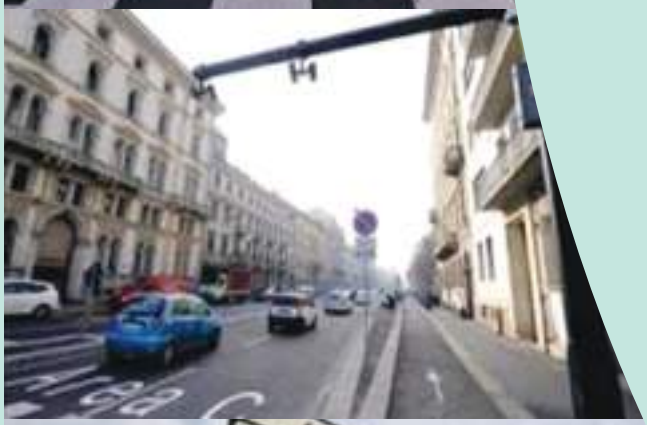

SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

Road Pricing as a Travel Demand Management Tool

Final Report

August 2017

Institute of Urban Transport (India)

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Abbreviations

ALS	Area Licensing Scheme
CBD	Central Business District
CDP	City Development Plan
CMP	Comprehensive Mobility Plan
CTTS	Comprehensive Traffic and Transportation Plan
ECS	Equivalent Car Space
ERP	Electronic Road Pricing
HOT Lane	High Occupancy Toll Lane
HRTC	Himachal Road Transport Corporation
JCTSL	Jaipur City Transport Services Limited
LoS	Level of Service
MD	Managing Director
MoRTH	Ministry of Road Transport and Highways
MoUD	Ministry of Urban Development
NAAQS	National Ambient Air Quality Standards
NMSH	National Mission on Sustainable Habitat
NMT	Non Motorized Transport
NUTP	National Urban Transport Policy
PDM	Parking District Management
RSPM	Respirable Suspended Particulate Matter
RSRTC	Rajasthan State Road Transport Corporation

SPA	Shimla Planning Area
SPV	Special Purpose Vehicle
SWOT	Strength, Weakness, Opportunity and Threat
TDM	Travel Demand Management
UADD	Urban Administration and Development Department
UDD	Urban Development Department
UMI	Urban Mobility India
UMTA	Urban Metropolitan Transport Authority
UTF	Urban Transport Fund
V/C Ratio	Vehicle/ Capacity Ratio

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Chapter 1:
Project Background

Urban Population as well as the vehicle pollution in India is growing at an alarming rate. While the urban population is growing at a rate of 3.81 % (1971-2011) the growth of motor vehicles is at a rate of 11.5%. As per MoRTH the total registered vehicles in India are 18.2 crores (2013) of which buses constitute only about 1%. Due to the poor service coverage of public transport and last mile connectivity, people resort to more usage of private vehicles for day to day activities, thereby increasing travel demand leading to congestion, increasing pollution levels and energy consumption in the city.

The negative impact of traffic on roads in the cities is becoming critical and has been engaging the attention of planners and policy makers. These impacts have resulted in escalating external costs of driving in terms of reduced speed, loss of economic productive hours, increase in air pollution and fuel consumption, wear and tear of vehicles, frustration on the part of road users, interference with the smooth passage of emergency vehicles and spill over effect from congested main arteries to secondary and collector/distributor roads.

"These external costs in terms of congestion itself, is estimated to be £22 billion a year in the UK by 2025, while in the US congestion has already been estimated to cost $25 billion a year".[1]

Essentially, the problem is that the current charges paid by road users do not compensate the losses incurred due to these negative externalities on the roads. In India, large cities have parking charges for private vehicles which are charged at flat rate. In small and medium cities no such charges are levied for parking. The second kind of charging for road space usage in India is through the imposition of toll tax. Other forms of road charging practices are fuel duty and excise duty. Therefore, the increased usage of private transport is aided by the existing pricing or vehicles taxing mechanisms, which in a way partly finance the maintenance or improvement of roads, bridges and public transport. However, all these measures are not helping much to reduce the adversities faced by the user on roads.

Therefore, in order to control it an innovative method of Travel Demand Management like Road Pricing can be imposed upon road user to control the growing impacts of undesirable traffic condition.

[1] The Cost and Benefits of Road Pricing: Comparing Nationwide Charging with Project-Based Schemes, Pg. 3, Discussion Paper, Alex Bowerman, Institute of Economic Street.

1.1 NEED FOR THE STUDY

Increasing the road infrastructure like road network or adding on more flyovers will not solve the problem of congestion, pollution or growing energy consumption. This will only create induced traffic and worsen the situation further. The current traffic condition will consume more and more valuable developed urban land. Constructing underground and elevated roads are expensive and revenue collected from traditional charges like parking charges, fuel duty, vehicle excise duty and construction have thus far proven inadequate and ineffective. Road pricing would therefore, help in getting more value for money for the usage of road space. This will also help to increase the public share of transport in the city and reduce dependence on private vehicles as also stipulated in the National Urban Transport Policy, 2006.

1.2 OBJECTIVES OF THE STUDY

The objectives of the study are:

- To develop strategies imposing road pricing mechanism at city level, to discourage motorized vehicle use and encourage shift to public transport and non-motorized transport.
- To develop a brief policy note based upon identified possible methods.
- To suggest institutional arrangements for implementation of the identified pricing strategies.

1.3 SCOPE OF WORK

The scope of work defined for the study includes:

I. **Review of existing transport related policy and planning documents** like CMP, master plan, city development plans and any other relevant plans for the city and national and international case studies to understand the road pricing system as a measure for travel demand management, its merits and demerits and also to identify the gaps and issues in this regard.

II. **Collection of secondary data-**

- **Secondary Data** collected from 12th five year plan, national transport development committee report, city specific data such as existing road network characteristics, public transport system, socio-economic characteristics, pollution data and other traffic related data from CMP, CTTS, Master Plan, DPR etc.). These data collected from departments like Development Authorities, Municipal Corporation, city specific SPV, RTO and Pollution control Board etc. will aid in understanding the existing transport scenario and pollution levels in the city.
- **Pricing Mechanism:** Data of current pricing mechanism implemented on various modes in selected cities has been collected from concerned agencies.

III. **Analysis of data and identification of issues and gaps–** Analysis of the current pricing mechanisms followed for various modes was carried out along-with its cost to the society in terms of expenditure on infrastructure creation, air-quality effect and climate change implications etc. to identify the drawbacks and learnings from the exiting mechanisms.

IV. **Road Pricing Mechanism:** To produce a mechanism with recommendations on road pricing through economic and financial instruments to discourage motorized vehicle use and encourage shift to public transport and non-motorized transport.

V. **Institutional Arrangement** proposed for smooth implementation mechanism.

VI. **Stakeholder Consultation** conducted for feedback and suggestions on the analysis and proposed strategies.

1.4 STUDY METHODOLOGY

The methodology used for conducting the study is discussed as under:

1.4.1. IDENTIFYING THE OBJECTIVE, NEED AND METHODOLOGY FOR THE STUDY

This stage involves elaborating the scope of the study, methodology and detailing out the available objectives and schedules of work plan.

1.4.2. REVIEW OF EXISTING TRANSPORT RELATED POLICY AND PLANNING DOCUMENTS

a) Study the existing transport policies like NUTP, 12th five year plan, national transport development committee report etc to analyse the road pricing paradigm existing at national and international level.

b) Review the transport projects like CMP, master plan, city development plans and any other relevant plans for the case study cities to understand the current status of the city's transport and other socio-economic condition in the city.

1.4.3. FIELD VISITS

This stage involved the preparation of checklists for the data to be collected and field visit for understanding the current situation. The selected sample cities are as follows:

Table 1 1: List of cities selected for study along with population size

S. No.	Name of the City	Population size	City Category	Region
1	Shimla	5-10 lakh	Hill City	North
2	Bhopal	10-20 lakh	Capital City	Central
3	Jaipur	More than 20 lakhs	Tourist City	West

Checklists prepared for collection of data from the Government departments such as Development Authorities, Municipal Corporations, City Specific SPV, RTO and Pollution Control Board.

1.4.4. SECONDARY DATA COLLECTION

a) Data on various existing road pricing practices like road tolling, area based congestion charging, parking charges, etc. at both national and international level collected for a wider knowledge about the existing issue and possible solutions.

b) Collection of city specific data such as existing road network characteristics, public transport system, socio-economic characteristics, land use, vehicle registration trend, no. of private vehicles, traffic flow on major roads, pollution levels on roads, taxation policy, taxes imposed at city / state level and other relevant data is collected from the competent authority to understand the existing transport scenario and pollution levels in the city.

c) Reconnaissance survey was conducted to corroborate the congestion zones, parking issues and to identify the various land use in the city.

The data collection process was followed by an analysis of road pricing mechanisms in various cities for identifying the major drawbacks and learnings from the existing mechanisms.

1.4.5. DATA ANALYSIS & IDENTIFICATION OF ISSUES AND GAPS

a) Analysis of the current pricing mechanisms followed for various modes was carried out along-with its cost to the society in terms of traffic congestion, expenditure on infrastructure creation, air-quality effect and climate change implications, energy consumption & its implications on roads etc. to identify the drawbacks and learnings from the exiting mechanisms and analyse the issues and gaps.

b) The analysis of the parameters effecting the direct and indirect cost such as annual vehicle tax, (Re) sales tax/charge, registration tax/charge, parking fees, toll fees, land value tax, etc. and Carbon/energy taxes, emission fees, cordon/area pricing, congestion pricing, green cess, emission based surcharges etc. respectively to discourage motorized vehicle use and encourage shift to public transport and non-motorized transport.

c) As parking is one major issue in Indian cities, detailed analysis on parking was carried out majorly in the case cities and the schemes practised in various cities around the globe as a solution to these issues.

1.4.6 DEVELOPMENT OF ROAD PRICING MECHANISM

Based on the findings of the case cities and from the best practices analysed nationally and internationally, road pricing strategies was developed for three case cities and a policy brief prepared at national level.

1.4.7 RECOMMENDATION

The study suggested a policy brief with recommendations on road pricing strategies for cities along with an institutional arrangement for the adequate implementation of road pricing mechanism.

1.4.8 STAKEHOLDER CONSULTATION

For getting feedback and suggestions on the analysis and proposed strategies, Stakeholder's consultation was done comprising of the following:

a) Stakeholder consultation at preliminary stage of the study.

b) Organized a National level Workshop i.e. Discussion in Urban Mobility India Conference - 2016.

c) Conducted a validation workshop in the selected three cities.

The detailed methodology followed is shown in Figure 1.1.

Project Preparation

Need for the Study:

- Understanding the Need, Setting up of Objectives, Scope of Work for the Study.

Literature Review:

- Review of National policies and schemes on road pricing in India.
- Identification of Road pricing practices at National and International level
- Study of traffic and transport from various Documents like CMP, CTTS, Master plan, DPR etc.

City Visits

Preparation for City Visits:

- Checklists for collection of Secondary data.
- Questionnaire for various authorities to understand the existing scenario.

- Reconnaissance Survey of the Existing scenario including congested area, parking issues, land use etc.
- Interviewing the authorities responsible for the urban transport of the cities.

Data analysis

- The city traffic scenario including congestion, air – quality effect, energy consumption etc.
- To learn about existing road pricing mechanism in cities and their merits and demerits.
- Analyse Infrastructure Facilities provided and budget and funding for the same.
- Stakeholder consultation and workshop at national level and city specific.

Outcome

- Development of road pricing mechanism as a national level policy and schemes for case cities.
- Policy recommendation on road pricing strategies for cities along with institutional arrangement.

Policy Brief on Road Pricing strategies

Figure 1.1: Methodology Chart

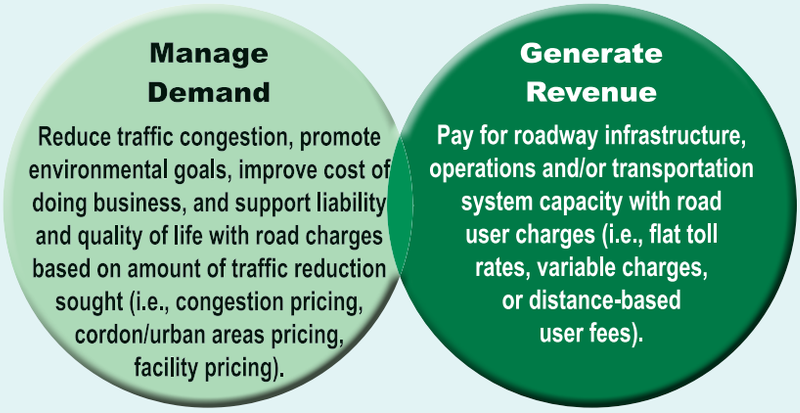
Chapter 2:

Road Pricing Concept

Road pricing is a general term which may be used for any system where the driver pays directly for use of a particular roadway or road network in a particular city, region or nation. Road pricing also includes congestion charging, which are charges levied on qualifying road users to reduce peak demand and thereby reducing traffic congestion. It is also a charge on road users for other negative externalities including traffic accidents, noise, air pollution and greenhouse gas emissions. In most countries, toll roads, toll bridges and toll tunnels are often used primarily for revenue recovery or finance from related projects.

The application of congestion charges is currently limited to a small number of cities in some urban roads. The notable examples are Electronic Road Pricing in Singapore, the London congestion charge, the Stockholm congestion tax, the Milan Area C and High-occupancy toll lanes in the United States.

Economists have long supported Road Pricing as an efficient and equitable way to finance roads and other transportation systems. It encourages more efficient transportation acting as an aid for the urban governments facing increasing difficulties in financing the infrastructure necessary to support economic development. Road pricing has two general objectives of revenue generation and traffic management. Revenue collected from



implementation of such measures can be utilized for improvements in public transit services, NMT infrastructure, etc. Such measures can also be designed to incentivize use of efficient / environment friendly modes. These measures are generally difficult to implement as they face resistance from users of private modes of transport.

Table 2.1. below shows a comparison between revenue generation and congestion management w.r.t road pricing objectives.

Table 2.1: Comparison of Road Pricing Objectives (Market Principles)[2]

Revenue Generation		Congestion Management	
•	To generate funds.	•	Reduces peak-period vehicle traffic.
•	Rates set to maximize revenues or recover specific costs.	•	It is a traffic demand management strategy.
•	Revenue often dedicated to roadway projects.	•	Revenue not dedicated to roadway projects.
•	Shifts to other routes and modes not desired (because this reduces revenues).	•	Requires variable rates (higher during congestion periods).
		•	Traveller shifts to other modes and times considered desirable

The process of congestion pricing is shown in figure 2.1 below.

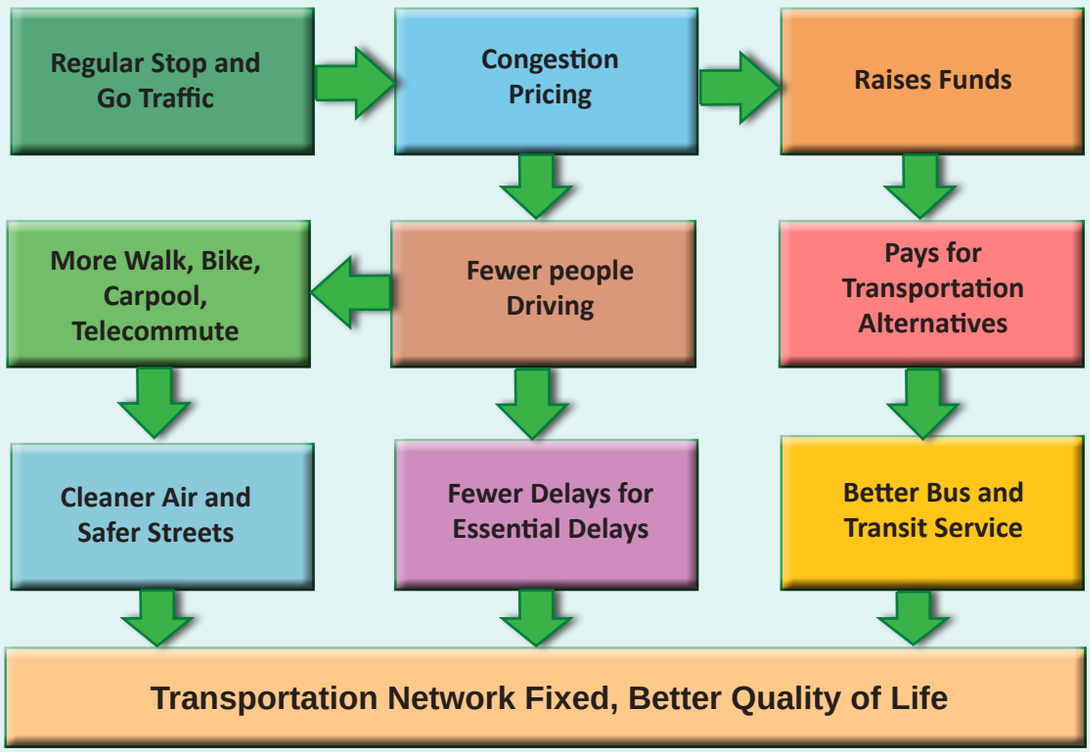


Figure 2 1: Flow Chart of Congestion Pricing

[2] Road Pricing, TDM Encyclopaedia, Victoria Transport Policy Institute, Updated on 21st December 2015,

2.1 TYPES OF ROAD PRICING

Different types of road pricing along with the objectives is given in Table 2.2. Some provide revenues others reduce peak-period congestion yet some others reduce total traffic impacts (congestion, pollution, accident risks, road and parking facility costs, etc.) and some further help achieve a combination of objectives.

Table 2.2 : Road Pricing Categories

Category	Description	Objectives
Road toll (fixed rates)	A fixed fee for driving on a particular road.	To raise revenues.
Congestion pricing (time-variable)	A fee that is higher under congested conditions than uncongested conditions. Intended to shift some vehicle traffic to other routes, times and modes.	To raise revenues and reduce traffic congestion.
Cordon fees	Fees charged for driving in a particular area.	To reduce congestion in major urban centers.
HOT lanes	A high-occupant-vehicle lane that accommodates a limited number of lower-occupant vehicles for a fee.	To favour HOVs compared with a general-purpose lane and to raise revenues compared with an HOV lane.
Distance-based fees	A vehicle use fee based on how many miles a vehicle is driven.	To raise revenues and reduce various traffic problems.
Pay-As-You-Drive insurance	Prorate premium by mileage so vehicle insurance becomes a variable cost.	To reduce various traffic problems, particularly accidents.
Road space rationing	Revenue-neutral credits used to ration peak-period roadway capacity.	To reduce congestion on major roadways or urban centers.

2.2. BENEFITS OF ROAD PRICING

Road pricing impacts vary depending on various factors, including the type of pricing, how it is structured and the transportation and geographic conditions in which it is implemented. Table 2.3 summarizes the benefits of various pricing strategies.

Table 2.3: Benefits of Road Pricing[3]

Strategy	Revenue Generation	Congestion Reduction	Pollution Reductions	Increased Safety
Road toll (fixed rates)	3	2	1	1
Congestion pricing (time-variable)	2	3	2	1
HOT lanes	1	2	1	0
Cordon fees	2	3	1	1
Distance-based fees	3	2	2	2
Pay-As-You-Drive insurance	0	2	2	3
Road Space Rationing	0	3	1	1

Rating from 3 (very beneficial) to –3 (very harmful). 0 indicates no impact or mixed impacts.

2.3 IMPLEMENTATION OF ROAD PRICING

Road Pricing is usually implemented by public or private highway agencies or local authorities as part of transportation project funding packages for transportation demand management or through privatization of highway construction and operations. Implementation may require approval of other levels of government (for example U.S. federal law restricts tolling on the Interstate Highway System).

Road Pricing can be implemented at various scales:

- *Point:* Pricing a particular point in the road network, such as a bridge or a tunnel.
- *Facility:* Pricing a roadway section.
- *Corridor:* Pricing all roadways in a corridor.
- *Cordon:* Pricing all roads in an area, such as a central business district.
- *Regional:* Pricing roadways at regional centers or throughout a region.

There are a number of questions each government/ local authority will have to ask itself once they decide to implement a road pricing scheme.

- Which system to use?
- How to set the pricing structure?

[3] Road Pricing- Congestion Pricing, Value Pricing, Toll Roads and HOT Lanes, TDM Encyclopaedia, Victoria Transport Policy Institute

- What will be the economic impact on the road users?
- Where to spend the revenue?
- What are the impacts of pricing schemes?
- What all data is to be collected?
- What will be the public view on road pricing and acceptance?

2.4 PRICING METHODS

A variety of pricing methods can be used to collect fees, as summarized in Table 2-4. Newer electronic pricing systems tend to have lower costs, greater user convenience and more price adjustability making road pricing more feasible.

Table 2.4: Summary of Fee Collection Options (Pricing Methods)[4]

Type	Description	Equipment Costs	Operating Costs	User Inconvenience	Price Adjustability
Pass	Motorists must purchase a pass to enter a cordoned area.	Low	Low	Medium	Poor to medium.
Toll Booths	Motorists stop and pay at a booth.	High	High	High	Medium to high.
Electronic Tolling	An electronic system bills users as they pass a point in the road system.	High	Medium	Low	High
GPS	Track vehicle location and Data is automatically transmitted to a central computer that bills users.	High	Medium	Low	High

This table summarizes various pricing methods. Newer methods tend to have lower costs, greater convenience and price adjustability making them more cost effective and politically acceptable.

Wit and Humor

"I'll tell you how to solve Los Angeles' traffic problems. Just take all the cars off the road that aren't paid for." -Will Rogers

[4] Road Pricing- Congestion Pricing, Value Pricing, Toll Roads and HOT Lanes, TDM Encyclopaedia, Victoria Transport Policy Institute

2.5 ROAD PRICING TRAVEL IMPACTS

Road Pricing travel impacts depend on the type and magnitude of fees where it is applied, what alternative routes and modes are available and what is assumed to be the alternative or Base Case (TDM Evaluation).

- Pricing roads that would otherwise be free can shift vehicle travel to unpriced routes, alternative modes and closer destinations and reduce vehicle trip frequency.
- Congestion Pricing (i.e. higher rates during peak periods) can cause vehicle trips to shift from peak to off-peak periods.
- If Road Pricing is used to fund roadway capacity expansion that would not otherwise occur, it may increase total vehicle travel (Rebound Effect).
- Road pricing reduces total vehicle travel if used to fund roadway capacity expansion that would otherwise be unpriced (funded through other taxes).
- The better the travel alternatives (transit, ridesharing and cycling), the more road pricing will cause mode shifts.

The overall impact of road pricing is shown in table 2.5 below

Table 2.5: Examples of impact of different types of pricing measures[5]

Pricing Measure	Mechanism	Travel Changes	Potential for direct revenue generation
High road taxes	Pricing	Reduces car usage	Generates revenue
Road / area / congestion pricing	Pricing	Reduces car usage, shifts travel time, reduces number of vehicles on a particular road / corridor	Generates revenue
Distance-based charges	Pricing	Reduces overall vehicle travel	Generates revenue
High fuel prices	Pricing	Reduces overall vehicle use	Generates revenue
Priced parking and time limits	Regulatory, Pricing	Reduces car usage, encourages modal shift	Generates revenue
Unbundled parking	Regulatory, Pricing	Reduces car ownership	No revenue generation
Parking taxation on building in commercial and institutional areas	Regulatory, pricing	Reduces car usage, encourages modal shift	Generates revenue
Parking cash out	Pricing, Improved transport choice	Reduces car usage, encourages modal shift	No revenue generation

[5] Sustainable Urban Transport Projects - Transport Demand Management Toolkit, Ministry of Urban Development, December 2013

2.6 BENEFITS AND COST OF ROAD PRICING

Congestion Pricing is an effective congestion reduction strategy. Many economists consider urban traffic congestion virtually unsolvable without some sort of congestion pricing (Goodwin 1997). Shifting vehicle traffic to other routes or time provides few other benefits, causes spillover impacts (increased traffic on other roads) and increasing traffic speeds can increase crash damages. These congestion reduction benefits are potentially very large because congestion pricing is usually applied on the most congested urban roadways where economic costs (including driver stress and freight delays) are particularly high. By reducing total vehicle travel and traffic congestion road pricing can provide significant energy conservation and emissions reductions (ICCT 2010).

Road Pricing that reduces total vehicle travel can reduce road and parking facility costs, increase road safety, protect the environment, encourage more efficient land use and improve community livability. Congestion pricing both supports and is supported by Smart Growth policies.

The advantages and disadvantages of road pricing are shown in figure 2.2.

Advantages of road pricing

- There are less cars on the road, less traffic jams and less pollution.
- Positive effects for the economy because people will spend less time in jams and more time working
- Extra income for government which can be used to improve the public transport
- Less waste of petrol because of less traffic jams
- Because of less pollution the air is healthier and livability condition improves less medical expenditure.

Disadvantages of road pricing

- People will get an 'unfair' feeling because something that once was free will now be charged.
- Regressive systems, everyone will pay the same which will make poor people pay a relative bigger part of their income
- 'Big brother' idea
- overcrowded public transport.

Figure 2.2: Advantages and Disadvantages of Road Pricing

It usually requires the leadership of local or regional transportation agencies plus support from local political officials and user groups. Road Pricing is sometimes implemented by private companies or through public-private partnerships.

- Regional and national decision makers (City / State / National Government authorities): create awareness about the plans, debate and discussions.
- Non–governmental organizations: involve them early for input and discussions. NGOs can be important for keeping the discussion alive.
- Legal administration: important to map the legal framework as early as possible.
- Public: to be included from the beginning of preparation stage so as to make it convenient and acceptable for all.

2.7. BARRIERS TO IMPLEMENTATION

A major barrier to Road Pricing is the opposition from user groups who consider themselves worse off if they are forced to pay to use currently unpriced roads. Consumers generally oppose new or increased prices (Schade and Schlag 2000). The trucking industry and automobile associations have generally opposed Road Pricing although this may change as urban congestion increases (Walker 2011). Many citizens distrust government agencies and fear that Road Pricing will be implemented primarily to increase government revenue and used inefficiently.

2.8. CONCLUSION

Below are recommended best practices for using Road Pricing to achieve TDM objectives:

- Choose pricing methods that are cost effective to implement, convenient to users and accurately reflect the costs imposed by each trip.
- Use time-variable tolls with higher rates during peak periods and lower rates during off-peak periods to reduce congestion.
- Apply congestion pricing on existing roads, not just new facilities.
- Price individual trips. Avoid significant discounts for frequent users (this contradicts TDM objectives).
- Encourage development of travel alternatives, including flexi-time, ridesharing, transit improvements and bicycle facilities.
- Integrate pricing with other TDM strategies that increase traveler choice and provide additional incentives to use alternative modes in the same area.
- Insure that Road Pricing decisions are transparent, built on public participation and trust.
- Address equity concerns by insuring that all groups receive benefits either through rebates or improved travel choices.
- Make prices as predictable as possible.

An effective and fair Road Pricing system should follow the following principles:

User Perspective

- Easy for users to understand.
- Convenient – does not require vehicles to stop at toll booths.
- Transport options – consumers have viable travel options available (i.e., alternative modes, travel times, routes, destinations).
- Payment options – easy to use with multiple payment options (cash, prepaid card, credit card, etc.)
- Transparent – charges evident before trip is undertaken.
- Anonymous – privacy of users is assured.

Traffic authority Perspective

- Traffic impacts – does not require each vehicle to stop at toll booths or in other ways delay traffic.
- Efficient and equitable – charges reflect true user costs.
- Effective – reduces traffic congestion and other transportation problems by changing travel behavior.
- Flexible – easily accommodates occasional users and different vehicle types.
- Reliable – minimal incorrect charges.
- Secure and enforceable – minimal fraud or non-compliance.
- Cost effective – positive return on investments.
- Implementation – minimum disruption during development phase. Can be expanded as needed.

Society's Perspective

- Benefit/cost – positive net benefits (when all impacts are considered).
- Political acceptability – public perception of fairness and value.
- Environment – positive environmental impacts.
- Integrated – same charging system can be used to pay other public service fees (parking, public transit, etc.)

Figure 2.3: Principles of Road Pricing

Chapter 3:
Literature Review

A review of international and national policies for urban transport related to road pricing were reviewed which would provide a comprehensive aspect and policy provisions which could be incorporated in the State-of-the-Art urban transport policy.

3.1. REVIEW OF NATIONAL POLICIES

Ministry of Urban Development (MoUD), Government of India (GoI), has taken up some initiatives to improve & formalize the urban transport scenario in the country using road pricing strategies:

3.1.1. NATIONAL URBAN TRANSPORT POLICY, 2006

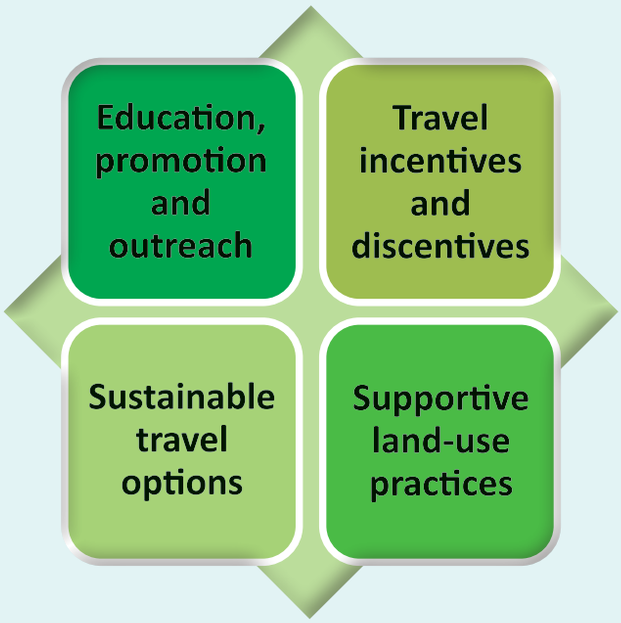
National Urban Transport Policy was launched in 2006 by MoUD with the vision:

- To recognize that people occupy centre-stage in our cities and all plans would be for their common benefit and well-being.
- To make our cities the most liveable in the world and enable them to become the "engines of economic growth" that power India's development in the 21st century.
- To allow our cities to evolve into an urban form that is best suited for the unique geography of their locations and is best placed to support the main social and economic activities that take place in the city.

The objective of the National Urban Transport Policy, 2006 is to ensure safe, affordable, quick, comfortable, reliable and sustainable access for the growing number of city residents to jobs, education, recreation and such other needs within our cities.

3.1.2. NATIONAL TRANSPORT DEVELOPMENT POLICY COMMITTEE (NTDPC) AND 12TH FIVE YEAR PLAN

NTDPC has identified Pricing as a mechanism for managing travel demand which is the relatively at less costs between an alternative mode and driving through various strategies like parking pricing, distance-based charges, transit improvements etc.



3.1.3 RECOMMENDATIONS OF WORKING GROUP ON URBAN TRANSPORT FOR 12TH FIVE YEAR PLAN (2012-2017)

The 12th Five Year Plan has identified both general goals to be achieved by cities of all sizes and specific goals to be achieved by cities of different sizes in the next 5 years (in line with the NUTP-2006). The general goals related to road pricing are as follows:

a) **Integration of land use and transport:** All the State Governments/UT Administrations have to be sensitized to appreciate **integration of land use and transport.**

b) **Congestion Management:** An increase in the reliability and predictability of travel time can rapidly reduce the cost associated with excessive congestion levels.

c) **Collaboration between different authorities:** congestion cuts across jurisdictional boundaries and therefore the design and implementation of congestion management policies will require **collaboration between different authorities.**

3.1.4 NATIONAL MISSION ON SUSTAINABLE HABITAT (NMSH)

Based on the postulates of NMSH and NUTP, following primary principles to ensure a sustainable approach in urban transport planning for the country have been highlighted:

a. **Walk and Cycle:** Developing neighbourhoods that promote walking and cycling.

b. **Density, Diversity and Compactness:** Optimizing density to match transit capacity will provide easy, convenient and fast public transport access to the maximum number of inhabitants creating compact regions with short commutes.

c. **Shift:** Shifting from unsustainable mobility to sustainable modes by using technology, regulating road use, parking and fiscal measures.

d. **Urban Transport Fund:** Institutionalise fiscal and funding mechanisms to ensure financial sustainability of investments in public transport and non-motorised transport.

3.1.5 NCR PLAN-2021 AND METROPOLITAN DEVELOPMENT PLANS

Mumbai, Chennai, Kolkata and Bengaluru have suggested measures for decongesting the cities by developing Satellite Towns and by creating infrastructure at par with mother cities (Creating high order facilities). This should be backed by several measures to promote the growth of these towns such as:

- A seamless integrated transport system.
- Integrated ticketing and passenger information system (Common mobility card common public transport helpline numbers).
- Treating the Metropolitan Region as Common Economic Zone by introducing uniformity/rationalization in taxation.
- Incentives in terms of concession in Property Taxes/Registration Charges.
- Incentives for shifting non-compatible/non-conforming uses to the conforming uses in Satellite towns/ Regional Towns in Metropolitan Region.

3.1.6 ROAD TRANSPORT AND SAFETY BILL, 2014

For the purpose of performing regulatory and other functions under this bill it is proposed that the National Authority shall conduct research by way of collecting data and performing such analysis as may be relevant and necessary.

The bill states that the National Transport Authority would be co-ordinating with various other institutions and government bodies to achieve a **significant reduction in congestion in urban areas.** It also states that the Authority would be developing guidelines for safety and traffic management infrastructure, including segregation of mixed traffic including motorcycle lane, bicycle lane and footpath, Pedestrian crossings, Intersections & interchanges, active traffic calming & speed control measures, roadside hazards, traffic signals, signs and lane marking, Intelligent transport systems, parking zones on-street / off street, speed limits / weight limits, **zoning and congestion pricing,** traffic restrictions for different vehicles, temporary road closures and car-free programs.

3.1.7 MOTOR VEHICLE ACT, 1989

The relevant clauses are as follows:

a. Section 117: Parking Place and Halting stations

b. Section 122: Leaving vehicle in dangerous position

c. Section 127: Removal of motor Vehicles abandoned or left unattended on a public place

d. Section-201: Penalty causing obstruction to free flow of traffic

3.2. REVIEW OF INTERNATIONAL POLICIES

3.2.1. URBAN MOBILITY LAW – BRAZIL

In Brazil the National Policy on Urban Mobility was launched to integrate various transportation modes and enhance accessibility and mobility of persons and goods in the Municipality's territory. The purpose of the National Policy on Urban Mobility is to contribute to universal access in the city which meant equity of access by all citizens to public transportation. The policy covers motorized and non-motorized modes of transportation for people and cargo.

3.2.2. INNOVATIVE DEMAND MANAGEMENT STRATEGIES, ROAD PRICING SCHEMES, LONDON

London was facing challenges of a congested transport system and road network, leading to lengthy delays and poor air quality. To handle these issues, The Mayor's Transport Strategy was developed alongside the London Plan and Economic Development Strategy which in turn set the vision for the Mayor's Transport Vision and described the city's transport.

The mayor's Transport Vision- 'London's transport system should excel among those of world cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century.'

3.2.3. URBAN TRANSPORT POLICY - SINGAPORE

Since 1970s, Singapore's transport policies have played an important role in shifting the transport to public mode, controlling private vehicle ownership, creating a quality bus system, MRTS and integration of land use and transport activities.

The government has played a key role in planning and implementing different policies to improve the transport system of Singapore. The government adopted a combination of policies with key strategies such as **Integration of Land use and Transport Planning and Demand Management.**

3.2.4. CITY ON THE MOVE – AN URBAN TRANSPORT STRATEGY – WORLD BANK

Urban Transport Strategy – by World Bank emphasizes the efficient management of existing transport capacity, good traffic management and efficient pricing. It discourages subsidies, recommends competition and minimal regulation and questions the value of capital intensive projects for the urban poor that might not be cost effective in countries with limited resources. The major focus areas of this strategy are **Urban Transport and City Development, Urban Road System and Urban Transport Pricing and Finance.**

3.2.5 NATIONAL TRANSPORT POLICY, SWITZERLAND

The main objective of this policy is sustainable mobility, backed by the Constitution and a series of laws which includes Heavy Vehicle Fee (HVF), Land Transport Agreement, Environmental Protection Policies, Energy Policy and Fiscal Policy.

3.2.6 INTEGRATED URBAN TRANSPORT POLICY FRAMEWORK, UNITED STATES OF AMERICA

The Federal Government provides major subsidies for highways and public transport. The main aspects of this policy covers Reinforcing Policy, Responsibility and accountability, Minimising car use in urban areas and Traffic management/calming measures.

3.3 NATIONAL BEST PRACTICES

3.3.1 PUNE (MAHARASHTRA)

The Draft parking policy has been prepared by the Pune Municipal Corporation in 2016 as part of their Smart Pune's step towards sustainable transportation. The major Principles of Public Parking Strategies are reducing dependency on personal modes of transport, exploring the possibility of sustainable transportation modes/ systems for Pune, better awareness of the environmental impacts of traffic, in particular the need to reduce greenhouse gases and consequently on the requirement of parking spaces, both on-street and off-street. Different forms of parking requirement for the city of Pune are identified as parking near commercial, office, educational, entertainment, recreational areas, hospitals and other medical establishments. To manage all aspects of parking in Pune and to coordinate with various stakeholders, PMC shall create a "Parking Management Cell" chaired by the Municipal Commissioner, Pune Municipal Corporation. The parking zone map is shown in figure 3.1.

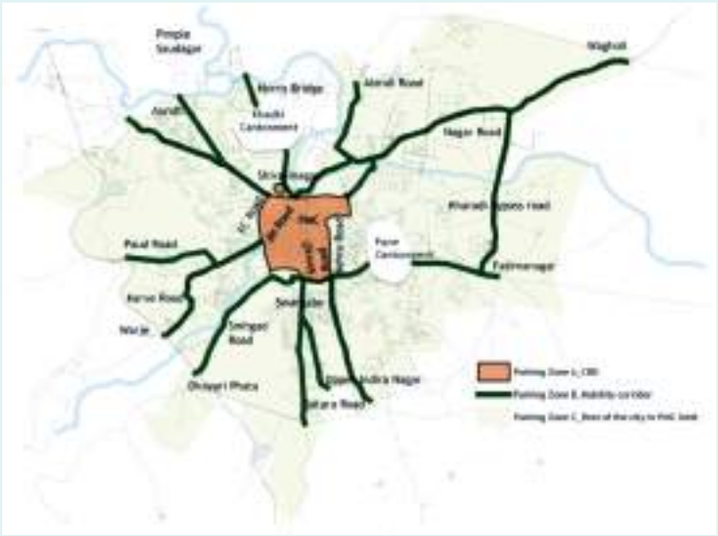


Figure 3 1: Pune Parking Zone Map

3.3.2 DELHI

Delhi Master Plan 2021 and a working group report on Decongesting Delhi (2016) have underlined the problem of acute shortage of parking space in the city and a phenomenal increase in personalized motor vehicles. In the absence of adequate organized parking space and facilities, valuable road space is being used for vehicular parking. The problem of parking in the city has been broadly divided into the following categories i.e. along streets, in planned commercial centres, in residential colonies and in large institutional complexes.

As recommended by the Environment Pollution (Prevention & Control) Authority for the National Capital Region, approach should be focused more on demand management (restricting vehicle numbers) through enforcement and pricing policy rather than only on increasing supply of parking.

a) **Delhi Master Plan 2021 Recommendation:** Strategies proposed in Delhi Master Plan 2021 for Parking are Parking Standards, Parking Management Districts, Parking Pricing, On-street parking and Off-street parking

b) **Working Group report on Decongesting Delhi:** The working report on Decongesting Delhi has recommended 'Parking Management Districts' at Connaught Place, Sarojini Nagar, Nehru Place, Karol Bagh, Kamla Nagar, Vikas Marg, Lajpat Nagar and Bhikaji Kama Place.

3.4 INTERNATIONAL BEST PRACTICES

3.4.1 STOCKHOLM (SWEDEN)

3.4.1.1 BACKGROUND

The tolled zone in Stockholm has around 3,30,000 inhabitants, of which approximately 60,000 commute to workplaces outside the zone. The zone has close to 23,000 workplaces employing approximately 3,18,000 persons of which more than two thirds are commuting from outside.

Figure 3.2: Stockholm Road Pricing System

In Stockholm a cordon surrounding the inner city was established and 18 gantries (Figure 3.2) monitored traffic flowing across the perimeter. The cost of passing the cordon (in any direction) on weekdays is SEK 20 (about € 2) during peak periods (7:30-8:30, 16:00-17:30), SEK 15 during the shoulders of the peaks (30 minutes before and after the peak periods) and SEK 10 during the rest of the period 6.30-18.30. The total charge per day is capped at SEK 60. The impact is shown in figure 3.3.

Stockholm

Scheme: Congestion charges (around inner city), 2007

Population : 1.252 million (2007)
Density : 3313 person/km^2

Area of zone : 21 km^2
Inhabitants : 330000

Timing : 7:30–8:30 &
16:00–17.30

Cost & Revenues:

- Investment costs amounted to 1.900 mSEK while the operatinal costs was about 220 mSEK.
- The charge revenues were earmarked for the road investments, while the substantial rail investment were claimed to be paid for with money from other sources. Annual revenues amount to about 763 mSEK.

Figure 3.3: Impact of Stockholm Road Pricing

3.4.1.2 RESULTS[6] :

The results of Stockholm road pricing are as follows:

a) **Reduction in Traffic Volume:** The number of vehicle kilometers driven in the inner city decreased by around 16 per cent. Outside the inner city, on the outlying approach roads and outlying streets, traffic volumes fell by just over 5 per cent.

b) **Reduction in Travel Time:** Travel times for vehicle traffic declined substantially inside and close to the inner city. Particularly large declines were seen on arterials, on which delay times reduced by one-third during the morning peak period and by one-half during the afternoon/evening peak period.

c) **Public Transport:** The Stockholm trial consisted not only by congestion charges but also of an extension of public transit services i.e. share increased by around 4-5%.

d) **Pollution:** The reduction in vehicle kilometers travelled reduced between 10 and 15 per cent (the reduction differed across different types of emissions. Also, PM10 emissions in the area decreased by 13% and CO by 14% (Anas, Lindsey, 2011).

e) **Economic Impact:** There had been fears that retail inside the cordon would be adversely affected but studies of the retail markets were not able to show any effects of the congestion charges (Daunfeldt, Rudholm & Rämme 2009).

[6] http://www.accessmagazine.org/articles/spring-2011/political-public-acceptability-congestion-pricing-ideology-self-interest-sweden/)

3.4.2. LONDON, UNITED KINGDOM

3.4.2.1. BACKGROUND

In London the congestion charge was implemented in February 2003, by Mayor Ken Livingston (Labour party). It contributes to achieving four transport policies: reduction of congestion, improvement of bus services, improvement in journey time reliability and a better distribution of goods and services. The original central London congestion charging zone covered 21 km^2 in the heart of London (1.3% of the city surface, including over 1,50,000 inhabitants and attracting daily 1.1 million people) with a western boundary from Vauxhall through Victoria, Marble Arch to the Edgware Road (Inner Ring road) (Shown in Figure 3.4). In February 2007, the zone was extended by about 50% to include parts of west central London / Kensington and Chelsea and included a free route (the original western boundary) through the centre of the enlarged zone. The extension stopped in January 2011 by decision of the new municipal government with Mayor Boris Johnson. The impact is shown in figure 3.5.

Figure 3.4: London Road Pricing

Scheme: congestion charges (Central London), 2003
Population : 1.50 million (2007)
Charging zone covers 21 km^2 in the heart of London

* Area of zone : 21 km^2
* Inhabitants : 1,50,000
* 170 access points equipped with cameras for authomatically reading the plates of vehicles

Cost & Revenues:

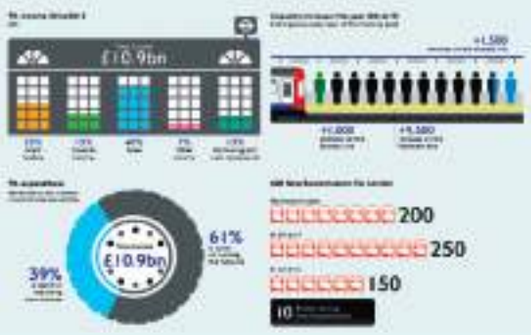


Figure 3.5: Impact of London Road Pricing

3.4.2.2. RESULTS:

The impact of London road pricing scheme are as follows:

a) Reduction in Traffic Volume: The introduction of congestion charge resulted in 14% reduction, which is almost 54,000 fewer vehicle movements in the zone during charging hours.

b) Public Transport: The most important mode for commuting into central London is rail (not underground) with 44.1% mode share in 2007, i.e. a rise of 42.2% from 2002. The modal share[7] is shown in Figure 3.6.

c) Safety: Accidents also decreased with a reduction of between 40-70 road traffic casualties per year.

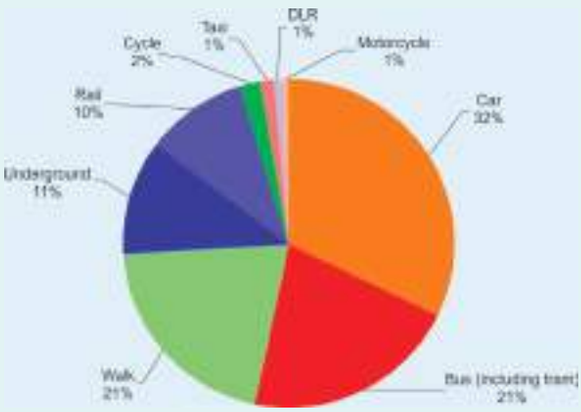


Figure 3.6: Modal Share Improved due to London Road Pricing Scheme

d) Pollution: NOx emissions have fallen by 13% and total PM10 emissions have fallen by 15%, 16% reduction in road transport CO emissions was estimated within the original charging zone.

3.4.3. MILAN (ITALY)

3.4.3.1. BACKGROUND

Milan is the second biggest city in Italy with a population of 1.3 million and a density higher than 7000 persons/ km^2. The urban area has nearly 4 million people with density of nearly 2000 people/ km^2, (2008) (Figure 3.7). The primary purpose of program is to reduce traffic and air pollution, it is based on a fee structure according to the vehicle's engine emission standards and to use the funds raised through the charge to finance public transportation projects, cycle paths and green vehicles. Residents have 40 free daily entrances per year. From the 41st accession they are required to pay a reduced daily tariff of €2

Figure 3.7: Milan Congestion pricing

[7] Congestion charging: lessons from London, Peter Wright, Transport for London To Cambridgeshire County Council, TfL

The impact of Milan road pricing is shown in figure 3.8.

Figure 3.8: Impact of Milan Road pricing

3.4.3.2 RESULTS[8]

The impact of Milan Ecopass and Area C schemes reduced congestion, increased public transport speed and improved the air quality. The details are given below:

a) Reduction in Traffic Volume: Traffic inside the tolled area was reduced by 16.2% during 2007 - 2012.

b) **Congestion:** Congestion had fallen by 25% in the morning peak within the charging zone, which is equal to increase of average speed by 4% and reduction of PM10 emission from cars by 23%.

c) **Public transport** use, measured as the number of passengers exiting subway stations inside the tolled area increased by 12.5%. In addition, the average speed of public transport increased by 11.8%.

d) **Road accidents** within the tolled area were reduced by 21.3% in the same period. It was further reduced by 23.8% in 2012 from 2011.

e) **Reduction in PM10 Emission:** it is estimated that PM10 emissions were reduced by another 18% after the first year of the Area C toll system in 2012 compared to 2011 levels.

[8] http://www.eltis.org/discover/news/pollution-congestion-big-change-road-pricing-scheme-milan-italy-0

3.4.4 SINGAPORE

3.4.4.1 BACKGROUND

Singapore is an island nation with land area of 250 square miles (Figure 3.9). Its population has grown from 2.3 million in 1975 to 4.5 million (3.5 million in the city) in 2005. The number of vehicles grew from 275,000 in 1975 to 750,000 (430,000 cars) in 1998. Daily trips increased from 2.7 million in 1980 to 7.7 million in 2000. Sixty-three percent of these use public transportation.

In Singapore various schemes have been launched for congestion pricing (Figure 3.9). Area Licensing Scheme (1975-1998) and Electronic Road Pricing (ERP) (1998 - Ongoing)

Figure 3.9: Singapore Map

The impact of congestion charging in Singapore (shown in figure 3.10) is as follows:

a) **Mobility Impacts:** Vehicles entering the RZ declined from 74,000 to 41,200 (44% reduction), with car entries declining by 73% (from 42,800 to 11,400). On most congested streets, the speeds went up from 15-18 KPH to 30 KPH.

b) **Long Term Impacts:** HOV 4+ as a percentage of all car traffic entering the RZ in the AM peak increased from 41% in 1976 to 54% by early 1980s and during the PM peak it declined by 54%. After introduction

Scheme: Congestion charging
Population : 3.92 million (1998)

Area Licensing Scheme (1975-1998)

- CBD Area – 2 sq. miles
- Timing: 7.30–9.30 am (10-15 & all day) & then to PM peak hrs.

Electronic Road Pricing (ERP) (1998–Ongoing

Timing : 7:00 AM to 7:00 PM (RZ)
7:00 AM to 9:30 AM (Express way and some arterial streets)

Charge: Vary by location, time-of-day and vehicle type

Results:

- Traffic entering RZ reduced by 44%
- Speed increased from 15–18 KPH to 30 KPH
- PT share 33-69% (AM pak, 1976-1983)

Results:

- Traffic entering RZ reduced by 24%,
- Speed increased from 30-35KPH to 40-45 KPH

Figure 3.10: Impact of Singapore Road pricing

of Electronic Road Pricing (ERP) in 1988, weekday traffic entering the RZ dropped by 24 percent. This decline has resulted in average speeds within the RZ increasing from 30-35 KPH to 40-45 KPH.

c) **Social Equity:** 25, 34 and 28 % bus share was observed for low, medium & high income respectively.

3.4.5 CONCLUSION

Road Pricing has been identified as a prominent solution to reduce congestion in various National Level Policies and have also been implemented in various cities around the Globe.

There are several National level policies in India which have stated road pricing as a Transport Demand Management tool to ensure safe, affordable, reliable and sustainable access to the growing number of city residents to jobs, education, recreation and such other needs within our cities.

Demand management, congestion management, education, promotion, outreach travel and Incentives/ Disincentives are few methods that have been suggested and utilized to develop dynamic, affordable, liveable and attractive cities which will never be free of congestion.

The National level policies recommend **collaboration between different authorities.** For the betterment of implementation of any transport related strategies. All the State Governments/UT Administrations have to be sensitized to appreciate **integration of land use and transport.**

It is observed that Sustainable Travel Options complement TDM by strengthening the supply of sustainable travel options (e.g. walking, cycling and transit). They can make travel by these modes faster and more comfortable, secure and enjoyable.

From the various International Case studies it is observed that the road pricing strategies vary in implementation approach like intense public involvement, support from all political parties and various authorities / stakeholders, assessment and education program. The implementing authorities should respond to public reaction by making adjustments to the pricing program before implementation and also modify and expand the pricing program incrementally.

The adverse effects of pricing can be addressed with responsible management and increased mobility etc. For instance the impact on business in the CBD areas in London was debated before the implementation of congestion pricing in terms of worsening congestion which is likely to cost business. In fact it improved the businesses after the implementation of congestion pricing.

In nutshell, following factors may be considered for successful implementation and management of road pricing in Indian cities:

- Political and people support for executing the scheme successfully.
- Road pricing strategies to be integrated with other schemes.
- Strategies to be modified with the changing transport scenario.
- Provision of NMT infrastructure to promote modal shift.
- Restriction on personal vehicles at institutional level.
- Revenue generated through road pricing to be re-invested in Urban Transport.
- Necessity of the system to be communicated clearly through awareness programme.

Chapter 4:
Status of Existing Pricing Machanism in Case Cities

4.1 SHIMLA

Shimla, the capital city of Himachal Pradesh is located in the north-western ranges of the Himalayas, at an average altitude of 2397 meters (7866 ft) above mean sea level. The top view of Shimla city is shown in figure 4.1. The city is spread on a ridge and its seven spurs. Shimla Planning area boundary has an area of 99.5 sq. km, while its municipal area is 22.07 sq. km.

Figure 4.1: View of Shimla

4.1.1 CITY PROFILE

The Existing scenario of the city is studied based on the information collected from the secondary sources as per structured questionnaire during the visit of the city and stakeholder consultation.

4.1.1.1 STAKEHOLDER CONSULTATION:

A field visit to the city was undertaken from 5th – 7th December 2016, to collect the data from various city authorities namely Shimla Municipal Corporation, Road Transport Department, Traffic Police and Himachal Road Transport Corporation. The documents collected from these departments with other details are given in Annexure I.

4.1.1.2 LITERATURE REVIEW

The plan documents related to Shimla such as Comprehensive Mobility Plan, Shimla City Development Plan & Draft Development Plan for Shimla Planning Area were studied and analysed in detail in terms of existing transport and traffic issues, gaps in planning and development and proposed development projects. Broad outcome of the analysis is given in in table 4.1 below:

Table 4.1: Focus area of Shimla Planning Documents

Sl. No.	Document	Year of Plan	Planning Area/ Jurisdiction	Focus Areas
1	Comprehensive Mobility Plan	2012	Shimla Planning Area	The CMP focused on existing transportation scenario in Study Area, Travel Demand Assessment, Mobility Plan Strategies, Implementation Programme and Costing, Institutional Framework, Environmental and Social Impact Assessment and Outcomes.
2	Shimla City Development Plan	2006	Shimla Planning Area	The CDP spelt out the strategic policy and investment interventions to achieve the vision of Shimla including formulation of sectoral plans for the identified sectors by assessing the current situation and identifying the gaps in service delivery. It proposed a vision and sectoral strategic framework, formulated a city investment plan with financing strategies and an implementation action plan.
3	Draft Development Plan for Shimla Planning Area	2004	Shimla Planning Area	It focused on study of existing situation and projected the requirement for future growth at regional level and suggested an implementation plans with detailed perspectives, phasing costing, financing and revenue generation. It included various regulations for implementing the strategies systematically.

4.1.2 EXISTING TRAFFIC AND TRANSPORT SCENARIO OF SHIMLA

Based on the above plan documents and other data collected from the field, traffic and transport scenario in Shimla is presented in the following section.

4.1.2.1 CONNECTIVITY

a) **Airways:** Shimla Airport at Jubbarhatti, 23 km from city is connected to Delhi. Currently, there are no regular commercial flights to the city. The nearest major airport is Chandigarh Airport about 116 km away.

b) **Railways:** The city has a total of three railway stations with Shimla the main station and two others located at Summer Hill and Totu (Jutogh) respectively.

c) **Roadways:** Shimla is connected by road with Delhi (365 km), Chandigarh (117 km) and Kalka (90 km) through NH-22 and NH 88 to Kangra Valley.

4.1.2.2 LANDUSE

The total area of Shimla Planning Area is 9950 hectares, out of which about 1475 hectares accounting for 15% is under urban use. The land use map is shown in figure 4.3. Of the total land, 25.20% of Shimla Urban Agglomeration Area is under Traffic & Transportation. However the Shimla Planning Area as a whole has allocated only 3.75% of its land for Traffic & Transportation.

4.1.2.3 DEMOGRAPHIC PROFILE AND SOCIO-ECONOMIC PROFILE

Shimla Planning Area (SPA), had a population of 1,74,789 persons in 2001, accounting for about 24% population of the Shimla district. The population of SPA recorded a decadal growth rate of 34.63% from 1991. Figure 4.2 shows the growth of population in the area. As per provisional census 2011, the urban population of Shimla is 2.01 Lakhs. The land use of Shimla city is shown in figure 4.3.

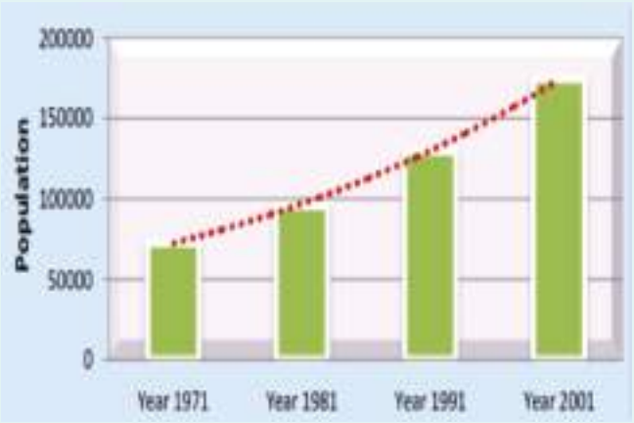


Figure 4.2: Population Growth of Shimla

Figure 4.3: Shimla Landuse Map

The average size of workers in a family is 1.44. In majority of households, there is only one working member. The average household income is Rs. 19,017 per month. The average monthly expenditure on transport by household is Rs. 926/-which is approximately 5% of total household income.

4.1.2.4 ROAD NETWORK CHARACTERISTICS

The road width in the city varies from less than 5m to 15m, where 73% are between 5 – 10m. The average journey speed is about 27 Kmph, with the bottleneck areas such as Lakkar bazaar near bus stand having the lowest journey speed of approximately 2 kmph during peak hours (figure 4.5). The road network plan is shown in figure 4.4.

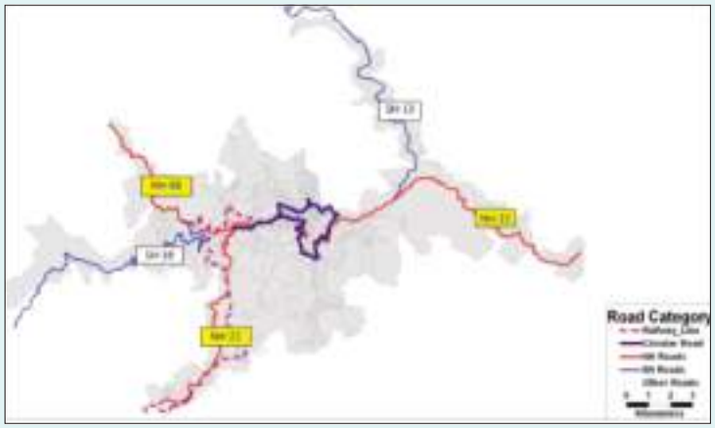


Figure 4.4: Road Network Plan for Shimla

Figure 4.5: Congestion on Shimla Roads

4.1.2.5 MAJOR TRAFFIC ATTRACTION CENTERS

The major attraction centers of Shimla are Heritage centers or tourist centers like the ridge, the Mall, Jakhu temple etc. Commercial centers, Industrial centers, Educational centers, Transport terminals etc.

4.1.2.6 TRAVEL AND TRAFFIC CHARACTERISTICS

Total number of registered vehicles in Shimla is 48,000[9]; out of which four wheeler constitute 48% and two wheelers 18%. Private vehicle registration trends in Shimla have shown a sudden increase between 2004 - 2011 whereas buses have not shown much of incremental trends for the same time period as shown in Figure 4.6. The public transport (Bus) accounts for only 2% of total registered vehicles but share 49% of total trips. As per CMP 2012, in Shimla 42% of total trips made by local residents of SPA are by walk while only 9% of total trips by private vehicles shown in figure 4.7.

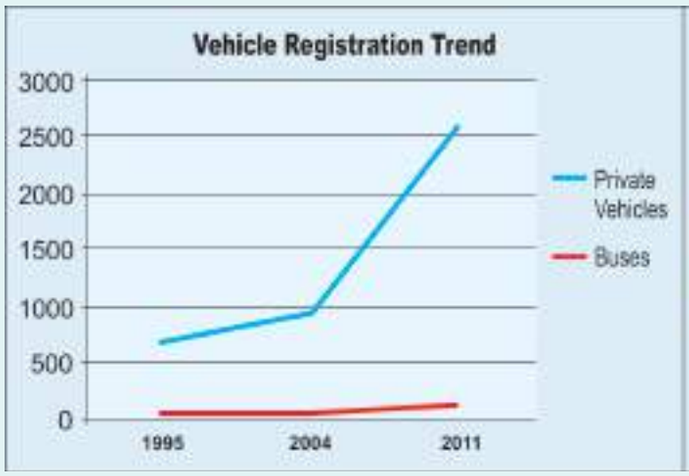


Figure 4.6: Vehicle registration trend in Shimla

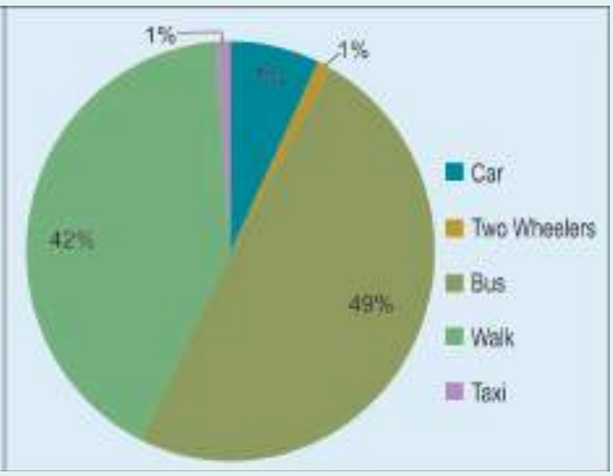


Figure 4.7: Modal Share by Shimla residence

[9] RTO data 2016

4.1.2.7 PUBLIC TRANSPORT CHARACTERISTICS

a) **City Bus Service:** Bus is the only mode of public transport in Shimla Planning Area operated by Himachal Road Transport Corporation (HRTC) as well as by private operators under HRTC permit. Shimla Urban Transport Management Society, a society registered under Himachal Pradesh Societies Registration Act, 2006, runs 75 JnNURM buses on 98 routes. Private operators run 120 buses under HRTC permit. Although the shares of trips by public transport (bus) is as high as 49%, it has declined from 65% in 2005-06. The city bus service route map is shown in figure 4.8.

b) **Taxi Service:** The HRTC taxi service route map is shown in figure 4.8[10].

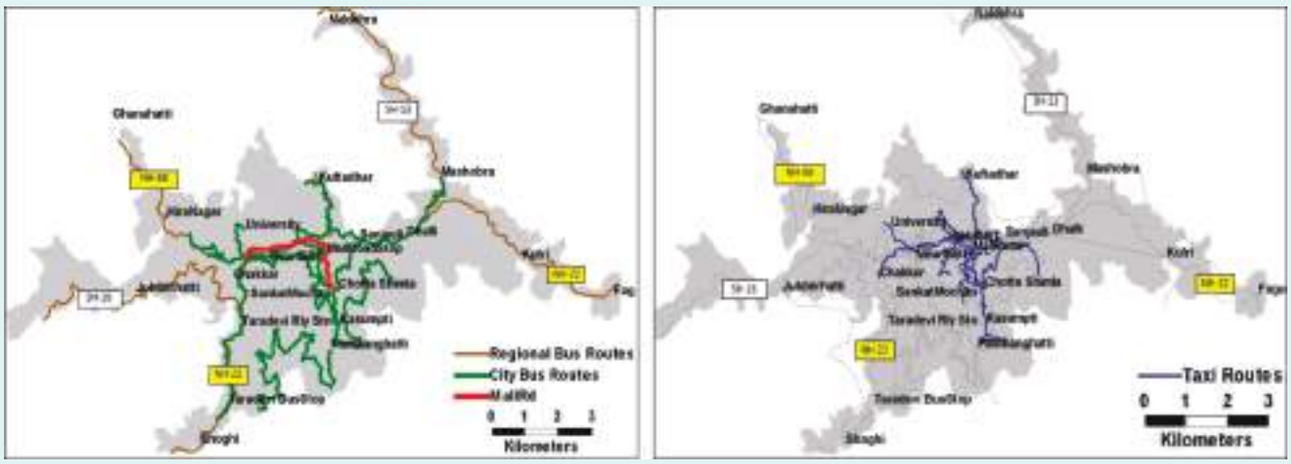


Figure 4.8: Existing city bus service routes and Taxi routes in Shimla

c) **Bus terminal and Depot Facilities:** Bus terminal facilities in Shimla Planning Area are located at New ISBT at Tutikandi, Old ISBT on Cart Road and ISBT at Lakkar Bazaar. Department of Transport has established three bus depots for Shimla City one at Taradevi handling 82 buses and two other depots at Dhalli) collectively handling 182 buses.

d) **Vertical Mobility/Lifts:** Shimla with its geographical condition could make mobility easier for passengers if vertical movements are made convenient. Currently there is only one mechanised lift for vertical mobility.

4.1.2.8. Parking

Shimla Municipal Corporation has notified various sites for on street and off street parking. It is inadequate due to increasing number of private vehicles both from tourists

Figure 4.9: Existing parking demand and supply in Shimla

10 Comprehensive Mobility Plan 2012

and residents of Shimla. The parking demand is estimated to be approximately 16400 ECS out of which only 2600 ECS are provided in the form of supply for both off-street and on-street parking. The Supply demand gap is shown in the figure 4.9. The on street and off street parking locations are shown in figure 4.10.

Figure 4.10: On-Street & Off-Street Parking in Shimla

4.1.2.9. Road Safety

The city lacks proper pedestrian facility in spite of walking (42%) being the predominant made of transport. Only 16% of the total road network has footpaths. Number of road accidents within Shimla District recorded in the year 2014 and 2015 were 419 and 461 respectively, including 200 fatal accidents.

4.1.2.10. Air Pollution

Shimla has two monitoring stations in the city, station 1 on the Ridge and station 2 at the state bus terminal. The research paper on "An assessment of ambient air quality in Shimla city" published by Rajiv Ganguly and Shabnam Thapa in Current Science, August 2016, states the levels of SO2 is 7.16 $\mu g/m^3$, NOx is 17.11 $\mu g/m^3$ and RSPM is 69.17 $\mu g/m^3$. The annual averages of monitored data showed that concentrations of NOx and SO2 were below the National Ambient Air Quality Standards (NAAQS) of 40 $\mu g/m3$ and 50 $\mu g/m^3$ respectively, while RSPM values slightly exceeded the permissible limits of 60 $\mu g/m^3$. Elevated concentrations of RSPM were primarily due to running of a large number of diesel vehicles, out dated vehicles, traffic congestion and poor maintenance of roads causing increased tyre wear and its re-suspension on the road.

4.1.3 EXISTING INSTITUTIONAL SETUP

Shimla city transport system involves several organisations that look after various modes and services of the transport system. There is an overlapping of functions among various agencies. The following institutions are responsible for Transport system and services in one way or the other.

- Municipal Corporation Shimla (MCS)

- Special Area Development Authority (SADA)- Ghanahatti, Kufri and Shoghi
- Shimla Urban Transport Management Society
- Public Works Department
- Regional Transport Office (RTO)
- Office of the District Collector, Shimla
- HP Bus Stand Management and Development Authority
- HP Tourism Development Corporation
- HP Infrastructure Development Board (HPIDB)
- National Highway Authority of India (NHAI)
- Superintendent of Police (Traffic), Shimla
- Directorate of Urban Development
- Himachal Pradesh Housing and Urban Development Authority (HIMUDA)
- Directorate of Town and Country Planning
- Himachal Road Transport Corporation (HRTC)
- Indian Railways (Northern Railways)
- HP State Environment Protection and Pollution Control Board

4.1.4 CURRENT PRICING MECHANISM IN SHIMLA

The details regarding the current pricing system in Shimla related to transport by various departments are as follows:

4.1.4.1 MUNICIPAL CORPORATION OF SHIMLA

The municipal corporation of Shimla is collecting the revenue from various sources. The details of income from revenue and expenditure for the budget year 2014-15 are given in table 4-2.

Table 4.2: Shimla Municipal Corporation Budget 2014-15

(*Rupees in lakhs)

Sources	Expected*	Actual*
Income from Revenue (A)	6838.19	5350.79
Capital Income (B)	5800.56	2149.94
Sub Total (A+B)	12652.75	7039.88
Expenditure from Revenue (C)	9333.21	5802.94
Capital Expenditure (D)	6331.65	1801.17
Sub Total (C+D)	**15664.86**	**7604.11**

The budgeted income of Municipal Corporation for the year 2014-2015 was expected as Rs. 12652.75 lakhs but actual recieved was Rs. 7,039.88 showing deficit of 45%. Similarly, the expenditure was expected to be Rs. 15,664.86 lakhs but actual expenditure stood at Rs. 7,604.11 Lakhs i.e. 51% less. The deficiency in the revenue collection was directly reflected in the expenditures incurred. To compensate for the reduced revenue of 70%, administrative and operational expenses were reduced by 73%, by the Municipality. The details of relevant revenue sources such as parking and land tax etc are summarized below:

a) Parking Charges: Shimla has differential parking fees for residential, commercial and on street parking areas and approximately Rs 125 lakhs is the revenue collected annually by Municipal Corporation of Shimla. The differential parking fare system considers the size of the vehicle and type of the parking viz: Residential or Commercial, type of the vehicle and duration in the parking area (Figure 4.11).

Figure 4.11: Parking at Residential area i.e Sanjauli Shimla, Commercial area and onstreet

b) Property / Land tax: Shimla city is divided into two zones A & B having three types of property (as shown in figure 4-12) i.e. residential, commercial / Non-residential and Plot of Land. For valuation of the property, zone wise taxes have been identified based on characteristics of the property (kuccha, Pucca, Semi-Pucca), age of the property, occupancy of the property (residential, non –residential) and use factor (residential, non-residential). The rate of property tax for zone A & B are different. The rate of tax on accessible value of property in zone A is 3% per annum for plots size 1-101 sqm, 6% per annum for plot size 101 sqm and above 10% per annum of non-residential property. In zone B value is 2% per annum for plots size 1-101 sqm, 4% for plot size 101 sqm and above and 5% for non-residential property. The property tax on land in zone A is 15% and in zone B it is 10%. The tax revenue of the corporation for the year 2014-15 was Rs. 766.91 lakhs, which is almost 13% of the total revenue of the corporation.

Figure 4.12: Zone Map of Shimla

4.1.4.2. TRAFFIC POLICE:

The traffic police penalize the traffic violators for various offences under the Motor Vehicle Act, 1988. The fines are different for first time and subsequent offences. The fines vary from Rs.100 to Rs. 5000 for offence like idle parking, wrong overtaking, non display of number plate to private vehicles used as taxi. The Shimla traffic police has notified 13 offences of the Motor Vehicle act to be of Zero Tolerance (Annexure II) which implies that even a slight violation of any one of those will be penalized strictly. The total number of challans issued in the year 2014 were around 65,000 and in 2015 around 70,000. Which helped in collection of Rs 1,76,49,820 and 2,08,82,300 as challan money in 2014 and 2015 respectively.

4.1.4.3. TRANSPORT DEPARTMENT

Transport department of Himachal Pradesh charges tax on motor vehicle under Motor Vehicle Taxation Act 1972. It is a one-time tax which varies from 3% to 4% for two wheelers and 2.5% to 3% for vehicle depending on engine capacity. The department also collects annual tax from vehicles kept or used in Himachal Pradesh for non-personal use.

The tax rate for stage carriages is 500 per seat per annum for all categories. There is a ceiling of maximum 35,000 for buses and 25,000 for mini buses per annum. The contract carriages like maxi cab, moto cab, auto rickshaw and buses have to pay Rs 750, 350, 200, 1000 per seat per annum respectively as annual fees. Buses owned by all private institutions and private service motor cabs owned by commercial organizations which are used for the purpose of carrying persons on behalf of the owner has to pay an amount Rs. 500 per seat per annum.

In 2015 Road Transport Department of Shimla earned a revenue of Rs. 88,234,481/-. The various fees recovered by RTO are **Composite FEE, Driving License Fees, Training period and fee to be charged by Driving Training School, Permit fees, Registration Fees and Special Registration Fee** (Details are given in Annexure II).

4.1.5. ISSUES OF SHIMLA

Various development plans of Shimla highlighted the following issues:

- **Congestion:** Traffic at different locations in the city varies from a minimum of 4,420 PCUs to a maximum of 39,914 PCUs. Traffic forecast data shows that by 2031, the network speed of the city will be less than 12 kmph.
- **Public Transport:** The challenges faced by public transport in Shimla are due to absence of dedicated bus bays which causes buses to stop for passenger boarding and alighting on road thereby causing traffic congestion. It is further compounded by unregulated stopping of buses at any location. Non reliability of bus service due to absence of real time passenger information system at terminals and bus stops makes it problematic for the passengers. Lack of integration of public transport system with other feeding modes such as HRTC run Taxi service and also from new ISBT to the city centre.
- **Parking:** On-street Parking creates bottle neck occupying the already insufficient road space. This leads to inadequate space for movement of vehicles resulting in high traffic congestion. The geography of Shimla provides little scope for construction of off Street parking spaces to meet the demand generated

by the city.

- **Pollution:** The annual averages of monitored data showed that concentrations of NOx and SO were below the National Ambient Air Quality Standards (NAAQS), while RSPM value slightly exceeds the permissible limit.
- **Limited Land Availability:** Master plan of Shimla Planning Area as a whole has allocated only 3.75% of land for Traffic & Transportation use which is less than the required norms / standards for a large hill town (6-8%, as per UDPFI guidelines).

In view of the above there is a need to implement innovative secondary methods to ease the congestion and facilitate the movement of road users.

4.2. BHOPAL

4.2.1. INTRODUCTION

Bhopal, the capital city of Madhya Pradesh, also called as "City of Lakes" is a fascinating amalgamation of scenic beauty, old historic flavour and modern urban planning. Bhopal occupies a strategic location on the national transportation network. (Figure 4.13)

Figure 4.13: Location and connectivity of Bhopal

4.2.2. CITY PROFILE

The Existing scenario of the city is studied and analysed based on city visit, Stakeholder consultation and data collected from the secondary sources during the visit.

4.2.2.1. STAKEHOLDER CONSULTATION

The city visit was undertaken on 1st – 2nd September 2016. The stake holders consulted and the data collected with other details are given in Annexure I.

4.2.2.2. LITERATURE REVIEW

The plan documents of Bhopal such as Comprehensive Mobility Plan and City Development Plan were studied and analysed in detail with a focus on existing transport and traffic issues, gaps and proposals in projects. The details are given in table 4.3.

Table 4.3: Focus area of Bhopal Planning Documents

	Name of Study	Year	Study Area	Focus Area
1.	Comprehensive Mobility Plan, Bhopal	2012	Bhopal Municipal Area, Planning Area and Mandideep and Kolar	The objective of a CMP is to provide a long-term strategy such as: 1) To provide a long term vision and goals for desirable urban development with focus on mobility 2)To prepare basic plan for urban development which includes a list of proposed urban land use and transport measures to be implemented within a time span of 20 years.
2.	City Development Plan, Bhopal	2006	Bhopal Municipal Area	The document discusses all the important elements in a comprehensive, cohesive and concise manner for all sectors of Bhopal, such as Urban Growth Management/ Development Planning, Urban Basic Services and Infrastructure, Transportation and Traffic Management, Housing and Slums, Urban Environment, Social Development, Urban Governance and Management and Urban Finance and Management apart from Demographic Trends, Economic Pattern, etc with a long term strategic vision.
3.	Bhopal Development Plan	1991	Bhopal Municipal Area	The BDP comprises of an in-depth analysis of the existing situation for identifying gaps and based on that formulating a strategy with specific vision to bridge the gap. It further focuses on preparing a city investment plan and a financing strategy.

4.2.3. EXISTING TRAFFIC AND TRANSPORT SCENARIO OF BHOPAL

Based on the above plan documents and other data collected from the field, traffic and transport scenario in Bhopal is presented in the following section.

4.2.3.1. CONNECTIVITY

a) Railways: Bhopal enjoys a strategic location on the Railway Map of India, connected by trains travelling North – South and East – West. The rail connectivity is good, being strategically located on the track between Delhi and Nagpur, as well as Chennai, Hyderabad, Bangalore and Trivandrum. There are five railway stations in the city.

b) Airways: The city is connected to most of the major cities in the country, making Raja Bhoj International Airport at Bhopal as an important node in the regional connectivity.

c) Roadways: National Highway (NH) 12 connects Bhopal with Jabalpur in the east and Jaipur in the west while NH 86 links Bhopal to Sagar in the east and Dewas in the west. NH-12 and NH-86 (Raisen Road)

bypass the urban core of Bhopal but passes through the planning area. SH-17 and SH-23 connects Indore and Vidisha to Bhopal. Hoshangabad Road leads to Mandideep Industrial Area.

4.2.3.2 LANDUSE

Land use break up in the Development Plan for 2005 is shown in figure 4.14. Of the total 17,500 Hectares, 15% land is under transport sector.

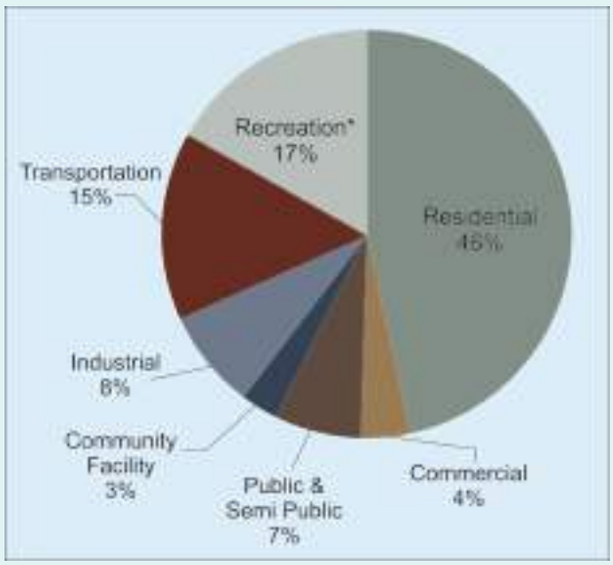


Figure 4.14: Land use Share in Bhopal

4.2.3.3 DEMOGRAPHIC PROFILE AND SOCIO-ECONOMIC PROFILE

Bhopal district has a population of 2,368,145 persons in an area of 2,772 sq. km as per provisional population total of Census of India, 2011. The average density of the population is 854 persons per sq. km. The major locations of work centres[11] in Bhopal include Maharana Pratap Nagar, State Capital Complex on Arera Hills, Commissionary and District Administration centre, main business centres in the Old City Area and public sector units i.e. BHEL and Railways. The trade and commerce establishments are located in New Market, Bittan Market, M.P. Nagar Zone 1 and 2, Old City and Bairagarh (Figure 4.15).

As per the CMP, 49% of households spend between Rs. 250 and 500 per month on transport. Only 11% families do not own any vehicle, 68% have a two wheeler.

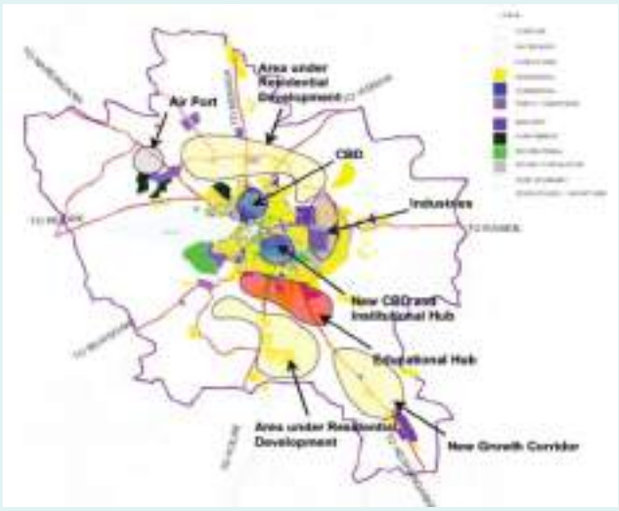


Figure 4.15: Major Activity centres in Bhopal

4.2.3.4 ROAD NETWORK CHARACTERISTICS

Bhopal city is divided into two distinct areas, the Old city and the comparatively recently developed parts. The old city has narrow roads, while New Bhopal has relatively broad roads most of which are flanked by landscaping.

4.2.3.5 TRAFFIC AND TRAVEL CHARACTERISTICS

Bhopal District has experienced tremendous growth in vehicular traffic[12] over the last decade as shown in figure 4.17. The average rate of growth since 2002 is about 10% per annum. Total vehicular population registered in 2011 was about 7.9 lakhs, of which 80% were two wheelers. Average trip length of two wheelers, cars, taxis and

[11] CMP 2012
[12] RTO Bhopal

Mode	Share
Walk	43%
Cycle	4%
Two Wheeler	25%
Auto	1%
Car	3%
Mini Bus	20%
Standard Bus	3%
Overall	100%

Figure 4.16: Modal Split of Bhopal

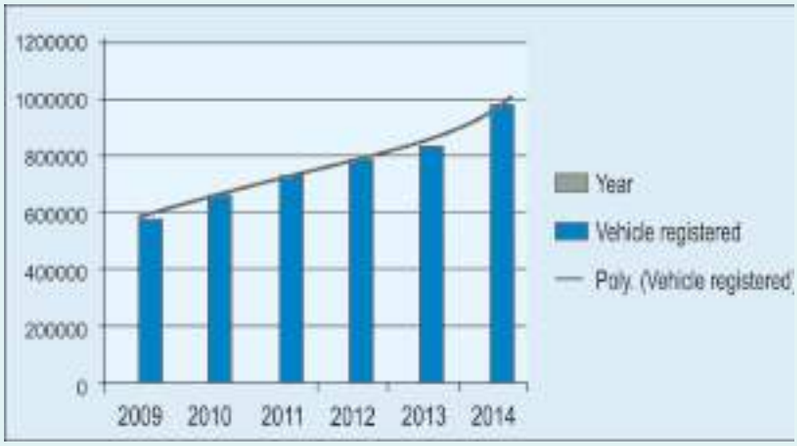


Figure 4.17: Vehicular Growth Trend (2009-2014), Bhopal

buses are about 5 km each. Overall, average trip length has been estimated as 4.75 km. The average trip duration is found to be about 21 minutes. About 62% of the trips are found to be in the range of 15–30 minutes. 43% trips are by walk, followed by trips by two wheelers. Mini buses are also found to be in popular use, accounting for 20% of the trips (Figure 4.16).

4.2.3.6. PUBLIC TRANSPORT CHARACTERISTICS:

Public transport consists of BRTS, buses and mini buses. Although buses are few in number (103 buses), they cater to a fair share of trips in Bhopal covering 8 specified routes. Other than the main trunk and standard route there are 11 routes covered by 504 mini buses. About 450 Tata Magic vehicles operate as IPT on specific routes (Figure 4.19).

Figure 4.18: Location of Intercity Bus Terminal in Bhopal

Figure 4.19: Public transport coverage in Bhopal

There are 225 low floor buses which are operated by BCLL and 285 buses run by private operators[13]. As per the CMP 2012, bus services were available on eight routes operated through a total of 130 buses. One interstate and five intercity terminals are presently functional in Bhopal, as shown in figure 4.18.

4.2.3.7. PARKING:

Both On-Street and Off-Street parking is present in Bhopal at various locations. Bhopal Municipal Corporation has identified about 40 parking locations[14] that include both authorized On-Street and Off-Street parking. Of the 40 locations, 29 have been let out on contract and paid parking has been implemented (Figure 4.20). Peak Parking Accumulation is maximum at MP Nagar Zone II where Parking Accumulation is 2639 ECS and Parking Supply is merely 792 ECS thereby creating a huge deficit.

Figure 4.20: Off Street Parking locations in Bhopal

4.2.3.8. ROAD SAFETY

Road Safety has been a major concern in the city. The accident trend over the years depicts that the number of accidents has been increasing every year. The accident trend is shown in figure 4.21.

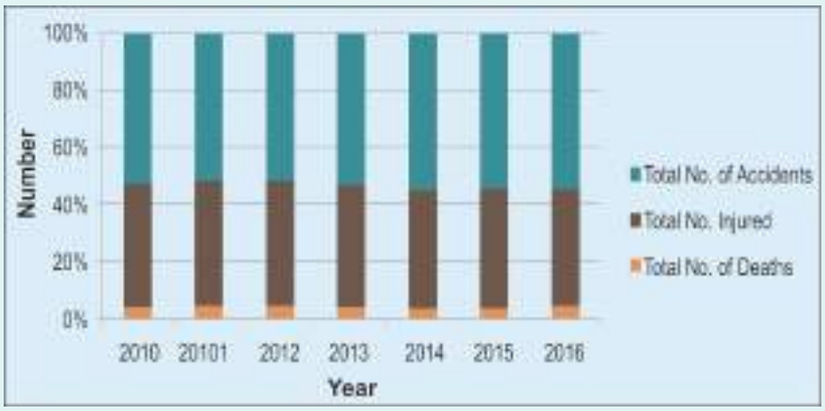


Figure 4.21: Accidents trend in Bhopal

[13] Data collected from BCLL
[14] CMP 2012

4.2.3.9. POLLUTION

A report on Urban Roads of Bhopal City by Anshu Gupta, International Scholarly and Scientific Research & Innovation 2010 states, that the concentration of CO has a maximum value of 4mg/cum mainly along the corridors due to high traffic. The average daily pollutant concentration in Bhopal such as PM_{10} is 403.2 µg/m³, SO2 is 6 µg/ m³ and NOx is 35.7 µg/ m³.

4.2.3.10. EXISTING INSTITUTIONAL SETUP

The roles and responsibility of concerned Authorities of Bhopal are given in table 4.4.

Table 4.4 Role and responsibility of concerned Authorities of Bhopal

Authority	Responsibility
BDA	• Preparation of Development Plan
	• Acquisition of land to implement the various schemes
	• Enforcement of plans and development schemes
	• Adaptation of measures for protection of natural environment in the development area
	• Coordination with Municipal Corporation, Public Works Department and other agencies involved with Urban Development
Bhopal Municipal Corporation	• Implementation of proposals made in the Development Plan
	• Coordination with all state government departments
	• Coordination of all studies that have to be conducted, such as Mobility Plans, Slum Up-gradation plans, etc.
	• Provision and maintenance of Foot Over Bridges/sub-way
	• Provision and maintenance of street lights
	• Provision of Traffic signage's
	• Maintenance of City roads
	• Parking
PWD	• Up-gradation of Road infrastructure such as widening, construction of flyovers, underpasses etc.
	• Maintenance of roads
	• Provision of footpaths
	• Construction of New roads, links etc
Traffic police	• Traffic regulation and enforcement
	• Collection of accident data
	• Installation and maintenance of traffic signals in coordination with BMC
RTO	• Registration of new vehicles
	• Issue of permits for all modes
	• Licensing Authority

In addition, two private sector bodies[15] play crucial role in the transport services of Bhopal namely Bhopal City Link Limited (BCLL) which operates bus services in the city and Tempo Owners and Drivers Association regulates Tata Magic services.

4.2.4 EXISTING PRICING MECHANISMS IN BHOPAL

The details regarding the current pricing system in Bhopal related to transport are as follows:

4.2.4.1 MUNICIPAL CORPORATION OF BHOPAL

The municipal corporation of Bhopal is collecting the revenue from various sources. The details of income from revenue and expenditure for the budget year 2012-13 are given in table 4.5.

Table 4.5: Bhopal Budget Details for year 2012-13

Sl. No.	Components	Estimated	Actual
A	**Revenue Receipts**		
1	Revenue Receipts Current Year	35571.4	36090.9
2	Revenue Receipts Previous Year	1645	1616.55
3	Loan Receipt	4025	6155.65
4	Capital Receipt	16248.5	19615.6
	Sub total-A	**57489.9**	**63478.7**
B	**Revenue Payments**		
5	Revenue Payments Current Year	37711.7	37511.6
6	Revenue Payments Previous Year	3000	3000
7	Loan Repayments	100	100
8	Fixed Asset and Capital Payments	33215.78	25815.39
	Sub total-B	**75561.8**	**67591.2**
	Deficit	**–18072**	**–4112.5**

The expected income through various revenues and capital sources was Rs. 57489.87 lakhs but the actual income was Rs. 63478.72 lakhs which is around 10% additional over expected income. Whereas the estimated expenditure was Rs. 75561.76 but the actual amount spend for various functions by the Municipal corporation was only Rs. 67591.19, i.e. almost 10% lesser than the estimated expenditure. Though the amount estimated for expenditure was less by around 23% from the estimated revenue, the additional income from various sources and modified actual expenditure helped the Municipal Corporation to cover the gap between expenditure and income by 6%.

[15] CMP 2012

The details of relevant revenue sources such as parking, land tax etc are summarized below:

a) **Parking:** The Bhopal City has well planned parking lots in various locations of the city with a very minimal Parking Charges. The parking charges start from Rs. 2 for two wheelers to Rs. 5 for four wheelers upto 4 hrs. Monthly passes are also available for vehicles amounting to Rs. 100 and Rs. 250 for two-wheelers and cars respectively. No overnight parking is allowed in parking lots. There is provision for penalty if the parking ticket is lost or not taken while parking.

b) **Property / Land Tax:** Bhopal has categorised the city under 8 subdivisions considering the existing land use and has calculated the tax slabs for the same. There are varied tax payable for vacant land, pucca, kutcha and steel/ cement roofed constructions for residential and commercial purpose. The payable amount per square meter for vacant plots varies from Rs.22 to Rs. 220 as per the subdivision. It vary from Rs. 121 to Rs. 704 and Rs. 91 to Rs. 528 for Cement or Steel roofed structure and Kutcha units. The Pucca structure in various sub-divisions has variable tax changes linked with the utility of the structure. It varies from Rs. 154 to 1100 per sq.m area. Also there is tax levied on the properties on rent. For any rental properties incurring an annual rent amount upto Rs.6000 are exempted from paying tax and if the annual rent is above 20000, it is essential to pay 10% of the amount as tax. There is concession given to those who pay the tax before the due month of payment and similarly a penalty is charged varying with the period of delay. This encourages the tax payers to pay the tax on time.

4.2.4.2. TRAFFIC POLICE

The traffic police in the city is responsible for enforcement of traffic regulation and check violations. There are penalties charged for various offences. The total number of Challans issued in the year 2015 is 81,587 and the amount levied is Rs. 257.69 Lakhs. The number of Challans in the year 2014 were 81,114 and amount levied was Rs. 177.83 Lakhs. The number of Challans issued to buses has increased substantially from 340 to 564 from the year 2014 and 2015.

The penalty varies from Rs. 50/- to Rs. 5000/- as per Motor Vehicle Act of Madhya Pradesh. There will be variation in penalty for a first time and repeated offences. A minimum of Rs. 50/- is charged for contract carriages which refuse to ply or carry passengers and the maximum are seen for serious offence like driving without permit etc.

The maximum number of challans are levied for offences like no helmet for which almost more than 2000 challans are issued in 2015. The details of offences and penalties levied by Bhopal Police is given in Annexure III.

4.2.4.3. TRANSPORT DEPARTMENT

The transport department levy vehicle related fees and taxes i.e. all types of license fees, registration fees, permit fee, fee collected quarterly or annually based on seating capacity, monthly fee collection from buses, quarterly taxes based on weight, etc. for various class of vehicle. License fee varies from Rs.50/- for Learners licence to Rs. 500/- for international driving permit. There are varied taxation on Madhya Pradesh registered and non MP registered vehicles. It varies from Rs. 600 to Rs. 3700 per quarter with a penalty of 4% if delayed. Also the taxation is different if the vehicles are plying on temporary permit. For other vehicles under special category such as crane, crasher, bulldozer, dumper, loader truck, payloader, earth mover, motor grader, mechanic shovel, harvester etc. the amount to be paid is Rs. 3700 upto 7000 kg and Rs. 500 for every additional 1000 kg.

4.2.5. ISSUES

The issues identified in Bhopal city are summarized below:

- **Congestion:** Like all major cities in India, Bhopal has witnessed enormous increase in traffic due to rapid urbanization and development of economic, industrial and commercial activities causing traffic congestion, pollution and other attendant problems. The inner city area which serves as commercial centre severely face parking problem, where the carriage way is being used as parking reducing the capacity of the road and ultimately leading to traffic congestion.
- **Public Transport:** Improving the public transport will invite more passenger and thus help decongesting the roads. The Share of 23% by buses can be improved further with the betterment of PT system integrating with other modes.
- **Parking:** There is a need to match the demand and supply of parking in major areas such as MP Nagar Zone I & 2, New Market, Bittan Market and 10 No. Market.
- **Pollution:** The major traffic corridors are main source of not only air pollution but also other types of pollution like noise and thermal.

4.3. JAIPUR

Jaipur, the capital city of Rajasthan is also called the pink city and one of the fastest growing mega cities in the country with an annual average growth rate of 5.3% twice that of the nation's urban growth. Over the last decade the city has experienced a growth in the range of 5-8% per annum. In addition to being a commercial capital of Rajasthan, Jaipur is also one of the most sought after tourist destination in the world with about 4400 tourists visiting the city every day. The municipal corporation area is shown in figure 4.22.

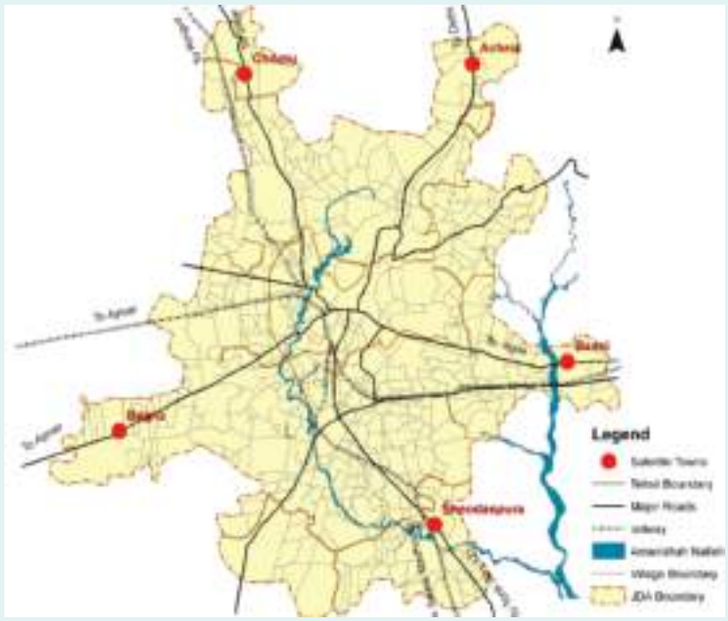


Figure 4.22: Map of Municipal Corporation area, Jaipur

4.3.1. SECONDARY DATA COLLECTION

The existing scenario of the city is studied and analysed after undertaking city visit, stakeholder consultation and through secondary data collected during the visit. The details are given in the following section.

4.3.1.1. STAKEHOLDER CONSULTATION:

Jaipur city was visited from 21st – 23rd September 2016 and data were collected from various city authorities as per structured questionnaires. Jaipur Municipal Corporation, Jaipur Development Authority, Jaipur City Transport Services Limited, Regional Transport Office and Traffic Police were approached and information collected from other data sources are given in Annexure I.

4.3.1.2 LITERATURE REVIEW

The plan documents of Jaipur such as Comprehensive Mobility Plan, Master Development Plan, Service Level Benchmark and City Development Plan were studied and analysed in detail. The details are given in table 4.6.

Table 4.6: Focus area of Jaipur Planning Documents

Document	Area/City Plan	Year		Proposal
Master Development Plan -2025	Jaipur Planning Area	2011	•	The plan aims at national and regional level connectivity of the city with proposals for Regional Bypass, MRTS, BRTS in the 90mt ROW.
			•	Up-gradation of Suburban Transport System, Railway tracks, railways station improvement.
			•	Proposal for planned integrated interchanges with Common mobility card.
			•	Proposes Bus Terminals, truck terminals.
			•	Increase interconnectivity in congested areas.
City Mobility Plan	Jaipur Planning Area	2010	•	The Jaipur city aims to promote tourism and industrial sectors.
			•	The CMP focuses on moving people and not vehicles hence the main target is to improve public transport and non-motorized transport and to integrate the transport network with land use to provide a high class sustainable and efficient transport system.
			•	The main focus is to increase the public transport mode share from 31% to 50%.
			•	Increase IPT share per lakh population from 958 to 1000.
			•	Increase pedestrian walkability in the city by increasing footpath length to 100%.
			•	Increase infrastructure to bring fatalities to 0 thus making it a safe city.
			•	Increase in non-motorized trips from 31% to 35%.

Document	Area/City Plan	Year		Proposal
Service Level Bench Marking report	Jaipur Municipal Corporation	2012	•	Improvement in LOS of public transport by augmenting bus fleet size.
			•	Improved pedestrian movement by increasing footpaths and pedestrian signals.
			•	Improve NMT infrastructure by creating dedicated NMT tracks and Parking spaces for NMT.
			•	Enhancement to be done to ITS system by installation of CCTV cameras.
			•	Regularising parking as a congestion measure.
			•	Identification of Black spots and its rectification for improved safety.
			•	Increase the share of NMT and PT to curb pollution and to create dedicated PT corridors.
City Development Plan	Jaipur Development Authority Region	2006	•	To achieve a transport facility system that is Adequate, Safe, Comfortable, Equitable and is Efficient and Sustainable.
			•	1941.41 Crores of budget is set for traffic and transportation which is 44 % of the total budget.
			•	Capacity Building in existing public transport system.
			•	Options for involving private sector players.
			•	Road and Junction improvements.
			•	Identification of designated parking areas to stop on street parking to ensure smooth traffic flow.
			•	Develop traffic management system.
			•	Efficient Public Transport system.
			•	Promoting Safe Pedestrian Movement.

4.3.2. EXISTING TRAFFIC AND TRANSPORT SCENARIO OF SHIMLA

Based on the above plan documents and other data collected from the field, traffic and transport scenario in Jaipur is presented in the following section.

4.3.2.1. CONNECTIVITY

- **Airways:** Jaipur International Airport is in Sanganer, 10 km from the city centre. Jaipur is connected by air to: New Delhi, Mumbai, Kolkata, Guwahati, Hyderabad, Bengaluru, Goa, Udaipur, Jodhpur, Jaisalmer, Agra, Cochin, Chennai, Ahmedabad, Dubai, Sharjah, Muscat.

- **Railways:** Jaipur is the headquarters of North Western Zone of Indian Railways. Jaipur Railway Station is well connected to all major cities of India like Delhi, Mumbai, Kolkata, Chennai, Bengaluru, Hyderabad and Ahmedabad. Other stations include Gandhinagar, Durgapura, Jagatpura, Ninad Benad and Sanganer.
- **Roadways:** Jaipur is located on National Highway No.8 connecting Delhi and Mumbai. National Highway 12 links Jaipur with Kota and National Highway 11 links Bikaner with Agra passing through Jaipur.

4.3.2.2. LANDUSE

Jaipur city has physical constraints to the east in the form of the hills. While most of the economic activities are located in the walled city area, the residential colonies have grown in the western and southern parts which are far off from the walled city (the main centre of activities). The land use classification is shown in figure 4.23

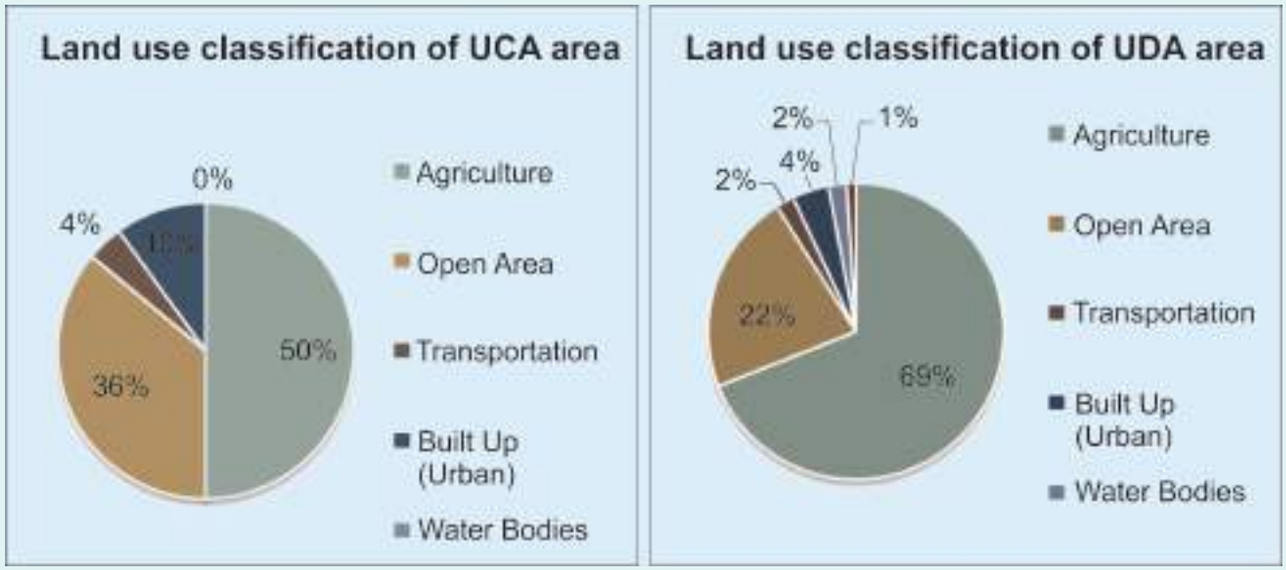


Figure 4.23: Land Use pattern of Jaipur

4.3.2.3. DEMOGRAPHIC PROFILE AND SOCIO-ECONOMIC PROFILE

Jaipur is one of the fastest growing mega cities of the country with an annual average growth rate of 5.3%. The population trend is shown in figure 4.24.

Jaipur is an economically vibrant city. Tourism, trade and commerce and local handicrafts industries are the key strengths of the city. The work force participation rate (WPR) has declined marginally from 1991-2001. Workforce participation rate is 31% in Jaipur city as per 2001 census.

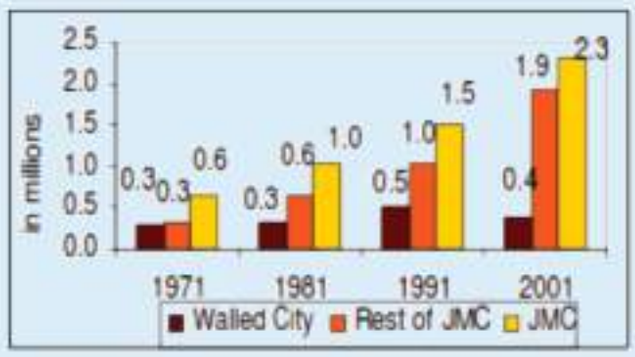


Figure 4.24: Population Trend in Jaipur

4.3.2.4 ROAD NETWORK CHARACTERISTICS

Jaipur city is one of the major tourist destinations in the world it has a road network of about 600 km length including arterial, sub arterial and other important roads. Jaipur city has around 10 major arterial spines that criss-cross the entire city. The right of way of roads is sufficient in Jaipur about 32% roads have ROW of 30m , 50% of the roads have ROW in access of 30m and only 18% roads have less than 30m ROW (Figure 4.25).

Figure 4.25: Road Condition of Jaipur

4.3.2.5 TRAFFIC AND TRANSPORTATION SYSTEM

Travel needs in the city are catered to by a variety of modes of transport in the form of buses operated by RSRTC, mini buses run by private operators, auto rickshaws and private vehicles such as cars, two wheelers and cycles. The average speed in the commercial areas of the city is 16 kmph during peak hours.

Jaipur district has a total number of 13,24,624 motor vehicles registered till the year 2008, of which two wheelers and cars constitute 74% and 11% respectively (Figure 4.26).The average annual growth rate of vehicles in Jaipur is around 13%.

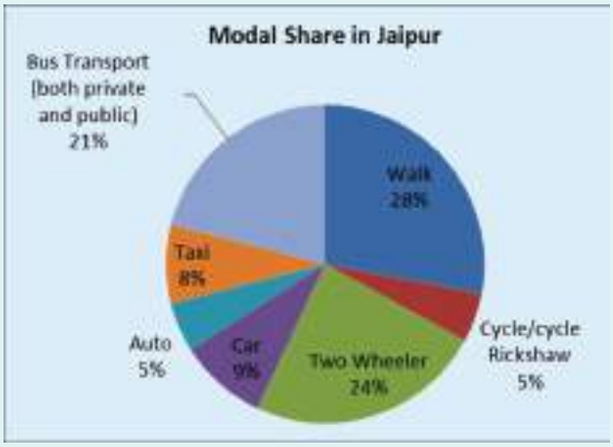


Figure 4.26: Modal Share of Jaipur

4.3.2.6 PUBLIC TRANSPORT:

There are various public transport facilities in the city of Jaipur such as City Bus, BRTS, Metro rail, Commuter rail etc.

- **City Bus system:** The current intra-regional system comprises mainly of buses (Figure 4.28) plying on 28 routes. The total fleet is 2,200 in numbers of which mini busses are for 1,900. For inter-regional travel the government buses are plying on 36 routes with a fleet of 225 buses. There are 2 bus terminals one at Siddhi Camp and the other at Transport Nagar (Figure 4.27) with inadequate facilities of bus shelters and bus stands.
- **BRTS system:** A total 134km route length is planned for the Jaipur city of which around 7 km (Shown in Figure 4.30) is functional. The proposed network shall increase the PT share to 32%.
- **Metro rail transit system:** A total of 49 km network is proposed in the city of which around 9 km is functioning currently (Figure 4.29).
- There are four existing **commuter rail corridors** which can be important links of connectivity for inter-regional travel trips.

Figure 4.27: Existing City Bus & Infrastructure in Jaipur

Figure 4.28: Existing Bus Route map of Jaipur

Figure 4.29: Jaipur Metro

Figure 4.30: BRT Corridor Jaipur

- Intermediate Public Transport in Jaipur consists of taxis, auto-rickshaws and Cycle rickshaws. Auto rickshaws make the highest number of trips with an average trip length of 11.88 km. Average number of passengers carried per trip including driver is 4 by Auto rickshaw and by 5 by Taxi. There is no terminus facility, parking and operations are done mainly on the street. (Figure 4.31).
- Non-Motorized trips also account for major share in the total number of trips, the percentage share is 31% out of which 28% are walk trips.

Figure 4.31: IPT in Jaipur

4.3.2.7. PARKING:

Absence of off-street parking facilities result in haphazard parking along the roads which leads to congestion on roads in the CBD area. About 90% of the vehicles are parked for a duration of 30 min or less. Highest parking demand is recorded in and around the walled city area.

4.3.2.8. ROAD SAFETY

Fatality has decreased due to constant monitoring and enforcement of strict traffic rules and regulations in the city. Accident trend in shown in Figure 4.32.

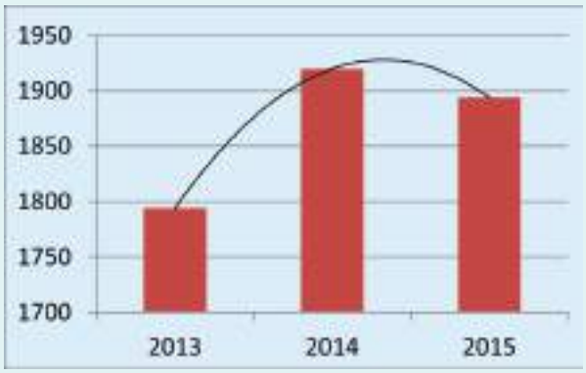


Figure 4.32: Accident trend in Jaipur

4.3.2.9. EXISTING INSTITUTIONAL SET-UP

Jaipur Development Authority is the prime agency responsible for planning and development of transport infrastructure (road) including finance & investment in Jaipur city as well as in the surrounding region. Public Works Department (PWD) is responsible for any planning and development of road transport sector including financing and investment outside Jaipur Urban area. Traffic Police is responsible for traffic regulation and operations in the town. The Regional Transport Officers (RTO) for Jaipur is responsible for licensing of vehicles and drivers in the district.

Public transport in the town is handled by Rajasthan State Road Transport Corporation (RSRTC) and private agencies. Other than RTO, there is no other agency/authority to control/manage private bus operations.

4.3.3. EXISTING PRICING MECHANISM PARAMETERS

Road pricing is a solution to certain mobility issues which prevail at the city level. The current mechanisms are as below:

4.3.3.1 MUNICIPAL CORPORATION OF JAIPUR

The Municipal Corporation of Jaipur is collecting revenue from various sources. The details of income from revenue and expenditure for the budget year 2013-14 are given in table 4.7.

Table 4.7: Jaipur Budget Details for year 2013-14

(*Rupees in lakhs)

Sl. No.	Major Account Head	Estimated*	Actual*
1	**Revenue Receipts (A)**	45587	39541.31
2	**Capital Receipts (B)**	**25060**	**26882.06**
	Sub Total (A+B)	**70647**	**66423.37**
3	**Revenue Expenditure (C)**	54044	45558.59
4	**Capital Expenditure (D)**	46595	24175.46
	Sub Total (C+D)	**100639**	**69734.05**
	Deficit (A+B) - (C+D)	**–29992**	**–3310.68**

Jaipur Municipal Corporation Budget 2013-14, estimated an amount of Rs. 70,647 lakhs as income from various revenue and capital sources but the actual income was Rs. 66,423.37 lakhs which is around 6% less than the expected. Similarly, the expenditure estimated for year 2013-14, was Rs. 1,00,639 lakhs whereas the actual amount spent was 30% lesser amounting to Rs. 69,734.05 lakhs. When the budget was prepared there was a deficit of around 42% in the estimated revenue and expenditure but in the actual income and expenditure, the deficit was reduced to 5%. This is mainly because of the expenditures in actual was not incurred as estimated.

The details of relevant revenue sources such as parking, land tax etc are summarized below:

a) **Parking:** The revenue from parking by Nagar Nigam in the year 2013-2014 was Rs.200 lakhs which is almost 33% more than the estimated revenue amounting Rs.150 lakhs. The gross collection of parking fee is 0.29% of the total revenue collected by the Nagar Nigam. The Jaipur Nagar Nigam contracts for the management of off street parking suggested fees of Rs 3 for 3 hours to Rs 10 for 24 Hours for a two wheeler. Lowest fees for cars are Rs 10 for 3 hours to a maximum of Rs 20 for 24 hours. Monthly fees for different vehicles vary from Rs 150 for two wheelers and goes as high as Rs 1500 for buses. Parking fare system adopted by Jaipur Metro is on higher side than what is being followed by Jaipur Municipal Corporation. Jaipur Metro parking charge is a minimum Rs 15 for cars to a maximum Rs 60. The parking fee for two wheeler is between Rs 5 to Rs 20. The Jaipur Metro parking does not facilitate parking for bus and other bigger sizes of vehicle. Jaipur city airport parking charges are on the basis of its location. Premium car parking is for Rs 150/- whereas the general car parking is Rs 85/-.

b) **Property / Land tax:** Total revenue of the corporation for the year 2014-15 was Rs. 77,462.46 lakhs, which was estimated to be Rs. 1,12,808.89 lakhs. Total expenditure for the year 2014-15 was Rs.69,743.05 against the budgeted expenditure of 10,837.407. Tax revenue was budgeted to be total of around 38% of the total revenue. The Development authority collected tax revenue of Rs.23,469.75 which amounted to 30 % of the total revenue collected by the Nagar Nigam.

4.3.3.2 TRAFFIC POLICE:

Jaipur traffic police penalize for various offences under the Motor Vehicle Act, 1988. Fines are different for a first time offence and subsequent one. Fines vary from Rs.100 to Rs. 5,000 for offence like idle parking, wrong overtaking, non display of number plate to private vehicles being used as taxi. Various offences are mentioned below with the amount of penalty against the offense. Details of which are given in Annexure IV.

The traffic police has collected a maximum revenue of Rs 7,21,42,300 from the various challans issued for offences in Jaipur in the year 2016 i.e. 21 % more than the previous year.

4.3.3.3 TRANSPORT DEPARTMENT

Transport Department in Jaipur levies various taxes and fees on vehicles, total revenue earned by transport authority through various taxes and fees amounted to Rs. 51,647.00 lakhs. Total special road tax collected in Jaipur city amounted to 45.26 lakhs and the balance SRT tax to be recovered for 2015-2016 is Rs.1,166.71 lakh. The details of various sources of Fee collections are given below:

a) **Tax on Vehicles:** There are three types of taxes on various categories of motor vehicles:

- **One Time Tax:** A onetime tax applicable on the different categories of vehicle is based on the cost of the vehicle and the chassis of the vehicle. Tax slab for different categories ranges from 0.3% to 10 %. Transfer of owner ship attracts an amount of 25% extra tax.
- **Lumpsum Tax (LST):** is Mandatory for 3 wheeled goods and passenger vehicles, 4 wheeled vehicles with GVW up to 7500 kg, Motor cabs and maxi cabs and is optional for goods vehicles. Other transport vehicles like dumper, loader etc., 4 wheeled vehicles with GVW more than 7500 kg, Private Service vehicles, Trailer used as goods vehicles, Educational institutional buses are also charged LST.
- **Road Tax/ Special Road Tax are applicable on:** State carriage buses, Contract carriage buses, Private service vehicles, Goods vehicles, Vehicles of other states.

b) **Fee from registration:** Registration fees like trade certificate, invalid carriage, certificate of registration etc need to be obtained by the vehicle user. Fees for the application may vary from 50 rupees for renewal of trade certificate to grant of renewal of authority which is Rs. 5000. The road user has to also obtain registration certificates and fitness certificates from the authority for every vehicle. Fee for obtaining a temporary registration of Non-transport Vehicle is Rs. 200 whereas for non-transport vehicle it is Rs. 500.

c) **License fees:** The user and people can drive their vehicles of different categories only after obtaining a valid license for driving. The State Transport department is the authority for issuance of the permits and

various licenses. Learning license fees is Rupees 30 and is as high as Rupees 2,500 for the establishments imparting training in driving.

d) **Green Cess:** The state government in Rajasthan has imposed a Green tax on vehicle which ply on the roads. The value of green tax is highest for light vehicle which amount to Rs 25,000 and is lowest for two wheeler i.e. Rs 1,000. This green tax or cess is collected at the time of registration of the vehicles and at the time of renewal of registration. The total amount of Green tax collected for year 2015-16 amounted to Rs. 1,002.58 lakh.

The details are given in Annexure IV

4.3.4. ISSUES

- **Congestion:** Traffic volumes are very high in the walled city area. It is observed that due to parking and encroachments roads are not utilized to its full capacity leading to congestion.
- **Parking:** Roads in and around Pink City are congested due to unauthorized parking, hawkers, encroachments and traffic indiscipline which hinder free movement of traffic.
- **Public Transport:** Major issue in the public transport sector are Private bus operators dominate the system and compete with the Government bus system and due to in-efficient rationalization of routes, too many buses operate on the same route causing confusion and congestion.
- **Road Safety:** Road Safety is a major issue in the city of Jaipur due to lack of enforcement of traffic rules especially inside the walled city and also because of lack of traffic awareness among the citizens.

Chapter 5:
Road Pricing Mechanism for Case Cities

Vehicle users in India pay a substantial amount for the use of their vehicles either directly or indirectly. The main direct charges are for fuel, parking and tolls for highways. The indirect charges include vehicle excise duty, fuel tax, road tax, vehicle miles travelled (VMT) tax, congestion pricing and maintenance costs etc. NUTP 2006, 12 FYP and NTDPC policy documents emphasize on alternative methods of levying taxation on road users so that any system employed could more accurately reflect the costs to society at large, for individual trips.

Taking into consideration the recommendations and observations of the national policies along with other International policies pertaining to road pricing, a detailed literature review was carried out to ascertain the type of pricing strategy to be developed along with stakeholders consultation at various levels, it is deduced from the above consultations and reviews that any Pricing Mechanism primarily is based on the following two factors:

(a) **Factors Influencing Road Pricing Strategy:** The review of various policies and studies have revealed that the major criteria that influence the type of charging scheme to be designed in any area are Geographical Conditions, Socioeconomic Conditions, Acceptability, Practicality of the scheme, Overlying Problems in the target area, Political Motivation and Proposed Future Developments. All these factors are taken into consideration while framing the road pricing strategy for the case cities.

(b) **Price Sensitivity:** The second major criteria which governs any strategy is its effect on the driving cost associated with any trip. The degree to which the price of a product affects consumers' using behaviours is called price sensitivity. Price sensitivity is often measured using elasticity's, defined as the percentage change in a good's consumption caused by each one-percent change in its price or other characteristics such as travel speed or transit service. Thus any strategy to be developed shall be priced such that the effect of the price change or a change in the quantity supplied (For example road space, parking spaces etc.) should have a deterring effect on the road

Figure 5-1 illustrates a simplified market for vehicle trips before (left) and after (right) road pricing. Currently drivers take vehicle trips until their marginal costs of driving into the city equalize to the marginal benefits but at this equilibrium point, the number of trips exceeds the socially optimal point. This leads to a loss of social welfare, called deadweight loss. By charging vehicles it increases the private costs of vehicle trips to match its social costs. This decreases the number of vehicle trips and subsequently lowers or eliminates the welfare loss.

users. An illustration shown in figure 5.1 below shows the effect of the price sensitivity on the vehicle trips for road users and its effects on the vehicle operating cost (VOC).

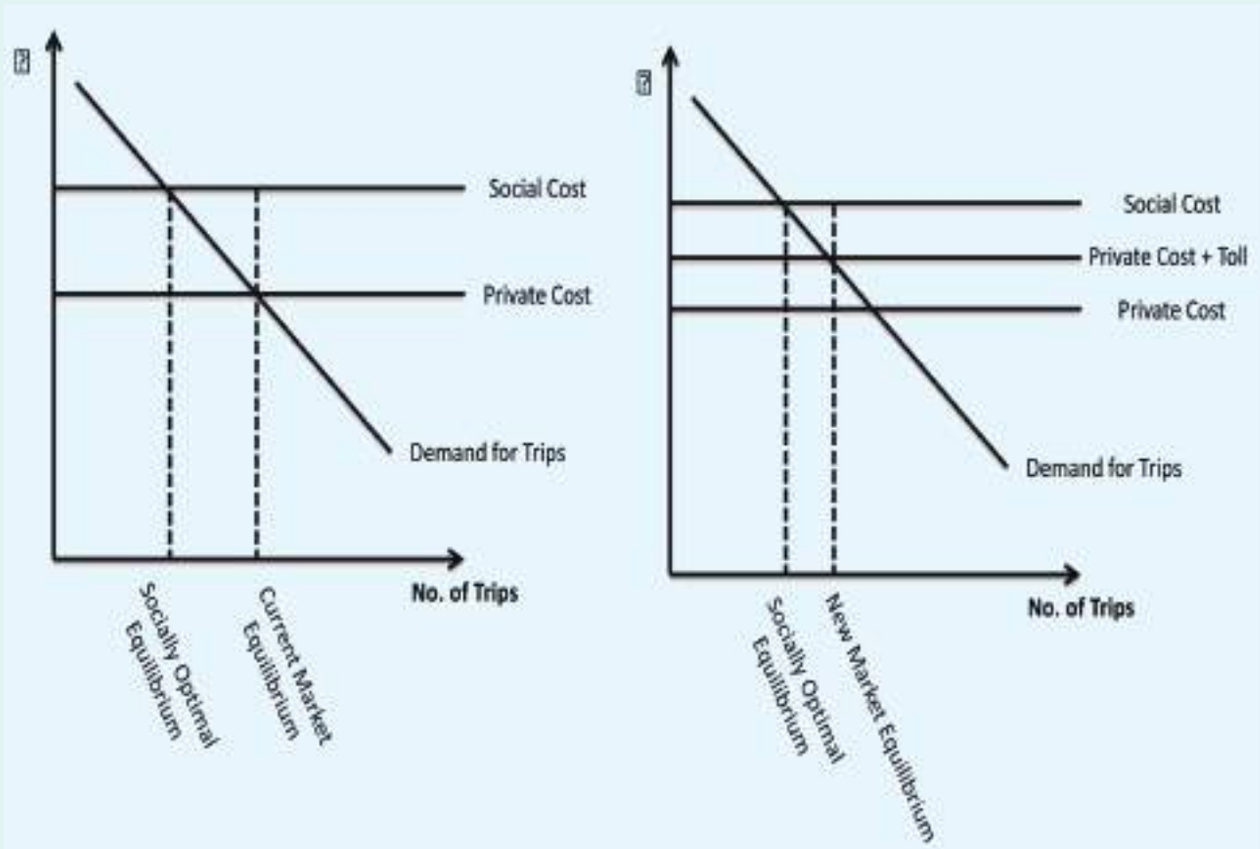


Figure 5.1: Market for Vehicle Trips before (Left) and after Road Pricing (Right)

Several studies have assessed the sensitivity of vehicle travel to road tolls (Transport Elasticity's). These indicate a price elasticity of –0.1 to –0.4 for urban highways (i.e. a 10% increase in driving cost reduces vehicle use by 1-4%)[16], although this can vary depending on the infrastructure facilities and traffic characteristics.

Based on the criteria discussed above, stakeholder consultation (Annexure I) and data collected, the pricing strategies for case cities have been formulated. The details are as follows:

5.1 PRICING STRATEGIES FOR SHIMLA

Due to financial, geographical and political limitations and also, considering the fact that even the expansion of the existing infrastructure may not lead to efficient use of transportation networks in Shimla, it would be advisable to impose road pricing scheme in selected areas of the city to curb the problem of acute traffic snarls, more so during the peak season, which is primarily due to very high number of tourists coming to the city, thereby increasing the number of vehicles in the city at any given time (Figure 5.2). A detailed SWOT analysis (Figure 5.3) has been carried out for Shimla to underline the existing issues:

[16] Road Pricing – Congestion pricing, Value Pricing, Toll Roads and HOT Lanes, Victoria Transport Policy Institute

Figure 5.2: Choked Cart Road in Shimla

Figure 5.3: SWOT Analysis of Shimla

Based on the SWOT analysis and other inputs form stakeholders, following road pricing proposals are framed for the city (Figure 5.4). The proposals are formulated for the major traffic attracting zones of the city and where parking (both on-street & off-street) are a major problem as shown in Figure 5.5.

Figure 5.4: Road Pricing Strategies for Shimla

Figure 5.5: Road Pricing Impact area for Shimla

5.1.1 CORRIDOR PRICING ON CART ROAD, SHIMLA

Traffic jams have become the order of the day on Cart Road connecting major locations in Shimla city. As per the CMP of Shimla, the V/C ratio on this stretch of road is 1.22, well beyond the threshold limit (Figure 5.6). As a result, the traffic mess multiplies the jam and congests the Circular Road that goes around the city. Tourist traffic on this section is increasing and soars up during the peak tourist season. The strategy for implementation of road pricing on cart road is as follows:

Figure 5.6: Stretch identified for Corridor Pricing

- **Implementation Strategy:** The road is proposed to be priced during the morning and evening peak hour to reduce the burgeoning traffic on this stretch during that time. The entire stretch of Cart road may be demarcated as a no-parking zone so as to provide maximum road width to the users who pay a premium to use it (Figure 5.7).

Figure 5.7: Increase in capacity of cart road due to Road Pricing

- **Impacts of Corridor Pricing:** This pricing strategy is expected to reap the following benefits:
  - Discretionary travel moved out of peak periods on parallel road, thereby reducing the overall traffic volume.
  - 'Flattening' of the traffic profile due to reduction in peak hour traffic.
  - Severe congestion mitigated in peak periods.
  - Improved travel times in peak periods
  - Drivers will be more likely to combine multiple destinations into one trip, share vehicles and shift routes to un-tolled roads.

5.1.2. LEVY OF ROAD USER CESS, SHIMLA

Taking the recommendations of the 12th Five Year Plan into consideration and examples from other cities in the country it is proposed to levy **a "Green Cess"** on the vehicle users, whose vehicles are not registered in Himachal Pradesh. The vehicles of State/Central Government, Defence Forces and Ambulance may be exempted from such a tax. Residents of the city (i.e. those having a valid proof to claim their residence in the city) with a private registered vehicle can also be exempted from this cess. Commercial vehicles registered within the city though still have to pay the tax. Trucks carrying foodstuff, oil, vegetables and fruits for the city can be exempted from the levy if the competent authority desires so, though the number of such entries may be rationed to tap their number. The road pricing strategy is as follows:

- **Implementation Strategy:** Road pricing travel impacts depend primarily on the type and magnitude of fees. Other driving factors may be where it is applied, what alternative routes and modes are available and what is assumed to be the alternative or existing case. For the purpose of analysis varied Green Cess has been considered depending on the category of vehicle at variable elasticity to assess trip reduction for subsequent charging.
- **Impacts of Green Cess:** To analyse and forecast this change in the number of vehicle trips owing to the proposed green cess for vehicles entering in to Shimla city following are different indicators
  - **Reduction in Vehicular Trips:** it is imperative to use the price elasticity of demand for vehicle trips. Using the price elasticity of demand, following equation can determine the change in the number of vehicle trips:

$$\Delta\, Vehicle\ Trips = \in \left(\frac{Green\ Cess}{Trip\ Cost} \right) * (Vehicle\ Trips)$$

Where,

$\in$ represents the price elasticity of vehicle trips into the city centre.

The parameters used to estimate the impacts on reduction of vehicle trips are elasticity, driving cost, Average Trip Length and existing total vehicular trips. The details are given in table 5.1.

Table 5.1: Parameters effecting vehicle trips in Shimla

Parameter	Value	Reference
Elasticity	-0.4 ~ 0.6	IRC SP 30: 2009
Driving Cost (Fuel, Insurance, Maintenance Cost)	10.30*	
Average Trip Length in the City	3.6 km	Comprehensive Mobility Plan Shimla, 2012
No. of Annual Weekday trips entering the City (PCU/day)	Car: 31,366	Comprehensive Mobility Plan, Shimla, 2012
	T/W: 7,841	
	Trucks: 6,534	
	Bus	
	(Long Distance Buses): 4,574	
	LCV: 2,613	
	SUV: 10,455	

** The Updated Whole Sale Price Index (WPI) for the month of November, 2016 as per the Ministry of Commerce and Industry has been taken to calculate the Driving Cost.*

Figure 5.8 shows the comparative reduction in the mode wise vehicular trips anticipated once the road pricing is induced in the city.

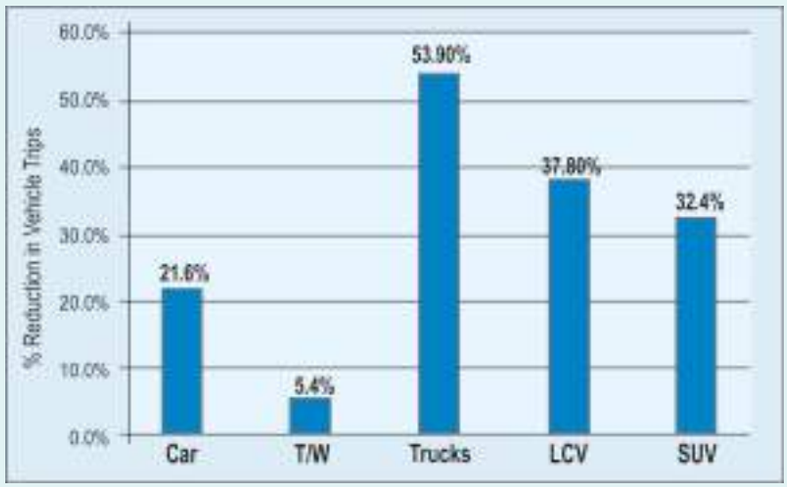


Figure 5.8: Reduction in Vehicle Trips due to Green Cess in Shimla (%)

This model suggests that road pricing would curb the number of trips by about 5% to 54% as shown above for a variable price elasticity ranging from –0.4 to –0.6

- **Impact on Social and Environmental parameters:** The reduction of trips would in turn have an impact on social and environmental parameters. The details are given in table 5.2.

Table 5.2: Impact of Green Cess on Social and Environmental parameters in Shimla

Parameter	Existing Value	Elasticity	New Value (After Application of Road Pricing)	% Reduction After Introduction of Green Cess)
RSPM (µg/ m^3)[17]	69.17	0.3682	55.44	19.84%
SO2 (µg/ m^3)	7.16	0.5882	5.89	17.73%
NOx (µg/ m^3)	17.11	0.3571	13.82	19.22%
Traffic Accidents	140	0.1513	128	8.57%
Average Travel Time (min.)	25[18]	0.1471	19.83	20.68%

Using the algorithm proposed by Steve Danna et. al.[19]; it is estimated that with the introduction of the Green cess for entering into the city limits, the average travel time within the city would reduce by about 21% i.e. approx. 20 minutes which in turn would have its monetary effects. Further Based on the IRC SP 30: 2009 standards for value of time, the direct cost saving due to reduced travel time is anticipated to be Rs. 26 per hour for car and Rs 11 per hour for 2 Wheeler.

5.1.3. LAND VALUE CAPTURE CESS, SHIMLA

It is estimated that a typical vehicle stays parked 95 per cent of the time[20] in any city. A 2006 study by the Central Road Research Institute in New Delhi, estimated that each car needs/ occupies an average of three different parking locations in the city every day. The land required to park a car is approx. 23 sq. m which includes the space occupied by the vehicle as well as the minimum space needed to move it in and out of the space[21].

It is proposed that all new private vehicles being registered in Shimla may be imposed a onetime land value capture cess in accordance with the existing land value prevailing in the city. Commercial vehicles albeit have to pay this amount every year along with the renewal of the permits in the city. Such a monetary cess would induce a sense of responsibility in the minds of the residents to use the scarce land judiciously. The details are given below:

[17] An assessment of ambient air quality in Shimla city, Current Science, August 2016
[18] Comprehensive Mobility Plan Shimla, 2012
[19] A Benefit- Cost Analysis of Road Pricing in Downtown Seattle, Evans School Review, Vo. 2, Num.1, 2012
[20] http://www.reinventingparking.org/2013/02/cars-are-parked-95-of-time-lets-check.html
[21] Parking Policy as a Travel Demand Management Strategy, UTTIPEC, Delhi Development.

- **Implementation Strategy:** Shimla as a city is divided into two zones A & B as shown in figure 5.9. These zones have three types of property / land uses namely, Residential, Commercial / Non-residential and vacant Plot of Land. On the basis of various factors namely, location, structural, age, occupancy and use of plot the authorities have decided the criteria for valuation of the property tax.

Figure 5.9: Shimla Municipal Corporation Zone Map

- **Impacts of Land Value capture cess:** For the convenience of calculation, a sample area has been chosen for this analysis. Sanjauli being a highly populous residential as well as commercial area is selected for this analysis (Shown in Figure 5.10). The existing circle rates in Sanjauli (for the period of 01/04/2016 to 31/03/2017) are being considered for the purpose of analysis.

Figure 5.10: Land Value Capture Cess for Sanjauli in Shimla

Thus, any new car registered in Shimla for a resident of "Up Mohal Sanjauli Chowk" revenue estate, category 1, would be required to pay one time land value capture cess for private vehicle and all commercial vehicles needs to pay this cess annually as per details given in table 5.3.

Table 5.3: Land Value Capture Cess - Shimla

Vehicle Class	Per m^2 area rate (Category I) Rs.	Total Area Occupied by vehicle (m2)	Cost of land Per Parking/yea (Rs.)	One time cess for the total duration of a Registered private Vehicle (Rs.)
L.M.V (Car)	5. 750	23	396.75	~5952*
Medium Goods Vehicle	5.750	50	862.5	-
Bus	5.750	52	897	-
Truck – Tractor semi-Trailer	5.750	65	1121	-

5.1.4. PARKING DISTRICT MANAGEMENT, SHIMLA

Parking management is an issue often overlooked in a city's development plan. Higher development costs, higher prices for goods and services, sprawl and increased automobile travel leading to more traffic congestion, roadway costs, crashes and pollution emissions are just a few of the unwanted effects of free or cheap parking[22]. (Figure 5.11)

Figure 5.11: Un-organized on street parking by residents and Tourists in Shimla

As per the Comprehensive Mobility Plan, 2012, parking demand in Shimla is estimated to be approximately 14,500 ECS out of which 4,311 ECS are provided in the form of supply of both off-street and on-street parking[23]. Based on the stakeholder consultation during city visit, it was observed that 3 facilities are already constructed with the capacity of more than 1,200 ECS. This creates a deficit of about 62% in the available parking in city. The details are as follows:

- **Implementation Strategy:** To implement any this strategy, it is proposed that a 100 m influence zone be created around all the major junctions in the city and the same may be declared as a no parking

[22] Litman, Todd. 2006. Parking Taxes: Evaluating Options and Impacts. Victoria Transport Policy Institute,
[23] Comprehensive Mobility Plan Shimla, 2012

zone. An illustration for the same is shown in figure 5.12 for the Sanjauli area in Shimla. Further to the 100 m buffer area, parking may be allowed but at very high parking prices. Similar initiatives are proposed to be established at Dhalli bus stand, Shogi market and near Tara Devi bus stand.

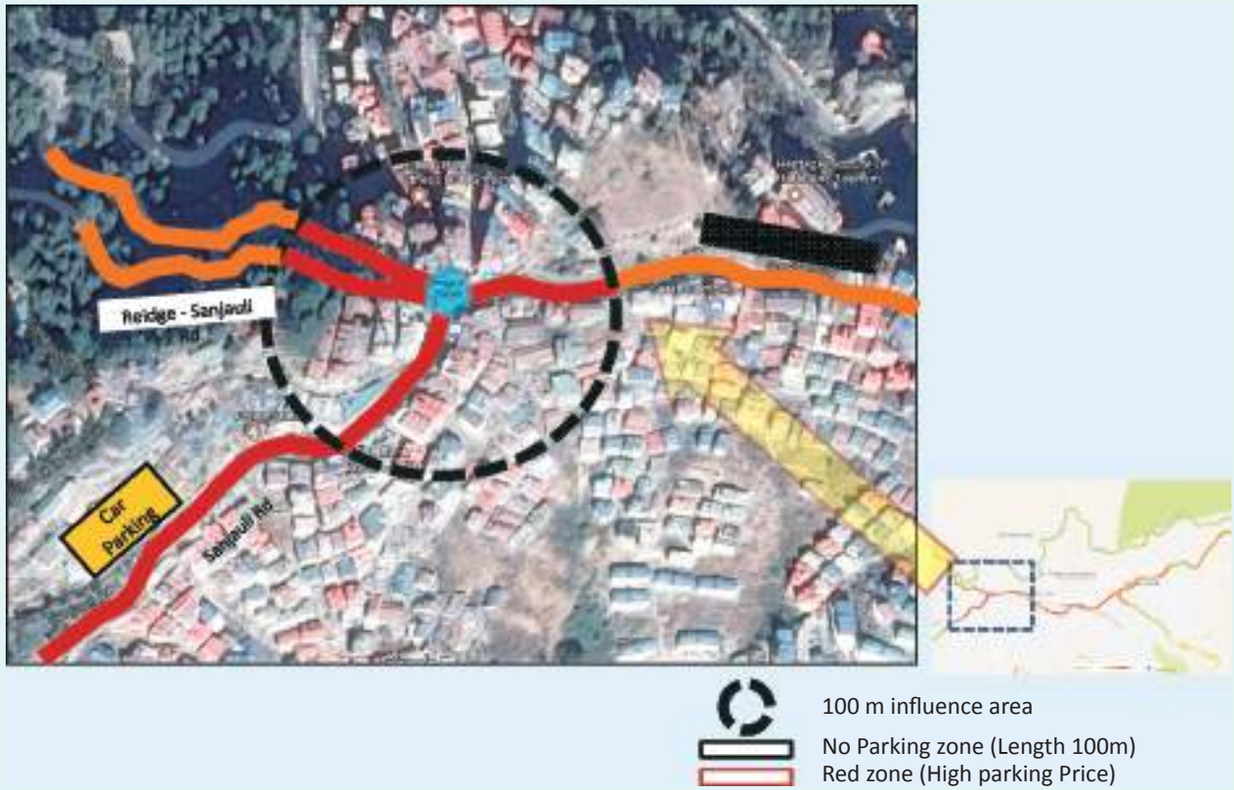


Figure 5.12: parking Demand Management for Sanjauli in Shimla

The Municipality should designate such parking facilities as "Premium" and levy an exaggerated fee. Such parking rates may be dynamic and may be charged as per the peak and off-peak time.

- **Impacts of Parking District Management Scheme:** An analysis of the compensation of the deficit after the introduction of the PDM is carried out as below:

$$\Delta Parking\ Demand = \in \left(\frac{Variable\ Parking\ Charges}{Trip\ Cost} \right) * (Existing\ Parking\ Demand)$$

Here

- Existing parking Demand = 14,500 ECS
- $\in$ = -0.53
- Existing Trip Cost for Shimla (Average) = Rs. 37.08
- Let the Increased Parking Charges for Car = Rs. 50/- per hour

$$\Delta\ Parking\ Demand = 0.53 * \left(\frac{50}{37.08}\right) * 14500$$

Thus = 10,362 ECS

The reduction in parking demand due to PDM is given in table 5-4 below:

Table 5.4: Reduction in parking Demand due to PDM in Shimla

Parameter	Existing Value	Elasticity	New Value (After Application of PDM)	% Change (After Introduction of PDM)
Parking Demand (ECS)	14,500	0.53	10,362	28.58%

5.1.5. AGENCY FOR IMPLEMENTING THE STRATEGIES, SHIMLA

M.C. Shimla is responsible for assessment and collection of municipal taxes as per procedure laid down in chapter-VIII of the H.P. Municipal Corporation Act, 1994. It is thus proposed that the tax to be levied shall be facilitated by the Municipal Corporation in collaboration with the transport department and RTO. The tax levied by the RTO and Municipal Corporation Shimla should be transferred to the Urban Transport fund for future transport related developments.

5.2. PRICING STRATEGIES FOR JAIPUR

The study conducted in the city has outlined two major production and attraction zones in Jaipur. While the Jaipur Railway Station area has emerged as the origin for most of the traffic in the city, the old Jaipur (walled city) is

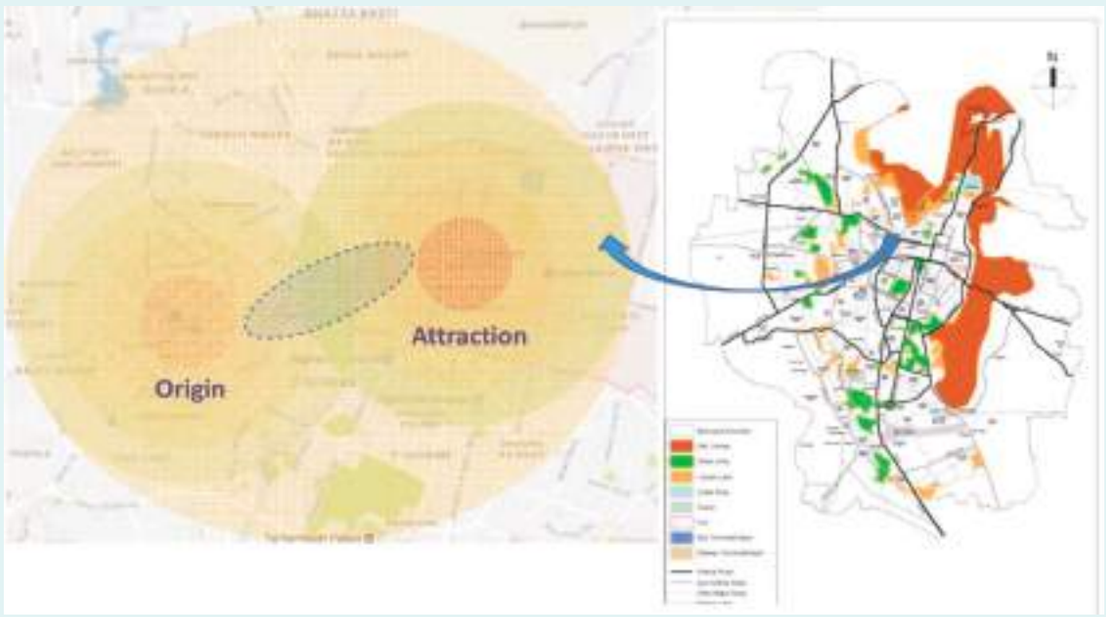


Figure 5.13: Road Pricing impact area for Jaipur

the major attraction zone in the city as shown in Figure 5.13. The strategies framed thus take these zones into consideration.

Prior to framing the pricing strategies for Jaipur, a SWOT analysis has been undertaken to underline the strengths and opportunities available with the city followed by the possible threats and weaknesses (Figure 5.14).

Taking cue from the SWOT analysis mentioned above, road pricing interventions proposed for Jaipur are shown in Figure 5.15.

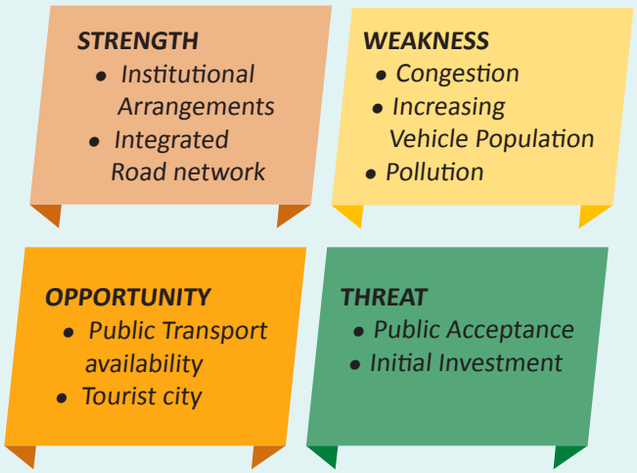


Figure 5.14: SWOT Analysis for Jaipur

Cordon Pricing

Parking Demand Management

Corridor Pricing

Figure 5.15: Road pricing Strategies for Jaipur

5.2.1. PARKING DISTRICT MANAGEMENT, JAIPUR

Parking management is an issue often overlooked in a city's development plan. While it may seem like a secondary concern in the quest for economic development, parking management directly impacts accessibility to businesses, customer willingness to travel to certain areas and the quality of life experienced by residents of the city.

Parking study conducted by the Town Planning Department, Rajasthan, indicates that on-street parking duration for about 50% of vehicles is only for 30 minutes, 15-25% vehicles are parked for one hour duration and the rest of the vehicles for more than one hour (Figure 5.16). Thus the parking demand for a majority of vehicle is only 30 min. Taking this into consideration it is proposed that all vehicles parked less than or equal to 30 minutes may be provided on-street parking at the existing parking rates as discussed in the previous section. For vehicle occupying the on-street parking for any time greater than 30 minutes should be charged at an exponentially increasing parking rates. The details to implement the PDM in Jaipur walled city are as follows:

Figure 5.16: Un-organized Parking and mixed traffic on the Corridor in Jaipur

- **Implementation Strategy:** With the implementation of a premium parking charge, progressively increasing with time, would compel the shopkeepers to discontinue the utilization of free on-street parking. It is recommended that city authorities should mandatorily construct multilevel car parks at locations given in table 5-5 and shown in Figure 5.17 to facilitate the shopkeepers:

Figure 5.17: Identified locations for park & Ride in Walled City Jaipur

Table 5.5: Proposed off Street parking Locations in Jaipur

S.No.	Proposed Location
1.	Ramleela Maidan
2.	Old Aatish Market Campus
3.	Chaura Rasta (Behind Hind Hostel)
4.	Site of old grain mandi at Chandpole Gate

- **Impacts of Parking District Management Scheme:** After implementation of PDM, there will be a reduction in parking demand around walled city. Other non-measurable, immediate benefits of PDM would include reduced traffic congestion associated with searching for spaces and ensuring availability for quick or urgent trips. A Parking District Management (PDM) also ties the economic benefits of an organized parking directly to improving the quality of life in the immediate area.

Note: Detailed quantitative analysis could not be undertaken due to limited parking data availability (Demand and Supply).

5.2.2. CONGESTION PRICING IN THE WALLED CITY:

Congestion pricing mechanisms typically take the form of paying more for something where it is most demanded during a certain time of day, or week and paying less when it is not. It is thus proposed to levy a "Congestion Tax" on all the road users intending to use the following three major corridors within the walled city during the specified time period of the day: (Figure 5.18)

- At Chandpole circle, Choti Chaupar Circle, Manak Chowk (Badi Chopade) and crossing of Ghat Darwaza Bazaar road and Surajpole Bazaar road along the Surajpole – Chandpole corridor.
- At Sanganeri Gate towards Johari Bazaar and at Subhash Chowk along the Amer Road via Johari Bazaar corridor.
- At Ghat gate towards the Sanganeri gate corridor.

- *Existing on-street parking spaces parallel to the shops in Jauhari Bazaar and Bapu Bazaar.*
- *Pre-dominantly utilised by the shopkeepers during 10 a.m. to 8 p.m.*
- *15-25% vehicles are parked for one hour duration and the rest for more than one hour.*
- *Premium rates for parking.*
- *Greater than 30 minutes should be charged at an exponentially increasing parking rates.*
- *Longer duration vehicles have to be parked at identified locations.*

The following section entails the implementation strategy, infrastructure required and steps to be undertaken for efficient implementation of the policy.

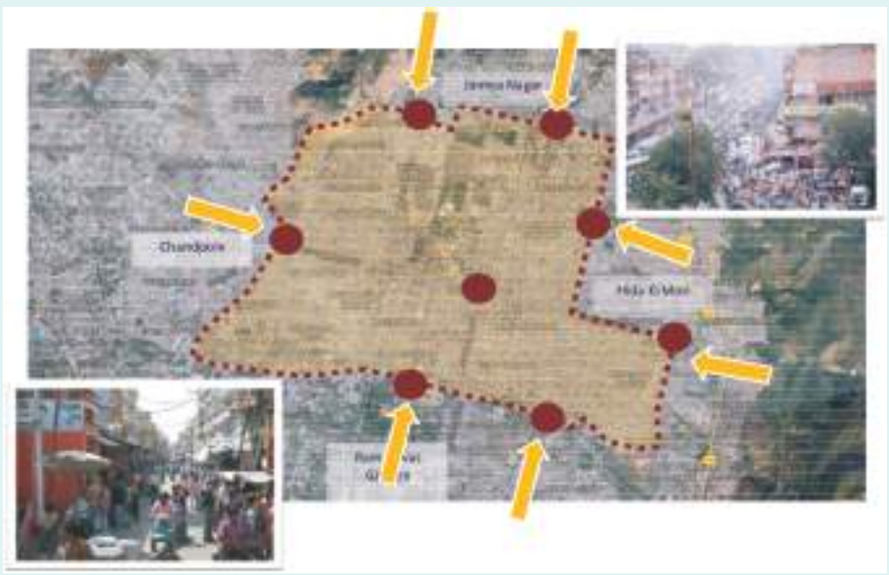


Figure 5.18: Locations identified for placement for Collection for congestion charge

- **Implementation Strategy:** Considering the variable demand generated during peak hour on the three identified corridors, variable pricing can be undertaken by the implementing authority. The variable pricing can be of two types namely, Time of day pricing and Dynamic pricing. In time of day pricing the implementing agency may adjust the toll to vary with the time of day. Dynamic pricing functions similarly to time of day pricing but provides an increased level of precision and technological complexity.
- **Impacts of Congestion Charging:** Following are the different indicators to ascertain the impacts of road pricing in the city:
  - **Reduction in Traffic Volume:** To analyse and forecast the change in traffic volume owing to the proposed congestion charge for vehicles it is imperative to use the price elasticity of the existing traffic volume in the city. Using the price elasticity of demand, following equation can determine the change in the number of vehicle trips:

$$\Delta\, Vehicle\ Trips = \in \left(\frac{Congestion\ Tax}{Trip\ Cost} \right) * (Traffic\ Volume)$$

Where, $\in$ represents the price elasticity of vehicle trips into the city centre.

The parameters effecting the congestion is given in table 5.6.

Table 5.6: Parameters effecting vehicle trips in Jaipur.

Parameter	Value	Reference
Elasticity	-0.4 ~ 0.6	IRC SP 30: 2009
Driving Cost (Fuel, Insurance, Maintenance Cost)	8.99*	
Average Trip Length in the City	6.5 km	Comprehensive Mobility Plan Jaipur, 2010
Traffic Volume on Charged Corridors (Vehicle/day)	Johari Bazaar Road (LMB Hotel) **Volume: 67,416**	Comprehensive Mobility Plan, Jaipur, 2010
	Ghat Darwaza Road (Ghat Gate) **Volume: 44,137**	
	Kishanpole Bazaar **Volume: 62,863**	

** The Updated Whole Sale Price Index (WPI) for the month of November, 2016 as per the Ministry of Commerce and Industry has been taken to calculate the Driving Cost.*

For the purpose of analysis, a congestion charge of Rs. 50/- per entry is taken for a car to enter into the identified corridor in the walled city. Considering the current modal split for Jaipur, 9% vehicular trips are attributed to cars. Thus taking this modal split into consideration, the comparative reduction in the vehicular trips anticipated once the road pricing is induced in the city is shown in figure 5.19. This model suggests that road pricing would curb the number of trips by about 15% to 66% as shown above for a variable price elasticity ranging from –0.4 to –0.6.

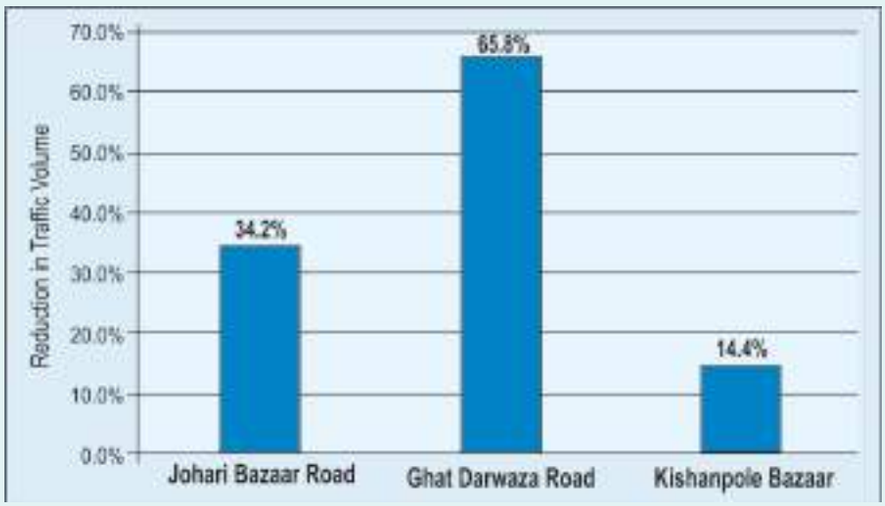


Figure 5.19: Reduction in number of cars after introduction of congestion charging in Jaipur

- **Impact on Social and Environmental parameters:** The impacts of congestion charging on social and environmental parameters are given in table 5.7.

Table 5.7: Impact on Social and Environmental parameters of congestion charging in Jaipur

Parameter	Existing Value	Elasticity	New Value (After Application of Road Pricing)	% Change After Introduction of Congestion Charging)
RSPM (µg/ m^3)[24]	250	0.3682	171.24	31.50%
SO2 (µg/ m^3)	8.49	0.5882	6.89	18.84%
NOx (µg/ m^3)	34.77	0.3571	24.14	30.57%
Traffic Accidents	1894	0.1513	1648	12.98%
Average Travel Time(min.)	39[25]	0.1471	34	12.82%

- **Reduction in travel time:** Using this algorithm, proposed by Steve Danna et. al.[26]; it is estimated that with the introduction of the congestion charge for entering into the walled city, the average travel time within the city would reduce by about 13% and 34 minutes (0.56 hour). The value of time (Rs. /hr.) in urban area is given in table 5.7 above. Thus, an anticipated Rs. 44/- will be saved per hour in a running car. Similarly, for two-wheeler the value would be about Rs. 19/- per hour.

[24] An assessment of ambient air quality in Shimla city, Current Science, August 2016
[25] Operational Plan of Jaipur BRTS/Bus Services, Final report, Feb. 2015
[26] A Benefit- Cost Analysis of Road Pricing in Downtown Seattle, Evans School Review, Vo. 2, Num.1, 2012

5.2.3. CORRIDOR PRICING NEAR RAILWAY STATION, JAIPUR

As discussed in the previous sections the area around Jaipur Railway station is the major production area in Jaipur city. The situation particularly worsens during morning and evening peak hours when most of the trains arrive or leave from the city. Thus it is imperative to carve a strategy keeping the travellers bound to and from the railway station area.

To reduce the burgeoning traffic intensity on this corridor, it is thus proposed that the corridor from Chandpole to Khasa Kothi and Jaipur Railway station may be priced for using the facility by the users. Traffic crossing the station road via the MI road can be free to use the crossings and the same may not be charged. This would influence the road users going towards the Sindhi Camp and the Railway station to use public transport in the form of metro (as shown in figure 5.20 and 21).

Figure 5.20: Corridor pricing impact area in Jaipur

Figure 5.21: Corridor pricing around Jaipur Railway Station

- **Implementation Strategy:** In Jaipur, the charging systems shall be placed at strategic locations for entering into the station road. Following are the locations identified for installation arrangements: ***at Chandpole circle and at Parshuram Circle near Jaipur Railway Station.***

- **Impacts of Corridor Pricing:** For the purpose of analysis, a congestion charge of Rs. 50/- per entry is taken for a car to enter into the charged corridor. Considering that about 30% of the total traffic on this corridor is attributed to cars. Figure 5.22 shows the comparative reduction in the vehicular trips anticipated once the corridor pricing is induced in this area. This model suggests that road pricing would curb the number of trips by about 42% for a variable price elasticity ranging from –0.4 to –0.6. Using this algorithm discussed in previous section, it is estimated that with the introduction of the corridor pricing for entering into the mentioned corridor, average travel time from Chandpole to Jaipur Railway Station would reduce by about 40% i.e. about 11 minutes. This would translate into Rs. 12/- saving per hour in a running car.

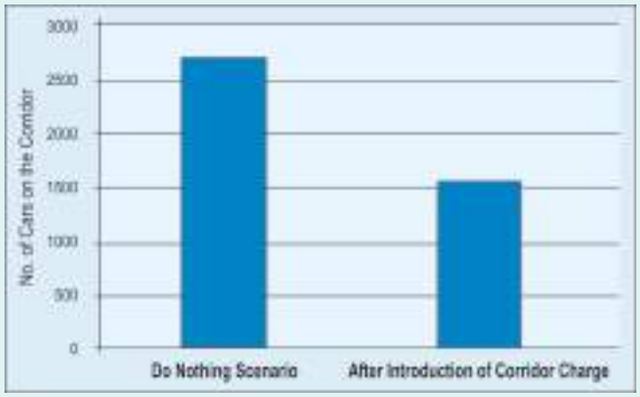


Figure 5.22: Reduction in number of cars after introduction of corridor pricing in Jaipur

5.2.4. AGENCY FOR IMPLEMENTING THE STRATEGIES, JAIPUR

Jaipur Municipal Corporation in collaboration with RTO, Traffic police and other competent authorities should be responsible for implementing these strategies. In order that congestion charging is not opposed by public at large, it is important to seek their cooperation and imbibe the importance of such a scheme to the road users. To ensure accessibility to maximum number of people, promotion of public transport and parking for para-transport/ feeder modes is to be prioritized and subsidized.

The tax levied by Municipal Corporation and RTO through these pricing strategies should be transferred to the Urban Transport Fund for future transport related developments.

5.3. PRICING STRATEGY FOR BHOPAL

Bhopal old city area with its teeming market places has no proper traffic manoeuvring measures. This area is a preferred destination for the tourists coming to visit the city due to the lakes but there is a lack of proper infrastructure development in this area to support the humongous traffic volume flocking this area. Chowk (Bazaar) in the heart of the Old City has old mosques, residences (Havelis) and shops. This area is a huge tourist attraction but is devoid of facilities for traffic movement along the roads leading to Jama masjid. A detailed SWOT analysis has been carried out for the city to assess its strengths

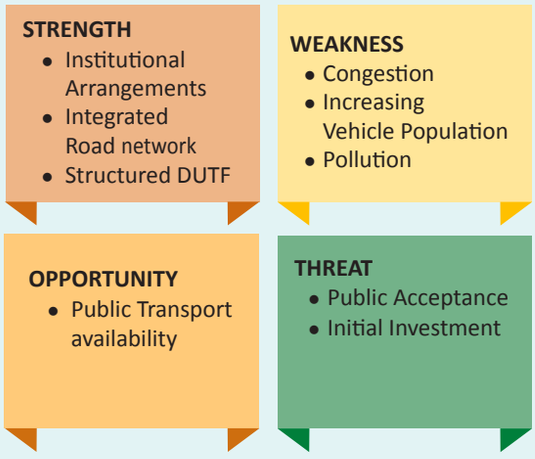


Figure 5.23: SWOT Analysis of Bhopal

and weaknesses as shown in figure 5.23. Pricing is strategies proposed for the lake city keeping into consideration the SWOT analysis carried out above is shown in figure 5.24 and 5.25.

Figure 5.24: Road pricing Impact area in Bhopal

Figure 5.25: Road Pricing Strategies for Bhopal

5.3.1. CORDON BASED PRICING, BHOPAL

The details to implement the cordon pricing strategy in Bhopal are as follows:

- **Implementation Strategy:**
  - It is proposed that all the lanes entering into the core of old city as shown in Figure 5-26 namely Old Saifia College Road from Hamidia Road to Peer Gate Chowk, Noor Mahal Road, Jumerati Road, Chhawni Road, Imambara Road, Mahadev Mandir Road and all other major and minor by-lanes passing through the area cordoned off may be priced for using the facility.
  - To facilitate the through traffic (Non- destined to the old city areas), vehicles are allowed to take either the Hamidia Road from Taj-Ul Masjid Road towards Bharat Talkies square and further to Ginnori Road via Kala Mandir Square or the traffic may move from Taj-Ul Masjid Road to Royal Market Square and can join the VIP road through Sultania Road or may continue to move on the Sultania Road to join the Ginnori Road as shown in figure 5.26.
  - It is imperative to provide a dedicated parking facility for the road users in the close vicinity of the area if vehicle are having a restricted entry in the cordoned zone. It is suggested to develop parking lots for private vehicles at locations identified in the (Figure 5.26) below as park and ride facility.

Figure 5.26: Traffic Circulation Plan for Old City Bhopal

- **Impacts of Cordon Pricing:** To assess the impact of cordon area road pricing in Bhopal, it is essential to undertake a quantified analysis of the benefits. To analyse and forecast this change in the number of vehicle trips to the charged area/ corridor, it is imperative to use the price elasticity of demand for vehicle trips:

$$\Delta Vehicle\ Trip = \in \left(\frac{Toll}{Trip\ Cost} \right) * (Vehicle\ Trips)$$

Where ϵ represents the price elasticity of vehicle trips into the city centre.

The parameters effecting traffic volume in Bhopal is given in table 5.8.

Table 5 8: Parameters effecting traffic Volume in Bhopal

Parameter	Value	Reference
Elasticity	-0.4 ~ 0.6	IRC SP 30: 2009
Driving Cost (Fuel, Insurance, Maintenance Cost)	7.0993*	
Average Trip Length in the City	5.35 km	Comprehensive Mobility Plan, Bhopal, 2012
No. of Annual Weekday trips in the City	24,37,649 lakhs	Comprehensive Mobility Plan, Bhopal, 2012

** The Updated Whole Sale Price Index (WPI) for the month of November, 2016 as per the Ministry of Commerce and Industry has been taken to calculate the Driving Cost.*

- **Reduction in Traffic Volume:** One the basis of parameters mentioned in table 5-8, road pricing would reduce the number of trips in the city considerably. Figure 5.27 shows the comparative percentage reduction in the vehicular trips (for cars) anticipated once the road pricing is induced in the city. This model suggests that road pricing would curb the traffic volume by 15% to 43% as shown above for a variable price elasticity ranging from –0.4 to –0.6.

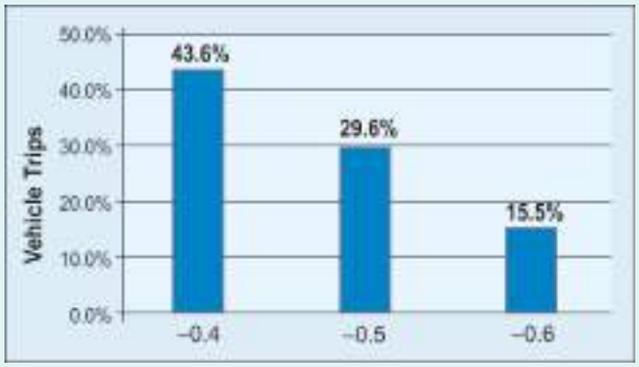


Figure 5.27: Reduction in Traffic Volume due to introduction cordon pricing in Bhopal

- **Impact on Social and Environmental parameters:** Table 5.9 shows the constant relationships in elasticity's, which express the degree of response to changes in different environmental and socio-economic parameters:

Table 5.9 : Impact of Cordon Charging on Social and Environmental paramters in Bhopal

Parameter	Existing Value	Elasticity	New Value (After Application of Road Pricing)	% Change (Rs. 50/- Road Pricing)
PM_{10} (µg/m³)	403.2[27]	0.5882	334.12	17.13%
SO2 (µg/ m³)	6	0.5882	4.97	17.16%
NOx (µg/ m³)	35.7	0.3571	29.58	15.14%
Traffic Accidents	3621[28]	0.1513	2850	21.29%
Average Travel Time (min.)	21[29]	0.1471	16.64	20.76%

5.3.2. PARKING DISTRICT MANAGEMENT, BHOPAL

Majority shopping complexes, hotels and colleges in the MP Nagar and New Market Area of Bhopal are running commercial activity in basements triggering a ripple effect on streets where traffic barely crawls. And almost all concrete roads have been converted into parking lots. The streets here are plagued with uncontrolled on-street parking and encroachment of carriageway further aggravates the problem due to narrow roads. The details of road pricing strategy are as follows:

- **Implementation Strategy:** The various junctions across the Habibganj road of MP Nagar and New market have been divided into 2 zones. First zone will be up to 100 m from the junctions and the other zone will be beyond 100 m from the junction area. All areas within a 100 m radial distance from any junction will be totally banned for parking of any type. All other areas (>100 m) would be highly priced, with prices increasing exponentially. The details are shown in figure 5.28, 29, 30 and 31.

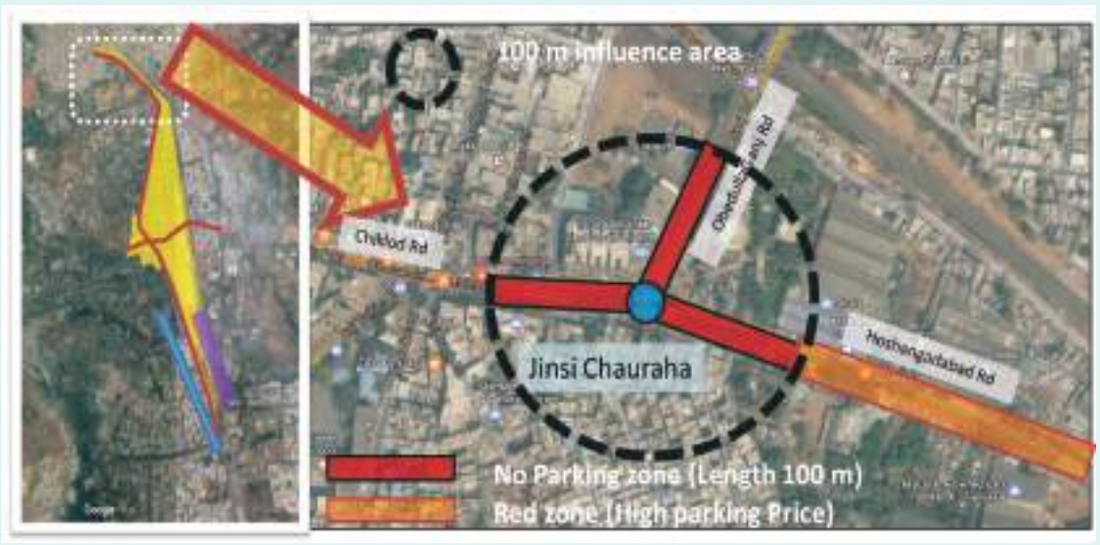


Figure 5.28: Implementation Strategy of PDM in Jinsi Chauraha, MP Nagar, Bhopal

[27] Madhya Pradesh Pollution Control Board
[28] Road Accidents in India – 2015, Ministry of Road Transport & Highways, Transport Research Wing, Pg-20
[29] Comprehensive Mobility Plan for Bhopal

Figure 5.29: Implementation Strategy of PDM MP Nagar, Bhopal

Figure 5.30: Implementation Strategy of PDM in Habibganj Road, Bhopal

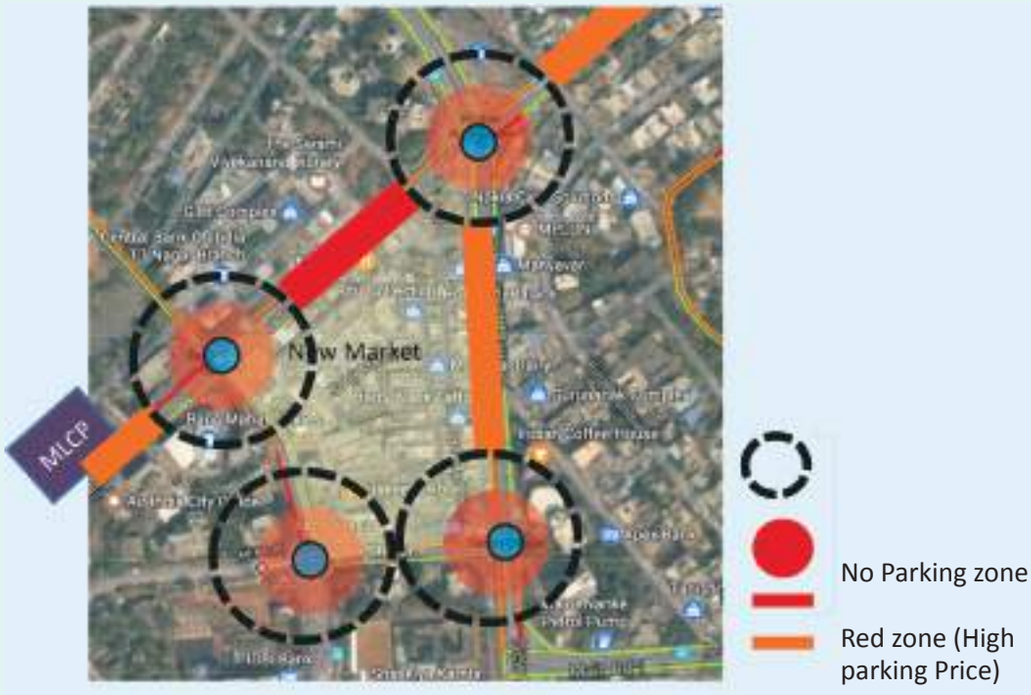


Figure 5.31: Implementation Strategy of PDM in New Market Area, Bhopal

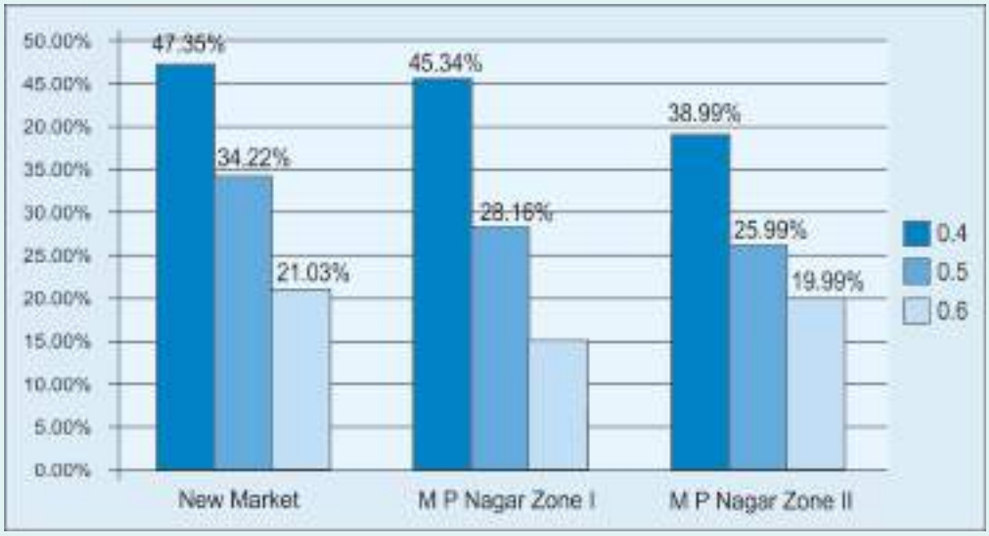


Figure 5.32: Reduction in parking demand due to PDM in Bhopal

- **Impacts of Parking District Management in Bhopal:** An analysis of the compensation of the deficit after the introduction of the PDM is carried out on the basis of the model as shown below:

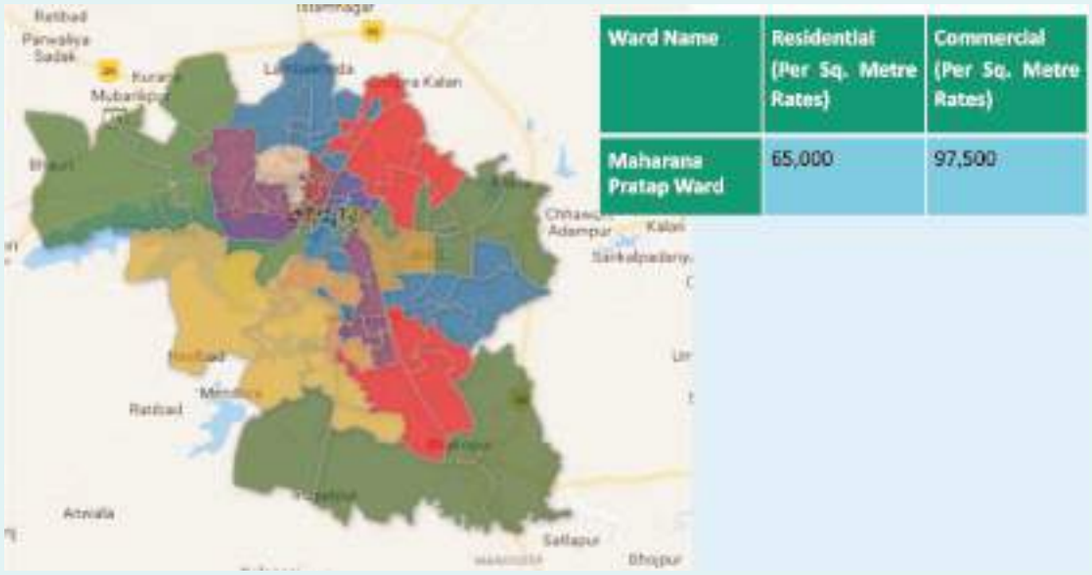
$$\Delta\ Parking\ Demand = \in \left(\frac{Variable\ Parking\ Charges}{Trip\ Cost} \right) * (Existing\ Parking\ Demand)$$

Comparative reduction in parking demand analysed for all the three commercial areas identified for Bhopal city. The analysis showed a variable reduction in parking demand ranging from 20% to 48% for the variable price elasticity values as shown in figure 5.32.

5.3.3. LAND VALUE CAPTURE CESS

Un-warranted increase in number of registered vehicles in the city makes the situation worse, thereby adding to the social cost of transportation. Thus it would be imperative to follow the well-established economic theory that vital and scarce resources need to be appropriately priced so that it may be utilized in the most judicial manner. A parcel of land has a value based on surrounding improvements which the community has made. Thus the value of such land pockets should be directly associated with the huge subsidy already provided to the vehicle owners around the city in the form of free parking land for the residents. It is this subsidy that allows more and more people to buy more and more vehicles as this humongous addition in social cost doesn't affect their day to day driving cost.

- **Implementation Strategy:** It is proposed that all new private vehicles being registered in Bhopal may be imposed a onetime land value capture cess in accordance with the existing land value prevailing in the city. Such a monetary cess would induce a sense of responsibility in the minds of the residents to use the scarce land judiciously. It is proposed that 5% - 10% of this taxable amount may be levied as a one time cess from the vehicle owners at the time of registration.
- **Impacts of Land Value Capture Cess in Bhopal:** For the purpose of analysis, Maharana Pratap Ward (Figure 5.33) in Bhopal has been considered. The existing circle rates as defined by Municipal Corporation Bhopal have been considered for calculating the land value cess in the identified zone.



Ward Name	Residential (Per Sq. Metre Rates)	Commercial (Per Sq. Metre Rates)
Maharana Pratap Ward	65,000	97,500

Figure 5.33: Circle rate of Maharana Pratap Ward, Bhopal

As per the area required for parking and manoeuvring a car, analysis has been undertaken to ascertain the subsidy already given to road users in the form of free parking. The details are given in table 5.10.

Table 5.10 : land Value Cess for Maharana Pratap Ward

Vehicle Class	Per m^2 area rate (Category I) Rs.	Total Area Occupied by vehicle (m^2)	Cost for the total duration of a Registered Vehicle (Approx. 15 years) (Rs.)
L.M.V (Car)	65,000	23	14,95,000

Thus 5% - 10% of this consolidated amount (due for a period of 15 years) may be levied as a onetime charge on any resident of Maharana Pratap ward for getting a new car registered.

5.3.4. AGENCY FOR IMPLEMENTING THE STRATEGIES IN BHOPAL

The following steps shall be taken by the Bhopal Municipal Corporation before the implementation of recommended strategies:

- The street based equipment required for capturing the rule breakers would entail the erection of pole and/or gantry mounted cameras and illumination devices.
- If desired, park and ride locations may also be supplemented as the docking station for bi-cycles under the proposed “Public Bike Sharing” scheme soon to be implemented in Bhopal.
- In order that the strategies are not opposed by public at large, it is important to seek their cooperation and imbibe the importance of such a scheme to the road users. Such cooperation can be best secured if the objective of any initiative is made clearly known to them. Figure 5.34 illustrates the Gestation Process for Road Pricing Schemes.

5.4. Implementation Methodology

A key part of introducing the above mentioned road pricing strategy and their success lies in the implementation methodology. Implementing a pricing scheme requires a range of technical infrastructure in order to define the area to ensure enforcement and facilitate payments. As a prerequisite, political awareness and creation of regulatory authorities shall be carried out. The gestation process for road pricing is shown in figure 5.34.

All these strategies would require necessary amendments in the relevant Municipal Acts, Development Acts and Transport / Motor Vehicle Act for smooth implementation. These pricing proposals will have to be incorporated in the city Master Plan / Zonal Plan.

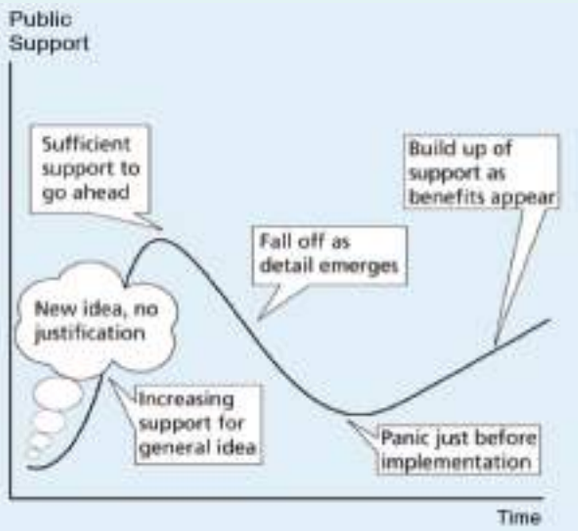


Figure 5.34: Gestation Process for Road Pricing Schemes

It also requires a good level of co-operation between all actors and some investment to improve or develop transport alternatives to cars as shown in figure 5.35. The three step process involved in implementation of road pricing is shown in figure 5.36.

It is important to have good governance and effective co-operation between stakeholders for a successful

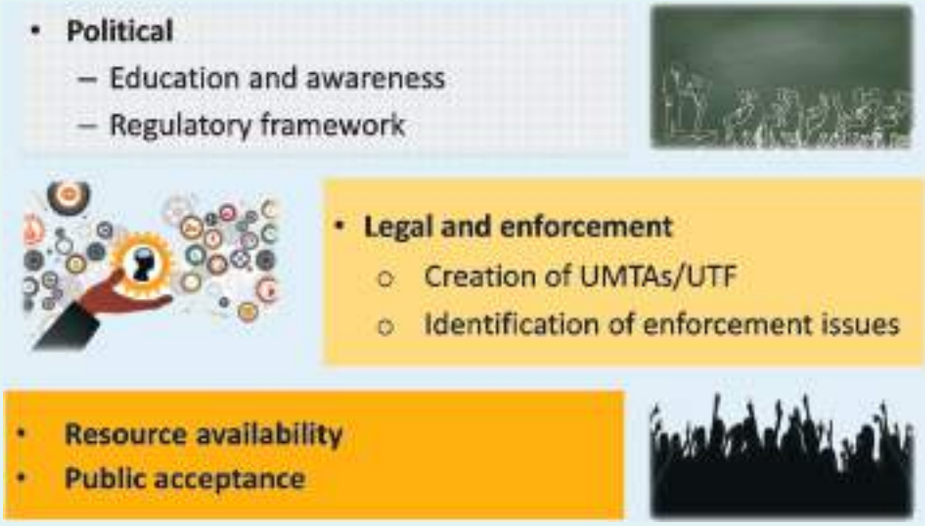


Figure 5.35: Methodology for implementation of Road pricing

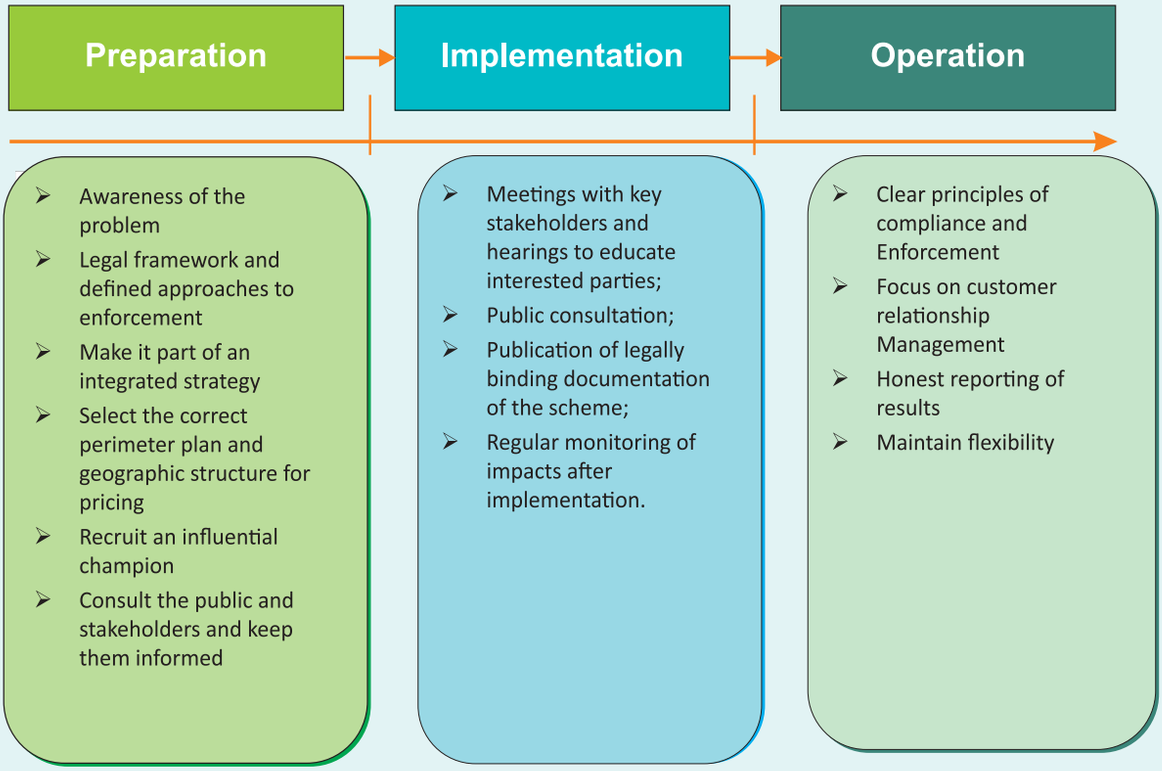


Figure 5.36: Stages involved in implementation of Road pricing

implementation. Key stakeholders and the institutional structure for effective preparations, implementation and operation of any road pricing strategy must comprise of:

- **National government –** As national legislation to enable road pricing may be required.
- **Regional, local and city government** (depending on the circumstances) prepare policy to permit pricing, prepare plan and operate the scheme.
- **Transport authority –** To take care of planning the services to enable access to areas affected by the pricing scheme.
- **Planning authority –** It would develop land-use planning approaches to reinforce pricing.
- **Transport operators –** Provide services to enable access to areas affected by the pricing scheme.

5.5. CONCLUSION

It has always been a major task for Economists and Town Planners to plan for the use of scarce land resources optimally so that resources are allocated in the most efficient and judicious way in a developing country like India. The transportation sector in particular needs continuous government intervention in planning, development and management.

It is obvious, that road pricing strategies which exists in the world cannot be implemented directly in the Indian scenario. Thus, taking into consideration the existing bottlenecks in transport sector in all the three case cities, viz. Shimla, Jaipur and Bhopal, road pricing strategies have been evolved to suit the city specific needs. The summary of all the proposed road pricing strategies of each with expected benefits is given in table 5-11.

Table 5.11: Summary of Road Pricing strategies recommended city wise

S.No.	City Name	Road Pricing Strategy	Expected Benefits
1.	Shimla (Himachal Pradesh)	• Introduction of Green Cess	• Improvement in Social and Environment condition • Reduced Travel Time • Reduced Parking Demand • Revenue Generation • Reduction in Peak Hour Congestion
		• Parking District Management	
		• Land Value Capture Cess	
		• Cordon Pricing	
2.	Jaipur(Rajasthan)	• Parking District Management	
		• Congestion Pricing	
		• Cordon Pricing	
3.	Bhopal(Madhya Pradesh)	• Cordon Pricing	
		• Land Value Capture Cess	
		• Parking District Management	

The model predicted that the traffic volume in all the three case cities will show a downward trend in near future with the introduction of a duly priced and well implemented strategy. This decline in the traffic volume would have a twofold direct impact.

- Firstly, the average travel time in all the three cities will come down subsequent to the reduction in traffic volume. This reduction is also reflected towards the economic benefits that every trip would contribute towards the driving cost of the vehicle owner.
- Secondly, the environmental benefits of this are reflected in the fact that after the introduction of strategy all the cities will show improvement in major environmental parameters (NOX, SO2, RSPM, and PM etc.).

Further, detailed study in this regard can help the concerned cities to earn carbon credits and thus contribute towards the overall development of the society.

Annexures

ANNEXURE 1: STAKEHOLDER CONSULTATION

The stakeholder consultation was conducted for feedback and suggestions on the analysis and proposed strategies as per the following stages:

- Stage 1: Consultation at City level -
  - Preliminary data collection – IUT met various relevant stakeholders and collected the data.
  - Stakeholder workshop at City level – Organized city level workshop after the preparation of draft proposals.
- Stage 2: National level Workshop.

The details of each stage are given below:

1.1 STAKEHOLDER CONSULTATION AT CITY LEVEL

Stakeholder consultation was done in two phases in the identified case cities i.e Shimla, Bhopal and Jaipur. The details of each phase with respect to each city is given in the following section.

1.1.1 SHIMLA:

a. **Stakeholders consulted for the study:** IUT team visited Shimla city on 1st and 2nd September, 2016, for data collection and also had discussions with officials from Shimla Municipal Corporation, Road Transport Department, Traffic Police and Himachal Road Transport Corporation details of which are given below:

Table I: Stakeholders consulted in Shimla

Sl. No.	Department/ Authority	Officer Met	Data Collected
1.	Shimla Municipal Corporation	Shri Pankaj Jain Municipal Commissioner, Shri Neeraj, Accounts head Shri Amar, Parking Er. Sudhir Gupta, Executive Eng. (R&B)	Land tax levied, MC revenue, Parking details

Sl. No.	Department/ Authority	Officer Met	Data Collected
2.	Road Transport Department	Shri R C Sharma Superintendent Transport Shri Sunil Chowdary	Vehicle taxes and fees
3.	Traffic Police	Shri. R S Negi D S P (Traffic), Shri Raghuveer, Writer	Accident Data, Fines and Challans, Issues in the city
4.	Himachal Road Transport Corporation	Shri Pankaj Mahajan, ISBT Tutikandi, HRTC Shri Rajesh Chowdary	Public Transport Details

b. **Stakeholder workshop** at Shimla was held on 23th March 2017, at Hotel Holiday Home. In all, 34 representatives from various authorities/departments responsible for urban transport were present in the workshop namely, Municipal Corporation Shimla, Himachal Pradesh PWD, Transport Department, Himachal Pradesh Police, Town and Country Planning Office (TCPO), Urban Development Department Shimla (UDD), Himachal Road Transport Corporation (HRTC).

The workshop was chaired by the Additional Chief Secretary Ms. Manisha Nanda and Municipal Commissioner Mr. Pankaj Rai. The officials from Institute of Urban Transport (India) made a presentation on the concept of road pricing and the issues prevalent in Shimla pertaining to traffic. The presentation was focused on Road Pricing strategies with the following recommendations:

- Parking Demand Management around various important intersections in Shimla such as Sanjauli Chowk, Dhalli, Tara Devi, Soghi, etc.
- Corridor Pricing along old bus stand – cart road during Peak hours to reduce congestion.
- Green cess for tourists entering the city.
- Land value taxation for land utilized for parking by the residents.

Figure I: Stakeholder consultation at Shimla

Figure II: Additional Chief Secretary, HP at workshop

The above proposals were discussed in terms of their applicability and enforcement issues in the city which might be faced by the stakeholders.

- Though Shimla is already developing parking lots around high attraction zones, the roads are still choked because of free and uncontrolled on-street parking. As a solution small parking with steel structures would be more economical and space saving was also suggested by the stakeholders.
- Pan city parking charge with variable pricing proposal was welcomed by the stakeholders for decongesting the city traffic and optimum utilisation of the road capacity.
- Incentives and discounts can be given to the local residents and people abiding by the regulation.

In her closing remarks the chair stressed on effective utilization of the money spent on transport development and adaptation of innovative technologies for improved acceptability. In order to implement the proposed strategies it was decided that the required primary data need to be collected and at same time people to be sensitised. There has to be transparency in implementing the strategies so as to be acceptable to the road users.

1.1.2 BHOPAL:

a) **Stakeholders consulted for the study:** IUT team visited Bhopal city on 1st and 2nd September, 2016, and held discussions with officials from Bhopal City Link Ltd. / Bhopal Municipal Corporation, Regional Transport Office and Traffic Police. They were consulted as per the details given in table II.

Table II: Stakeholders consultated in Bhopal

Sl. No.	Department/ Authority	Officer Met	Documents received
1.	Bhopal City Link Ltd. / Bhopal Municipal Corporation	Shri. Chandramouli Shukla, Mananging Director, BCLL / Addl. Commissioner, Municipal Corporation Shri. Manish Chaube, Manager (Engg.), BCLL/BMC	Land Taxes, Municipal Corporation Budget, Public Transport by BCLL
2.	Regional Transport Office, Bhopal	Shri. Sunil Rai Saxena, Dy. T.C. (Bhopal Division) Rajesh Sharma, Computer Expert	Vehicle registration data, taxes and fees, Issues in the city
3.	Traffic Police, Bhopal	Shri. Sameer Yadav, Addl. SP Traffic Sonvir, Traffic Police	Data on road accident, Fines and Challans

b) **Stakeholder workshop** was held in Bhopal on 07th March, 2017, at Courtyard Marriott, Bhopal. In all, 22 representatives from transport authorities/ departments such as Bhopal City Link Ltd (BCLL), Directorate of Urban Administration & Development Department (UADD), Madhya Pradesh Metro Rail Co Limited (MPMRCL) and Police participated in the workshop.

Presentation on the study was made which highlighted the concept of Road Pricing, the need of road pricing approach in addressing the congestion problems in integration with other traffic management policies and strategies.

Figure III: Dignitaries present for the Stakeholder workshop, Bhopal

Figure IV: Introductory remarks by the Additional Commissioner at Bhopal

The participants agreed to the importance of the concept of road pricing but for its implementation in the selected city like Bhopal, it should be based on detailed physical survey. To start with, some pilot project may be taken up to assess the success of the scheme for wider replication. Some of the possible areas like old city, MP Nagar and New Market area were indicated where road pricing could be possible after detailed survey.

After deliberations the following points emerged:

- Implementation of road pricing scheme cannot be taken in isolation and it has to be taken up along with improvement in PT, NMT, PBS etc.
- Before implementation, acceptability of the concept by the public is very important and all stakeholders should be taken on board.
- Positive and negative impacts of road pricing need to be studied in detail along with socio-economic implications before introducing road pricing scheme in any of the identified area of the city.
- For making the scheme successful the technical aspects in terms of RFID, smart card and other options will have to be developed for successful operations of the scheme.

Mr. Mohit Bundas, Additional Commissioner, UADD and Mr. Kamal Nagar, OSD (T), UADD agreed on Road pricing, as an efficient measure for address the issue of congestion and other transport problem. But, it has to be taken up initially on a pilot

Figure V: Closing remarks by OSD (T), UADD, Madhya Pradesh

mode in an area where it is really required for creating public awareness and acceptability of users as it is not yet popular in India.

1.1.3 JAIPUR:

a) **Stakeholders consulted for the study:** IUT team visited the Jaipur city on 21st and 23rd September, 2016, and held discussions with officials from Jaipur Municipal Corporation, Road Transport Department, Traffic Police, Jaipur Development Authority and Jaipur City transport Services Limited. They were consulted as per the details given in table III.

Table III: Stakeholders consulted in Jaipur

Sl. No.	Department/ Authority	Officer Met	Documents received
1	Jaipur Municipal corporation	Shri. Rakesh Sharma, Addl Commissioner, Municipal Corporation Shri. Satish Sharma, ACTP, Municipal Corporation	Land tax levied, MC revenue, Parking details
2	Road Transport Department	Shri. Om Prakash Maru, Addl RTO Shri. Haider Ali Zaidi, DCP Traffic, Jaipur	Vehicle taxes and fees
3	Traffic Police	Shri. Ishwar, Police Constable, Traffic Police	Accident Data, Fines and Challans Issued in the city, Traffic Regulation
4	Jaipur Development Authority	Shri. Vivek Sharma, Executive Engineer, JDA Shri. Pankaj, Urban Planner Shri. N. K. Singal, S.E., JDA	Master Plan, Road Network Data,
5	Jaipur City transport Services Limited	Ram Kumar Bairwa, Chief Financial Officer, JCTSL	Public Transport Details

b) **Stakeholder workshop** was held in Jaipur on 10th February, 2017, at Lemon Tree Hotel, Jaipur. Twenty one representatives from various authorities/departments like Rajasthan State Road Transport Corporation (RSRTC), Jaipur Metro Rail Corporation (JMRC), Jaipur Development Authority (JDA), Jaipur City Transport Services Limited (JCTSL), Jaipur Traffic Police Department and Rajasthan Urban Drinking Water Sewerage and Infrastructure Corporation Limited (RUDISCO) attended the workshop.

Figure VI: Stakeholder workshop at Jaipur

The presentation focused on Road Pricing concepts with the following recommendations and proposals for the city:

- Pricing the stretch from railway station to Chandpole, the major production and attraction centre which is facilitated with good Public Transport connectivity including bus system and Metro.
- Cordon pricing for the walled city to reduce congestion with provision of Park and Ride facility which would help promote more tourism activities in the area.
- Value pricing for on street parking along the major road networks to ease the traffic and motivate passengers to use Public Transport facility.

After discussion on Presentation the following points emerged:

- Public acceptability - will the people of Jaipur be ready to pay for pricing in addition to the taxes already being paid? As the people of Jaipur are paying a special Green cess which is also a new pricing scheme and the peak hour variable pricing in metro, public acceptability may not be of major concern for implementing other pricing for reducing congestion.
- Which Technology to be used for implementing road pricing? This question was discussed in detail indicating the technologies used in various cities across the world. Though manual tolling is also a mechanism for pricing it might create further congestion as people will have to stop for the payment. Therefore, other methods like GPS, number plate recognition, smart card etc have to be worked out for Jaipur.
- Need to improve Public Transport facility before the introduction of Road Pricing. However the stretch selected can be implemented as a pilot project as it has good PT facility.

Figure VII: Promotion of study in print media at Jaipur.

- Though Jaipur has a quite efficient metro system the problem of last mile connectivity makes it inconvenient for the users. All metro stations in Jaipur have parking lots but the occupancy rate of the parking lots is only 20% as parking in almost all the roads are free. Therefore, high pricing of on road parking is required to reduce congestion.

1.2 NATIONAL LEVEL WORKSHOP

A National level workshop was held on 10th November, 2016, at Urban Mobility India Conference cum Exhibition, 2016, (8th – 11th November, 2016) at Gandhinagar, Gujarat. Around 30 participants attended the round table discussion which was chaired by Shri Mohider Singh, Advisor, Land Transport Authority (LTA) Singapore. The lead discussant was Shri. Jitender Bajpai, Adjunct Faculty, Columbia University. The session was moderated


Figure VIII: National level Stakeholder workshop at UMI 2016, Gadhinagar, Gujarat

by Ms. Sonia Arora, Urban Transport Expert, Institute of Urban Transport (India). A presentation was made by Ms. Baveena KV, Urban Transport Planner, Institute of Urban Transport (India) followed by discussion.

Discussion highlighted the concept of road pricing, strategies, international best practices, why is it needed in India and how can we implement it? The chairperson and the lead discussant shared their expertise on the topic along with other participants. The outcomes of the discussion are as follows:

- Central government may formulate model policy / guidelines for the states for providing statutory backing to road pricing.
- State government to provide a framework to the cities for implantation of road pricing.
- City authorities should take up detailed studies of the cities to identify the road stretches / areas for implantation of road pricing as short, medium and long term strategies.
- Road pricing strategies should be integrated with other schemes and be reviewed with the changing transport scenario.
- NMT facilities and infrastructure should be developed to promote modal shift.
- Political and administrative support and people's cooperation are the pre-requisites for the success of such schemes.
- Revenue generated through road pricing to be invested in urban transport.
- Public transport agencies / operators are required to provide services to enable access to areas affected by the road pricing scheme.

Figure IX: Open Forum discssion at UMI 2016

ANNEXURE 2: SECONDARY DATA COLLECTED FOR SHIMLA

The data collected regarding various taxes, fines and penalties for a vehicle user in Shimla are as given below:

2.1 TRAFFIC OFFENCES AND PENALTIES:

Traffic police penalize for various offences under the Motor Vehicle Act, 1988. Fines are different for a first time offence and its subsequent one. These fines vary from Rs.100 to Rs. 5000 for offences. The offences and penalties are as below:

Table IV: Offences and Penalties issued by Shimla Traffic Police

Sr No.	Section	Offence	Procedure	Maximum Punishment (Fine/Imprisonment)
1	177	Contravention of Provisions, Rules, Regulations and Notifications.	If no penalty is provided.	Rs. 100 for first offence Rs. 300/- for second or subsequent offence
2	178	Traveling without ticket or pass.	i. For failure or refusal to present or deliver up the pass.	Rs. 500
			ii. For default of conductor or driver performing conductor's duty.	Rs. 500
			iii. If the permit-holder or driver refuses to ply or carry passengers.	Rs. 50
			a. In case of two-wheeled vehicle or three wheeled vehicles.	
			b. In any other case	Rs. 200
3	179	Willful disobedience of orders, directions and obstruction or refusal of information to authority.	If no other penalty is provided.	1 month or Rs. 500 or both
4	180	Causing or permitting any other person to drive.	If the person does not satisfy provisions of Section 3 and 4.	3 months or Rs. 1000/- or both
5	181	Contravening the provisions of driving license.	For not satisfying provisions of Section 3 and 4.	3 months or Rs. 500/- or both
6	182	i. Driving after disqualification under the Act or applying or obtaining license without disclosing the fact.		3 months or Rs. 500/- or both and revocation of license
		ii. Disqualified conductor acting as conductor or applies or obtains the license.	ii. Deceitfully acting as conductor etc.	1 months or Rs. 100/- or both and revocation of license

Sr No.	Section	Offence	Procedure	Maximum Punishment (Fine/Imprisonment)
7	182 A	Contravening the provisions of construction and the maintenance of vehicle.	Violating the provisions of section 109.	Rs. 1000 for first offence
				Rs. 5000/- for subsequent offence
8	183	i. Driving contravening the speed limit.	i. Violating the provisions of Section 112.	Rs. 400 for first offence
				Rs. 1000/- for subsequent offence
		ii. Causing another person to drive.	ii. Violating the provisions of Section 112.	Rs. 300 for first offence
				Rs. 500/- for subsequent offence
			iii. For evidence of speed by witness.	No punishment on the evidence of one witness subject to estimation of speed by mechanical device.
			iv. For not completing journey within specified time without contravening to speed limit.	Publisher of time-table and person giving direction for journey punishable.
9	184	Driving at dangerous speed.	Driving in the manner dangerous to public including nature, condition and place etc.	6 months or Rs. 1000 or both for first offence, 2 years or Rs. 2000/- or both if the second or subsequent offence is committed within 3 years.
10	185	Driving or attempting to drive by drinking or under the influence of drugs.	If the blood contains alcohol.	6 months or Rs. 2000 or both for first offence, 2 years or Rs. 3000/- or both if the second or subsequent offence is committed within 3 years.
11	186	Driving while suffering from disease or any disability.	If such driving is a source of danger to the public.	Rs. 200 for first offence Rs. 500/- for subsequent offence.
12	187	Contravention of provisions of sections 132 or 133 or section 134.	For offences relating to accident.	5 months or Rs. 500 or both, 6 months or Rs. 1000/- or with both along with above punishment.
13	188	Abetting the offence under section 184 or 185 or Section 186.	For abetment of offence.	Imprisonment as provided in section 184 to 186.
14	189	Racing or trial of speed in public place.	Without written consent of State Government, permitting or taking part in racing or trial speed.	1 month or Rs. 500 or with both.

Sr No.	Section	Offence	Procedure	Maximum Punishment (Fine/Imprisonment)
15	190	i. Driving or causing or allowing driving the defective vehicle knowingly about the defect of vehicle.	i. If driving knowingly or having reasonable ground for discovering the defect of vehicle.	Rs 250 if accident causes bodily injury or damage to property 3 months or Rs. 1000 or with both.
		ii. While driving etc., violating the standards prescribed in relation to road safety, control of noise or air pollution.	ii. Violating safety, noise and air pollution standards, etc.	Rs. 1000 for first offence
				Rs. 2000/- for second or subsequent offence
		iii. While driving etc. by violating the provisions of the Act and Rules relating to dangerous or hazardous carriages of goods.	iii. Carrying dangerous or hazardous goods.	Rs. 3000 for first offence
				Rs. 5000/- or 3 years or both for second or subsequent offence
16	191	Importer or dealer selling or offering to sale or deliver or altering the vehicle contravening the chapter VII or Rule.	i. Intentionally acts by contravening the provisions of Chapter VII or Rules thereunder.	Rs. 500/-
			ii. Acting with the absence of intention.	No punishment
17	192	i. Driving causing or allowing to be use of vehicle in contravening the provision of Section 39.	i. Driving or causing vehicle to be used.	Rs. 5000 for first offence
				Rs. 10000/- or 1 years or with both for subsequent offence
		ii. Using motor vehicle in emergency of sickness or injuries or for transport of food or materials to relieve distress or for medical supplies etc.	ii. For emergency sickness etc., use but subject to information should be done within seven days to RTA	No punishment
18	192 A	Driving, causing or allowing to be use in contravention of section of section 66 or contravention of route permit.	For contravening to the provision of section 66 and route permit.	Rs. 5000 for first offence
				Rs. 10000/- or 1 years or with both for subsequent offence
		If the vehicle is used for emergency of sickness or injury or for transport of food etc. or for both purpose.	The user has to report within 7 days to the RTA.	No punishment
19	193	Engaging as agent or canvasser.	For contravening the provisions of Section 93.	Rs. 1000 for first offence
				Rs. 2000/- or 6 months or with both for subsequent offence

Sr No.	Section	Offence	Procedure	Maximum Punishment (Fine/Imprisonment)
20	194	i. Driving, causing or allowing to drive exceeding permissible weight.	For contravening the provisions of section 113 or section 114.	Rs. 2000 and Rs. 1000 per tonne for excess load along with off-loading
		ii. Refusing to stop and submitting the vehicle to weighing.	Refusing the direction of authority.	Rs. 3000
21	195	Committing offence for second or subsequent time within 3 years of previous offence.	For repetition of offence.	More than ¼ of the prescribed fine
22	196	Driving, causing or allowing to drive in contravening the provisions of section 146.	Driving by contravening the provisions.	Rs. 1000 or 3 months
23	197	i. Taking or driving without the consent of owner.	Taking without authority.	Rs. 500 or 3 months or with both
		ii. Seizing or exercising the control of vehicle by unlawful force or threat of force or by any other form.	Seizing or exercising the control of vehicle.	Rs. 500 or 3 months or with both
		iii. Abetting or attempting to commit the offence.	For abetment.	Rs. 500 or 3 months or with both
24	198	Illegally entering, moving or tempering with brake or mechanism of vehicle.	For tampering with brake, etc.	Rs. 100
25	201	Keeping disabled vehicle for causing impediment to traffic.	Obstruction to traffic.	Rs. 50 per hour.

2.2 COMPOSITE FEE:

Tourist vehicles which ply in the city need to obtain permits from the authority. The permits are issued on monthly and quarterly basis, the fees ranges from Rs 600 per quarter for Six seats to Rs 10000 per month for more than 12 seated capacity vehicles. The driver is not counted in the number of seat calculation for deciding the fees.

Table V: Fees levied on passenger vehicles in Shimla

Seating Capacity	Fee Levied
Having seating capacity to carry more than twelve passengers excluding driver	Rs. 10,000/- per month (30 days) for three trips and Rs. 4,000/- for any additional trip within the same month.
Having seating capacity to carry more than six passengers but not more than twelve passengers excluding driver	Rs. 6,000 per quarter or Rs. 2,200 per month (30 days)
Having seating capacity to carry not more than six passengers excluding driver	Rs. 600/- per quarter

2.3 DRIVING LICENSE FEES:

The authority issues learner license, permanent license, international license and other types of licenses and earns revenue for issuing the same. The authority collects fees for issuance of the license varying from Rs 30 to Rs 500, driving license smart card is issued for a fees of Rs 200. Revenue is also generated by renewal of licenses and the fees ranges from Rs 200 to Rs 250, with a penalty of Rs 50 Per year for any delay. The department also offers a license of Rs 2500 to institutes for imparting driving training.

Table VI: Fees levied for obtaining license and other permits in Shimla

Sr No.	Purpose	Amount (in Rs.)
1.	In respect of issue of Learner's Licence	Rs 30/-
2.	In respect of issue of a driving licence in Form-6	Rs 40/-
3.	In respect of issue of international driving permit in Form-6A	Rs 500/-
4.	In respect of issue of a driving licence in Form-7	[Rs 200/-] including the cost of computerized chip
5.	For test of competence to drive	Rs 50/-
6.	In respect of addition of another class of vehicle in Form-6	Rs 30/-
7.	In respect of renewal of driving licence in Form-6	[Rs 50/-]
8.	In respect of renewal of driving licence in Form-6 to drive a motor vehicle for which application is made after the grace period	Rs 100/-and an additional fee at the rate of Rs 50/-for a period of delay of one year or part thereof reckoned from the date of expiry of the grace period
9.	In respect of addition of another class of motor vehicle to the driving licence in Form-7	Rs 200/-including the cost of computerized chip
10.	In respect of renewal of driving licence in Form-7	Rs 250/-including the cost of smart card
11.	In respect of renewal of driving licence in Form-7 to drive a motor vehicle for which application is made after the grace period	Rs 200/-including the cost of computerized chip and additional fee at the rate of Rs 50/-for a period of delay of one year or part thereof reckoned from the date of expiry of the grace period
12.	In respect of issue and renewal of licence to a school or establishment for imparting instructions in driving	Rs 2500/-
13.	In respect of issue of duplicate licence to the school or establishment for imparting instructions in driving	Rs 2500/-

2.4 DRIVING TRAINING SCHOOL FEE

Training period and fee to be charged by Driving Training School: The authority has licensed several institutes to impart driver training and the department charges fees per license given to the institutions. The institutions further deliver training to the user as per the fees given in below table for the attainment of the license. The fee ranges from Rs 1200- to Rs 3500 respectively for different categories of vehicle.

Table VII: Fees for driver training in Shimla

Sr. No	Category of vehicle	Training period	Prescribed fee
1.	LMV (Non Transport)	21 days (10 hrs)	Rs. 1,200/-
2.	LTV	60 days (25hrs)	Rs. 3,500/-
3.	HTV	60 days (25hrs)	Rs. 5,000/-
4.	HGV to HTV	20 days (10 hrs)	Rs. 1,500/-
5.	LTV to HTV	30 days (15 hrs)	Rs. 2,500/-
6.	Auto Rickshaws	60 days (20 hrs)	Rs. 1,500/-

2.5 PERMIT FEES:

The authority issues several permits daily, weekly, monthly and yearly to different categories of vehicle which allows them to ply within the city for the number of days for which the permit is issued. There is application fees for the permit which is mentioned in the below table. The fees are for permits and countersignatures. It ranges from Rs 10 – Rs 300 for various vehicles and type of duration.

Table VIII: Processing fees for obtaining permits from RTO in Shimla

Sr. No.	Particulars (Rule 67)	Temporary	Regular
1.	(i) Light (Goods) motor vehicles	Rs 10/-	Rs 20/-
2.	(ii) Medium/heavy (Goods) motor vehicles	Rs 25/-	Rs 50/-
3.	iii) Contract Carriage cabs/autorickshaws	Rs 10/-	Rs 20/-
4.	iv) Contract Carriage maxi-cabs	Rs 15/-	Rs 30/-
5.	v) Contract Carriage buses	Rs 25/-	Rs 50/-
6.	vi) Jeeps stage carriage (seating capacity upto passenger excluding driver) for each region	Rs 10/-	Rs 20/-
Sr. No.	Particulars (Rule 67)	Temporary	Regular
7.	Other stage carriage and private service vehicles for each region	Rs 25/-	Rs 100/-
8.	Special permit fee under Section 88(8) of the Act.	Rs 10/-	Rs 10/-

Fees for permits and countersignatures			
Sr.No.	**Category of vehicles**	**Rates**	
		1st year (in Rs.)	Subsequent year (in Rs.)
1.	Goods Carriages i). Light Goods Vehicle	200.00	125.00
	ii). Medium/Heavy Goods vehicles	300.00	250.00
2.	Contract Carriage		
	i). Taxi Cabs/ Autorickshaws}	200.00	125.00
	ii). Maxi Cabs	250.00	150.00
	iii). Contract Carriage buses	300.00	250.00
3.	Stage Carriage		
	i) Jeep Stage Carriages	200.00	125.00
	ii). Mini/ Big Buses	300.00	250.00
4.	Private Service Vehicles	300.00	250.00

If the owner of the motor vehicles specified fails to get the permit renewed or countersigned by the due date, he shall be liable to pay the following late fee in addition to the fee payable:-

FOR LIGHT MOTOR VEHICLES

(1) Delay upto 15 days Rs 10/-per day.

(2) Delay from 16th days to 30 days Rs 15/- per day.

(3) Delay from 31st day onward Rs 20/- per day.

FOR HEAVY MOTOR VEHICLES

(1) Delay upto 15 days Rs 15/- per day.

(2) Delay from 16th days to 30 days Rs 20/- per day.

(3) Delay from 31st day onward Rs 25/- per day.

Provided that the late fee so charged shall not exceed double the amount of renewal fees/countersignature fee due from such owner.

2.6 REGISTRATION FEES:

The authority charges registration fees from all the new registered vehicles. The registration fees applicable for different categories of vehicles are mentioned below. The fees is charged for different works performed by the RTO like change in address, transfer is ownership and others tasks. The fess may be as low as Rs 30 for change of address of registered vehicle and can be as high as Rs 800 for imported vehicles. The table below shows all the applicable fees:

Table IX: Vehicle Registration processing fees by RTO in Shimla

Sr No.	Particulars	Fees (in Rs.)
1	Light Motor Vehicles Non-Transport (Personal Vehicles)	200
2	Light Commercial Vehicles (Taxi/ Maxi Cabs) (Contract Carriages)	300
3	Auto rickshaw	300
4	Commercial Vehicles (Pickup etc)	300
5	Medium Goods Vehicles	400
6	Medium Passenger Motor Vehicles	400
7	Heavy Goods Vehicles	600
8	Contract Carriage/ Stage Carriage Buses	600
9	Imported Motorcycle	300
10	Imported Motor Vehicles	800
11	Issue of Duplicate Certificate of Registration	Half of the fee mentioned against each class
12	Transfer of Ownership	Half of the fee mentioned against each class
13	Change of Residence	30
14	Record Alteration in the Certificate of Registration	50
15	Endorsing Hire-Purchase/ lease/ hypothecation agreement	100
16	Cancellation of Hire-Purchase/ lease/ hypothecation agreement or issue of fresh certificate of registration.	100
17	Conducting test of a vehicle for grant and renewal of certificate of fitness :	
	(i) Two/Three-wheeled vehicle	100
	(ii) Light Motor Vehicle	200
	(iii) Medium Motor Vehicle	300
	(iv) Heavy Motor Vehicle	400
18	Grant of renewal of certificate of fitness for Motor Vehicle	10

2.7 SPECIAL REGISTRATION FEE:

Desire for the VIP number or selective number as the vehicle registration number for the new purchased vehicle is also a revenue generating mechanism for the authority. The Serial No 0001 is reserved for the government agency and is allotted to them on payment of Rs 1 lakh as the registration fees. Other special numbers is allotted on first cum first basis by charging fees from the buyer. The fees for several numbers is mentioned in the below table.

Table X: Special number registration fees in Shimla

S. No.	Special Registration Mark	Special Registration Fee
1.	0001 to 0010 (reserved)	Rs. 1,00,000 (One Lac)
2.	0011 to 0100	Rs. 1,00,000 (One Lac)
3.	Fancy numbers between 0101 to 0999 i.e 0101, 0111, 0200, 0201, 0222, 0251, 0300, 0303,0333, 0400, 0444, 0500, 0501, 0505, 0555, 0600, 0666, 0700, 0777, 0786, 0800, 0888, 0900, 0999	Rs. 25,000 (Twenty Five Thousand)
4.	Fancy numbers between 1000 to 9999 i.e 1000, 1001, 1111, 2000, 2001, 2222, 3000, 3333, 4000, 4444, 5000, 5001, 5555, 6000, 6666, 7000, 7777, 8000, 8888, 9000, 9999	Rs. 5,000 (Five Thousand)

ANNEXURE 3: SECONDARY DATA COLLECTED FOR BHOPAL

The data collected regarding various taxes, fines and penalties for a vehicle user in Bhopal are as given below:

3.1 TRAFFIC OFFENCES AND PENALTIES:

The traffic police in the city are entitled for enforcing traffic violations and the penalties charged over various offences are given in the table below:

Table XI: Bhopal Offences and Penalties by Traffic Police

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
1	Driving without holding an effective driving license.	S.3r/w.S181 of M.V. Act.	3 months or Rs. 500 or both.
2	Driving by an under-aged person (Minor driving vehicle).	S.4r/w.S.181 of M. V. Act.	3 months or Rs. 1000 or both.
3	Owner or person in-charge of a vehicle permitting an unlicensed person or an under-aged person to drive it (Parents/ guardians/friends permitting minor to drive vehicle).	S.5r/w.S.180 of M. V. Act.	3 months or Rs. 1000 or both.
4	Holder of a driving license permitting it to be used by other person.	S.6(2)r/w.S 177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
5	(i) Disqualified person driving a vehicle or (ii) applying for or obtaining a driving license or (iii) seeking a license without disclosing endorsements made on driving license previously held.	S.23r/w.S.182(1) of M. V. Act.	3 months or Rs. 500.
6	(i) Disqualified conductor acting as conductor or (ii) applying for or obtaining a conductor's license or (iii) seeking a license without disclosing endorsements made on license previously held.	S.36r/w.S. 182 of M. V. Act.	One month or Rs. 100 or both.
7	(i) Disqualified conductor acting as conductor or (ii) applying for or obtaining a conductor's license or (iii) seeking a license without disclosing endorsements made on license previously held	S.36r/w.S. 182 of M. V. Act.	One month or Rs. 100 or both

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
8	Running driving school without a license.	R.24 of C.M.V. Rules r/w	Rs. 100 for first offence.
		S.177 of M.V. Act.	Rs. 300 for second or subsequent offence.
9	Driving a vehicle at an excessive speed.	S.112r/w S.183(1) of M.V. Act.	Rs. 400 for first offence
			Rs. 1,000 for second or subsequent offence.
10	Any person permitting his employee or a person subject to his control to drive a vehicle at an excessive speed.	S. 112 r/w S.183 (2) of M. V. Act.	Rs. 300 for first offence.
			Rs. 500 for second or subsequent offence.
11	Driving or permitting to drive a vehicle carrying excess load.	Ss.113(3),114,115 r/w S.194(1) of M. V. Act.	Minimum Rs. 2,000 and additional Rs. 1,000 per ton of excess load together with charges for off-loading the excess load.
12	Driving refusing to stop and submit his vehicle to weighing or removing the load prior to weighing.	S.114 r/w S.194 (2) of M. V. Act.	Rs. 3,000.
13	Any person driving or permitting to drive any vehicle with a left-hand steering control unless equipped with a device of a prescribed nature.	S.120 r/w S.177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
14	Driving dangerously / its abetment.	S.184/S.188 of M. V. Act.	6 months or Rs.1,000 for first offence or both. 2 years or Rs.2,000 for second or subsequent offence within 3 years of previous commission or both.
15	Driving by a drunken person or by a person under influence of drugs/its abetment.	S.185/S.188 of M. V. Act.	6 months or Rs. 2,000 for first offence or both. 2 Years or Rs. 3000 for second or subsequent offence committed within 3 year of previous commission or both.
16	Driving when mentally or physically unfit to drive/its abetment.	S.146 r/w. S. 196 of M. V. Act.	3 months or Rs. 1,000 or both.
17	Driver's failure to obey traffic signs (Red light jumping, violation of yellow line, changing lane without indication, etc.).	S.119 r/w S.177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
18	Driver's failure to make prescribed signals on prescribed occasions.	S.121 r/w. S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
19	Violation of restriction of time on HTVs on specified roads/areas.	S.115 r/w S. 194 of M. V. Act.	Rs. 2,000.
20	Driver allowing any person to obstruct his control of the vehicle (Sitting at a place so as to hamper driving etc.).	S.125 r/w S.177 of M. v. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
21	Driver of a two-wheeler/motor cycle carrying more than one person in addition to himself(Triple riding).	S.128 (1) r/w S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
22	Driver and pillion rider failing to wear protective head gear (Helmet).	S.129 r/w S. 177 of M. V. Act	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
23	Any person in-charge of a vehicle or a trailer abandoning or permitting to abandon, etc. in a public place (Improper and obstructive parking).	S.122, 127 r/w S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence (owner shall also be liable for towing costs).
24	Any person in-charge of a vehicle carrying or permitting to carry any person on the running board etc.	S.123(1) r/w S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
25	Any person in charge of a vehicle keeping or permitting to keep a vehicle stationery without the required precautions.	S.126 r/w S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
26	Failure to take precautions at unguarded Railway level crossings.	S.131 r/w S. 177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
27	Failure of driver to stop in certain cases.	S.132 r/w S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.
28	Using mobile phone while driving a vehicle.	Using mobile phone while driving a vehicle R.21(25) of C.M.V. rules r/w S.177 of M. V. Act.	Rs. 100 for first offence. Rs. 300 for second or subsequent offence.

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
29	Carrying persons in excess of seating capacity in goods carriage.	R.21(10) of C.M.V. Rules r/w S.177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
30	Demanding excess fare by Autorickshaw / Taxi.	R.21(23) of C. M. V. Rules r/w S. 177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
31	Driving motor vehicle without number plates (Not displaying number plate).	R.50 of C.M.V. Rules r/w S.39/192 M. V. Act.	Upto Rs. 5,000 for first offence but not less than Rs. 2,000.
			One year or upto Rs. 10,000 for second or subsequent offence but not less than Rs. 5,000 or both.
32	Carrying of explosive and highly inflammable substance in transport vehicle.	S. 177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
33	Any person travelling on the running board or on the top or on the bonnet of a motor vehicle.	S.123(2) r/w S.177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
34	Any person keeping a disabled vehicle in any public place so as to cause impediment to the free flow of traffic.	S. 201 of M.V. Act.	Rs. 50 per hour besides towing charges.
35	Failure to intimate changes of residence or place of business by owner of a vehicle within time prescribed.	S.49 r/w S.177 of M.V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence (However, State Government may prescribe different amounts having regard to period of delay).
36	Failure to report to Registering Authority fact of transfer of vehicle within time prescribed.	S.50 r/w S.177 of M. V. Act.	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence (However, State Government may prescribe different amounts having regard to period of delay).
37	Un-authorised alteration in vehicle (Including those facilitating its operation by a different type of fuel).	S.52 r/w S.177 of M. V. Act	Rs.100 for first offence.
			Rs.300 for second or subsequent offence (However, State Government may prescribe different amounts having regard to period of delay).

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
38.	Driver, in a public place, failing to produce his license, on demand, to any police officer in uniform.	S.130(1) r/w S.177 of M. V. Act	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
39.	Conductor, in any public place, failing to produce his license, on demand, by any officer of the Motor Vehicles Department.	S.130(2) r/w S.177 of M. V. Act	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
40.	Owner or driver or person in-charge of a motor vehicle, on demand by a registering authority, or any other officer of the Motor Vehicles Department failing to produce (i) the certificate of insurance of the vehicle, and where the vehicle is a transport vehicle (ii) certificate of fitness, and (iii) permit.	S.130(3) r/w S.177 of M. V. Act	Rs. 100 for first offence
			Rs. 300 for second or subsequent offence.
41.	Any person driving a motor vehicle in any public place, on demand by a police officer in uniform or officers of Motor Vehicles Department, failing to produce:	S.158 r/w S.177 of M. V. Act	Rs. 100 for first offence.
	(a) (a) The certificate of insurance.		Rs. 300 for second or subsequent offence.
	(b) (b) The certificate of registration.		
	(c) (c) The driving license & in case of a transport vehicle.		
	(d) (d) Certificate of fitness and		
	(e) (e) The permit.		
42	When the driver or conductor of a motor vehicle is accused of any offence under the M. V. Act. The owner of such vehicle failing, on demand, by a police officer authorised to give information regarding the name and address of and the license held by the driver or conductor.	S.133 r/w S.187 of M. V. Act	3 months or Rs.500 for the first offence or both.
			6 months or Rs. 1,000 for subsequent offence or both.

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
43	When any person is injured or any property of a third party is damaged in a motor vehicle accident, the driver or person in-charge of the vehicle.	S.134 r/w S.187 of M. V. Act	3 months or Rs. 500 for first offence or both.
	(a) (a) Not providing medical aid to the victim of the accident.		6 months or Rs.1, 000 for subsequent offence or both.
	(b) (b) Not giving information regarding the accident, etc. on demand by a police officer or at the nearest police station.		
	(c) (c) Not giving the information regarding accident to the insurer.		
44	Any person driving or owner permitting to drive vehicle without effective registration or displaying false registration marks in any public or in any other place (Using "unregistered vehicles" or displaying" "Applied for").	S.39(1) r/w S. 192(1) of M. V. Act	Upto Rs. 5,000 for first offence but not less than Rs. 2,000.
			One year or upto Rs. 10,000 for second or subsequent offence but not less than Rs. 5,000 or both.
45	Plying a vehicle with registration mark or other State for more than 12 months.	S.47 r/w S.177 of M. V. Act	Rs. 100 for first offence.
			Rs. 300 for second or subsequent offence.
46	Any person driving or permitting to drive a vehicle without the necessary permit for the route or area in which or for the purpose for which it is being used.	S. 66(1) r/w S.192-A of M. V. Act	Upto Rs. 5,000 for first offence but not less than Rs. 2,000.
			Upto one year but not being less than 3 months, upto Rs.10,000 for second or subsequent offence but not less than Rs. 5,000.
47	Any manufacturer using sub-standard articles or process.	S. 109(3) r/w S.182-A of M.V. Act	Rs. 1,000 for first offence.
			Rs. 5,000 for second or subsequent offence.
48	Any person driving or permitting to drive in any public place a defective motor vehicle or trailer, if such defect results in an accident causing bodily injury or damage to property.	S. 190 (1) of M. V. Act	3 months or Rs. 1,000 or both.

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
49	Any person driving or permitting to drive in any public place any motor vehicle which violates the standards prescribed in relation to road safety, control of noise and air pollution. (Using vehicle with defective or without silence, etc.).	S. 190(2) of M. V. Act	Rs. 1,000 for first offence.
			Rs. 2,000 for second or subsequent offence.
50	Any person driving or permitting to drive in any public place a motor vehicle which violates the provisions of M. V. Act or Rules relating to dangerous or hazardous goods.	S.190(3) of M. V. Act	One year of Rs. 3,000 for first offence or both.
			3 years or Rs. 5,000 for second or subsequent offence or both.
52	Any person travelling in a stage carriage without ticket or pass, or not producing ticket or pass on requisition.	S. 124 r/w S.178(1) of M. V. Act	Rs. 500.
53	Conductor of a stage carriage willfully or negligently failing to accept fare or issue ticket or supplies a ticket of a lesser value or Checking Inspector willfully or negligently failing or refusing to check pass or ticket.	S. 178(2) of M. V. Act	Rs. 500.
54	Permit holder or contract carriage refusing to ply or to carry passengers:	S.178(3) of M. V. Act	Rs. 50.
	(a) (a) in the case of two-wheelers or three-wheelers.		Rs. 200.
	(b) (b) in the case of others.		
55	Any person disobeying directions given by any person or authority empowered, or obstructing any person or authority in the discharge of his functions under the M. V. Act.	S. 179(1) of M. V. Act	Rs. 500.
56	Any passenger withholding the required information or giving false information.	S. 179(2) of M. V. Act	One month or Rs. 500 or both.
57	Racing and trials of speed.	S. 189 of M. V. Act	One month or Rs. 500 or both.

Sl. No.	Description of Offence	Section / Rule	Maximum of punishment Term of Imprisonment/Fine
58	Any person engaging himself as an agent or canvasser in contravention of S. 93 or Rules made thereunder.	S. 93r / wS.193 of M.V. Act.	Rs. 1,000 for first offence 6 months or Rs. 2000 for second or subsequent offence or both.
59	Taking vehicle without authority.	S. 197 of M. V. Act	3 months or Rs. 500 or both.
60	Unauthorized interference with vehicle.	S.198 of M.V. Act	Rs. 100.

The transport department levy all vehicle related fees and taxes i.e., all types of license fees, registration fees, permit fee etc. for various Class of Vehicle.

3.2 LICENSE FEE

License fee varies from Rs.50/- for Learners licence to Rs. 500/- for International Driving Permit.

Table XII: License fee for Bhopal

Nature of Job	Class of Vehicle	Fee (Rs.)
Learner's License	All Vehicles	40 (Single Class)
Renewal of License	All Vehicles	250
Duplicate License	All Vehicles	250
Class Endorsement	All Vehicles	300
International Driving Permit	All Vehicles	500
Authorization for PSV	Public Service Vehicle	100
Duplicate Authorization	Public Service Vehicle	100
Conductor License & Badge	Stage Carriers	125
Renewal of Conductor License	Stage Carriers	125
Duplicate Badge Conductor License	Stage Carriers	100
Duplicate of Conductor License	Stage Carriers	100

3.3 REGISTRATION FEE

The registration fees for new vehicle are levied by transport department with varying charges for New Registration, renewal of RC, modification of vehicle, transfer of ownership etc. The fees differs from Rs. 50/- to Rs. 1000/- for alterations on vehicle and Imported Motor Vehicle.

Table XIII: Registration fee for Bhopal

Nature of Job	Class of Vehicle	Fee (Rs.)
Registration of New RC	Invalid Carriage	220
	Motor Cycle	260
	Imported Motor Cycle	400
	Light Motor Vehicle	400
	L.M.V. Transport	500
	MGV & PSV	600
	Heavy Goods Vehicle	800
	Imported Motor Vehicle	1000
	All Other Vehicle Not Mentioned	500
Duplicate RC	All	50% of RC Fee+200
Renewal of RC	All	As per New RC
Assignment of New RC	All	As per New RC
Transfer of Ownership	Invalid Carriage	210
	Motor Cycle	230
	Imported Motor Cycle	300
	Light Motor Vehicle	300
	L.M.V. Transport	300
	MGV & PSV	400
	Heavy Goods Vehicle	500
	Imported Motor Vehicle	600
	All other vehicle not mentioned	350
Endorsement of HPA	All	100
Termination of HPA	All	100
NOC	All	50
Renewal of Fitness	LMV - Transport	300
	MGV	400
	HGV	500
	2 & 3 Wheelers	200
Duplicate Fitness	All	100
Alteration in Vehicle	All	50

3.4 PERMIT FEE

Permits for tourist vehicles, goods vehicles, contract carriages etc. are also levied by Transport Department and the permit fees varies from Rs. 100/- to Rs. 1500/-. Other fees such as Trade certificate fees, Duplicate tax certificate etc. are also levied by transport department.

Table XIV: Permit fees in Bhopal

Nature of Job	Class of Vehicle	Fee (Rs.)
Contract Carriage Permit	Metered Motor Cab	100
	Non Metered Cab	150
	Maxi Cab	150
Goods Carriage Permit	All	1500
PSV	All	1500
Temp Permit (Goods)	All	750
Special Permit (PSV)	All	300
Tourist Permit	All	300
National Permit (Goods)	All	1500
Transfer of Permit	All	1500
Others		
Nature of Job	**CLASS of VEHICLE**	**FEE (Rs.)**
Duplicate Tax Certificate	All	50
Trade Certificate	Motor Cycle	50
	Invalid Carriage	50
	Others	200
Duplicate Trade Certificate	Motor Cycle	30
	Invalid Carriage	30
	Others	100
Authorized Person to fill above		1000
Renewal & Duplicate		500 each

3.5 VEHICLE TAXES

There are various tax slabs fixed for different categories by the Transport Department one time, annually, monthly and quarterly. For an invalid carriage it is Rs. 360 for each vehicle and for new vehicles over the tax paid, there is an annual tax to be paid too on the class of vehicle according to capacity. The taxation for other state vehicles are different, the tax differs from 7 % to 10 % on the categories specified. There is deduction in tax for vehicles carrying load less than 800 kg and upto more than 3200 kg of Rs. 64 and Rs. 150 quarterly from the original slab respectively. The tax slab for auctioned vehicles is always 50% less than the original tax.

Table XV: Vehicle Taxes in Bhopal

CATEGORY	TAX SLAB
Invalid Carriage	
Invalid Carriage	Rs 360 for each vehicle.
New Vehicle	
Seat Capacity upto 6+1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Seat Capacity from 7 to 12 + 1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Taxi Seat Cap upto 6 + 1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Maxi Seat Cap from 7 to 12 + 1	10% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Auto Rikshaw upto 3 + 1	6% of cost of vehicle and 10% CF annually after 7 days and 10%(Annually) interest per month.
Auto Rikshaw from 4 to 6 + 1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Goods Vehicle GVW upto 2000 Kg	10% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Dumper Truck	10% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Other State Vehicle	
Seat Capacity upto 6+1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Seat Capacity from 6 to 12 + 1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Taxi Seat Cap upto 6 + 1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.

CATEGORY	TAX SLAB
Maxi Seat Cap from 7 to 12 + 1	10% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Auto Rikshaw upto 3 + 1	6% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Auto Rikshaw from 4 to 6 + 1	7% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Goods Vehicle GVW upto 2000 Kg	10% of cost of vehicle and 10% CF annually after 7 days and 10%(Annually) interest per month
Dumper Truck	10% of cost of vehicle and 10% CF annually after 7 days and 10% (Annually) interest per month.
Deduction	
Wt less than 800 Kg	Rs 64 quarterly deduction from original slab.
801- 1600	Rs 94 quarterly deduction from original slab.
1601- 2400	Rs 112 quarterly deduction from original slab.
2401- 3200	Rs 132 quarterly deduction from original slab.
Wt >3200	Rs 150 quarterly deduction from original slab.
Auctioned Vehicle	
Seat Capacity upto 6+1	50% of original slab.
Seat Capacity from 7 to 12 + 1	50% of original slab.
Taxi Seat Cap upto 6 + 1	50% of original slab.
Maxi Seat Cap from 7 to 12 + 1	50% of original slab.
Auto Rickshaw upto 3 + 1	50% of original slab.
Auto Rickshaw from 4 to 6 + 1	50% of original slab.
Goods Vehicle GVW upto 2000 Kg	50% of original slab.
Dumper Truck	50% of original slab.

The monthly taxes are been categorised as Spare tax, Stage carriage (Prime route, ordinary route and Doorasth route), temporary permits, contract carriages etc depending upon the class of vehicle. A monthly spare tax is levied on various bus categories as per seat rate varying from Rs. 120 to Rs. 230. For Stage carriages depending on the routes applied the tax to be paid differs. For AC buses in prime routes the amount paid is Rs. 250 per seat per month for 1st 100 Km and Rs. 20 for every 10 KM whereas for doorasth route it is Rs. 160 per seat per month for 1st 100 Km and Rs. 10 for every 10 KM. Similarly for ordinary buses it is Rs. 240 per seat per month for 1st 100 Km and Rs. 10 for every 10 KM and Rs 120 per seat per month for 1st 100 Km and Rs. 5 for every 10 KM for prime and doorasth route respectively. Temporary permits vary for various categories with the state of registration.

Table XVI: Monthly Vehicle Taxes in Bhopal

MONTHLY TAX	
CATEGORY	**TAX SLAB**
Spare Tax	
A.C. Bus	Rs 230 per seat per month.
Deluxe Bus	Rs 230 per seat per month.
Express Bus	Rs 180 per seat per month.
Ordinary Bus	Rs 120 per seat per month after 15/05/08.
Ordinary Bus	Rs 160 before that 15/05/08.
Stage Carriage (Prime Route)	
A.C. Bus	Rs 250 per seat per month for 1st 100 Km and Rs 20 for every 10 KM.
Deluxe Bus	Rs 250 per seat per month for 1st 100 Km and Rs 15 for every 10 KM.
Express Bus	Rs 250 per seat per month for 1st 100 Km and Rs 15 for every 10 KM.
Ordinary Bus	Rs 240 per seat per month for 1st 100 Km and Rs 10 for every 10 KM.
Stage Carriage (Ordinary Route)	
A.C. Bus	Rs 200 per seat per month for 1st 100 Km and Rs 15 for every 10 KM.
Deluxe Bus	Rs 180 per seat per month for 1st 100 Km and Rs 10 for every 10 KM.
Express Bus	Rs 180 per seat per month for 1st 100 Km and Rs 10 for every 10 KM.
Ordinary Bus	Rs 160 per seat per month for 1st 100 Km and Rs 10 for every 10 KM.
Stage Carriage (Doorasth Route)	
A.C. Bus	Rs 160 per seat per month for 1st 100 Km and Rs 10 for every 10 KM.
Deluxe Bus	Rs 140 per seat per month for 1st 100 Km and Rs 5 for every 10 KM.
Express Bus	Rs 140 per seat per month for 1st 100 Km and Rs 5 for every 10 KM.

CATEGORY	TAX SLAB
Ordinary Bus	Rs 120 per seat per month for 1st 100 Km and Rs 5 for every 10 KM.
Under Sec 87(1) A [Temporary Permit] (MP State Vehicle)	
Ordinary Bus	Rs 0.50 per seat per 10 Km.
Deluxe / A.C. / Express	Rs 1 per seat per 10 Km.
Under Sec 87(1) A [Temporary Permit] (Other State Vehicle)	
Ordinary Bus	Rs 210 per seat per month.
Deluxe / A.C. / Express	Rs 300 per seat per month.
Contract Carriage (All India Tourist Permit)	
Seat Capacity from 4 to 6	Rs 50 per seat per month.
Seat Capacity from 7 to 12 + 1	Rs 150 per seat per month.
Seat capacity > 12 + 1	Rs 800 per seat per month.
Contract Carriage (MP State Vehicle to ply in MP State Only)	
Seat Capacity from 4 to 6	Rs 50 per seat per month.
Seat Capacity from 7 to 12+1	Rs 100 per seat per month.
Ordinary Bus with seat cap > 12+1	Rs 500 per seat per month.
Deluxe / A.C. / Express with seat cap > 12 + 1	Rs 600 per seat per month.
Contract Carriage (Other State Vehicle)	
88-9 / 8 Ordinary Bus	Rs 1200 per seat per month.
88-9 / 8 Deluxe / A.C. / Express	Rs 1500 per seat per month.

There is quarterly tax levied on various classes of vehicles on the un-laden weight of the vehicle on motor cycle and car, it is per seat wise for passenger transport vehicles and the tax is based on weight for goods vehicles. For motor vehicles it is Rs. 18 for un-laden weight upto 70 Kgs and Rs. 28 for the un-laden weight greater than 70 kgs per quarter. For motor cars it varies from Rs. 64 to Rs. 66 for un-laden weight upto 800 kgs and more than 1000 kgs respectively. Per seat per quarter tax is levied on other passenger transport vehicles.

Table XVII: Quarterly Tax on Passenger vehicles in Bhopal

CATEGORY	TAX SLAB
Motor Cycle	
The un-laden weight of which upto 70 Kgs.	Rs. 18.00 Per Qtr.
The un-laden weight of which > 70 Kgs, whether used for drawing a trailer or not.	Rs. 28.00 Per Qtr.
Motor Car	
The un-laden weight of which upto 800 Kgs.	Rs. 64.00 Per Qtr.
The un-laden weight of which > 800 Kgs. and <= 1600 Kgs.	Rs. 94.00 Per Qtr.
The un-laden weight of which > 1600 Kgs. and <= 2400 Kgs.	Rs. 112.00 Per Qtr.
The un-laden weight of which > 2400 Kgs. and <= 3200 Kgs.	Rs. 132.00 Per Qtr.
The un-laden weight of which > 3200 Kgs.	Rs. 150.00 Per Qtr.
Tax for each trailer the un-laden weight of which upto 1000 Kgs.	Rs. 28.00 Per Qtr.
Tax for each trailer the un-laden weight of which > 1000 Kgs.	Rs. 66.00 Per Qtr.
City Service	
Tempo Seating cap from 4 to 12.	Rs 60 per seat per quarter.
Ordinary Bus for seat from 4 to 50+1.	Rs 60 per seat per quarter.
Express Bus for seat from 4 to 50+1.	Rs 80 per seat per quarter.
Auto Rickshaw	
Seat upto 3 + 1.	Rs 40 per seat per quarter.
Seat cap from 4 to 6.	Rs 60 per seat per quarter.
Taxi	
Seat from 3 to 6 + 1.	Rs 150 per seat per quarter.
Taxi Seat Cap from 7 to 12 + 1.	Rs 450 per seat per quarter.
Maxi	
Seat from 7 to 12 + 1.	Rs 450 per seat per quarter.
Omni Bus	
For private Use and Seat 7 To 12.	Rs 100 per seat per quarter.
For private Use and Seat > 12.	Rs 350 per seat per quarter.
Private Service Vehicle	
Seat > 6 + 1 and Registered in the Name of Owner.	Rs 450 per seat per quarter.
Seat > 6 + 1 and plying on Lease.	Rs 600 per seat per quarter.
Education Bus	
Education Bus.	Rs 30 per seat per quarter.

ANNEXURE 4: SECONDARY DATA COLLECTED FOR JAIPUR

Taxes and fees for vehicle users and traffic regulation violators in Jaipur are collected majorly by two authorities, namely, traffic police and transport department.

4.1 TRAFFIC POLICE

The traffic police is the enforcement authority for issuing challans on traffic violators. The details of traffic offences and their penalty are as given below:

Table XVIII: Details of traffic offences and Penalty in Jaipur

Sl. No.	Description	Section of M.V. Act	Compounding Amt.
1	Red Light jumping.	119/117	Rs. 100
2	Driving Left Hand Drive without indicator.	120/177	Rs. 100
3	Improper & Obstructive Parking.	122/177	Rs. 100
4	Travelling on Running Board (Driver).	123(1)/177	Rs. 100
5	Travelling on Running Board (Passenger).	123(2)/177	Rs. 100
6	Triple Riding.	128/177	Rs. 100
7	Driving without Helmet.	129/177	Rs. 100
8	Not Displaying Number Plate.	50/177	Rs. 100
9	Misbehaviour by TSR/Taxi Driver.	11.3/177	Rs. 100
10	Overcharging by TSR/Taxi Driver.	11.8/177	Rs. 100
11	Refusal by TSR/Taxi Driver.	11.9/177	Rs. 100
12	Driving without light (after sunset).	105/177	Rs. 100
13	Driving without Horn.	119(1)/177	Rs. 100
14	Driving without Silencer.	120/190(2)	Rs. 100
15	Driving with a defective number plate.	50/177	Rs. 100
16	Violation of Stop Line.	113(1)/117	Rs. 100
17	Sec.177 (Subsequent offence).	132/179	Rs. 300
18	Disobeying Lawful directions.	132/179	Rs. 500
19	Allowing unauthorized person to drive.	5/180	Rs. 1000
20	Driving without License.	3/181	Rs. 500
21	Driving by Minors.	4/181	Rs. 500
22	Over Speeding (1st Offence).	112/183(1)	Rs. 400

Sl. No.	Description	Section of M.V. Act	Compounding Amt.
23	Over Speeding (Subsequent Offence).	112/183(1)	Rs. 1000
24	Abetment for Over speeding.	112/183(2)	Rs. 300
25	Sec 183(2) Subsequent Offence.	112/183(2)	Rs. 500
26	Driving dangerously (1st Offence).	184	Rs. 1000
27	Driving dangerously (Subsequent offence).	184	Rs. 2000
28	Using "Unregistered Vehicle" or displaying "Applied For".	39/192	Rs. 2000
29	Sec.192(1) Subsequent offence.		Rs. 3000
30	Violation of Yellow Line, Changing Lane without indication.	18(2) RRR/119/117	Rs. 100
31	Violation of restriction of time on HTVs/Care on various roads.	115/194	Rs. 2000
32	Sec 194(1) Subsequent offence.	119/177	Rs. 5000
33	Violation of mandatory signs (One way, No Right Turn, No Left Turn, No Horn).	99(1)(a)/177	Rs. 100
34	Excess Smoke.	96(1)/177	Rs. 100
35	Blowing of Pressure Horn.	23(1)/177	Rs. 100
36	Conductor without Uniform.	7/177	Rs. 100
37	Conductor without Badge.	22(1)/177	Rs. 100
38	Carrying Passengers on Goods vehicles.	84(2)/177	Rs. 100
39	Carrying Goods on Passenger vehicles.	84(3)/177	Rs. 100
40	Use of coloured light on Motor Vehicle.	97(2)/177	Rs. 100
41	Cigarette Smoking in Vehicle.	86.1(5)/177	Rs. 100
42	No Overtaking.	6(1) RRR/177	Rs. 100
43	Vehicle Pollution:		
a	till 50 cc Two wheeler.	190(2)	Rs. 100
b	Two wheeler above 50 cc.	190(2)	Rs. 200
c	Auto Rickshaw.	190(2)	Rs. 300
d	Other Three wheelers.	190(2)	Rs. 500
e	Four wheelers.	190(2)	Rs. 1000
(Note: If a vehicle is polluting heavily in spite of a pollution certificate, it is still considered as polluting and the violation can be penalized.)			

4.2 VEHICLE TAXES:

Total special road tax collected in the Jaipur city amounted for 45.26 lakhs and the balance SRT tax to be recovered for 2015-2016 is 1166.71 lakh. The total revenue earned by transport authority by levy of various taxes and fees amounted for 51647.00 lakhs. There are three types of taxes on various categories of motor vehicles:

1) **One Time Tax:** Onetime tax is applicable on two different categories of vehicle which is mentioned below:

   a) **Non Transport:** 2 wheelers, 3 wheelers, 4 wheelers with seating capacity up to 10 including driver, 2 wheeled/3 wheeled vehicles adapted for use of invalids, agricultural tractor, Camper Van/ Trailer for private use, vehicles fitted with equipment's like rig, generator or compressor, crane mounted vehicle, Fork Lift, tow trucks, breakdown van, recovery vehicles, tower wagons, tree trimming vehicles or any other non-transport vehicles not covered under any category, construction equipment vehicle.

   b) **Transport Vehicle:** The onetime tax applicable on the different categories of vehicle is based on the cost of the vehicle and the chassis of the vehicle. The tax slab for different categories ranges from 0.3% to 10 %. The table below shows all applicable percentage of onetime tax on different categories of vehicle. The transfer on owner ship attracts an amount of 25% extra tax.

Table XIX: Non Transport Vehicles paying onetime tax in Jaipur

S. No.	Category of vehicle		Tax Rates
1	2		3
1.	(A) TWO WHEELER having engine capacity		
	(i) Upto 200 cc.		6% of the cost of the vehicle.
	(ii) More than 200 cc and upto 500cc.		8% of the cost of the vehicle.
	(iii) More than 500cc.		10% of the cost of the vehicle
	(B) THREE WHEELED VEHICLES		
	(i) Cost of vehicle upto 1,50,000/-.		3% of the cost of the vehicle.
	(ii) Cost of vehicle above 1,50,000/-.		4% of the cost of the vehicle.
	(iii) Cost of chassis upto 1,50,000/-.		3.75%of the cost of the chassis.
	(iv) Cost of chassis above 1,50,000/-.		5% of the cost of the chassis.
	(C) FOUR WHEELER With seating capacity upto 10 including driver		
	(i) Upto 800 cc.	Petrol	4 % of the cost of the vehicle.
		Diesel	6 % of the cost of the vehicle.
	(ii) 801 cc to 1200 cc.	Petrol	7% of the cost of the vehicle.
		Diesel	9% of the cost of the vehicle.
	(iii) above 1200 cc	Petrol	8% of the cost of the vehicle.
		Disel	10% of the cost of the vehicle.
	(D) Trailer or side cars drawn by vehicle mentioned above.		0.30% of the cost of that vehicle to which trailer/side car is attached.

S. No.	Category of vehicle	Tax Rates
2.	Two wheeled/three wheeled Motor vehicles adapted for use of invalids.	0.30% of cost of vehicle subject to a maximum Rs.50/-.
3.	Camper Van/Trailer for private use	
	(a) Purchased as chassis.	10% of cost of chassis
	(b) Purchased with complete Body.	7.5% of cost of vehicle
4.	Vehicle fitted with equipments like rig, generator or compressor, crane mounted vehicle, fork lift, tow trucks, break down van, recovery vehicles, tower wagons, tree trimming vehicles or any other non-transport vehicles not covered under any category:	
	(a) Purchased as chassis.	10% of cost of chassis
	(b) Purchased with complete body.	8.0% of cost of vehicle
5.	Construction equipment vehicle (other than Harvestor combine):	
	(a) Purchased as chassis.	7.5% of cost of chassis
	(b) Purchased with complete body.	6.0% of cost of vehicle
6.	Purely off-highway vehicle:	
	(a) Purchased as chassis.	7.5% of cost of chassis
	(b) Purchased with complete body.	6.0% of cost of vehicle

c) **Tax on Private Service Vehicles**

Table XX: Rate of Special Road Tax for private vehicles in Jaipur

Sl. No.	Category of Vehicle	Tax Rate (SRT)
1	Purchased as a complete vehicle upto 12 in all.	3 %
	13 to 40:	
	(a) Purchase as a Chassis.	5%
	(b) Purchased with complete body.	3%
	More than 40:	
	(a) Purchased as a Chassis.	6%
	(b) Purchased with complete body.	4%

Table XXI: Rate of Annual Road Tax for private vehicles in Jaipur

Sl. No.	Category of Vehicle	Tax Rate (SRT)	
1	Purchased as complete vehicle.	Spare	Covered by permit.
	Up to 4 lakhs.	4.5%	0.90%
	More than 4 lakhs.	7.0%	0.70%
2	Purchased as chasis.	Spare	Covered by permit.
	Up to 4 lakhs.	5.0%	5.0%
	More than 4 lakhs.	10.0%	1.00%

Table XXII: Compulsory Lumpsum tax for private vehicles in Jaipur

Sl. No.	Private Service Vehicles	Tax Rate
1.	(i) With seating capacity upto 12 excluding driver.	
	(a) Purchased as a chassis.	15% of the cost of the chassis
	(b) Purchased with the body.	12% of the cost of the vehicle.
	(ii) With seating capacity more than 12 excluding driver and upto 39 excluding driver.	
	(a) Purchased as a chassis.	35% of the cost of the chassis.
	(b) Purchased with the body.	25% of the cost of the vehicle.
	(iii) With seating capacity more than 39 excluding driver:	
	(a) Purchased as a chassis.	42% of the cost of the chassis.
	(b) Purchased with the body.	32% of the cost of the vehicle.
2.	Educational Institutional bus with seating capacity more than 7 including driver and upto 10 including driver:	
	(a) Purchased as a chassis.	15% of the cost of the chassis.
	(b) Purchased with the body.	12% of the cost of the vehicle.
3.	Non Agricultural Tractor - Trailers used as goods vehicles.	15% of the cost of the Tractor to which trailer is attached.

d) **Tax on Goods Vehicles**

Table XXIII Annual rate of tax on Goods vehicles in Jaipur

Cost			R.T.	S.R.T.
(1)				
	(a)	Cost of chassis/Vehicle upto Rs. 10,00,000.	2% of the cost of horse.	0.40% of the cost of horse.
	(b)	Cost of chassis/vehicle above Rs.10,00000.	Rs. 20000/- + 0.15% of the cost of the vehicles exceeding Rs.10 lakh.	Rs. 4000/- + Rs. 0.15% of the cost of the vehicle exceeding Rs.10 lakh.
(2)				
	(a)	Cost of the chassis/vehicle upto Rs. 3,00,000.	1.5% of the cost of the chassis/vehicle subject to a maximum of Rs. 2250/-.	1% of the cost of the chassis/ vehicle.
	(b)	Cost of the chassis/vehicle more than Rs. 3,00,000 and upto Rs. 6,00,000.	2250/- + 0.75% of the cost of the chassis/ vehicle exceeding Rs. 3 lakh.	Rs. 2000/-+ 0.35% of the cost of the chassis/ vehicle exceeding Rs. 3 lakh.
	(c)	Cost of Chassis/Vehicle more than Rs. 6,00,000 and up to Rs.10,00,000.	Rs. 4500/- + 0.95 % of the cost of chassis / vehicle exceeding Rs. 6 lakhs.	Rs.3050/-+0.5% of the cost of the chasis / vehicle exceeding Rs. 6 lakh.
	(d)	Cost of chassis / Vehicle above Rs. 10,00,000	8300/- + Rs. 0.15% of the vehicle exceeding Rs.10 lakhs.	Rs. 5050/- + Rs. 0.15% of the cost of the vehicle exceeding Rs 10 lakh.

Table XXIV: Optional (Lump Sum Tax) in Jaipur

Category of vehicle	Tax Rates
1. Articulated vehicle	20% of cost of the horse.
2. Other than Articulated vehicle	
(a) Three wheeled vehicles.	9% of the cost of the vehicle/chassis.
(b) Four wheeled goods vehicle having G.V.W. upto 3000 Kg.	10% of the cost of the vehicle/chassis.
(c) Four wheeled goods vehicle having G.V.W. more than 3000 Kg. and upto 7500 Kg.	11% of the cost of the vehicle/chassis.
(d) Four wheeled goods vehicle having G.V.W. more than 7500 kg.	11% of the cost of the vehicle/chassis.

Note: Lump sum tax is compulsory on all 3 wheeled goods vehicles & four wheeled goods vehicles with GVW up to 7500 Kg registered.

Construction equipment vehicles (other than non-transport vehicles) and any other transport vehicles not covered under any category above or vehicle such as Dumper, Loader, Camper Van/Trailers, Tipper, Cash Van, Mobile Canteen, Haul Pack Dumpers, Mobile Workshops, Ambulance, Animal Ambulance, Fire Tenders, Snorked Ladders, Auxiliary Trailers and Fire Fighting Vehicles, Hearses, Mail Carrier, Mobile Clinic/X-ray vans/Library vans etc.

Table XXV: Optional Lump Sum Tax in Jaipur

Category of vehicle	Tax Rates
Other goods vehicle not covered under any category above or vehicles such as dumper, loader, camper vans/trailers, tipper, cash van, mobile canteen, haul pack dumpers, mobile workshops, ambulance, animal ambulance, fire tenders, snorked laders, auxillary trailers and fire fighting vehicles, hearses, mail carrier, mobile clinic, x-ray vans/ library vans, etc.	
(a) Purchased as chassis.	10% of cost of chassis.
(b) Purchased with complete body.	7.50% of cost of vehicle.

Table XXVI: Trailer used as goods vehicles in Jaipur

Category of vehicle	Amount of Road Tax	S.R.T.
Trailer used as goods vehicles.	4% of the cost of the trailer.	–

Table XXVII: Optional Lump Sum Tax

Category of vehicle	Amount of Road Tax
Non-agricultural tractor trailers used as a goods vehicles.	9% of cost of tractor to which trailer is attached.

e) **TAX ON STAGE CARRIAGE VEHICLES**

Table XXVIII: Annual rate of road tax in Jaipur

Cost of Vehicles	Purchased as complete vehicle		Purchased as chassis	
	Spare	Covered by permit (Maximum of Rs. 15,000)	Spare	Covered by permit (Maximum of Rs. 15,000)
Upto to 4 lacs.	4.5%	0.45%	5.0%	0.50%
More than 4 lacs.	7.0%	0.70%	10.0%	1.00%

Table XXIX: Annual rate of special road tax for Stage carriage plying exclusively within municipal limits/ U.I.T. Limits in Jaipur

Cost of vehicles	0 to 2 lacs	2.01 to 4.00 lacs	More than 4 lacs
Purchased as complete vehicle.	1.2% of cost of vehicles.	1.5% of cost of vehicles.	1.5% of cost of vehicles.
Purchased as a chassis.	0.70% of cost of chassis.	0.70% of cost of chassis.	0.80% of cost of chassis.

Maximum limit of road tax + SRT for vehicles with seating capacity of 26 in all is Rs. 4,000/-, 27 to 32 in all is Rs. 5,000/- and for more than 32 in all is Rs. 10,000/-.

Table XXX: Monthly rate of special road tax on stage carriage of the state other than owned by a fleet owner in Jaipur

Sl. No.	Distance required to be covered per day	Monthly rate of special road tax
1.	Purchased as chassis:	
	a. Up to 150 Km.	0.490% of the cost of chassis.
	b. More than 150.	16.66% of the tax calculated for distance up to 150 Km. as above.
2.	Purchased as vehicle:	
	a. Up to 150 Km.	0.340% of the cost of vehicle.
	b. More than 150.	16.66% of the tax calculated for distance up to 150 Km. as above.

Table XXXI: Monthly rate of special road tax on stage carriage plying exclusively on sub-urban routes in Jaipur

Seating capacity up to 27		Seating capacity more than 27			
Purchased as chassis 0.73% of the cost.	Purchased as vehicle 0.53% of the cost.	Purchased as chassis		Purchased as vehicle	
		Ordinary	other than ordinary	Ordinary	other than ordinary
		0.73% of the cost.	0.37% of the cost.	0.50% of the cost.	0.25% of the cost.

The amount of SRT including motor vehicles tax shall not exceed:

- Rs. 1700/- per month for vehicles having seating capacity up to 25 excluding driver & conductor.
- Rs. 2500/- per month for other than ordinary vehicles having seating capacity more than 25 excluding driver & conductor.
- Rs. 2250/- per month for ordinary vehicles having seating capacity more than 25 excluding driver & conductor.

Table XXXII: Monthly rate of SRT on stage carriages plying on rural routes of the state other than those owned by a fleet owner in Jaipur

Distance Required To Be Covered By The Service In One Day	Monthly Rate of SRT
Upto 200 Km.	0.20% of the cost of chassis.
More than 200 Km.	0.25% of the cost of chassis.
Up to 400 Km.	0.30% of the cost of chassis.

Note * New Stage Carriages Vehicles purchased on or after 9.03.2011 and registered before 31.03.2013 have been exempted from SRT for 2 Years from Date of Registration.

Table XXXIII: Monthly rate of SRT on stage carriage buses owned by a fleet owner in Jaipur

Sl. No.	Description of transport vehicle	Monthly rate of SRT
1	Stage Carriage other than those plying exclusively within the municipal/U.I.T. limits and on suburban routes.	
	a. Purchased as a chassis.	2.05% of the cost of the chassis of entire fleet of vehicles (other than those plying within the municipal/U.I.T. limits and on suburban routes) used or kept for use as stage carriages in the fleet, including vehicles hired by the owner during the month to which the tax relates.
	b. Purchased with a complete body.	1.05% of the cost of the vehicle of entire fleet of vehicles (other than those plying exclusively within the municipal/ U.I.T. limits and on suburban routes) used or kept for use as stage carriages in the fleet, including vehicles hired by the owner during the month to which the tax relates.

Note: Provided that the amount of Special Road Tax payable under this notification shall not exceed Rs 25000/- (twenty five thousand) for one Motor vehicle.

Table XXXIV: Monthly rate of SRT on stage carriage buses plying on scheme routes (Nationalized Routs). RPTS in Jaipur

Sl. No.	Description Of Transport Vehicle	Monthly Rate Of SRT
1.	Stage Carriage vehicles of scheme routes excluding those owned by a fleet owner or those plying exclusively within the area of municipality or U.I.T. or both or suburban routes or rural routes:	
	(a) Purchase as a chassis.	2.05% of the cost of the chassis.
	(b) Purchase with a complete body.	1.05% of the cost of the vehicle.

Note: Provide that the amount of Special Road Tax payable under this notification shall not exceed Rs 30000/- (thirty thousand) for one Motor vehicle.

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