resource requirements Procurement Planning	Identify stakeholders who are affected by the project
Executing	Identify optimal activities	Activity Definition Activity Sequencing	Risk Response Development Dependency relationships	Schedule Management	Manage events at identified locations	Source selection Resource acquisition	Feedback from identified stakeholders

Project Phases	Why	What	How	When	Where	Who / Which	Whom
Controlling	Verify with quality benchmarks, parameters	Scope verification	Risk Response Control system Cost Control system Performance Reporting system Contract Change Control System Procurement audit	Schedule Control	Site inspections	Who are authorized to inspect / test intermediate outputs? Authorized Decision points	Feedback questionnaire
Closing		Contract Administration Contract Work Results Change Requests Seller invoices	Manage interfaces amongst various providers Contract change control system Performance Reporting Payment System	Quality audit	Where would the payment be made, the bankers and the form of payment	Establish authorized signatories of the Contract Admin Contract close-out	Identify authorized signatories to the contract closing – formal acceptance and closure

Project Implementation Vendors (PIV)

In addition to the Project management unit being set up, the implementation vendors will have to set up their own project monitoring mechanisms and will report to the Project Monitoring Agency for which the PMA will provide the necessary templates. The implementation of the project will be undertaken by the winning bidders for both I&C and DLIC projects separately. The Motor Vehicles Department will award the contract which will include implementation of the project meeting the requirements of the RFP. The contract awarded to winning bidders will also include the "Operation & Management of the facilities setup for the identified period. Hence the same contractor who implements the project will also be responsible for the maintenance & operations of post implementation.

Project Monitoring & Control Process

The processes related artifacts identified under this category include:

Change Management Plan: A typical project always encounters a need for change. This change could be in terms of scope, cost, quality and schedule. A Change Management Plan shall ensure that all changes to the project are reviewed and approved in advance; coordinated across the entire project and all stakeholders are notified of approved changes to the project. The Change Management Plan and the Change Request Format need to be furnished by the PIVs to CIRT before commencing the project management activities.

Project Monthly Status Reports: The projects have extensive interdependencies on each other in the form of application and data standards, deployment environment, and interlinked schedules. This situation demands the projects be reviewed as frequently as possible. A period of 30 days has been decided with an assumption that an incremental change which would need appraisal as well as intervention at this periodicity. Once again to maintain consistency across

the projects, the monthly status report template need to be furnished by the PIVs to CIRT before commencing the project management activities.

Minutes of Meeting: Minutes of meetings are an important part of any project as well as the program as a whole. Major decisions and future directions are evolved from this. They are revisited often to compare and cross check. The MOMs are recorded in their simplest form highlighting the discussion points and decision and ownership for actionable (for individual project and program level).

Procurement Forecast Plan: Considering the fact that the procurement cycles are time consuming and also the delivery timelines for vendors, a process should be defined to help accelerate decision making and support project schedules.

Project Plan: By the time a project team arrives at the first milestone of delivering, it is expected that the high level project plan has been evolved and included. The project plan should conform to the following:

- It is mandatory that the project plan be in MS Project
- The project phases planned out should conform to the deliverables (high and medium level) committed to in the description of services to contract and the inception report submitted
- The project plan should be revised every month in line with the status report submitted and reviewed. The conformance of milestones and activities should not be at variance for a period of more than one monthly review. Revision history should be strictly maintained.
- The project plan should be communicated to all those authorized stakeholders. The responsibility to do so shall rest with the concerned project manager.

Project Phase Plan in Detail: At the exit of each phase, the plan for next phase should be available in detail. **It may be noted here that the project plan submitted as part of the inception report is a high level plan. Progressive elaboration of various factors is expected as the project moves into different phases.** The phase plan should conform to the following requirements:

- Should be in MS Project
- Should be detailed, with clear breakdown of activities
- Activity notes should contain the resource assignment details
- The plan should be revised every month similar to the master project plan
- Project manager shall ensure the availability of the plan.

Finalization of Contracts / Procurement Process Management

CIRT, on behalf of the Motor Vehicles Department, Government of Punjab will float tenders for global participation on a two-bid system that consists of Technical bid and Commercial bid. The cost of bid document will be announced along with the last date of purchase of tender document/RFP and date and time of opening of bids.

The bid process including the Functional, Technical, general instructions & commercial details and the legal contracts shall be detailed in the Request for Proposal (RFP). The tender

procurement norms furnished in the RFP will be adopted for the selection of vendors for implementation of the project including Operations & Maintenance of the project.

PPP Model Framework

The ATS project is proposed to be implemented in Build-operate-transfer (BOT) model wherein the responsibility for construction and operations vests with the private partner while ownership is retained by the Government. The PPP duration is long in order to ensure that the PPP vendors recover their investments made in the infrastructure creation, equipment as well as day to costs incurred for operation and maintenance of these centres. The PPP vendor shall design, finance, construct, manage and maintain the centers for the identified concessionaire period which is the preferred approach for socially relevant projects where revenue potential is limited. Considering the project costs, net revenues and expected returns it is recommended that single vendor be selected for I&C project. This will cross subsidize the revenue losses in regions where the demand isn't high.

Two different PPP models may be considered for the I&C project. Under the model 1, the contract period would be freezed and the vendor would be selected based on the lowest test charges quoted. Under this model 2, the test charges would be freezed and the vendor would be selected based on the lowest contract period quoted by the bidder. Any royalty to the Department would be over and above the identified test charges. Based on the cost benefit analysis projecting the estimated costs and revenue, it is recommended that the contract period may be freezed as 10 years for I&C project. This will enable the Department to provide the services at minimal charges.

Advantages of PPPs

PPPs provide an alternative source of finance to traditional government borrowing. This finance is typically more expensive than concessional loans from multilateral and bilateral institutions, but may help increase investment in infrastructure if the government is otherwise finance constrained. Where PPPs are paid for in full or part by user charges, the total funds available for providing infrastructure also increase — effectively by introducing a targeted tax on service users. Besides potentially expanding the finance or funds available for infrastructure investment, using PPPs can improve the outcomes of this investment. The real benefits of PPPs can include improved value for money, sustainability, and accountability for government investment in infrastructure over traditional public procurement. Most of these benefits arise from a crucial feature of PPPs—the ability to efficiently allocate risk between public and private parties. PPPs can achieve better value for money than traditional public procurement through:

- Risk transfer and efficient allocation: PPPs relieve the government budget of some project risks, while efficient risk allocation between parties improves incentives and should reduce overall project cost. A PPP allows effective risk allocation because there are typically some risks the government can best control or absorb, and some that can be managed best by the private party. The government may accept some demand risk, through take-or pay agreements or minimum revenue guarantees, because it often controls the existence of competing services.
- Whole-of-life costing: a single contract spanning the design, construction, and operation of an asset gives the operator an incentive to strike the efficient design balance between

capital costs on sound construction and the expected level of operation and maintenance costs over time.

- Harnessing private sector expertise: involving a private sponsor throughout the transaction structure and design process may allow the government access to that sponsor's international experience in innovative technology or financial structures.
- Improving the sustainability of public services. In addition to reducing overall cost, PPPs can greatly decrease the variability of the cost of that service to government. This decreases the vulnerability of the service and of the government's fiscal position to unexpected shocks. This benefit arises directly from sharing the risks of service provision with the private party—provided, of course, the private party is sufficiently competent to manage the risks and responsibilities allocated to it through the PPP contract.
- Introducing private investment also greatly increases the incentives and capacity to accurately identify project risks upfront. Investors whose profits depend on a successful project will undertake rigorous due diligence on PPP contracts to ensure risks are identified, appropriately allocated, and mitigated where possible. Hence even where the government does bear risk, it is likely to be better understood and specified through contracts and associated guarantees than under traditional public procurement. This enables the government to choose to make appropriate provisions, such as credit lines or regular budget allocations, to protect the budget from shocks should guarantees be called.
- PPPs improve accountability in public expenditure through transferring service delivery risk to the private party. This means the government only pays for services delivered at the specified quality over the contract period. This is in contrast with traditional public procurement, where the government often has no recourse when, for example, construction quality is revealed after the event to be lower than expected. When PPPs are used for the right projects, the benefits in terms of value for money, accountability, and sustainability of public investment in infrastructure can be substantial. These benefits are difficult to measure.
- Audits of PPP programs suggest that PPP projects result in lower costs, and delivery is more likely to be on time and on budget.

The benefits of PPPs mainly arise from the ability to efficiently allocate risk between public and private parties. To effectively allocate risk, project outputs must be clearly specifiable for the duration of the project. This means PPPs work best for projects that are not subject to significant uncertainty or change in outputs or conditions. For example, PPP projects in the IT sector can be difficult as the technological change is simply too rapid in relation to the typical length of a PPP contract. Since achieving an efficient risk allocation requires investment of time and money in project structuring, PPPs may not be cost-effective for small projects, even if the other project characteristics are well-suited to a PPP contract.

Guidelines

For establishing I & C Centers, guidelines are required to be defined to regulate the process of implementation. Following are the guidelines:

15. Number of lanes to be installed in an I & C Center would be decided based on the number of Vehicles which requires fitness testing in the specified Zone. Keeping in view future requirement, testing capacity of test lanes to be installed at I & C Center should have capacity to test at least 150% of the present no. of Vehicles.
16. State Government will provide the minimum assurance/ guarantee of prescribed number of vehicles per lane per year to the Private operator for establishing an I & C Center. This minimum assurance/ guarantee will help the operators to get the funding from financial institutions for establishing I & C Center for operating it on a viable scale. The contract of operation should be for a minimum period of 10 years
17. Private parties are required to have following credentials as eligibility conditions for establishing I & C Centers, as follows:-
 - o Minimum experience in operation of I & C lanes of at-least 10 lanes
 - o Manpower: as defined in rule 63
 - o Net-worth: 10 Crs
 - o Turnover: 25 Crs
18. Land requirement (minimum) for an I & C Center will on no. of lanes to be established at the Center. Number and types of test lanes to be installed at I & C Center will be decided based on category of vehicles and their existing nos. in the specified zone.
19. Specifications of Test lane equipment will be standardized based on the specifications prescribed in tender and the experience gained in the execution of the same for LCV and HCV lane. The equipment to be installed at I & C Center should be having same or better specifications.
20. I & C Center will collect the Vehicle testing charges from the Vehicle owners, directly as prescribed under CMVR rule 81. The amended vehicle fitness charges as recommended by SHARMA COMMITTEE.
21. Retest of Vehicles will be required to be done within 15 days and for only those tests in which particular Vehicles have been failed. Charges of Vehicle re-testing would be 50% of the prescribed Vehicle testing fee as per CMVR rule 81.

Project Deliverables Management

The high level deliverables common across projects have generally been identified as follows:

- Project Report
- Infrastructure & Equipment Requirements Specifications
- Software Requirements Specifications
- Architecture Document (Conceptual and Physical Architecture)
- Detailed Design Document
- Application Development Plan, Pilot, Scope, Test Data required, Security, deployment and other infrastructure services for the project)
- Integration with existing Systems
- User Acceptance Test
- Pilot Implementation Plan
- Pilot Feedback Report
- Implementation Readiness Report

- Training Plan
- Training report
- Deployment Plan
- Deployment Readiness Report

While the list is indicative, each of the deliverable comprises of components that include physical and electronic artifacts. Each of these deliverables will be submitted by the vendors. Program management involves a large variety of activities across different projects and varied stakeholders. The aim of putting in place a well-defined process framework ensures conformity across the project and stakeholders. While the framework takes care of regular processes, clarity of approach and expectations, the project managers can dedicate their time better to ensuring the realization of the objectives and vision of the Department.

As part of the overall program management, the Project management agency will also undertake validation tests of the implementation, quality audit on the system and coordinate with the implementing vendor to ensure that the system operating procedures are established, documented, tested, manpower trained, processes modified if necessary, obtaining acceptance for a period of six months from the date of the successful launch of the pilot.

Project Progress Measurement & Control

Project Performance will be measured regularly to identify variances from the plan. A control mechanism will be set in place that would include taking preventive action in anticipation of possible problems. The project progress will be monitored based on monthly reports covering the following parameters: Accountability, skills, collaboration, reporting, alerting, quality control, escalation procedures.

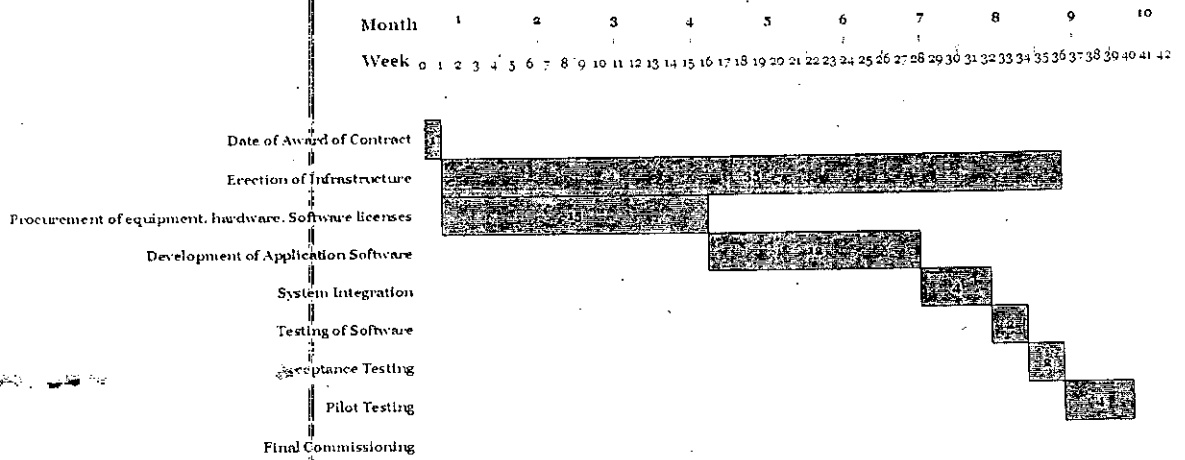
Project Plan - Schedule, Milestone & Work Breakdown

6.1.1 Project Plan for I&C

Table 6-2: Project Plan

No.	Delivery Areas	Start Date (To - weeks)	End Date (To - weeks)
1.	Date of Award of Contract	To	To+1
2.	Erection of Infrastructure	To+1	To+36
3.	Procurement of equipment, hardware, Software licenses	To+1	To+16
4.	Development of Application Software	To+16	To+28
5.	System Integration	To+28	To+32
6.	Testing of Software	To + 32	To + 34
7.	Acceptance Testing	To + 34	To + 36
8.	Pilot Testing	To + 36	To + 40
9.	Final Commissioning	T+40	

Table 6-3: Project Plan - Gantt chart



Important Note: This project schedule does not account for delays that are not controllable directly. The above Schedule is subject to change depending upon the complexities of the project and variations in the requirements during the development and implementation phase.



Deliverables

- Software Requirement Specification
- Project Plan
- User Acceptance Test Plan
- Test Plan
- System Architecture
- Information Architecture
- Visual Design
- System Design
- Test Case
- Coding standards
- Source code
- Test cases
- Test reports
- User manual and Training Plan
- Support plan.

Roles & Responsibilities

An overview of the roles and responsibilities of the key stakeholders – Motor Vehicles Department, Government of Punjab, PPP vendors and the Program Management Agency (CIRT) are outlined below. However during the finalization of the contract with the external agencies, the roles and responsibilities will be detailed out with corresponding liability clauses.

6.1.2 Motor Vehicles Department, Government of Punjab/ (PIU)

- Provide timely approvals at various stages of the progress of the project.
- Issue notifications authorizing the mandatory certification of vehicles seeking applicants from the established I&C Centers based on the progress of the project and in terms of the commercial contract with the implementation vendor based on clearances and certifications by CIRT.
- Arrange for necessary permissions for entry and exit of authorized personnel of the implementation vendor and their consortium partners.
- Arrange for meetings with key officials of the Department as needed and to have the internal IT team of the Department for any integration of IT with existing applications.
- Provide necessary assistance as and when required for the implementation vendors and the Project Management Agency during the project execution phases.
- Undertake effective strategies to encourage use of the centers being created.
- Arrange for transfer of knowledge to a team from the Department to help ongoing training in the use of new systems.

6.1.3 Project Management Agency (PMA)

- Provide adequate support and assistance to the Motor Vehicles Department, Government of Punjab in the vendor selection process including bid process management, vendor evaluation, providing clarifications on various terms of reference.

- Closely coordinate with the PIU during various stages of the Project management phases as detailed below:
 - Ensure that the scope, time, cost, quality, people, communication, procurement, integration and risks are effectively managed to deliver the project as per the terms and conditions.
 - Effectively liaison with the implementation vendors, various key stakeholders within the Department.
- Provide for adequate manpower to cater to various activities of the project management
- Monitoring the project progress as per the project schedule and submit periodical reports to the Department.
- Raise timely averts to critical events and slippages and coordinate with Department for timely course corrections and approvals.
- Develop appropriate templates for project monitoring and obtain clearance of the same from PIU.

6.1.4 Project Implementation Vendors (PIV)

- Responsible for complete implementation of the I&C project as stipulated under the terms and conditions on awarding the contract including meeting the project milestones, delivering the assured quality in the supply of products and services and effective integration of various components for a seamless interface.
- Ensure provisioning adequate staff during the operations phase to deliver quality services as per the contract and terms of reference
- Ensure that the service level metrics are adhered to and in the event of unforeseen events provide quick and necessary alerts to the nominated official of the Department.
- Offer training to selected set of users in the Department in the use of various devices.
- As part of implementing the project, the vendor will ensure that improved information quality and extensive fitness testing/driving licensing data, will be made available to the Motor Vehicles Department, Government of Punjab as and when demanded.

Chapter 7

IT Operational Plans

Introduction

Maintenance, upgrade, replenishments, Operations & financial monitoring mechanisms, roles and responsibilities, managing warranties and claims, review of business models. The IT configuration must be effectively maintained and managed to ensure that all services are delivered without any break. The system needs to be covered with Service Level Guarantees as part of the Service Level Agreements (SLA) to be signed with the System implementation and integration vendor.

Service Metrics

The Quality of service metrics in respect of various sub-systems are indicated below:

Table 7-1: Service Metrics

Service Applications	Benchmarks
IT Application Availability	98.00%
Computing accuracy	100%
Customer Satisfaction level	>80%
User satisfaction level	>80%
Hosting Centre	
Minimum concurrent connects to the Command Centre	30
Availability of systems at Data Centre	99.00%
Resumption of online IT services	1 hr
Data availability	100%
Data accuracy	100%
Handling Capacity of Database Server	I&C : 330 service transactions/hr
Handling Capacity of Application Server	I&C : 330 service transactions/hr
Availability of agreed services over the internet	98%
Local Area Network at the Command centre	
Uptime of Back Office Servers	> 99%
Time to restore back office servers from failure	< 4 hr
Client Access	
Grievance and Complaints settlement	< 7 days
Customer Satisfaction measure	> 75%
Average time for service at the customer premises	<12 hrs

The basic procedures for the Maintenance & Support and administration of computing resources of ITS Project are furnished below. It is expected to develop a perfect synergy between the user and the machine to Define, Identify, Analyze, Maintain, and communicate on-line data between the end users and the decision makers. The Project Organization hierarchy provides delegation of responsibility at all levels and end-to-end Role-Definition of the personnel.

Maintenance Plan

The maintenance team will work for providing a robust system without any down time by applying a comprehensive maintenance policy incorporating both Hardware and Software maintenance.

7.1.1 Hardware Maintenance Plan

All the necessary hardware required for the project like Servers and Network Components, Computers, peripherals and other associated components would be sourced from reputed and pre-approved Vendors. The implementing agency will have agreements with such vendors. The cameras shall be maintained in good condition and defective units shall be replaced at any of the designated locations. Maintenance is broadly classified as Preventive and Reactive.

a) Preventive Maintenance

The user shall be responsible for doing routine maintenance like virus scan and update, UPS / Generator/ A/C maintenance as per the User Manual supplied. The maintenance activities are followed to prevent any breakdown. Standard/genuine spares would be maintained for any urgent replacement.

b) Reactive Maintenance:

- If a breakdown occurs, the user shall report the nature of breakdown to the administrator.
- The administrator will generate the complaint number and dispatch the maintenance team immediately to the concerned location.
- The maintenance team will attend and sort out the problem. They will generate a service report and submit to the administrator.
- The administrator closes the complaint number and files it in the breakdown register.

7.1.2 Software Maintenance Plan

The vendor shall provide Software Updates, patches/fixes, new versions/releases of all the Application software and System software as and when it takes place. The Vendor on its own will also install and set these updates on all the components of the System. Troubleshooting and Customization of all the Application software will be part of this activity. The Vendor will provide a comprehensive maintenance support to the user for all the Hardware, Software and material taken by operator.

(iv) for rule 81, the following rule shall be substituted, namely:-

"81. Fees.-The fees which shall be charged under the provisions of this Chapter shall be as specified in the Table below:

Provided that the States may levy additional amounts to cover the cost of automation and technology utilized for conducting the testing or providing value added services.

TABLE

Sl. No.	Purpose	Amount	Rule	Section
(1)	(2)	(3)	(4)	(5)
1.	Grant or renewal of trade certificate in respect of each class of vehicle:		34(1)	
	(a) Motorcycle	Five hundred rupees		
	(b) Invalid Carriage	Five hundred rupees		
	(c) Others	One thousand rupees		
2.	Duplicate trade certificate:		38(1)	
	(a) Motorcycle	Three hundred rupees		
	(b) Invalid Carriage	Three hundred rupees		
	(c) Others	Five hundred rupees		
3.	Appeal under rule 46	One thousand rupees	46(1)	
4.	Issue or renewal of certificate of registration and assignment of new registration mark:		47(1)	
	(a) Invalid Carriage		52(1)	
			54(1)	
	(b) Motor cycle	Fifty rupees	76(1)	
	(c) Three wheeler/Quadricycle/Light Motor Vehicles:	Three hundred rupees	and 78(1)	
	i) Non transport;	Six hundred rupees		
ii) Transport	One thousand rupees			

	(d) Medium goods vehicle	One thousand rupees		
	(e) Medium passenger motor vehicle	One thousand rupees		
	(f) Heavy goods vehicle	One thousand and five hundred rupees		
	(g) Heavy passenger motor vehicle	One thousand and five hundred rupees		
	(h) Imported motor vehicle	Five thousand rupees		
	(i) Imported motor cycle	Two thousand and five hundred rupees		
	(j) Any other vehicle not mentioned above	Three thousand rupees		
	<p>Note 1: Additional fee of two hundred rupees shall be levied if the certificate of registration is a smart card type issued or renewed in Form 23A.</p> <p>Note 2: In case of delay in applying for renewal of certificate of registration, an additional fee of three hundred rupees for delay of every month or part thereof in respect of motor cycles and five hundred rupees for delay of every month or part thereof in respect of other classes of non-transport vehicles shall be levied.</p>			
5.	Issue of duplicate certificate of registration	Half of the fee mentioned against Serial No.4	53(2)	
6.	Transfer of ownership	Half of the fee mentioned against Serial No.4. Note: In case of delay in submission of 'No Objection Certificate', an additional fee of rupees three hundred for delay of each month or part thereof in case of motor cycles and five hundred rupees for each month of delay or part thereof for other vehicles shall be levied.	55(2)(iii), 55(3), 56(2)(a) and 57(1)(a)	

7.	Change of residence	Half of the fee mentioned against Serial No.4. Note: In case of delay in submitting 'No Objection Certificate' for change of residence, an additional fee of rupees three hundred for delay of each month or part thereof in case of motor cycles and five hundred rupees for each month of delay or part thereof for other vehicles shall be levied.	59	
8.	Recording alteration in the certificate of registration	Half of the fee mentioned against Serial No.4		
9.	Endorsing hire purchase/lease/hypothecation agreement-		60	
	(a) Motorcycle	Five hundred rupees		
	(b) Three wheeler/quadricycle/light motor vehicle	One thousand and five hundred rupees		
	(c) Medium or heavy vehicle	Three thousand rupees		
	Note: No separate fee will be levied for cancellation of lease, etc. or for issue of fresh Certificate of Registration thereafter.			
10.	Conducting test of a vehicle for grant or renewal of certificate of fitness		62(2)	
	(a) Motorcycle	(i) <input checked="" type="checkbox"/> Manual: Two hundred rupees (ii) <input checked="" type="checkbox"/> Automated: Four hundred rupees		
	(b) Three wheeled or light motor vehicle or quadricycle	(i) Manual : Four hundred rupees (ii) Automated: Six hundred rupees		
	(c) Medium or heavy motor vehicle	(i) Manual: Six hundred rupees (ii) Automated: One thousand rupees		
11.	Grant or renewal of certificate of fitness for motor vehicle	Two hundred rupees. Note: Additional fee of fifty rupees for each day of delay after expiry of certificate of fitness shall be levied.	62(2)	
12.	Grant or renewal of letter of authority	Fifteen thousand rupees	63(2)(a)	
13.	Issue of duplicate letter of authority	Seven thousand and five hundred rupees	66(2)	
14.	Appeal under rule 70	Three thousand rupees	71(1)	

15.	Any application not covered under entries at Serial Nos. 1 to 14 above	Two hundred rupees		64(p)
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Note 1: For the removal of doubts, it is hereby clarified that medium passenger motor vehicles, heavy goods vehicles, imported motor vehicles or any other vehicles not mentioned against Serial No.4 of the above Table include both transport and non-transport vehicles.

Note 2: Where the certificate of registration issued is in the form of any Smart Card Type, an additional fee of rupees two hundred shall be charged *except* in the case of issue of fresh certificate of registration after cancellation of hire purchase or lease or hypothecation agreement."

[No. RT-11017/12/2013-MVL]

ABHAY DAMLE, Jt. Secy.

Note: The principal rules were published in the Gazette of India, Extraordinary, Part-II, Section 3, Sub-section (i) vide notification number G.S.R. 590(E), dated the 2nd June, 1989 and last amended vide notification number G.S.R.1096(E), dated the 28th November, 2016.

Nishok

Kumar Paria

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Date: 2017.04.07 16:31:10 +05'30'

INVITATION OF EXPRESSION OF INTEREST

BY

CIRT, PUNE

for selection of Operator

To Set up Authorized Testing Station (ATS)
Centers in Punjab

1.0 INTRODUCTION:

Office of State Transport Commissioner, SCO 177-178, Sector 17-C Chandigarh with a view to professionalize Road worthiness Certification of Transport Vehicles, Transport Department, Punjab invites expression of interest from Equipment manufacturer / Operators to sign an MoU for setting up of Authorized Testing Stations (ATS) for Vehicle Inspection and certification on PPP mode in Punjab State.

As per provision in section 56 of Motor Vehicle Act 1988, transport vehicles cannot be registered unless its fitness is certified in a manner prescribed by the Central Government as per Rule 62 of CMVR. The Central Motor Vehicle Act also authorizes prescribed authority or an Authorized Testing station to issue certificate of fitness.

In view of the above fact the various State Governments intends to set up Automatic Vehicle Testing Centers in the districts which are having more than One lakh (appx.) Transport Vehicles. It is expected that on an average around 150 Vehicles will come for fitness testing everyday on such Automatic Vehicle which have to be tested/checked by the Motor Vehicle Inspectors.

The main aim & objective of setting up of Automated Vehicle Testing Center is to scientifically test the road-worthiness of the Transport Vehicles by automated authentic test equipments, before they actually ply on roads. This process in turn ensure the safety of the general public / passengers and will lead to a much cleaner environment, thus ensuring implementation of the Supreme Court order. Today, there is no mechanism in the Country (except implementation of model "Vehicle Inspection and Certification Centers" under pilot project scheme of MoRTH for 'establishing one Inspection and Certification Centre in each State') to check all safety parameters of vehicles coming for fitness testing. At present, fitness certificates to the vehicles are being issued by State Transport Departments based on visual judgments only. But there are certain critical parameters like Brake, Head light, Suspension, emission etc. which cannot be checked visually. Automatic Vehicle Testing Center is a State of art Testing Station that can check all safety parameters of the vehicles in a scientific manner that too in a short time besides complete testing data storing them in computers.

2.0 AIM OF SETTING UP OF Authorized Testing Stations

- Less accidents, injuries and deaths, saving PRECIOUS human lives.
- Better technical condition of the Transport vehicles, therefore safer and cleaner vehicles
- Saving of fuel due to periodic maintenance of vehicles
- Cleaner environment.
- Safety awareness to drivers / vehicle owners

3.0 OBJECTIVES OF THE AUTHORIZED TESTING STATIONS(ATS)

Purpose of the Authorized Testing Stations is to test the commercial vehicles (HCVs, LCVs, Taxis, three wheelers etc.) coming for the 'Fitness Certification Testing'. It shall conduct the following tests:

- o Pollution Test,
- o Side Slip test,
- o Brake test,
- o Suspension test,
- o Head light test,
- o Speedometer test,
- o Steering linkage play test,
- o Sound level test
- o Above carriage and under carriage inspection.
- o Measurement & Generation of true values for each parameter during individual test

- The automated testing of the vehicles during fitness checking will lead to:
 - o Analysis of test data.
 - o Generation of MIS.
 - o Operational training of Motor Vehicle Inspectors on Testing Station.

4.0 MODEL

4.1 ESTABLISHING OF AUTHORIZED TESTING STATIONS(ATS):

- i) State government will take initiative along with interested I&C operator to setup up "Authorized Testing Stations(ATS)" on PPP (Public Private Partnership) module where all vehicle can be tested for fitness parameters like: - Safety parameters like Brake and Head light as per AIS 128, Emission as per TAP 115/116, Speed Limiter as per AIS 018, Visual checks as well as underbody inspection.

- ii) Authorized Testing Stations (ATS) *have* to be set up at 7 locations in state at Gurdaspur, Patiala, Mohali, Jalandhar, Ludhiana, Bathinda and Ferozepur. One center will require minimum land of 3 acres on a state highway or national highway within 3 Km of municipal limits.
- iii) Considering the huge capital investment required in establishing & operating such centres, it is felt that project can be taken in PPP modules where the "fully developed free of cost land, free from all encumbrances" will be provided by PPP Vendor.
- iv) Private party (i.e. Test Center Operator) will invest for providing land, civil construction cost of the Test Center, supply, installation, operation and maintenance of testing equipment's cost for HCV, LCV and 3W Vehicles on a long term basis.
- v) Test Center Operator will be allowed to collect the prevailing fitness testing fees from Vehicle owners directly. For any other prevalent State Government regulation and if required additional testing fees from Vehicle owners as per agreed terms with State Government. The Vehicle Testing fees collected by the Testing Center Operator will be used to recover its investment made for establishment and running operations of the Testing Center. Under the proposed model, CIRT, will be the Project Monitoring Agency(PMA) and assist the State Government to implement the project in phases.

4.2 OPERATION & MAINTENANCE

- I. Test Center Operator shall be responsible for operation and maintenance of the Automated Testing Station.
- II. All the expenditures as given below but not limiting to, incurred in operation and maintenance of Automated Testing Station as mentioned below shall be borne by the Test Center Operator: -
- Salary and wages of operation staff
 - Consumables, Spares and maintenance
 - Insurance of Plant and machinery
 - Generator, fuel & maintenance
 - Electricity, Telephone & Internet bills
 - Stationery/Cartridges
 - Over heads

4.3 TESTING FEE: Government would allow prevailing Testing fee as per rule 81 of CMVR to be collected by the Test Center Operator in lieu of the investment made by it for establishing the Test Center as well as running operation of the Center during the contract period as given above. Grant / Renewal of Certificate of Fitness for Motor Vehicle: Rs. ~~1000/-~~ for HCV and LCV vehicle & Rs. ~~600/-~~ for 3 wheelers will be collected by transport

department. The payment to the State Government will be revised in the same proportionate with every revision in test fees and similarly in the contract period to the Test Center Operator bidder will be revised.

4.4 INITIAL CONCESSION PERIOD:

To be decided in consultation with the State government.

5.0 SERVICES TO BE OFFERED

5.1 FITNESS TESTING OF VEHICLES

Following Tests shall be conducted:

- **Side Slip Test :**
 - ✓ Measures alignment of wheels on axle (toe in or toe out) in mm/m
- **Brake Test :**
 - ✓ Measures break force per wheel
 - ✓ bind per wheel
 - ✓ Ovality per wheel
 - ✓ Imbalance per axle
 - ✓ Also calculate braking efficiency for axle / vehicle
- **Suspension Test :**
 - ✓ Measures road contact value per wheel
 - ✓ Tyre rigidity per wheel
 - ✓ Frequency at lowest road contact value
- **Emission Test :**
 - ✓ Measures Carbon monoxide (CO)
 - ✓ Carbon dioxide (CO₂)
 - ✓ Oxygen (O₂)
 - ✓ Hydrocarbons (HC)
 - ✓ Optional: Nitrogen (di)oxide (NO_x)
 - ✓ Also calculates Lambda value
- **Diesel Smoke Test :**
 - ✓ Measures opacity of diesel smoke with free acceleration method.
 - ✓ RPM can be measured with wireless rpm device
- **Head Light Beam Test :**
 - ✓ Measures horizontal alignment
 - ✓ Vertical alignment
 - ✓ Light intensity of low beam, high beam and auxiliary lamps.
- **Speedometer:**
 - ✓ Checks the accuracy of the speedometer of a vehicle.
 - ✓ Can also be used to check speed limiter and speed warning devices.
- **Sound Level Test:**
 - ✓ Checks the sound level of a vehicle's exhaust system.
- **Visual Inspection:**

- ✓ Inspection of all above and under carriage items, such as condition of windows, wind screen wipers, tyres, etc. All failed items can be selected on a special membrane keyboard, or on a touch screen monitor.
- **Emission Exhaust Blower**
- ✓ To be installed inside the equipment shed for safe air
- **Test report / certificate:**
- ✓ At the end of the inspection a full test report will be printed. All measuring values and judgments are in the report, so the driver of a failed vehicle can see immediately why his vehicle failed the inspection.

6. Eligibility Criteria for bidder

Interested Private Parties who want to become "Authorized Testing Stations" operators and are having experience in the following areas are invited to submit their proposal as "Expression of Interest (EOI)". In case of a joint venture or consortium, unless otherwise specified in the bid data sheet, all parties shall be jointly and severally liable for performance of the Contract. OEM, who wishes to participate, shall do so;

1. On their own
2. By forming joint venture or consortium with their partner, Partnership with multiple associates is not allowed for bidding.
3. The bidder or its consortium members should not be blacklisted / debarred from participating in the Government Tenders / EOIs by any Central/ State Government/ PSUs or any other Government Organisations in India/ Abroad. A self declaration in this regard from all members of Joint Venture/ Consortium members, duly attested by notary should be submitted along-with their proposal.

7. Technical Criteria:

- The applicant i.e. Private Party whether participating alone or in consortium or joint venture should have at least 5 (five) years' experience in establishing or operation or manufacturing of test lane equipments for light as well as heavy duty vehicles for such testing centres anywhere in world.
- The applicant i.e. Private Party whether participating alone or in Consortium or Joint Venture should have "manufactured and supplied" or should have "established" at-least 50 numbers of Vehicle Testing lanes.
- The applicant i.e. Private Party whether participating alone or in Consortium or Joint Venture should submit documentary evidence of relevant experience as cited above with the details of each project including Project wise names and contact details of the customers.

8. Last Date of Submission:

The EOI shall be submitted on or before-----, EOI received after the last date shall not be considered and no further action will be taken on such EOIs. No request for accepting EOI after the due date expiry will be entertained for any reason whatsoever.

9. Guidelines to applicants for sending EOI:

- Applicant shall enclose a covering letter on letter head while sending the EOI
- The interested applicant shall send in a sealed envelope clearly super scribing the envelope "EOI for Selection of "Automatic Vehicle Testing Center" Operators for Setting-up of Vehicle Testing & Certification Centers".
- The bidder or any of his consortium member MUST have an representative office in INDIA for coordination purpose.
- The EOIs received within the due date will be evaluated strictly as per laid down criteria. Therefore, before sending the EOI the bidder must satisfy that they fulfill all the eligibility criteria. The related proof of experience, details of office set-up etc., must be enclosed / detailed out for evaluating the EOI.
- In case desired documents/proofs are not enclosed, the EOI shall be rejected and any clarifications or information sent subsequently will not be entertained.
- STC Punjab have the right to reject any or all EOIs, received in response to this invitation and its decision in this regard shall be final and binding.
- Short listed bidder will be invited for presentation before selection.
- Bidder must fill the points marked (*) in para 4.0 (iv)
- The Bidders are requested to raise their queries, if any, by email at stc.punjab02@gmail.com
