



Highways and Minor Ports Department

**Policy Note
2015-2016**

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**GOVERNMENT OF TAMIL NADU
2015**

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HIGHWAYS AND MINOR PORTS DEPARTMENT

POLICY NOTE - 2015-16

1. INTRODUCTION

Good mobility and accessibility for both people and goods is essential for the continued future development and growth of the State. The road network is the 'mainstay' for both the economic and social life of the region. Development should be planned to take account of accessibility by all transport modes and the need to mitigate adverse transport impacts and promote road safety.

Operating an effective and efficient strategic road network makes a significant contribution to the delivery of sustainable economic growth, helping to create the conditions that support the realization of the aspirations of business and communities. Road networks support the economy through the provision of a safe and reliable strategic roads, which allows for the efficient movement of people and goods. Such network can play a key part in enabling and sustaining economic prosperity and productivity and also helping support environmental and social aims by contributing to wider sustainable objectives and improved accessibility to key economic and social services. Safe and dependable

road network is essential to the society and economy. Road transport acts as a feeder service to railway, shipping and air traffic.

Road transport is backbone of the State's transport system, accounting for bulk of the national passenger traffic and freight movement. Over the past years, road traffic has grown much faster than the State's economic growth.

Tamil Nadu State Highways is making concerted effort to develop an efficient, safe and convenient transportation and communication network to meet the growing needs of the State. It is also encouraging the private sector to complement the efforts in accelerating the development of transport and communications network for improving accessibility and delivering of the services, providing encouragement to tourism and bringing about the qualitative improvements in the life style of masses. The present road network is burdened by immense traffic and is not sufficient to meet the ever increasing demand.

Gradual extension of network is equally important to develop remote areas for better connection between economic and social population centers of states. Consolidation, preservation and improvements of existing highway assets are needed. Effective Road network is a key deliverable in meeting its contribution to the national economic growth.

The rapid expansion and strengthening of the road network therefore, is imperative to provide both for present and future traffic demands and for improved accessibility to remote areas. Easy availability, adaptability to individual needs and cost savings are some of the factors which influence the planning of the road transport network.

The Government of Tamil Nadu is working to make the road network more efficient and effective, keep them safe and secure etc., The Government is taking steps to reduce road accidents through improved enforcement, education, infrastructure and innovation. There is an urgent need to improve the quality of our road network to cater the exponential growth of traffic and to reduce congestion. The need of the hour is to make sure that better road signages give road users the information about road safety and to ensure fair and effective enforcement of parking facilities.

1.1 HIGHWAYS AND MINOR PORTS DEPARTMENT IN TAMIL NADU

Highways is the pioneer Department of the State established in the year 1946 with a **vision** to “**increase the *capacity, connectivity, efficiency and safety***” of the road network so as to enable balanced socio-economic development of all sections of the people and all regions of the State. Development of better connectivity, broader roads, Ring roads, Bridges, Railway Over Bridges (ROB)/

Railway Under Bridges (RUB) and minor ports are aimed to achieve this vision. This department is maintaining 62294 km of road network spread across the entire State with a mandate of creating, augmenting and maintaining the Road and Minor Port infrastructure of the State. The department also improves and maintains the National Highways in the State on behalf of the Central Government.

The Highways and Minor Ports Department comprises of

1. Highways Department
2. The Tamil Nadu Road Development Company
 - a) IT Expressway Limited (Special Purpose Vehicle: subsidiary company owned by TNRDC)
3. The Tamil Nadu Road Infrastructure Development Corporation
4. The Tamil Nadu Maritime Board
5. The Poompuhar Shipping Corporation Limited

1.2 CATEGORIES OF ROADS

1.2.1 National Highways

The road network connecting State capitals, Major Cities, Major Ports, large industrial areas and tourist centers are classified as the National Highways. National Highways form the economic backbone to the country and facilitate rapid development along their routes.

Totally 5004 Km length of National Highways run through Tamil Nadu State. Out of this 1998 km are maintained by State National Highways Wing. Balance 3006 km are maintained by the National Highways Authority of India (NHAI). National Highways are being developed by widening to two lane / four lane / six lane with paved shoulders and strengthening the existing riding surface with the funds from the Ministry of Road Transport and Highways, Government of India and some of them are also taken up under Public Private Partnership mode.

1.2.2 State Highways

The State Highways provide connectivity to District headquarters with National Highways and neighbouring States. These stretches have heavy traffic intensity. The total length of State Highways in Tamil Nadu is 11752 km.

Roads classified as State Highways are required to follow standards such as

- Minimum carriageway width of 7m (double lane)
- Right of Way of minimum 30m
- All the culverts and bridges to have a minimum width of 12m

1.2.3 Major District Roads

The Major District Roads connect towns and municipal areas with District headquarters. These roads link to production and marketing centres

and these centres in turn are connected with the National Highways and State Highways. In Tamil Nadu, the length of Major District Roads is 11304 km.

Roads classified as Major District Roads are required to follow standards such as

- Minimum Carriageway width of 5.50m (Intermediate Lane)
- Right of way of minimum 30m
- All the culverts and bridges to have a minimum width of 12m

1.2.4 Other District Roads

The Other District Roads (ODR) connect villages and marketing centres with Taluk headquarters and other important roads nearby. These roads are the backbone of the rural economy. The Other District Roads are maintained as Single Lane or Intermediate Lane based on the traffic intensity of the roads.

Apart from this, the Other District Roads connecting the sugarcane production centres with Sugar mills and in turn with nearby marketing centres are being improved and maintained under the category of Sugarcane roads. There are 34234 km Other District Roads including Sugarcane roads.

Roads classified as Other District Roads are required to follow standards such as

- Minimum carriageway width of 3.75 m (single lane)
- Right of Way of minimum 12 m

The details of road network maintained by the Highways Department are given in **Table 1.1**

Table 1.1: Details of Road Network

Sl. No.	Classification of Road	Length (Km)	Maintained by
1	National Highways (NH)	1998	NH wing
		3006	NHAI
	NH Total	5004	
2	State Highways (SH)	11752	C & M Wing
3	Major District Roads (MDR)	11304	
4	Other District Roads (ODR)	34234	
	Grand Total	62294	

The lane wise length details are given in **Table 1.2.**

Table 1.2: Lane-wise Length Details

Length in km

Sl. No.	Cate gory	Single Lane	Interme diate Lane	Double Lane	Multi Lane	Total
1	NH	11	4	2754	2235	5004
2	SH	51	409	9853	1439	11752
3	MDR	581	7433	3115	175	11304
4	ODR	30045	3265	870	54	34234
	Total	30688	11111	16592	3903	62294

The efforts taken on the infrastructure development front have paved way for the overall improvement of the economy of the state. The figure 1.1 given below shows the growth of Plan allotment on road sector of the State.

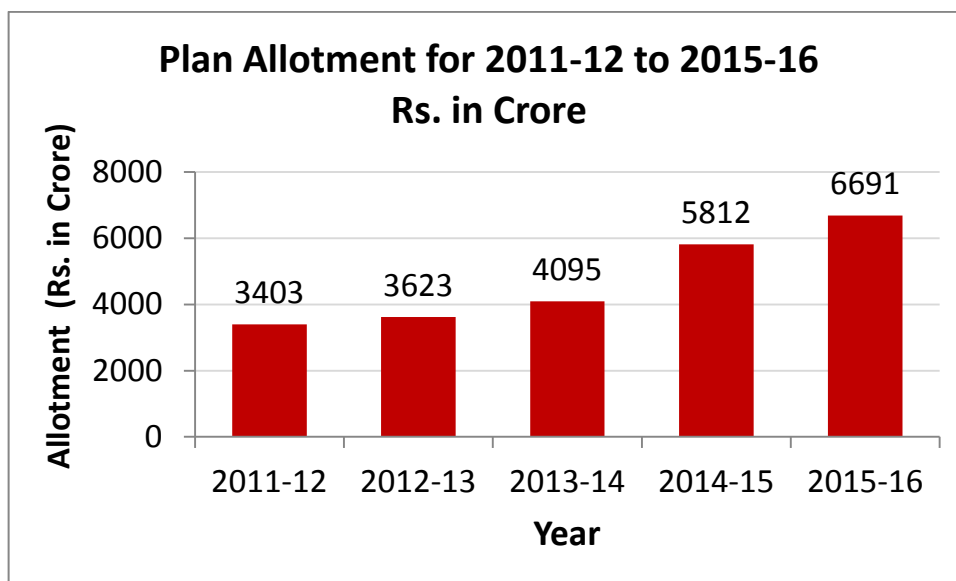


Figure 1.1: Plan Allotment Details

2. POLICY OUTLINE

Road infrastructure and services are being planned, provided and operated in an integrated and coordinated manner, in order to minimize user costs, optimize efficiency of the industry and the effective usage of scarce resources. A well functioning strategic road network enables growth by providing for safe and reliable journeys.

The various schemes being implemented to achieve the goal is detailed below in this chapter.

2.1 SCHEMES/ MAJOR PROJECTS BEING IMPLEMENTED

2.1.1 Comprehensive Road Infrastructure Development Programme (CRIDP)

This flagship programme was launched in the year 2004-05. Under this programme, infrastructure development like widening and improvement of roads, construction of bridges, culverts, protective works, center medians, drains, road safety works and formation of bypasses are undertaken.

As per the policy announcement of widening all the State Highways to double lane and all Major District Roads to Intermediate Lane, large scale widening was taken up under CRIDP. In the last four years, 810 Km length of State Highways has been widened to double lane and 2922 Km length of Major District Roads has been widened to intermediate lane.

This year, widening of balance feasible stretches will be taken up and completed. Thus the Government of Tamil Nadu will achieve the distinction of having 100% of Double Lane State Highways and 100% of Intermediate Lane Major District Roads.

2.1.2 Non-Plan Works

Proper maintenance of road infrastructure is essential for hassle free movement of traffic. Maintenance works of roads and bridges such as special repairs and periodical renewal works are carried out as per Indian Roads Congress norms utilizing Non-plan maintenance fund.

Proper maintenance of roads reduces construction cost and routine maintenance of bridges enhances the life span of these structures. In addition, maintenance of cross drainage works will facilitate easy drainage of flood water during monsoon and reduces the damage to the riding surface.

Thirteenth Finance Commission has recommended a Grant-in-Aid of Rs.1865 Crore for the period 2010-2011 to 2015-2016. The State Government have allocated fund of Rs.3738 Crore.

The Fourteenth Finance Commission have outlined improvements in infrastructure as one of the areas needed for economic development of the nation. The Fourteenth Finance Commission have recommended higher share Union's tax receipt to

the States and further observed that higher tax devolution will give greater autonomy in financing and designing of schemes as per needs and requirements. After analyzing the maintenance provisions given by the States, the Fourteenth Finance Commission have desired that maintenance provisions are built into the forecasts to the extent feasible and these have been factored into the assessment.

2.1.3 Bypasses

Bypasses are an integral part of the transport system which helps in enhancing road safety, reducing traffic congestion in towns and cities, reduction of travel time, savings in fuel and vehicle maintenance cost and assumes top priority in managing the growth in major cities.

This Department takes up formation of bypasses in two phases viz., land acquisition and shifting of utilities in the first phase and formation of road works in the second phase.

The State Government have taken up construction of 87 bypasses to the Corporations, Municipalities and Town Panchayats, of which 29 bypasses have been completed. 5 works are in progress. Land acquisition is in progress for 34 bypasses and 16 works are in DPR Stage. 3 bypasses are under consideration. Besides the above, 78 bypasses have been completed by the

National Highways Authority of India (NHAI) and 46 bypasses works are in progress.

2.1.4 Upgradation of Local Body Roads to Other District Roads

It has been announced in the budget speech that "Important bus plying local body roads will be upgraded and reclassified as Other District Roads (ODR) and handed over to the Highways Department for maintenance". Highways Department has formulated the following parameters for upgradation of Rural roads to ODR standards in a phased manner.

- Roads having length of 2 Km and more.
- Roads having connectivity either with any National Highways or State Highways or Major District Road or Other District Roads and combination of both.
- Missing links of roads between continuous SH/MDR/ODR roads.
- Roads that connect major industries, Agricultural marketing centre, Tourism centers, Religious Places and Taluk head quarters.
- Roads having a traffic intensity of 2000 PCU and more.

On this basis, 7964 km of local body roads are proposed to be upgraded as Other District Road. Joint inspection is being taken up by the officials of the Highways department and Rural Development to verify whether these roads satisfy the conditions for

upgradation and to find the cost requirement for immediate improvement and maintenance of local body roads as Other District Road.

However, the local body roads identified for upgradation is to be maintained by the Rural Development Department till the preparatory works are over and adequate funds are provided. The roads which satisfy the stipulated conditions based on joint inspection will be taken over by Highways Department as Other District Roads.

2.1.5 Railway Works Programme

With a view to reduce the accidents at Level Crossings and to avoid traffic congestion at these locations, the Level Crossings where the Train Vehicle Unit (TVU) exceeds 1 Lakh are replaced with ROB/RUB under Railway Works Programme on 50:50 cost sharing with Railways. The bridge proper is executed by the Railways and the approaches by the Highways Department.

So far, 299 Level Crossings across the State have been converted into ROB/RUBs under various schemes. At present, there are 1262 manned Level Crossings and 778 unmanned Level Crossings in the State. These will also be converted into ROB/RUBs in a phased manner.

2.1.6 NABARD Loan Assistance Scheme

Construction / Rehabilitation of Bridges are being implemented utilizing NABARD loan

assistance. Improvement and Rebuilding of Other District Roads and Major District Roads are also taken up under this scheme.

During 2014-15, 296 Bridges & 2 Roads to a length of 8.70 km have been taken up for execution. Out of this 126 Bridges and all road works have been completed.

2.1.7 Part II Scheme

The adequate provision of facilities for the working environment enhances productivity besides asset creation. Further construction of Travelers' bungalow enables easy inspection of works. For this purpose, new Travelers' bungalow are constructed in far reaching locations. Construction of new office buildings replacing the existing old damaged buildings and offices functioning in rented buildings were being taken up under this scheme.

Under Part II scheme, infrastructure facilities were being improved and Research Studies are being carried out. The State Government allocates funds every year to this department for construction of buildings, Travelers' Bungalows, purchase of office equipment, laboratory equipment, software and for conducting research.

During 2014-15, Government sanctioned Rs.3.63 Crore for the construction of 7 office buildings and 4 Travelers' Bungalows, a parking

shed and works are in progress. Further, Research studies at a cost of Rs.5.41 Lakh are in progress.

However, from 2015-16 the Government have decided to create Tamil Nadu Innovative Initiatives Fund for taking up various innovative programme in lieu of Part II scheme.

2.1.8 Chennai Peripheral Ring Road

The **Hon'ble Chief Minister of Tamil Nadu** has announced that Chennai Peripheral Road will be formed providing new connectivity from Mamallapuram to Ennore. The Peripheral Ring Road will provide better connectivity around the city catering to future traffic requirements besides helping in achieving efficient commercial transportation and port connectivity.

The proposed Chennai Peripheral Ring Road (CPRR) starts at Ennore port via the proposed Northern Port Access Road and connects Mamallapuram near Poonjeri junction at km 56/800 of East Coast Road (ECR). The Government have sanctioned Rs.10 Crore for the preparation of Detailed Project Report (DPR) for this work and same has been completed and is under finalisation. The proposal for external funding through JICA has been sent to Government of India and it is under consideration.

2.1.9 Chennai Outer Ring Road

Chennai Outer Ring Road (ORR) is one of the major project being executed by Highways and

Minor Ports Department under Design, Build, Finance, Operate and Transfer (DBFOT) mode at an investment of Rs.2160 Crore. The project is being executed in 2 phases. Phase-I covers 29.65 km starting from South Chennai in NH 45 to West Chennai in NH 205. The second phase links NH 205 in west and North Chennai upto Minjur for a length of 30.50 km. It is a six lane access controlled road. The Roadway includes 22 m gap in the center for future public transport corridor. Provision of 50 m width corridor along the entire stretch has been made available for future development. This road will serve thorough traffic and traffic meant for ports and industries. Phase-I of the project is completed and the second phase is in progress.

2.1.10 Forming of Road Grids along Chennai Outer Ring Road

Chennai Outer Ring Road is a major orbital corridor for Chennai Metro region, the traffic emanating on this corridor will have to be provided with effective dispersal system to link with the radial corridors and thus a grid system of road with radial and orbital linkages have been proposed. 15 Nos. of macro grid linkages have been identified and all these links are to be developed in consonance with the stipulations in Second Master Plan of Chennai Metropolitan Development Authority.

2.1.11 Public Private Partnership (PPP)

A paradigm shift is needed from the earlier approach of restricting planning from fixed budget allocation to a newer dimension in order to achieve the ambitious target of Rs.134600 Crore in Vision 2023. Plans are being evolved in an integrated and holistic manner, which requires mobilization of huge resources. PPP is one of the alternate method through which resource mobilisation is possible to ensure faster delivery of infrastructure.

PPP are claimed to enable the public sector to harness the expertise and efficiencies that the private sector can bring to the delivery of certain facilities and services traditionally procured and delivered by the public sector.

2.1.12 Tamil Nadu Road Sector Project (TNRSP) Phase II

A Strategic Options Study II (SOS II) was carried out to arrive at a project proposal for TNRSP Phase II for implementation through externally aided funding. In this study, roads to a length of 2867 km were analysed and prioritized based on Economic Internal Rate of Return (EIRR) Criteria.

Subsequent to SOS II Project Preparation, consultants have been engaged by TNRSP-II for various road improvements for a length of about 2079 Km as prioritized from SOS study.

An amount of Rs.65 Crore has been approved through Tamil Nadu Infrastructure

Development Board (TNIDB) under the Chairman of the **Hon'ble Chief Minister of Tamil Nadu** for Detailed Project Report Preparation for upgrading core road network. Detailed Project Report for various road improvement works for a length of about 575 km has been completed. Out of the above, 427 Km of road works (Two lane plus paved shoulders) are taken up under Engineering Procurement Construction (EPC) mode and 145 km of four lane road upgradation is proposed under Public Private Partnership (PPP) mode through World Bank funding. Tenders for EPC works in 10 packages have been invited and work was awarded. Three Supervisory consultants to supervise the EPC contract implementation have been engaged. The agreement was signed for nine packages. For PPP works, tenders in 3 packages are to be invited shortly. DPR for balance road works will be completed shortly.

2.1.13 Performance Based Maintenance Contract (PBMC)

Performance Based Maintenance Contracts for roads are designed to increase the efficiency and effectiveness of road asset management and maintenance. During the contract period, this PBMC provides safe and travel comfort to the road users in the specified level. Minimum road conditions and Service Levels are defined through output and performance measures for which the contractor is responsible.

Under this contract initial rectification, periodical renewal, minor improvements, ordinary maintenance and emergency works are taken up. PBMC ensures the physical condition of the roads under contract is adequate for comfort travel of road users. This type of contract significantly shifts the focus from only execution of works to the efficient management and conservation of road assets.

During 2013-14, maintenance of State Highways and Major District Roads in Pollachi Division have been taken up under PBMC for 5 years. During 2015-16, Maintenance of 307 km length of State Highways and 274 km length of Major District Roads in Krishnagiri and 229 km length of State Highways and 340 km length of Major District Roads in Ramanthapuram Divisions will be taken up under Performance Based Maintenance Contract (PBMC) for five years.

2.1.14 Road Safety Measures

The identification, analysis and treatment of road accident black spots are widely regarded as one of the most effective approaches to mitigate road accidents. It is well established that considerable safety benefits may accrue from the application of appropriate road engineering or traffic management measures at hazardous road locations. Results from such applications at “black spots” demonstrate high returns from relatively low cost measures.

In spite of the precautionary measures undertaken, certain inadequacies in the existing road infrastructure lead to accidents. In order to mitigate the road accident levels and improve safety measures, Government announced a special project to attend the black spots in highly accident prone areas including urban roads.

A comprehensive proposal to rectify the black spots in the Government roads has been prepared at an estimated cost of Rs.1130 Crore. The proposal includes the following engineering measures:

1. Widening of narrow culvert (where width of the culvert is less than carriage way).
2. Widening of narrow culvert (where width of the culvert is narrow as per IRC).
3. Realignment of 'S' curve (radius of the curve is less than 90m).
4. Realignment of 'S' curve (radius of the curve is more than 90m).
5. Construction of safety wall/crash barrier around the road side open well/tank bunds.
6. Construction of safety wall/crash barrier along high embankment.
7. Construction of safety wall/crash barrier along hill road.
8. Construction of center median.
9. Provision for road furniture (gantry boards, studs, delineators, center line marking).
10. Junction improvements.

During 2014-15, the Government have sanctioned Rs.200 Crore (**Table 2.1**) for road safety works and the works are in progress.

Table 2.1: Road Safety works sanctioned

S. No.	Name of Work	No.	Cost in Crore
1	Widening of narrow culvert (where width of the culvert is less than carriage way).	153	59.71
2	Widening of narrow culvert (where width of the culvert is narrow as per IRC).	13	7.88
3	Realignment of 'S' curve (radius of the curve is less than 90m).	22	11.64
4	Construction of safety wall/crash barrier around the road side open well/tank bunds.	946	32.90
5	Construction of safety wall/crash barrier along hill road.	143	29.18
6	Construction of center median.	6	4.73
7	Junction improvements	28	14.97
8	Provision for road furniture		39.00
	Total	1311	200.00

The balance works will be taken up in forthcoming years.

2.2 LAND ACQUISITION

Highways Department executes various road infrastructure projects to augment the capacity of the existing infrastructure to meet the demands of ever increasing traffic. Of these, major projects such

as formation of bypasses, construction of grade separators, Over bridges/ Under bridges in lieu of Railway Level Crossings and River Bridges, road widening works require acquisition of land to greater extent.

Improved road surface and growth of road traffic in Tamil Nadu have paved way for the natural ribbon development (ribbon of houses, factories, shops etc) along most of the major corridors, which makes any future improvement costly and difficult. Acquisition of lands along the corridors (strip acquisition) have become very difficult on various grounds such as cost of acquisition, objection from public, time taken to complete the acquisition process etc.

Considering the difficulties in acquiring lands for Highway Projects, which is of strip acquisition in nature, Government of Tamil Nadu enacted Tamil Nadu Highways Act, 2001. The Act provides for the declaration of certain highways to be State Highways, restriction of ribbon development along such highways, prevention and removal encroachment thereon, construction, maintenance and development of highways, and levy of betterment charges and for matters connected therewith or incidental thereto.

Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 enacted by the Government

of India enabled enhanced compensation and Rehabilitation and Resettlement packages.

The Land Acquisition related special enactments of the State, including Tamil Nadu Highways Act, 2001 have been got exempted from the purview of RFCTLARR Act, 2013 through Amendment (Tamil Nadu Amendment) to RFCTLARR Act, 2013 (TN Act 1 of 2015) without any reduction in Compensation, Rehabilitation and Resettlement package. Subsequently, the Government of Tamil Nadu have taken several steps to save the progress already made in the land acquisition for quicker delivery of infrastructure projects. Though the amendment provided for only the enhanced compensation for all those land acquisition proceedings initiated from 01.01.2014 to 31.12.2014, the Government of Tamil Nadu has taken a decision to extend the R&R provisions for the cases that has been initiated on or after 01.01.2014.

The RFCTLARR (amendment) Ordinance, 2015 promulgated by Government of India exempted the State Governments in carrying out SIA and referendum procedures for all the infrastructure/ rural infrastructure projects.

Now, the Government is in process of preparation of Comprehensive amendment proposal to the Tamil Nadu Highways Act, 2001 keeping in view the enhanced compensation, Rehabilitation and

Resettlement provisions of RFCTLARR Act, 2013 and other procedures incidental thereto.

2.3 INSTITUTIONAL CAPACITY ENHANCEMENT

The department, since its inception, had undergone various organizational changes to cope with trends in the socio-economical and technological fronts and to provide better road infrastructure in the State. This Department spends more than Rs.3750 Crore under plan scheme and Rs.1200 Crore under non-plan schemes every year to upgrade and maintain the assets already created and for creating new assets. It is being planned for embarking on very huge development in Road infrastructure and Asset Creation under Vision 2023.

Strategies are being devised to attain the goals enumerated in the road sector. Currently, the issues to be addressed for effective functioning and good governance are judicious allocation and proper utilization of resources, development of long and regular term plan, convergence of planning requirements, creation of the micro level Performance indicators, standardization of design of structures, synchronized handling of Road safety, traffic and road condition data, improvised coordination among wings, etc. The department is in the process of enhancing the capacity.

The Institutional Capacity Enhancement (ICE) and Road Safety (RS) are the other two domains to be taken up other than Network Improvement under World Bank funded TNRSP II project.

I. The Institutional Enhancement component include:

- policy level actions and commitments to improve both mobilization and allocation of resources in the road sector including generation of road funds and
- operational level initiatives to enhance enterprise-level efficiency through process improvements; organizational restructuring including redistribution of work load through merging execution wings into a single unit and creation of regional execution wings, creation of road safety cell, strengthening designs wing and separating research and training from quality control activities; sustaining the investments in IT infrastructure and upgrading with current technologies; and Training & Knowledge Management including mainstreaming and integrating the key IT-based systems i.e. Road Maintenance Management System (RMMS), Project, Human Resources and Finance Management System (P&FMS) and Road Accident Data Management System (RADMS).

II. The Road Safety component includes:

- At state level focusing on the "*strategic components*" including (1) Road Safety Results Framework, (2) Road Safety Promotion Plan, (3) Monitoring & Evaluation and (4) Research and Knowledge Transfer and "*operational components*" to augment the capacity of enforcement, compliance systems and administrative sanctioning
- At district level focusing on (1) coordinated investment planning (2) establishment of good practices speed management program, (3) risk targeted patrol plans (4) safety focused administrative procedures including appeal and audit processes, (5) supporting quick trauma response services and (6) district and corridor level road safety demonstration projects

Now the Government is under the process of creating various institutional arrangements including organizational restructuring and establishment of various road safety related leadership, monitoring and implementation groups. Further, the government is undertaking various measures for transparent and effective functioning of department including process re-engineering, e-billing and e-payment, enhancing timely delivery of services etc.

2.4 OVERALL EXPENDITURE (2014-15) AND ALLOTMENT FOR 2015-16

This Department implements different projects under various schemes every year utilizing funds from state, central and external funding agencies. The department has taken up various road and bridge works to the tune of **Rs.10490 Crore** for implementation during 2014-15 and the abstract of works completed are detailed below:

1. Widening and Improvement in 3737 km roads, Construction of Cross Drainage and Protective works at a cost of Rs.2991 Crore.
2. 159 Nos. of River bridges completed at a cost of Rs.358 Crore
3. Construction of 15 ROB / RUBs at a cost of Rs.341 Crore
4. Construction of 5 Foot Over bridges in Chennai Metro area at a cost of Rs.36.85 Crore

For the year 2014-15, Rs.5812 Crore has been allotted to Highways Department for implementation of plan works and an expenditure of Rs.4341.94 Crore have been incurred. An amount of Rs.6691 Crore have been allotted to Highways Department for the year 2015-16.

3. STRUCTURE AND ACTIVITIES OF THE DEPARTMENT

3.1 ORGANISATION STRUCTURE OF THE DEPARTMENT

Highways Department functions with 8 wings under the overall coordination of the Director General. Planning, Design & Investigation wing and Highways Research Station wing are non execution wings and there are six wings for execution of works of the department.

1. Construction & Maintenance wing – Works funded by State Government
2. National Highways wing - Works funded by Government of India
3. NABARD & Rural Roads wing – NABARD loan assistance works
4. Projects wing-Railway Works Programme (funds sharing)
5. Metro wing-Chennai Metro Development Programme works
6. Tamil Nadu Road Sector Project – World Bank loan assistance works

In addition, two companies are executing Special Projects.

1. Tamil Nadu Road Development Company
 - a) ITEL Subsidiary of the Tamil Nadu Road Development Company

2. Tamil Nadu Road Infrastructure Development Corporation.

The functions of all the wings are detailed as follows:

3.2 OFFICE OF THE DIRECTOR GENERAL

The post of Director General has been created for smooth and efficient functioning of the department and to coordinate the work of all the eight wings. The Director General is also the head of all the Technical Committees.

- Overall Planning and Budgeting of Highways Department.
- Establishment and Personnel Administration matters in Highways Department.
- Coordination of Road Accident Data Management System (RADMS)
- Managing the e-pathai related IT solutions.
- Any other work entrusted by the Government.
- Functioning with 3 Joint Directors and one Chief Officer (IT) in the Divisional Engineer cadre.

3.3 CONSTRUCTION & MAINTENANCE WING

- Maintenance of State Highways, Major District Roads, Other District Roads and bridges.

- Execution of Part – II scheme works.
- Restoration of roads and bridges affected by natural calamities like monsoons, floods and Tsunami.
- Execution of road and bridge works under Comprehensive Road Infrastructure Development Programme including formation of bypasses.
- Implementation of road infrastructure schemes under Public Private Partnership.
- Maintenance of ODR - Sugarcane Roads.
- Works are carried out by 8 Circles and 40 Divisions.

3.4 NABARD & RURAL ROADS WING

- Execution of bridges and roads with loan assistance from NABARD.
- Construction of Railway Over Bridges / Railway under Bridges under Railway Works Programme.
- Works are carried out by 4 Circles and 14 Divisions.

3.5 PROJECTS WING

- Road Over and Under Bridges at Railway Level Crossings under Railway Works Programme.
- Major Bridge works with State funds and NABARD assistance.
- Formation of Ring Roads and Radial Roads.

- Formation of Sugarcane Roads with Sugar Cess fund.
- Works are carried out by 4 Circles and 10 Divisions.

3.6 METRO WING

- Execution of Chennai Metropolitan Development Plan (CMDP) works.
- Road works, major bridge works and bridge works in road junctions under TNUDP – III.
- Construction of ROBs / RUBs in Metro areas.
- Works are carried out by one Circle and 5 Divisions.

3.7 NATIONAL HIGHWAYS WING

- National Highways development works are executed under Plan & Non-plan schemes with the funds provided by the Ministry of Road Transport & Highways, Government of India
- State roads development works are executed under Revamped Central Road Fund, Inter State Connectivity & Economic Importance schemes with the funds provided by the Government of India from Central Road Fund.
- State roads such as Other District Roads included in Core-net work are developed under Pradhan Mantri Gram Sadak Yojana programme with the funds provided by the

Ministry of Rural Development, Government of India.

- Development of Western Ghats hill roads in Nilgiris District are executed under Hill Area Development Programme with the funds provided by the Government, Planning Development & Special Initiatives Department.
- National Highways Wing comprises of 4 circles and 8 divisions headed by the Chief Engineer

3.8 TAMIL NADU ROAD SECTOR PROJECT WING (TNRSP)

- Road upgradation works with the World Bank assistance.
- Undertaking studies for projects to be implemented through Public Private Partnership.
- Strengthening the organisational set-up of Highways Department.
- Road safety related works
- This wing comprises one Project Director, two Superintending Engineers and 7 Divisions.

3.9 HIGHWAYS RESEARCH STATION

- Research activities relating to roads and bridges.

- 3 tier quality assurance for all works implemented by this department.
- Recommendations for road safety and traffic improvement works.
- Quality assurance and research works along with testing are being carried out by One Joint Chief Engineer, 4 Deputy Directors and 8 Divisional Engineers (Quality Control).

3.10 PLANNING, DESIGN AND INVESTIGATION WING

- Carrying out investigation for new road and bridge works.
- Preparation of structural designs, drawings and estimates for bridge works costing Rs.2 Crore and above.
- This wing comprises one Joint Chief Engineer, 4 Divisional Engineers and 6 Investigation Divisions.

3.11 TAMIL NADU ROAD DEVELOPMENT COMPANY (TNRDC)

- Implementing major PPP projects.
- Management of Chennai Outer Ring Road works.
- Undertaking Rajiv Gandhi IT Expressway works and maintaining as toll road.
- Improving and maintaining the East Coast Road (Chennai to Puduchery) as toll road.

3.12 TAMIL NADU ROAD INFRASTRUCTURE DEVELOPMENT CORPORATION (TNRIDC)

- Developing of road and bridge infrastructure required in industrial areas.
- Madurai ring road improvement work.

4. OFFICE OF THE DIRECTOR GENERAL

The office of the Director General is responsible for the overall administration, Planning and Quality Control, and modernization of departmental works through Information Technology Cell. The Director General coordinates with the heads of all other wings of the Highways Department for effective and efficient management of the works.

4.1 ADMINISTRATION

The overall responsibility for the establishment and personnel administration matters of all the staff of Highways Department lies with the office of the Director General.

4.2 HUMAN RESOURCES DEVELOPMENT

4.2.1 Staff Strength

The Highways Department currently functions with a total cadre strength of 1656 Engineers, 812 Technical Staff and 4629 Administrative and Ministerial staff. Details of Posts are given below:

Engineering Staff:

Chief Engineer	-	9
Superintending Engineer	-	28
Divisional Engineer	-	137
Assistant Divisional Engineer	-	485
Assistant Engineer / Junior Engineer	-	<u>997</u>
		<u>1656</u>

Technical Staff:

Technical Staff - 812
(Includes HDO, SDO, DO, JDO etc.,)

Administrative and Ministerial Staff:

Administrative Staff - 4629
(Includes CPO, AO, Superintendent,
Assistant, Highways Research Station staff.,etc)

Work-charged establishment:

Road Inspectors - 1801
Gang Mazdoors - 14872

The above cadre strength is fixed based on the work load of the department.

4.3 COMPUTERISATION

Highways Department is one of the pioneer departments in the Government of Tamil Nadu to formulate and approve a Information and Communication Technology (ICT) strategy.

Highways Department is in the process of implementation of Information Technology (IT) to facilitate better performance and service delivery. It includes standardizing and computerizing all the processes like traffic surveys, designing, estimation and preparation of BOQs, bidding, preparation of tender documents and agreements, measurement, billing, accounts, audit, etc including computerization of entire department.

4.4 INFORMATION TECHNOLOGY CELL

For maintenance of the IT initiatives, an Information Technology Cell has been newly formed in October 2012 with Chief Officer (IT) in the cadre of Divisional Engineer as head and functions under the control of Director General in the campus of Highway Research Station. The main objective is to implement and maintain the various software systems developed and hardware procured for Highways Department. The existing official website of Highways Department, www.tnhighways.org has been directed to the new domain namely www.tnhighways.gov.in has been registered and made functional by using NIC services.

4.4.1 Road Maintenance Management System (RMMS)

Road Maintenance Management System is a computerized web enabled bilingual system developed by Highways Department for economic analysis and prioritization of roads for effective planning using HDM4 software.

The Road Management System (RMS) will enhance the capabilities of Highways Department by providing a readily accessible source of correct and relevant information on the road system as well as providing analytical tools to take up improvement works based on scientific decision making. Further the two Advanced Data Collection Equipments (ADCE) were launched.

4.4.2 Integrated Project, Human Resource and Finance Management System (P&FMS)

The Integrated Project, Human Resource and Finance Management System (P&FMS) aims at statewide computerization to automate the existing manual procedures and process followed for Project Management, Financial Management and Employee Record System for improved information, communication, project monitoring and office management. Using the P&FMS software upto date digital database for Project, Financial Management and Employee Record System would be created.

All the data related to important projects are digitized and made available in the system in electronic format. Establishment related particulars are also stored and maintained in the data base. This will ensure efficient and transparent functioning of the department.

Workshop for about 700 Highways Engineers has been inaugurated at Chennai by the Principal Secretary of the Highways and Minor Ports Department in September, 2013 and was successfully conducted at 8 Regional circles of the Department across the State. Further training has been given for more than 1000 Highways staff.

4.4.3 Geographic Information Systems (GIS)

A Geographic Information System (GIS) software has been developed to prioritize the road works using a computerized system suitable for operating on a GIS platform and enable policy makers of the Department to utilize the resources optimally.

The GIS software is web based bilingual and interfaced with applications such as RMS and P&FMS for representing Road and Bridge Information System in a schematic way. The RMS database is the backbone for visualization of road information graphically. The GIS software has been customized and developed based on the latest digital maps of Survey of India. *e-pathai* was launched on 19.06.2012 for enhanced maintenance of roads in the State.

The Geospatial Media and Communications Forum have awarded Geo Spatial Excellence Award under infrastructure category for 2013 for *e-pathai* GIS.

4.5 COMMITTEES

The Director General is the chairperson of all the Technical Committees. The following committees have been formed for the effective functioning of this Department:

- **Board of Engineers (BoE)** is the highest technical authority comprising of all the Chief Engineers of the Highways department and is headed by the Director General for policy decision on technical matters.
- **Commissionerate of Tenders (CoT)** was established with Director General, Highways, the Secretary, Finance/ Representative, the Chief Engineer, Highways, Construction and Maintenance, the Chief Engineer, Highways, NABARD and Rural Roads and the Chief Engineer concerned to streamline the tender acceptance procedure.
- **Revised Administrative Sanction Committee (RASC)** comprises of the representatives of Government in the Finance and Highways Departments, along with three retired Chief Engineers from this department (for the appraisal of technical deviations) for processing and early approval of RAS proposals.

5. CONSTRUCTION AND MAINTENANCE

A total length of 57290 km of Government Roads categorised as State Highways, Major District Roads and Other District Roads are maintained by this wing. Widening and strengthening of roads, renewal of roads, including construction of culverts, bridges/grade separators, formation of bypasses, road safety works, etc., are being implemented by this wing.

For executing these works, 8 circles and 40 divisions are functioning under the control of Chief Engineer (Construction and Maintenance).

The schemes undertaken by this wing are as follows:

5.1 COMPREHENSIVE ROAD INFRASTRUCTURE DEVELOPMENT PROGRAMME (CRIDP)

The **Comprehensive Road Infrastructure Development Programme (CRIDP)** was introduced in 2004-05 to enhance the existing road infrastructure facilities in a comprehensive and holistic manner.

5.1.1 CRIDP - State Highways

During 2014-15, spill over works of widening/improvements to 349 km length of roads and

construction of 91 bridges/culverts/ protective works were taken up at a cost of Rs.1279.93 Crore.

New works of widening/improvements to 927 km length of roads and construction of 432 bridges/ culverts/ protective works have been sanctioned at a cost of Rs.1186.55 Crore in the year 2014-15.

During 2014-15, widening/ improvements in 709 km length of roads and 128 bridges/ culverts/ protective works have been completed at an expenditure of Rs.1198.91 Crore.

A budget provision of Rs.1199.48 Crore has been allotted for the year 2015 -16.

5.1.2 CRIDP - Major District Roads

During 2014-15, spill over works of widening/ improvements to 686 km length of roads and construction of 49 bridges/ culverts/ protective works were taken up at a cost of Rs.943 Crore.

New works of widening/improvements to 772 km length of roads and construction of 187 bridges/culverts/protective works have been sanctioned at a cost of Rs.735.32 Crore in the year 2014-15.

During 2014-15, widening/improvements in 823.64 km length of roads and 64 bridges/ culverts/ protective works have been completed at an expenditure of Rs.1022.31 Crore.

A budget provision of Rs.1022.34 Crore has been allotted for the year 2015 -16.

5.1.3 CRIDP - Other District Roads

During 2014-15, spill over works of widening/ improvements to 590 km length of roads and construction of 45 bridges/culverts were taken up at a cost of Rs.319 Crore.

New works of widening/improvements to 1848 km length of roads and construction of 116 bridges/culverts/protective works have been sanctioned at a cost of Rs.884.39 Crore in the year 2014-15.

During 2014-15, widening/improvements in 1137.23 km length of roads and 67 bridges/ culverts/ protective works have been completed at an expenditure of Rs. 263.18 Crore.

A budget provision of Rs.263.18 Crore has been allotted for the year 2015 -16.

5.1.4 CRIDP - Other District Roads – Special Component Plan

During 2014-15, spill over works of widening/improvements to 261 km length of road was taken up at a cost of Rs.101 Crore.

New works of widening/improvements to 499 km length of roads and construction of 11 bridges/culverts/protective works have been sanctioned at a cost of Rs.193.74 Crore in the year 2014-15.

During 2014-15, widening/improvements in 760 km length of roads have been completed at an expenditure of Rs.296.53 Crore.

A budget provision of Rs.315 Crore has been allotted for the year 2015 -16.

5.2 PART II SCHEME

During the year 2014-15, spill over works of 24 buildings were taken up for construction. New works have been sanctioned for constructing office buildings for 2 divisions, 4 sub divisions, one section office, and 4 travelers' bungalows, one parking shed for ADCE vehicle at a cost of Rs.3.63 Crore. These works are in progress.

During 2014-15, 21 buildings have been completed at an expenditure of Rs.33.14 Crore.

5.3 WORKS IN CHENNAI EXTENDED CORPORATION AREA

In the extended corporation area, 250.91 km length of roads is being maintained by this department. These roads are spread over in 3 Revenue Districts namely Chennai, Thiruvallur and Kancheepuram.

During Budget Demand 2014-15, **Hon'ble Chief Minister of Tamil Nadu** announced that *"in the newly extended Chennai Corporation Area, Development works on 250 Km of highways roads such as end to end widening of roads,*

construction of foot path cum drain and providing footpaths have been identified for Rs.1033 Crore. In the first phase, work will be taken up at a cost of Rs.250 Crore”.

Accordingly, Government sanctioned Rs.250 Crore for 7 works in State Highways, 3 works in Major District Roads and 4 works in Other District Roads for taking up improvements like widening end to end, construction of drain, footpath in the newly extended corporation areas and works are in progress.

5.4 FORMATION OF BYPASSES

Bypasses play a major role in the diversion of thorough traffic and help in reduction of traffic congestion in major towns. During 2014-15, Hosur Ring Road has been completed. The status of bypass works being carried out by this wing is as given in **Table 5.1**

Table 5.1: Status of Bypasses

Description	Nos.
Completed	12
In progress	4
LA work in progress	17
DPR work in progress	11
Total	44

Construction of Thanjavur bypass (Phase-II) in km 0/0-9/0 at a cost of Rs.88 Crore is in progress. An amount of Rs.38.93 Crore sanctioned for formation of bypass to Edapady Town and land acquisition is in progress.

During 2015-16, Rs. 42 Crore for Thanjavur bypass km 9/0 - 14/265 and Rs. 21.90 Crore for Pattukottai phase II km 4/2-7/4 sanctioned. Further for forming of bypass to Kamuthi and Walajabad Rs.67.83 Crore sanctioned for Land Acquisition.

Land Acquisition for the bypasses to the following towns (**Table 5.2**) has been sanctioned at a cost of Rs.259.89 Crore and land acquisition works are in progress.

Table 5.2: Details of Land Acquisition for bypasses

S. No	Bypass	Length in Km	Cost in Crore
1	Tiruvarur	9.98	10.10
2	Thiruthuraipoondi	2.46	0.21
3	Periyapalayam	1.70	2.17
4	Edappadi	8.80	6.00
5	Sivagangai	10.60	1.00
6	Tharamangalam	2.93	1.10
7	Tirutani	3.24	11.61
8	Manachanallur (Trichy District)	2.62	14.40
9	Mannargudi Ring Road	21.40	10.06
10	Pudukottai Ring Road	21.25	13.60

S. No	Bypass	Length in Km	Cost in Crore
11	Parthibanur Ring Road (Ramanathapuram district)	3.60	0.31
12	Sivakasi Ring Road	22.00	33.50
13	Karur Ring Road	32.10	77.00
14	Uthiramerur	4.09	7.00
15	Ilupur (Pudukottai district)	5.40	4.00
16	Walajabad	6.01	66.33
17	Kamuthi	6.40	1.50
	Total	164.58	259.89

Further preparation of Detailed Project Report for bypass to Mettupalayam, Dindugal and Thuraiyur phase II are in progress.

5.5 RAILWAY OVER BRIDGE AT RAILWAY LEVEL CROSSING

Construction of Railway Over Bridge in lieu of L.C No. 13, Athipattu in Thiruvallur District at a cost of Rs.16.40 Crore is in progress under Railway Works Programme (RWP).

Construction of ROB at Textool under CRIDP scheme at a cost of Rs.20 Crore was taken up and the work is nearing completion.

In Nagappattinam district, construction of ROB at Sirkali (LC- 216) was completed by Railway Authorities and construction of approaches to ROB was taken up through State funds to facilitate traffic

flow. This work has been sanctioned at a cost of Rs.12 Crore and is in progress.

5.6 INTEGRATED CHIEF ENGINEERS' OFFICE BUILDING

All the offices of the Chief Engineers of the Department are functioning at various locations in rented buildings/other department buildings except the Office of the Director, Highways Research Station. Construction of an Integrated Chief Engineers' office in the campus of Highways Research Station, housing all the Chief Engineers of this department, for effective coordinated functioning of the department, is nearing completion.

Additional works at a cost of Rs.21.61 Crore for infrastructure facilities nearing completion.

5.7 RESIDENTIAL QUARTERS FOR CHIEF ENGINEERS

The Integrated Chief Engineers' office is being constructed in the Highways Research Station campus, Guindy. Construction of 8 Quarters for Director General and 7 Chief Engineers in the same campus was sanctioned at a cost of Rs.6 Crore. Work is nearing completion.

5.8 PERFORMANCE BASED MAINTENANCE CONTRACT (PBMC)

Performance Based Maintenance Contracting for roads is designed to increase the efficiency and effectiveness of road asset management and maintenance. PBMC ensures the physical condition of the roads under contract is adequate for the need of road users with comfort travel, over the entire period of the contract.

Performance Based Maintenance Contract (PBMC) is being implemented in 191.40 Km of State Highways (SH) roads and 185.98 Km of Major District Roads in Pollachi Division for a period of five years at a cost of Rs.233.93 Crore. This scheme includes Initial Rectification, Periodical Renewal, Minor Improvements, Ordinary Maintenance and Emergency works.

In continuation, for maintenance of 307 km length of State Highways and 274 km length of Major District Roads in Krishnagiri division under Performance Based Maintenance Contract, sanction was accorded for Rs. 450 Crore and these works will commence soon.

In addition, for maintenance of 229 km length of State Highways and 340 km length of Major District Roads in Ramanthapuram divisions under Performance Based Maintenance Contract (PBMC), sanction was accorded for Rs. 460 Crore and works will commence soon.

5.9 CHENNAI PERIPHERAL RING ROAD

Government have sanctioned Rs.10 Crore for the preparation of Detailed Project Report for a new connectivity between Mamallapuram and Ennore Port through Singaperumalkoil, Sriperumbudur, Thiruvallur, Thamaraiakkam, Periyapalayam and Kattupalli and DPR works have been completed. The Steering Committee have approved the alignment. Preparation of land plan schedule and mapping of utility service is in progress.

5.10 FORMING OF ROAD GRIDS ALONG CHENNAI OUTER RING ROAD

Government have proposed to create Road Grids for effective dispersal of traffic emanating from Chennai Outer Ring Road and sanctioned Rs.5.22 Crore for preparation of detailed project report. Out of 15 road grids, preparation of detailed project report has been completed for 12 roads and balance works are in progress.

5.11 NON-PLAN MAINTENANCE WORKS

During 2014-15, an allocation of Rs.1157.02 Crore has been made for maintenance of roads and bridges. This is inclusive of Rs.337.33 Crore provided out of the Grant-In-Aid recommended by the 13th Finance Commission. Further the allocation also includes provision for

salary component of the work-charged establishment.

An amount of Rs.168.67 Crore has been provided for maintenance of Panchayat Union roads taken up by Rural Development and Panchayat Raj department out of the Grant-in-Aid recommended by the 13th Finance Commission.

During 2014-15, renewal of 4030 km length of roads has been completed at an expenditure of Rs.1176.27 Crore.

A budget provision of Rs.819.70 Crore has been made for 2015-16.

5.12 OVERALL EXPENDITURE (2014-15) AND ALLOCATION FOR 2015-16

During 2014-15, a total of 3430 km length of roads works, one bypass, 21 buildings and 259 bridges/ culverts/ protective works have been completed at an expenditure of Rs.2959.88 Crore.

For 2015-16, a total budgetary allocation of Rs. 3356.70 Crore has been made.

6. NATIONAL HIGHWAYS

The National Highways roads provide fast mobility for the public and also to transport the essential commodities / goods from different State Capitals, Major Ports, Industrial Areas and other tourist centres of the Nation. Hence always these roads have to manage the heavy traffic intensity.

Out of 5004 Km length of National Highways in Tamil Nadu State, 1998 km are maintained by National Highways wing on behalf of the Central Government. Balance 3006 km are maintained by the National Highways Authority of India (NHAI). National Highways are being developed by widening to two lane / four lane / six lane with paved shoulders and strengthening the existing riding surface with the funds from the Ministry of Road Transport and Highways, Government of India and some of them are also taken up under Public Private Partnership mode

The lane-wise details of National Highways roads in the State are given below **(Table 6.1)**.

Table 6.1: Lane-Wise Details of National Highways in Tamil Nadu

Length in Km

Sl. No	Maintained by	SL	IL	DL	ML	Total
1	NH wing	11	4	1851	132	1998
2	NHAI	-	-	903	2103	3006
	Total	11	4	2754	2235	5004

6.1 CORE ACTIVITIES

The Tamil Nadu State National Highways wing functions under the administrative control of one Chief Engineer with four circles and eight divisions. The development works such as improvements, widening, strengthening, construction of bridges and normal maintenance of National Highways roads under the control of State Government are being carried out by utilizing the funds from Ministry of Road Transport and Highways, Government of India.

The following schemes are being implemented by this wing.

- National Highways Works
 - NH (Original) Works – Plan works
 - Non Plan works.
- Centrally Sponsored Scheme works
 - Revamped Central Road Fund Scheme works (RCRF)
 - Inter State Connectivity Scheme works (ISC)
 - Economic Importance (EI) Scheme works with 50% State Government Share.
- Hill area Development programme works (HADP)
- Pradhan Mantri Gram Sadak Yojana Programme works

6.2 PROJECTS AND SCHEMES IMPLEMENTED BY NATIONAL HIGHWAYS WING

6.2.1 Plan Works

During 2014-15, spill over works costing Rs.751.27 crore comprising of 43 road works having a length of 351.95 Km and 11 bridge works were taken up. Further, the Ministry of Road Transport and Highways, Government of India has sanctioned 14 road works and 7 bridge works amounting to Rs.814.05 crore under Annual Plan 2014-15. Out of the above, 27 road works having a length of 98.31 Km and 8 bridge works have been completed at a cost of Rs.167.12 crore during 2014-2015.

The Hon'ble Union Minister of Road Transport, Highways and Shipping (GOI) laid the foundation stone for 8 works at a cost of Rs.873.12 Crore in the presence of the Hon'ble Minister for Highways and Minor Ports, Government of Tamil Nadu and the Hon'ble Minister of State for Road Transport, Highways and Shipping (GOI) on 17.07.2015 at Suchindram and these works are in progress.

Further the long pending road length from Mugundharayarchatiram to Arichalmunai (9.50 Km) of Madurai – Dhanushkodi road (NH 49) which was destroyed in the Dhanushkodi Cyclone during December 1964 has been sanctioned by the Ministry

and is now under construction at a cost of Rs.65.68 crore.

Under Annual Plan 2015-16, Government of India has accorded approval for Road / Bridge / Protective works to a tune of Rs.1240.01 Crore. The estimates for these works are under preparation and the works will be taken up for execution after obtaining Technical, Financial sanction and Administrative approval from the Ministry.

The road from Dindigul to Bangalore (NH 209) was taken up under NHDP Phase IV for improvements by NHA wing during the year 2010 but, DPR preparation work has not been finalized so far. In the above road, Pollachi – Coimbatore section is having heavy traffic and it needs immediate four laning to avoid frequent accidents. Based on the request of Government of Tamil Nadu the stretch from Pollachi – Coimbatore has now been handed over to the State National Highways wing for four laning and DPR preparation is in progress.

6.2.2 Non - Plan Works

Under Periodical repairs (PR) /Improvement of Riding Quality programme (IRQP), 13 road works to a length of 180.25 Km amounting Rs.82.62 crore were taken up as spill over during 2014-15.

In addition to this, Government of India (MORT&H) has sanctioned 12 new road works to a length of 254.69 km at a cost of Rs.157.85 crore under PR/IRQP. Out of the above works, 309.85 Km

length of 16 road works have been completed at a cost of Rs.164.15 Crore during 2014-2015. Balance works will be completed during this financial year.

Further, Government of India (MORT&H) has sanctioned 12 road works to a length of 155.12 km at a cost of Rs.92.96 crore under PR/IRQP 2015-16. All these works are in progress.

6.2.3 NHAI stretches taken over for maintenance

The NHs 45C, 47, 67, 67 Extn, 205 (22 Km Padi - Thirunindravur Urban stretch), 226 & 227 are under the control of NHAI from 2005. Even after a lapse of 8 years these stretches were neither awarded to the Concessionaires nor maintained by NHAI. The poor maintenance of these roads brought lot of public as well as media criticism to the State Government. On intensive pursuance of State Government, the Ministry had handed over the 750 Km of the above said NHs in December 2013 to the State NH wing for maintenance only.

During 2013-14, the Ministry had sanctioned Rs.49.87 crore for a length of 149.20 Km and these works were completed. In 2014-15, the Ministry had sanctioned Rs.145.58 crore for a length of 230.90 Km in which 180.10 Km of works have been completed and the balance works are in progress. During 2015-16, the Ministry has sanctioned Rs.24.56 crore for a length of 40.27 Km and these

works are in progress. Totally, the Ministry has sanctioned works having a length of 420.37 Km amounting to Rs.220.00 crore in the above stretches and the balance length of roads are being maintained by funds allotted under Ordinary Repairs Head.

6.2.4 Centrally Sponsored Schemes

Central Road Fund has been created by Government of India with the accruals from 50% cess levied on the consumption of High Speed Diesel and entire 100% cess on Petrol. Out of this, 30% of the amount is allotted annually for development and maintenance of State roads under Revamped Central Road Fund/ Economic Importance/ Inter State Connectivity Schemes.

6.2.4.1. Revamped Central Road Fund Scheme (RCRF)

Under this scheme, 26 road works to a length of 286.43 Km and one bridge work were taken up as spill over to a tune of Rs.209.88 crore during 2014-15.

Out of these, 242.13 Km length of 23 road works have been completed at a cost of Rs.158.31 crore during 2014-15. Balance one bridge work is in progress and one road work is in LA stage.

Under RCRF scheme 2015-16, 76 road works of length 485.20 Km and 2 Bridge works amounting

to Rs.390.00 crore have been Administratively approved by the Government of India and financially sanctioned by the Government of Tamil Nadu. These works are in tender stage

A budget provision of Rs.121.36 crore has been made for the financial year 2015-16 by the State Government under this scheme.

6.2.4.2. Inter State Connectivity Scheme (ISC)

In 2014-15, 5 road works to a length of 44.89 Km amounting to Rs.39.03 crore were taken as spill over under this scheme and these works have been completed at a cost of Rs.37.60 crore.

Under this scheme, Government of India (MORT&H) has sanctioned 2 road works to a length 95.82 Km amounting to Rs. 90.91 Crore for the year 2015-16.

6.2.5 Pradhan Mantri Gram Sadak Yojana Programme (PMGSY)

The Ministry of Rural Development (GOI) has launched PMGSY / Bharat Nirman Programme with the funds from the accruals of 50% cess levied on High Speed Diesel to provide road connectivity to the unconnected habitations of rural India and upgradation of existing rural roads. Out of this, upgradation of Other District Roads which have been included in the Core Network are being executed by the National Highways wing.

6.2.5.1. Pradhan Mantri Gram Sadak Yojana Programme Phase VIII (2012-13)

Under this programme, 330 Other District Road works to a length of 1062.55 Km amounting to Rs.278.54 crore have been taken up for upgradation. Out of these, 326 Other District Road works to a length of 1053.35 km have been completed at a cost of Rs.270.62 crore till date.

6.2.5.2. Pradhan Mantri Gram Sadak Yojana Programme Phase IX (2014-15)

Under this programme, Administrative Sanction for upgradation of 59 Other District Road works to a length of 170.335 Km amounting to Rs.49.20 crore have been received from the Ministry of Rural Development (MORD), Government of India. Tender for these works are under process.

6.2.6 Hill Area Development Programme (HADP)

The Hill roads in Western Ghats of Nilgiris District are improved / maintained under this programme with the funds provided by State Government, Planning Development & Special Initiatives Department.

Under this programme, 4 road works to a length of 4.40 Km and 2 Cross Drainage / protective works amounting to Rs.1.44 crore were taken up as spill over during 2014-15.

Further, the Government have sanctioned 3 new road works to a length of 2.80 Km and 4 numbers of paver block / CC drain / protective works amounting to Rs.2.20 crore during 2014-15. All these works have been completed during 2014-15 with an expenditure of Rs.3.64 crore.

6.3 OVERALL EXPENDITURE (2014-15) AND ALLOCATION FOR 2015-16

A total allocation of Rs.358.19 crore has been made by the Ministry of Road Transport and Highways, New Delhi for NH works and out of these Rs.346.35 crore was spent during 2014-15. Further an amount of Rs.219.82 crore has been spent under the Centrally Sponsored State Plan Schemes during 2014-15.

An allocation of Rs.217.54 crore has been made by the Ministry of Road Transport and Highways for NH works for 2015-16. Apart from this, a budget provision of Rs.146.97 crore has been earmarked under Centrally Sponsored State Plan Schemes for 2015-16 by the State Government.

6.4 PROJECTS EXECUTED BY NATIONAL HIGHWAYS AUTHORITY OF INDIA (NHAI)

The National Highways Authority of India was constituted by an Act of Parliament, the National Highways Authority of India Act 1988 for the development, maintenance and management of

National Highways entrusted to it and was operationalised in February 1995. NHAI is implementing the National Highways Development Programme (NHDP) approved by Government of India in seven phases. Apart from this, roads, flyovers, underpasses are being constructed and improved under Port Connectivity Scheme and Other Special Projects Scheme.

National Highways 4, 5, 7, 7A, 45, 45A, 45B, 45C, 46, 47, 47B, 49, 66, 67, 68, 205, 209, 210, 220, 226 & 227 in the State of Tamil Nadu are taken up for improvement under various Phases of NHDP by Government of India through NHAI.

State Government extends its co-operation and assistance to NHAI in the matters of pre-construction activities such as land acquisition, shifting of utilities etc.

6.4.1 Works Completed by NHAI

2862 Km length of roads at a cost of Rs.15000 Crore have been upgraded to six/ four lane / two lane with paved shoulders in Tamil Nadu since the inception of NHAI.

6.4.2 Works Awarded by NHAI

During the year 2014-15, projects for a total length of 213 km at a cost of Rs.691 Crore have been awarded and work on these projects are in progress.

Further, the Hon'ble Union Minister of Road Transport, Highways and Shipping laid Foundation stone for improvements of Madurai – Ramanathapuram section of NH 49 and Nagapattinam – Thanjavur Section of NH 67 at a cost of Rs.1965 crore in the presence of the Hon'ble Union Minister of State for Road Transport, Highways and Shipping on 17.07.2015 at Madurai and these works are in progress.

6.4.3 Port Connectivity Scheme

Cabinet Committee on Economic Affairs (CCEA) approved the port connectivity scheme in the year 2000 with the object of connecting the 12 important ports in India through NHAI by establishing a Special Purpose Vehicle (SPV). SPV have been established in Tamil Nadu to improve the roads connecting 3 major ports Chennai, Ennore and Tuticorin. The work of "Thoothukudi Port Connectivity" was completed in January 2013.

6.4.3.1. Chennai - Ennore - Manali Road Improvement Project (EMRIP)

In order to implement this project, NHAI established a Special Purpose Vehicle (SPV) namely Chennai Ennore Port Road Company Limited with Government of Tamil Nadu, Chennai Port Trust and Ennore Port Limited and NHAI as Partners.

The State Highway stretches taken up for improvements under this Port Connectivity Scheme are as given below. **(Table 6.2)**

Table 6.2: Roads covered under EMRIP

Sl. No	Name of work	Length in Km
1	Widening to four lane with service road and Improvements to Tiruvotriyur - Ponneri - Pancheti Road	9.00
2	Strengthening and improvements of existing four lane Manali oil refinery road.	5.40
3	Strengthening and improvements of existing 4 lane Northern segment of Inner Ring Road by providing paved shoulder	8.10
4	Widening to four lane with service road and improvements to Ennore expressway	7.50
	Total	30.00

The estimated cost of the project is Rs.600 crore. The details of contributions by the share holders of the company are as given below.

(Table 6.3)

Table 6.3: Cost sharing details of EMRIP

Sl. No.	Contributed by	Contribution Amount	Loan	Total	Contribution made so far
		Rupees in Crore			
1	NHAI	139.80	117.50	257.30	290.07*
2	Chennai Port Trust	139.80	110.68	250.48	139.80
3	Government of Tamil Nadu	58.20	--	58.20	58.20
4	Ennore Port Ltd.	34.02	--	34.02	34.00
	Total	371.82	228.18	600.00	522.07

***Note:** In addition to the contribution amount of Rs.139.80 Crore, NHAI /CEPRCL has released further amount of Rs.150.27 Crore for implementation of the project.

In order to protect Ennore Expressway from sea erosion, 10 groynes and seawall for a length of 500m along the sea coast at a cost of Rs.24.58 crore were constructed.

Further, houses have been built for 1824 numbers of the project affected families in Ennore Expressway, and out of these, 1814 families have occupied their houses.

90% of works have been completed till date. The balance works will be completed soon.

6.4.4 Bypasses taken up and executed by NHA

As part of NHDP, 124 bypasses have been taken up by NHA for execution. Out of this, 78 bypasses have been completed and 46 bypasses are in various stages of implementation.

6.4.5 Land Acquisition

For implementation of NHDP, land is being acquired under the provisions of the National Highways Act 1956. For acquisition of land for NHA projects, totally 25 numbers of Competent Authority for Land Acquisition (CALA) establishments are functioning in the State. Out of which, 12 are Special DROs, 11 are regular DROs and 2 are RDOs.

During the year 2014-15, total extent of 525 hectare of land has been acquired. For the ongoing and projects proposed to be awarded, balance extent of 4762 hectare of land needs to be acquired.

6.5 ISSUES TO BE RESOLVED WITH MINISTRY OF ROAD TRANSPORT AND HIGHWAYS (GOI)

A high level meeting was convened by the Government of Tamil Nadu with the Hon'ble Minister of State, Road Transport, Highways and Shipping (GOI) along with their officials to discuss various issues related to both State Government and Ministry of Road Transport and Highways (GOI) on

16.07.2015 at Chennai. During the meeting the State Government highlighted various pending issues like

- Inordinate delay by the Concessionaire in executing Tindivanam – Krishnagiri section of NH 66 and poor maintenance of existing road leading to public & media criticism and court cases.
- 6 / 8 laning of Tambaram – Tindivanam section of NH 45 to cater the present day heavy traffic, which exceeds more than 35,000 PCU.
- Reimbursement of Rs.108.30 crore towards the maintenance works carried out in NH 45C, NH 47, NH 226, NH 227 and NH 205 (Padi – Tiruninravur section) and for the improvement works being carried out in the bypass portions of NH 45 Extn. (Dindigul – Theni section) and NH 220 (Theni – Kumuli section) due to non maintenance of National Highways by NHA.
- Delay in issuance of No objection certificate for the construction of ROB / RUB in Tambaram – Tindivanam section of NH 45 in lieu of LC No.32 (Perungalathur), LC No.33 (Perungalathur), LC No.36 (Urapakkam) and LC No.47 (Singaperumalkoil).

- Formation of Ring road to Salem city connecting all National Highways and State roads passing through Salem City.
- Construction of Grade Separators/ Vehicular Underpass wherever the important State roads crosses NHAI roads to avoid accidents.

7. NABARD AND RURAL ROADS

This wing is headed by a Chief Engineer with four Superintending Engineers and fourteen Divisional Engineers. Construction of Bridges and improvements of roads with loan assistance from National Bank for Agriculture and Rural Development (NABARD), construction of Road over Bridges, Road under Bridges under Railway works Programme and land acquisition for By-passes are carried out by this wing.

7.1 NABARD LOAN ASSISTANCE SCHEMES

7.1.1 Construction of River Bridges in Government and Panchayat Union Roads

Under this scheme spillover of 200 bridges at a cost of Rs.412.11 Crore and newly sanctioned 94 bridges at a cost of Rs.293.47 Crore, totally 294 Bridges at a cost of Rs.705.58 Crore have been taken up for execution during 2014-15.

During 2014-15, 126 bridges have been completed with an expenditure of Rs.233.59 Crore. The details of Major Bridge works completed and which were inaugurated by **Hon'ble Chief Minister of Tamil Nadu** are given in **table 7.1**

**Table 7.1: Major Bridges inaugurated during
2014-15**

Sl. No.	District/ Constituency	Nomenclature	Cost (Rs. in Crore)
1	Thiruvallur/ Gummidipoondi	Construction of High level bridge at km. 0/8 of Enampakkam - Tholavedu road across Arani river	5.60
2	Villupuram/ Vanur	Construction of High Level Bridge at Km 8/8 of Brammadesam - Ranganadhapuram road via Kiliyanur across Narasimma river	3.11
3	Tiruvannamalai/ Cheyyar	Reconstruction of High level bridge at km 44/6 of Arcot - Tindivanam road	1.60
4	Namakkal/ Komarapalayam	Construction of high level bridge in lieu of existing Piped Causeway at km 21/4 of Komarpalayam-Pallipalayam-Jedarpalayam-Pandamangalam-Velur Road	1.65
5	Namakkal/ Komarapalayam	Construction of Minor Bridge at km 1/8 of Padaiveedu Road.	1.10
6	Salem / Athur	Construction of Bridge at Km 10/4 of Karumandurai - Soolankurichi Road.	1.00

Sl. No.	District/ Constituency	Nomenclature	Cost (Rs. in Crore)
7	Namakkal/ Paramathi-Velur	Construction of High Level Bridge at Km 2/8 of Velur - Mohanur road across Thirumanimutharu river	1.30
8	Dharmapuri / Pappireddipatti	Construction of Minor Bridge at km 2/2 of Kadathur – Thalanatham road.	1.32
9	Dharmapuri / Dharmapuri	Construction of High Level Bridge at km 6/8 of Nallampalli - Papparapatti road (via) Nagarkoodal - Indur - Kanapatti in lieu of existing Piped causeway.	2.20
10	Erode/ Bhavanisagar	Construction of Bridge across the stream (Sikkalli) at Km 35/6 of Thimbam- Thalamalai- Thalavadi Road	1.63
11	Erode / Bhavani	Reconstruction of bridge at km 9/8 Bhavani Kavundapady road	1.65
12	Erode / Modakurichi	Construction of bridge in lieu of existing damaged causeway at km 23/4 of Passur R.S-Vellode road	1.21
13	Tiruppur / Dharapuram	Construction of bridge at Km 26/8 of Udumalpet - Dharapuram road (SH 97)	1.10

Sl. No.	District/ Constituency	Nomenclature	Cost (Rs. in Crore)
14	Tiruppur / Dharapuram	Construction of bridge at Km 27/8 of Udumalpet - Dharapuram road (SH 97)	1.05
15	Tiruvarur / Thiruthurai poondi	Reconstruction of bridge at KM 3/8 of Kottur-Meenamanallur Road	1.33
16	Tirunelveli / Kadayanallur	Reconstruction of High Level Bridge @Km.0/6 of Ayikudi-Nainagaram road	1.99
17	Tirunelveli / Kadayanallur	Reconstruction of High Level Bridge at Km 2/2 of Sivaramapettai - Panpozhi - Shencottai road	1.19
18	Virudhunagar / Sattur	Reconstruction of High Level Bridge at km 17/4-6 of Rajapalayam - Vembakottai Road (SH186)	2.95
19	Virudhunagar / Aruppukottai	Construction of Minor Bridge at km.0/8 of Melamadai- Palava natham road via Kullursandai road.	0.50
20	Virudhunagar / Aruppukottai	Construction of Minor Bridge at km.10/6 of Sathur - Nenmeni road	0.50
21	Virudhunagar / Rajapalayam	Construction of Minor Bridge at km.2/2-4 of Piraakudi Kanmai road.	1.37

Sl. No.	District/ Constituency	Nomenclature	Cost (Rs. in Crore)
22	Thoothukudi / Oddapidaram	Reconstruction of Minor Bridge at Km 58/10 of Kovilpatti - Ottapidaram - Pudukottai - Eral - Mukkani road	1.61

For the year 2015-16, an allotment of Rs.200.00 Crore has been made.

7.1.2 Improvements to Other District Roads and Major District Roads

Under this scheme during 2014-15, spill over works of 2 roads to a length of 8.70 Km (6.70 Km Strengthening & 2.00 Km Widening) at a cost of Rs.3.75 Crore have been taken up and completed. An expenditure of Rs.0.95 Crore has been incurred.

For the year 2015-16, an allotment of Rs.100.00 Crore has been made.

7.1.3 Construction of River Bridges on Government Roads

Under this scheme, spill over of 1 bridge at a cost of Rs.4.24 Crore was taken up for execution during 2014-15. An expenditure of Rs.0.42 Crore has been incurred.

For the year 2015-16, an allotment of Rs.1.40 Crore has been made.

7.1.4 Improvements to Rural Roads

Under this scheme, spill over work of 1 bridge at a cost of Rs.1.53 Crore in Panchayat Union Road has been taken up for execution. During 2014-15, an expenditure of Rs.0.25 Crore has been incurred.

7.2 TSUNAMI REHABILITATION PROGRAMME

Under this scheme, spill over works of two bridges at a cost of Rs.11.11 Crore have been taken up for execution and will be completed after completion of land acquisition. An expenditure of Rs. 3.06 Crore has been incurred.

7.3 CONSTRUCTION OF ROAD OVER BRIDGES /ROAD UNDER BRIDGES

20 Road Over Bridges and 5 Road Under Bridges at a cost of Rs.342.98 Crore in lieu of the existing Level Crossings have been taken up for execution under the Railway Works Programme. Of these, 11 works are in progress, as indicated in **Table 7.2**

Table -7.2: List of ROB works in progress

Sl. No.	District / Constituency	LC No./ Location	Cost in Crore
1	Villupuram / Villupuram	2, Venkatesapuram	31.60
2	Coimbatore / Singanallur	2, Irugur	18.69
3	Coimbatore / Singanallur	4, Irugur	21.16
4	Tirunelveli / Tirunelveli	18, Tirunelveli Yard	29.12
5	Erode / Erode West	124, Sastrinagar	9.18
6	Tiruppur/Tiruppur North	132, Tiruppur SRC Mill Gate	48.26
7	Tiruppur/Tiruppur North	133, Tiruppur	27.68
8	Dindigul / Dindigul	309, Dindigul	24.00
9	Madurai / Madurai west	LC 366, Palanganatham	33.00
10	Madurai / Thiruparangundram	LC 371, Thiruparangundram	18.30
11	Tuticorin / Kovilpatti	LC 439, Kovilpatti	12.95

The details of 14 works which are in pre-construction stage are given in **Table 7.3**

Table -7.3: Works in pre-construction stage

Sl. No.	District / Constituency	LC No. /Location	Cost in Crore
1	Tiruvallur	2, Pattabiram West	33.48
2	Coimbatore / Singanallur	5, Neelikonampalayam	17.00
3	Coimbatore / Coimbatore South	6, Thanneerpandal	12.65
4	Coimbatore / Coimbatore South	7, Irugur	30.50
5	Tiruvallur / Avadi	7, Annanur	15.60
6	Coimbatore/ Goundampalayam	9, Avarampalayam	22.55
7	Tiruvallur /Avadi	9, Hindu college	8.55
8	Coimbatore / Coimbatore North	10, Peelamedu	11.90
9	Tiruvallur / Poonamallee	16, Putlur	10.42
10	Tiruvarur / Mannargudi	22, Needamangalam	23.19
11	Tiruppur/Tiruppur North	131, Tiruppur	13.38
12	Thanjavur / Thanjavur	304, Thanjavur Oriental tower	41.00
13	Virudhunagar / Virudhunagar	403, Virudhunagar	20.53
14	Virudhunagar/ Virudhunagar	406, Virudhunagar	3.25

7.4 OVERALL EXPENDITURE (2014-15) AND ALLOCATION FOR 2015-16

During 2014-15, an expenditure of Rs.237.31 Crore has been incurred for all Plan Schemes including expenditure towards land acquisition for By-passes. A total of 128 works including 126 bridges with an expenditure of Rs.234.29 Crore and 2 roads to a length of 8.70 Km with an expenditure of Rs.0.95 Crore have been completed.

For 2015-16, a total budgetary allocation of Rs.326.42 Crore has been made.

8. PROJECTS

The prime function of the Projects Wing is to construct Road Over Bridges (ROB) and Road Under Bridges (RUB) in lieu of existing Level Crossings in coordination with the Railways on 50:50 cost sharing basis under the Railway Works Programme. Major river bridges, Grade Separators, Bye-pass roads, Ring Roads and Junction improvement works are also carried out by this wing.

It functions under the control of a Chief Engineer with four Circles and ten Divisions.

The construction of Railway Over Bridges and Railway Under Bridges are carried out in coordination with Railways and liaison with Revenue Department and other Service Departments.

The various activities involved in the execution of ROB / RUB works and the approximate time taken are as tabulated below:-

- | | | |
|----|---|----------|
| 1. | Preparation of Site Plan, Alignment Approval, sending to Railways | 3 months |
| 2. | Obtaining Railway GAD | 6 months |
| 3. | Preparation of Land Plan schedule | 3 months |
| 4. | 15(2) Notification | 6 months |
| 5. | 15(1) Notification | 6 months |
| 6. | Preparation of Valuation | 3 months |

7.	Approval of Valuation	3 months
8.	Passing of Award / Payments / Taking Possession	6 months
9.	Shifting of utilities	3 months
10.	Preparation of Design and Drawing	6 months
11.	Estimate Preparation and Technical sanction	3 months
12.	Tendering and Award of works	3 months
13.	Execution of work	30 months
	TOTAL	81 months

8.1 FINALIZATION OF GENERAL ARRANGEMENT DRAWING (GAD)

Following additional steps are involved in finalization of GAD:

1. Whenever an ROB work is sanctioned, the site is surveyed and two or more alternate alignments are studied and alignment proposals are prepared.
2. The alignment committee comprising of four Superintending Engineers of various wings of Highways Department along with the Divisional Engineer of Investigation wing and the Divisional Engineer of execution wing concerned examines the alignment proposals at the site.

3. The most feasible and economical alignment which involves the least land acquisition is approved by the Alignment committee.
4. The approved alignment and the General arrangement drawing (GAD) for Highway portion are prepared and sent to Railways.
5. Railways verifies the proposal at site and sends Provisional Railway GAD to Highways.
6. The Provisional Railway GAD is verified at site by the Highways and the GAD is concurred and sent to Railways. Any modification, if necessary, is done by both the Departments.
7. Railways accords final approval, and the approved GAD is sent to Highways.

These activities require a minimum time span of nine months to complete.

8.2 COMPLEXITY INVOLVED IN ROB/ RUB WORKS

For most of the ROB/ RUB works, the land is to be acquired and service utilities such as EB lines, Telephone lines, Underground sewage and water lines are to be shifted. In some cases, Religious centres, Historical Monuments, Defence land, Railway land etc., come in the way, which necessitate modifying the alignment or getting clearance from the respective departments, causing much delay in completion of the projects.

As the time taken for completion of these complex projects has been high resulting in time and cost overruns, concerted action has been taken to monitor the progress of ongoing projects all over the State by convening frequent coordination meetings and conducting joint site inspection with the respective departments in critical cases. As a result of the effective monitoring, the average duration of completion of projects has been reduced.

During the period from 2006-11, the average completion period was **7 Years and 10 Months**. This has been reduced to **6 years** during 2011-15, barring the 8 old long pending works, all of which have been completed.

It is confirmed from the Southern Railway that Tamil Nadu has completed much higher number of Road Over/ Under Bridges compared to the other South Indian states and therefore has been able to get more projects from the Railways.

8.3 ROAD OVER BRIDGES AND ROAD UNDER BRIDGES AT RAILWAY LEVEL CROSSINGS:

8.3.1 Railway Works Programme

Under the Railway Works Programme, 103 Spillover works were taken up in 2014-15 by various wings of this Department, of which, 61 ROB/ RUBs works (**Table 8.1**) were taken up by the Projects wing at a cost of Rs.1719.22 Crore.

In 2014–15, 13 works (**Table 8.2**) have been completed at a cost of Rs.240.74 Crore and 23 works (**Table 8.3**) are in progress for a value of Rs.743.46 Crore. The remaining works are in various stages of pre-construction.

Table 8.1: Spill over works

Sl. No.	District	No. of ROB /RUB	Cost (Rs. in Crore)
1	Tiruvallur	5	110.49
2	Chennai	1	80.68
3	Kancheepuram	8	258.86
4	Vellore	11	222.09
5	Krishnagiri	1	24.39
6	Villupuram	4	88.09
7	Salem	4	168.86
8	Coimbatore	9	196.47
9	Dindigul	1	59.80
10	Trichy	6	238.65
11	Thanjavur	1	24.54
12	Cuddalore	4	84.60
13	Tuticorin	1	27.50
14	Tirunelveli	2	58.21
15	Kanyakumari	1	21.40
16	Triuppur	1	17.44
17	Ramanathapuram	1	37.15
	Total	61	1719.22

Table 8.2: Completed Road Over Bridges and Road Under Bridges

Sl. No.	District	Level Crossing No. & Location	Cost (Rs. in Crore)
1	Vellore	66, Gudiyatham	10.50
2	Vellore	82, Vaniyampadi	19.54
3	Vellore	89, Pachal	21.54
4	Krishnagiri	96, Samalpatty	24.39
5	Coimbatore	21, Nanjundapuram	11.80
6	Trichy	281, Manapparai	21.53
7	Thanjavur	302, Thanjavur	24.54
8	Cuddalore	181, Eraiyur (Pennadam)	23.00
9	Cuddalore	168, Virudachalam (Vayalur)	24.00
10	Cuddalore	166A, Cuddalore Pachayankuppam	16.35
11	Cuddalore	159, Thirupathiripuliyur	4.71
12	Kanyakumari	32B, Eranial & Nagercoil	21.40
13	Tiruppur	95, Udumalaipet	17.44
		Total	240.74

Table 8.3: Ongoing Road Over Bridges and Road Under Bridges

Sl. No	District	Level Crossing No. & Location	Cost (Rs. in Crore)
1	Thiruvallur	38, Elavur	23.37
2	Thiruvallur	21, Kadambathur	14.90
3	Chennai	Vyasarpadi	80.68
4	Kancheepuram	40, Guduvanchery	29.04
5	Kancheepuram	36, Urappakkam	34.50
6	Kancheepuram	47, Singaperumal Koil	52.89
7	Vellore	86, Jolarpet	21.57
8	Vellore	69, Ulli	12.00
9	Villupuram	111, Vikaravandi	20.20
10	Villupuram	102, Mailam	22.43
11	Salem	113, Suramangalam	22.50
12	Salem	187, Leizh Bazaar	42.14
13	Coimbatore	11, Ratnapuri	19.50
14	Coimbatore	3, Pollachi	20.42
15	Coimbatore	146, Singanallur	23.50
16	Coimbatore	10, Karamadai	30.70
17	Trichy	228, Lalgudi	20.50
18	Trichy	248, Trichy	44.52
19	Trichy	1136, Trichy	74.00
20	Trichy	380A, Srirangam	43.00
21	Cuddalore	135A, Panruti	21.25
22	Tirunelveli	118A, Palayamkottai	32.70
23	Ramanathapuram	473, Paramakudi	37.15
		Total	743.46

In the year 2012-13, the Government has accorded Administrative Sanction for

Rs.100.90 Crore to carry out preliminary works for 12 ROBs/RUBs, which are in various stages of pre-construction. For one work at LC 8 in Dindigul district, Government has accorded Administrative Sanction for Rs. 20.35 Crore and the work will be tendered shortly.

In the year 2013-14, the Government has accorded Administrative Sanction for Rs.231.49 Crore to carry out preliminary works such as Land Acquisition, Shifting of Service Utilities and Investigation for 18 ROBs/RUBs which are in progress (**Table 8.4**). On completion of preliminary works, Administrative Sanction will be accorded for carrying out the main bridge works.

Table 8.4: Preliminary Works Sanctioned during 2013-14

S. No	District	LC No	Location	Preliminary cost (Rs. in Crore)
1	Thiruvallur	14	Nandiyambakkam	11.016
2	Thiruvallur	26	Chinnakavanam	7.114
3	Kancheepuram	29	Kancheepuram	4.494
4	Vellore	59	Vaduganthangal	4.212
5	Vellore	123	Vellore	6.286
6	Thiruvanna malai	55	Thiruvannamalai	3.299
7	Thiruvanna malai	80	Polur	5.234
8	Villupuram	144	Madapattu	2.036

S. No	District	LC No	Location	Preliminary cost (Rs. in Crore)
9	Trichy	323	Keelakalkandar Kottai	28.235
10	Trichy	226	Manakkal	20.327
11	Nagapattinam	48	Nagapattinam	23.740
12	Thiruvarur	20	Needamangalam	10.678
13	Thiruvarur	34	Singalanchery	20.801
14	Thiruvarur	16	Peralam	16.419
15	Salem	185	Mulluvadi gate	43.600
16	Salem	159	Valappady	6.992
17	Coimbatore	142A	Rasipalayam	4.725
18	Tirunelveli	82B	Valliyoor	12.272
			Total	231.487

During 2014-15, an expenditure of Rs.241.31 Crore was incurred under this scheme. Due to various court cases and delays in the land acquisition, the expenditure got curtailed. However, a provision of Rs.808.54 Crore has been made for this scheme for the year 2015-16.

8.4 CONSTRUCTION OF BRIDGES WITH NABARD ASSISTANCE

In order to provide necessary road access in rural areas, bridge works with NABARD loan assistance are being carried out by Projects Wing. Under this scheme, spill over works of 3 river bridges have been taken up, to a value of Rs.102.76 Crore (**Table 8.5**) in 2014-15 and

2 works have been completed at a cost of Rs.59.26 Crore. The remaining one bridge work has been completed in 2015 at a cost of Rs.43.50 Crore.

Table 8.5: Completed River Bridges under NABARD Scheme

Sl. No	District / Name of Work	Cost (Rs. in Crore)
	Cuddalore, Nagapattinam	
1	Construction of High level bridge across the Coleroon river between Muttam village of Cuddalore District and Manalmedu village of Nagapattinam District.	57.76
	Thiruvarur	
2	Reconstruction of the bridge across Vellaiyar river at km 14/8 of Mannargudi – Tiruvarur road	1.50
	Karur, Namakkal	
3	Construction of a High Level Bridge across Cauvery river Connecting Mohanur (Namakkal Dist.) and Vangal (Karur Dist)	43.50
	Total	102.76

An expenditure of Rs.9.22 Crore was incurred under this scheme in the year 2014-15. A provision of Rs.7.77 Crore has been made for this scheme for the year 2015-16.

8.5 WORKS TAKEN UP WITH STATE FUNDS

8.5.1 Erode Outer Ring Road

In order to ease the heavy traffic congestion in Erode Town and to have a free flow of traffic, Government had accorded sanction for the formation of a ring road from Kokkarayanpettai to Thindal to a length of 14.80 km.

In Phase I & II, the work of formation of the outer ring road from km 0/0 to 2/2 including construction of a high level bridge across Cauvery River and the stretch from km 2/2 to 7/6 respectively were completed under CRIDP scheme and opened for public use.

In Phase III, the work of formation of the outer ring road for a length of 7.20 km from km 7/6 to 14/8 including construction of Road Over Bridge at km 11/2 – 11/6 for Rs.69.30 Crore was taken up and the work is in progress.

8.5.2 Erode Government Hospital Junction Improvement

Under Comprehensive Road Infrastructure Development Programme (CRIDP) scheme in 2014-15 the junction of km 1/8 of Erode – Perundurai – Kangeyam road near Government Hospital has been improved at a cost of Rs.11.00 Crore.

8.5.3 Road Over Bridge at Pallipalayam

During 2013-14, Government has accorded Administrative Sanction for Construction of Railway Over Bridge in State Highways 79 at km 90/2 in Nammakal district for Rs.40.16 Crore was taken up as a deposit work and the work is at tender stage and will be commenced shortly.

8.5.4 Construction of Grade Separator in Erode District

In 2013-14, Government has accorded Administrative Sanction for preliminary works for Rs.22.93 Crore under deposit work for construction of Grade Separator at km 1/8 of Erode-Perundurai-Kangayam Road Government hospital Junction. Preliminary works are in progress.

In the year 2014-15, an expenditure of Rs.8.87 Crore have been incurred for the works taken up under State Government fund (other than CRIDP) and a provision of Rs.27.72 Crore has been made for the year 2015-16.

8.5.5 Road Over Bridge at Ambur

During 2013-14, Government has accorded Administrative Sanction for preliminary works for Rs.6.97 Crore for construction of Railway Over Bridge at Bethlegam area in Ambur Town, between Ambur and Vaniyambadi Railway Stations in Vellore district. Preliminary works are in progress.

8.6 SUGARCANE ROAD DEVELOPMENT SCHEME

To form and improve the roads from sugarcane growing areas to sugar mills, the cess fund collected by the Agricultural Department from sugar mills is utilized.

9 Road works and 1 High level bridge at a cost of Rs.14.40 Crore have been taken up under this scheme and 7 road works have been completed at a cost of Rs.9.04 Crore (**Table 8.6**) and the other works are in progress.

Table 8.6: Completed Works

Sl. No	District /Name of Work	Cost (Rs. in Crore)
	Karur	
1	Forming and improvements of Pudumadaipudur pirivu road to Kannimarkoil road km 0/0 - 0/8 including culvert.	0.71
	Ariyalur	
2	Forming and improvements of Vaithyanathapuram to Kallan sandu road km 0/0 - 0/8 including culvert.	0.64
	Tiruvannamalai	
3	Forming and Improving Road from Meyyur burial ground to Vellerierikkarai km 0/0 - 1/0	0.64

Sl. No	District /Name of Work	Cost (Rs. in Crore)
	Villupuram	
4	Forming and Improving Road from km 0/0 – 1/5 of Karadichittur Koravaikkal to East Kattukottai.	1.20
	Cuddalore	
5	Forming and Improving Road from Thoottikkuppam to Chinnaparur at Mangalampettai road km 0/0 – 2/6	2.05
6	Forming and Improving Road from Kozhipakkam – Madhagadipattu to Periyapaganda km 0/0 – 2/250	1.85
	Theni	
7	Forming and Improving Road from Kottur – Edakurumban road to Chinnamanur km 0/0 – 2/0	1.95
	Total	9.04

8.7 WORKS ANNOUNCED BY THE HON'BLE CHIEF MINISTER OF TAMIL NADU IN 2013 - 14

During 2013-14, Government has accorded Administrative Sanction for **Rs.3.60 Crore** for preparation of Detailed Project Report for the construction of following 24 works

- River bridges 13 Nos,
- Bypass 3 Nos
- New road formation 2 Nos,
- Road Over Bridges 4 Nos,
- Limited Use Subway 1 No &
- Grade Separator 1 No.

The Detailed Project Report for 15 works have been completed and Administrative Sanction will be accorded soon. Out of the remaining 9 works, 2 works are in estimate stage, 5 works are in DPR stage and 2 works in GAD stage.

8.8 WORKS ANNOUNCED BY THE HON'BLE CHIEF MINISTER OF TAMIL NADU IN 2014 - 15

In 2014 - 15, 8 works viz 3 foot over bridges, 4 High level bridges and 1 Road over bridge were announced by the **Hon'ble Chief Minister of Tamil Nadu**. Of these, administrative sanction have been accorded for Rs.39.40 Crore for the following 4 works (**Table 8.7**). Tender will be floated for these works shortly.

Table 8.7: Works Announced by the Hon'ble Chief Minister of Tamil Nadu in 2014-15

Sl. No.	District /Name of Work	Cost (Rs. in Crore)
	Cuddalore	
1	Construction of High level Bridge across Uppanar river connecting km.6/8 of Chidambaram – T.S.Pettai Road (ODR) and km.161/8 of PWD Coleroon river left bund road	10.06
	Coimbatore	
2	Construction of Foot Over Bridge with Escalator near Nanjundapuram junction at Coimbatore.	10.72

Sl. No	District /Name of Work	Cost (Rs. in Crore)
	Karur	
3	Construction of Foot Over Bridge with Escalator near Bus Stand at Karur	11.37
	Dharmapuri	
4	Construction of High level Bridge near Pappireddipatti across Vanियar River	7.25
	Total	39.40

8.9 OVERALL EXPENDITURE (2014-15) AND ALLOCATION FOR 2015-16

During 2014-15, an expenditure of Rs.360.36 Crore was incurred in all schemes. For 2015-16, a total budget allocation of Rs.844.03 Crore has been made.

9. METRO

Metro wing is headed by a Chief Engineer with one Circle and five Divisions.

Improvements of road and bridge infrastructure facilities, construction of Grade Separators, Foot Over Bridges, Subways, Railway Over Bridges and Railway Under Bridges are being taken up in the Chennai Metropolitan Area with state budgetary allocation.

Metro wing was formed considering the complex nature of works attributed by various unique problems involved in execution major infrastructure projects in congested urban locations.

9.1 CHENNAI METROPOLITAN DEVELOPMENT PLAN (CMDP)

To improve the road and bridge infrastructure facilities in the Chennai Metropolitan Area, the Chennai Metropolitan Development Plan is being implemented since 2003-04 with State budgetary allocation. The Comprehensive Traffic & Transportation Study for the Chennai Metropolitan Area and the Second Master Plan of the CMDA have recommended about 340 projects that are required to be implemented in a span of 15 years (2010-2025) at an approximate cost of Rs.14070 Crore.

So far, the Government have given its approval for 265 improvement works at a cost of Rs.2017.03 Crore which includes 482.47 km. of Road works, 17 Bridges, 11 Grade Separators, 10 Railway Over Bridge/ Railway Under Bridge, 1 Sky walk, 5 Pedestrian subways and 1 Foot Over Bridge. Major works under implementation are detailed below:-

9.1.1 Grade Separators

To improve infrastructure facilities in the Chennai Metropolitan Area, the Administrative Sanction was accorded for 10 Works at a cost of Rs.808.49 Crore and 1 grade separator at a cost of Rs.58.00 Crore for land acquisition only. The various stages of works are detailed below (**Table 9.1**).

Table 9.1: Grade Separators

Sl. No	Nomenclature	Cost (Rs. in Crore)
Works is in progress		
1	Grade Separator at the intersection of Mount - Poonamallee road with Kodambakkam - Sriperumpudur road at Porur	54.00
2	Grade Separator at the intersection of Madhavaram High road with G.N.T Road at Moolakkadai	49.55
3	Construction of a Grade Separator at the junction of Perambur - Redhills road near Kolathur Rettai Eri in Inner Ring Road	52.72

Sl. No	Nomenclature	Cost (Rs. in Crore)
4	Grade Separator at the intersection of Anna Nagar IInd Avenue and Mogappair road with Inner Ring road at Thirumangalam	60.23
5	Grade Separator at the intersection of N.S.K Salai (Arcot Road) with Inner Ring road at Vadapalani taken up under CMRL	69.43
6	Grade Separator on EVR Salai at the intersection of Nelson Manickam road and Anna Nagar 3rd Avenue road.	117.00
	Total	402.93
Works being taken up for execution		
7.	Construction of a Grade Separator at the junction of Kundrathur road and Santhai road at Pallavaram in GST road	80.74
8.	Construction of a Grade Separator at the junction of Taramani road, Tambaram – Velachery road and Velachery bypass in Velachery Vijayanagaram junction.	98.22
9.	Construction of a Grade Separator connecting the junctions of Mofussil bus entrance of CMBT and Kaliamman Koil road junction in Jawaharlal Nehru Salai (IRR)	93.50
	Total	272.46

Sl. No	Nomenclature	Cost (Rs. in Crore)
Estimate Stage		
10.	Grade Separator at Medavakkam – Sholinganallur road junction, Medavakkam – Mambakkam road junction and Mount – Medavakkam junction in Maramalai Adigal Bridge – Irumbuliyur (MBI) road.	133.10
DPR Stage		
11.	Grade Separator at the junction of ECR – Thiruvanmiyur road (Land Acquisition)	58.00
Grand Total		866.49

9.1.2 Railway Over Bridges / Under Bridges at Railway Level Crossing

The administrative sanction has been accorded for the following 10 works (**Table 9.2**) under Railways works programme at a cost of Rs.318.04 Crore in the Chennai Metropolitan Area.

Table 9.2: Railway Over Bridges/ Under Bridges at Railway Level Crossing

Sl. No	Nomenclature	Cost (Rs. in Crore)
1	LC No.3 –Construction of Railway Over Bridge near Tiruvottiyur - Mattumandhai	47.00
2	LC No.4 –Construction of Railway Under Bridge near Tiruvottiyur Railway station.	28.00

Sl. No	Nomenclature	Cost (Rs. in Crore)
3	LC No.6 – Construction of Railway Under Bridge near Tiruvottiyur - Wimco Nagar Railway station.	25.50
4	LC No.5 – Construction of Railway Over Bridge near Pattaravakkam.	35.00
5	LC No.14 – Construction of Railway Over Bridge near Veppampattu Railway station	29.50
6.	LC No.4 –Construction of Railway Under Bridge near Korattur Railway station	19.97
7.	LC No.16 –Construction of Railway Over Bridge near Nandhiyambakkam- Minjur Railway station	28.32
8.	LC No.32&33 – Construction of Railway Over Bridge near Perungalathur Railway station	76.00
9.	LC No.22 –Construction of Railway Under Bridge near Thirusulam	14.00
10.	LC No.27 –Construction of Limited Use Subway near Chrompet Radha Nagar	14.75
	Total	318.04

LC No. 5 (Sl.No.4) has been completed at a cost of Rs.36.06 Crore and inaugurated. Works in ROB-LC No. 3 are in progress. The balance 8 works are at different stages.

9.1.3 Road Works

The following two road works (**Table 9.3**) have been administratively sanctioned in which 3 km of the Tambaram Eastern Bypass work has

been completed out of 9 km where land acquisition has been done during 2014-15. The balance road works will be taken up after completion of Land Acquisition.

Table 9.3: Road Works

Sl. No	Nomenclature	Cost (Rs. in Crore)
1	Formation of new link road connecting MBI road at km 17/4 in Rajakilpakkam and Tambaram Eastern Bypass at Agaramthen salai. (only completed LA portions).	25.00
2	Forming New Link Road connecting Puzhal Chennai GNT Road and Amullaivoyal in IRR at Km 20/8	20.00
	TOTAL	45.00

In addition, administrative sanction has been accorded for forming link road and construction of Bridge across Buckingham canal connecting Rajiv Gandhi Salai and East Coast Road at Neelankarai for Rs.204.20 Crore under CMDP Scheme for which Land Acquisition process is under progress.

9.1.4 River Bridges

During 2012-13 administrative sanction has been accorded for 8 River Bridges at a cost of Rs.30.00 Crore. Out of 8 River bridges, 5 works are in progress (**Table 9.4**)

Table 9.4: Works in progress

Sl.No	Nomenclature	Amount Rs. in Crore
1.	Construction of additional 3 lane bridge across the river Cooum near Aminjikai in EVR Salai	8.00
2.	Widening of Bridge at Km.3/4 of Mount – Poonamallee - Avadi road (SH-55)	1.00
3.	Construction of an additional two lane bridge at Km.15/8 of Mount – Poonamallee - Avadi road (SH-55)	5.00
4.	Construction of an additional two lane bridge at Km.62/2 of Singaperumalkoil – Sriperumpudur – Thiruvallur – Senkundram road (SH-57)	2.00
5.	Construction of a bridge at Km.16/6 of Tambaram – Mudichur-Sriperumbudur road (SH110)	2.00
	Total	18.00

The Construction of a high level bridge at Km.14/4-14/8 of Karanodai- Minjur road at a cost of Rs.9.00 Crore is being deleted as the bridge work is nearer to the proposed bridge under ORR work taken up by the TNRDC and the following 2 works are transferred to TNRSP Phase-II. **(Table 9.4 (a))**

**Table 9.4(a): Works transferred to
Tamil Nadu Road Sector Project.**

Sl. No	Nomenclature	Rough cost Rs. in Crore
1.	Construction of a bridge at Km.13/8 of Chennai - Kodambakkam - Sriperumpudur Road (SH113)	2.00
2.	Construction of a bridge at Km.27/6 of Chennai - Kodambakkam - Sriperumpudur Road (SH113)	1.00
	Total	3.00

In addition, administrative sanction has been accorded for 2 river bridges as given below **(Table 9.4 (b))**.

**Table 9.4 (b): Works for which administrative
sanction accorded**

Sl. No	Nomenclature	Amount Rs. in Crore
1.	High level bridge across Coovum river in NH 4 at Nolambur road junction (Land Acquisition)	36.00
2.	Widening of high level bridge at km 2/6 across the river Adyar in Mount - Poonamallee Road near Ramapuram	15.46
	Total	51.46

9.1.5 Pedestrian Subways

To provide safe crossing for Pedestrians and for ensuring uninterrupted traffic on the important roads, administrative sanction has been accorded for Construction of Pedestrian subways 5 Nos. for

Rs.19.00 Crore. These works are at the pre-construction activity stage and works will be taken up for execution during 2015-2016 (**Table 9.5**).

Table 9.5: List of pedestrian subways

Sl. No	Nomenclature	Amount Rs. in Crore
1.	Near A.G Church in Anna Salai.	3.50
2.	Near M.K.N road junction at Guindy in GST road.	3.50
3.	At km 1/6 of Jawaharlal Nehru Salai (IRR) near Malladi company at Ekkattuthangal.	3.50
4.	At km 2/7 Nehru Salai (IRR) near Kasi theatre.	3.50
5.	At km 7/7 of Jawaharlal Nehru Salai (IRR) near CMBT.	5.00
	Total	19.00

9.1.6 Skywalk

Administrative Sanction was accorded for providing a sky walk connecting Central station, Park station and GH in EVR Salai at a cost of Rs.20.00 Crore. Subsequently, instead of skywalk proposal, an alternative proposal of 3 no. of Pedestrian subways connecting bridges across B-Canal is being taken up by Chennai Metro Rail Limited (CMRL).

9.1.7 Foot Over Bridge (FOB)

The administrative sanction have been accorded for Construction of FOB at Tambaram

Railway station at KM 26/8 with escalators at a cost of Rs.19.49 Crore.

9.2 WORKS FOR WHICH DPR WORKS ARE IN PROGRESS

The list of works in DPR stage is tabulated below. **(Table 9.6)**

Table 9.6: DPR Works

Sl. No	Nomenclature
1.	RUB at the junction of Mount –Medavakkam road and Southern Sector of Inner Ring Road
2.	Construction of FOB at Tambaram Railway station at KM 26/8 with escalators
3.	New link road connecting Rajiv Gandhi Salai (OMR) with East Coast Road at Palavakkam (2.0 km)
4.	Widening of ROB at km 20/8 of Mount-Poonamallee-Avadi road.
5.	Widening of ROB to dual four lane at km 12/2 - 13/2 of Inner Ring Road
6.	construction of Bridge across Buckingham canal connecting Rajiv Gandhi Salai and East Coast Road at Neelankarai

9.3 TAMIL NADU URBAN DEVELOPMENT PROJECT–III (TNUDP-III)

The TNUDP –III Scheme was formulated in 2005 and is being implemented with World Bank loan assistance.

9.3.1 Road works

Under the traffic component, five road projects for a length of 36 km at a cost of Rs.167 Crore have been taken up of which four have been completed and the remaining one road work Widening and strengthening of the Taramani link road km 0/0-3/650 from two lane to six lane at a cost of Rs.38.94 Crore is in progress.

Work has been completed on the left side and the work is in progress on the right side and will be completed after the completion of Macro drain work by PWD, WRO.

9.4 CONSTRAINTS

The following general constraints are being faced by Metro Wing which hamper the progress as well as timely completion of works leading to criticism from public.

1. Traffic congestion and diversion of traffic is necessary
2. Limited working hours as work is being allowed mostly during night hours only. This has hampered the progress in grade separator being executed near Anna Arch
3. Shifting of public service utilities such as water pipe line, sewerage lines, EB cables & poles, bus shelters which warrants additional land acquisition and extra costs

4. Many of underground utilities could not be properly identified at the time of project preparation. These utilities could be exactly located only after commencement of works. Moreover the land acquisition process is commenced only after identification of utilities and requirements of service departments, resulting in delays such as in the grade separator at Porur.
5. Land acquisition process is a tedious job in Chennai city and needs major coordination from the revenue department and affected people.
6. Majority of affected people approach the courts and judicial process takes much time which hampers the land acquisition process.
7. Other major projects such as Chennai Metro Rail works & TWAD works are also under progress in the CMDP project areas. This has both directly and indirectly adversely impacts on the progress of works.
8. Some of the project preparation as well as execution need NOC and concurrence from CMRL/Mono Rail/NHAI and other departments.

However, concerted efforts are being taken to overcome the constraints by constant monitoring so that the works are not delayed.

9.5 SPECIAL TYPE OF WORK

9.5.1 Soil Stabilization at Thirumangalam Grade separator

In the Thirumangalam Grade separator project, two numbers of CMRL tunnel pass under the approach road on Koyambedu side. At the site, sub soil found to be with inadequate bearing capacity to withstand the embankment load. Provision of conventional trestle portion with deeper foundation is not feasible due to CMRL tunnels.

Hence, the sub soil investigation was done through Highways Research Station and it was found that the soil bearing capacity is lesser on Koyambedu side and the settlement of embankment was assessed to be higher than the permissible limit. Hence, the embankment on Koyambedu side was designed by IIT, Chennai using flyash as filling material with geosynthetic reinforcing material. The fill material provided with light weight material to reduce the settlement of the sub soil. Soil stabilization/ Improvement has been done by providing Geo- composite reinforcement layer below reinforcement earth wall foundation to reduce the settlement.

Specified Pore pressure and settlement gauges are installed to monitor the settlement and to decide the gestation period. The constructions of this approach is nearing completion.

9.6 OVERALL EXPENDITURE (2014-15) AND ALLOCATION FOR 2015-16

During 2014-15, an expenditure of Rs.160.39 Crore have been incurred for implementation of various works under the above schemes despite the above bottlenecks. For the year 2015-16, a total budgetary allocation of Rs.500.43 Crore has been made under CMDP scheme.

10.TAMIL NADU ROAD SECTOR PROJECT

Government has formed Tamil Nadu Road Sector Project II in the year 2013 with an aim to upgrade high traffic road corridors in the State. The Tamil Nadu Infrastructure Development Board (TNIDB) under the Chairmanship of **Hon'ble Chief Minister of Tamil Nadu** has allotted an amount of Rs.65 Crore for carrying out Detailed Project Report (DPR) Preparation for a length of 2079 km. DPR preparation for the selected roads have been taken up through five Consultants and has been completed for 575 km road length. DPR work for the remaining stretch is expected to be completed shortly.

Following Key Institutional Enhancement components were implemented under TNRSP-I are currently in full use by the department in day to day management.

- e-Pathai (Electronic-project, Administration, Traffic, Highways assets and information system)
- Road Accident Data Management System (RADMS)
- Road Management System (RMS)
- Geographical Information System (GIS)
- Project Human Resources and Finance Management System (PFMS)

World Bank appraisal mission for the initial phase of the TNRSP II project was completed in mid December 2014. Loan and project agreement for US\$300 Million covering road upgradation, Maintenance, Road Safety and Institutional Enhancement Components were signed on 28.05.2015 and loan became effective on 10.07.2015.

All the road upgradation works are being taken up either through EPC with five year maintenance contracts or PPP concessions wherein the construction and maintenance responsibilities are clubbed under a single contract. Furthermore, major risks related to design, time, and cost overruns are transferred to the contractors and payments are linked to outcomes, thereby providing stronger incentives for provision of better services to road users, pursuit of investment, operational efficiency and optimization of costs over the contract life cycle. In case of maintenance, similar objectives are being sought to be achieved through multi-year maintenance contracts wherein payments are linked to performance. The project is using e-procurement system (NIC platform) for ICB/NCB procurement. Tamil Nadu Road Sector Project is the first in Highways Department to carry out complete on line procurement.

In order to reduce time and cost overrun in implementation, there will be close coordination

between civil works and land acquisition implementation. In order to maintain this and expedite the land acquisition and resettlement implementation three Special District Revenue officers units have been formed.

Utmost importance has been given to address environment and social impacts due to Project Implementation. DPR preparation involves carrying out Detailed Design, Environmental & Social Impact Assessment and mitigation measures. Consultations were carried out among the affected people on the Environment Management Plan and Resettlement Action plan and based on the feedback, Environment Management Plan and Resettlement Action plan were prepared and approved by the World Bank and are under implementation.

10.1 PROJECT COMPONENTS

The World Bank facilitates the Government of Tamil Nadu's broader state highway development initiative, through three components: (A) Network Improvement; (B) Institutional Capacity Enhancement; and (C) Road Safety.

Following are the components finalized for funding by the World Bank. **(Table 10.1)**

**Table-10.1: Project Cost and Financing
(Rupees in Crore)**

S. No	Component	Estimate	Bank financing	GoTN financing
1	A - Network improvement Two Lane- 427Km. Four Lane- 145Km. Multi-year OPRC -597Km.	4478.70	1646.70	2832.00
2	B - Institutional Capacity Enhancement	66.00	52.80	13.20
3	C - Road Safety	120.00	96.00	24.00
4	Front End Fee	4.50	4.50	0.00
	Total	4669.20	1800.00	2869.20

10.2 NETWORK IMPROVEMENT

The project will support the upgradation and maintenance of selected roads within the state's core road network, through three contracting approaches as explained below.

10.2.1 Upgradation and Maintenance through EPC Contracts

Construction of civil works for widening and upgrading of approximately 427 km of roads of Core Road Network (CRN) to two-lane with paved shoulders standards through EPC contracts including

maintenance for a 5-year period after the construction.

10.2.2 Upgradation and Maintenance through Public Private Partnership (PPP)

Construction of civil works for widening and upgrading of approximately 145 km of roads of CRN to four-lane standards and maintenance during the concession period.

10.2.3 Maintenance through multi-year Output and Performance Based Road Contract.

Maintenance of 597 km of CRN for a 5-year period adopting Multi year Performance-based Road Contract approach.

World Bank loan component will also support the associated activities like transaction advisory, supervision of quality control, other related consultancy services. Also, the project roads will be designed and implemented with particular attention to achieve better road safety outcomes especially for the vulnerable road users.

10.3 INSTITUTIONAL CAPACITY ENHANCEMENT PLAN (ICEP)

This component aims to implement the Institutional Capacity Enhancement Plan (ICEP) developed by the Highways Department and approved by GoTN. The project will support (a)

policy level actions and commitments to improve both mobilization and allocation of resources in the road sector and (b) operational level initiatives to enhance enterprise-level efficiency through (i) process improvements; (ii) organizational restructuring; (iii) sustaining investments in IT infrastructure; and (iv) Training & Knowledge Management. This component includes mainstreaming and integrating the key IT-based systems i.e. Road Management System (RMS), Project Human resource and Finance Management System (PFMS) and Road Accident Data Management System (RADMS).

Government has given in principle approval for the ICE components of the project covering institutional restructuring for effective functioning, policy reforms with an aim to accelerate road development in the State.

10.4 ROAD SAFETY

The project will support achievement of improved over all road safety in the state at two levels, Viz., State and District levels.

First, at the state level, Government of Tamil Nadu's capacity to achieve better road safety will be enhanced through a combination of strategic and operational interventions. At the strategic level, the focus will be on development of a comprehensive road safety strategy, delineating the roles,

responsibilities, investments and other initiatives of various stakeholder departments involved in the road safety agenda, viz., Transport, Police, Highways, Health, Education and local bodies. In this connection, Government has given in principle approval for the comprehensive road safety plan to be implemented under the project.

Second, at the field level i.e. in two districts and a corridor, the project will support designing and implementation of road safety improvement initiatives to achieve better outcomes through coordinated efforts and investments.

The component would also envisage formation of the Road Safety Executive Leadership Group (RSELG), an inter-disciplinary institutional arrangement with participation from Transport, Police, Health, Education and Highways Department (HD). The RSELG will be supported by a Road Safety Management Cell (RSMC) led by the Transport Commissioner, with representation from Highways Department, Police, Health, Education departments and the Municipal Corporation of Chennai. At the operational level, for the district level initiatives, the project will support the Road Safety Implementation Unit (RSIU) led by the Regional Transport Officer and supported by competent staff to carry out the day-to-day implementation of the envisaged activities. This component will finance: (i) technical advisory and consulting services, training costs and

fees, logistics, consumables and publications; and (ii) software, goods and equipment. The estimate cost of road safety component has been approved by GoTN for Rs.120 Crore.

The Road safety and Institutional Enhancement component of the project will be implemented through the Director General Wing.

10.5 PROGRESS OF OTHER ACTIVITIES

Government has also given approval for the Resettlement Policy Frame work (RPF) for the project in line with the new Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act 2013 and World Bank Operational guidelines for Compensating land acquisition and project affected people. The RPF covers the principles and objectives of resettlement, process for conducting census survey, socio-economic surveys, and preparation of Resettlement Action Plan (RAP), entitlements for different types of impacts, process of land acquisition, valuation of affected assets, consultations and disclosure, institutional arrangements, coordination with civil works, grievance redress mechanism and monitoring and evaluation arrangements. The estimate cost of land acquisition and resettlement component has been approved by Government for Rs.693 Crore.

Government has given revised administrative sanction for Rs.5171 Crore for the initial phase of the project covering civil, Institutional Capacity Enhancement (ICE) components, Road safety and Land Acquisition (LA), Rehabilitation and Resettlement (R&R) components.

Tenders for 427 Km of two lane roads under EPC mode in 10 packages have been invited and work have been awarded. The already upgraded TNRSP phase I roads (Arcot to Tiruvarur and Nagapattinam to Tuticorin) are proposed to be taken up under Output and Performance based Road maintenance contracts (OPRC 01 and OPRC 02) and tenders have been invited and evaluation is in progress.

Three Supervision Consultants were engaged to supervise the EPC work. Tenders for the four lane roads under PPP roads will be called shortly.

10.6 OVERALL EXPENDITURE (2014-15) AND ALLOCATION FOR 2015-16

During 2014-15, an expenditure of Rs.66.20 Crore have been incurred for implementation of various works under the above schemes.

For the year 2015-16, a total budgetary allocation of Rs.1244.97 Crore has been made under this scheme.

11.HIGHWAYS RESEARCH STATION

The Highways Research Station (**HRS**) is functioning under the control of the Director with one Joint Director, four Deputy Directors (Research) and eight Divisional Engineers (Quality control). The objectives and functions are as follows:

- Assurance of quality standards for all the materials used in the construction of roads and bridges at all stages of works executed by the Department.
- Continued research in all aspects of highway engineering with a view of optimal utilization of resources for achieving the best quality road network.
- Suggestion to field Engineers for arriving at a solution in distressed areas.
- Identifying accident-prone areas and suggesting suitable remedial measures to minimize the accidents and also suggesting improvement of Junctions.

11.1 QUALITY CONTROL MECHANISM

Quality control laboratories at circle and division levels have been formed to achieve the above purpose. The quality checks conducted at the preliminary stage of a work enables to take corrective measures at this stage itself.

11.2 LABORATORIES

Four laboratories at Chennai viz., Soils, Concrete, Bitumen and Traffic are functioning under the control of the Director, Highways Research Station. Eight regional laboratories located at Thanjavur, Coimbatore, Madurai, Tirunelveli, Trichy, Tiruppur, Villupuram and Salem are also functioning under the control of the Director.

Highways Research Station is involved in designing of flexible and rigid pavements, subsurface soil exploratory works, pile load tests for bridges, non-destructive tests on concrete members, tests on steel, concrete and bituminous mix designs for all layers and elements of roads and bridges, evaluation of surface characteristics of road surface roughness tests, structural evaluation by carrying out Benklemen Beam Deflection (BBD) and

designing the pavements based on traffic and assessing the Vehicle Damage Factor (VDF) by axle load tests.

The junction pattern and existing characteristics are closely studied. Based on the data collected and detailed analysis, road junctions are redesigned and improved to reduce road traffic accidents drastically.

11.3 RESEARCH ACTIVITIES

During the year 2014-15, four research schemes were undertaken by this institute as follows:

- Study on the use of reclaimed bituminous mix.
- Identifying accident black spots in State Highways based on prioritized information from RADMS with suitable suggestions and remedial measures.
- Study on the economics of using mineral admixtures in concrete.
- Study on relationship between immediate CBR and soaked California Bearing Ratio (CBR) value for clayey soils.

11.4 TRAINING

Training wing of Highways Research Station is organizing training programmes to foster technical knowledge amongst the Engineers of the department.

Every week during Tuesdays, weekly technical lecture programme is being organized by inviting a guest speaker from different walks of professional stream. 3600 participants have attended the lecture sessions so far.

44 Engineers in various cadres were imparted with lecture sessions and hands-on practical training on salient aspects of quality control.

Two one day workshops on "**Junction Improvement to reduce accidents – 2014**", Phase I and II, were conducted. 300 Engineers attended the programme. A day's workshop on '**Construction of Roads and Bridges – Modern Techniques**' was also conducted which was attended by 145 Engineers. During the current year, a one day workshop on '**Advanced Technology in Concrete Structures for**

Highway Infrastructure' was conducted which was attended by 100 Engineers of the department.

43 students from reputed Engineering Colleges/Universities have been imparted inplant training at Highways Research Station. 120 students have visited Highways Research Station as a part of one-day industrial visit and 32 engineering students have taken-up their project thesis work under the guidance of Highways Research Station laboratories.

Training programme for the year 2015-16 has been drawn up tentatively to train engineers of the department under salient topics, throughout the year. An exclusive training centre to suit the training needs of the department with the latest state-of-art facilities is under construction at an estimated cost of Rs.15.57 Crore at Highways Research Station campus.

11.5 CO-ORDINATION WITH IRC

The Director, Highways Research Station is a member of the technical committee and sub-committees of IRC. Highways Research Station has actively co-ordinated with IRC by taking part in the

technical committees and sub-committees constituted by the IRC in formulating its guidelines.

IRC had opened its regional '**IRC Publication Sale Extension Counter**' at the library of Highways Research Station. The end-users are largely benefitted by the gesture as the publications can be had from Highways Research Station easily.

Highways Research Station has been constantly taking active part in the IRC annual sessions. In the recent 75th Annual session of IRC held at Bhubaneswar 4 Research Technical Papers were presented by the Engineers of Highways Research Station.

11.6 CO-ORDINATION WITH CENTRAL ROAD RESEARCH INSTITUTE

With a view to update its technical knowledge and refine its focused approach on Research activities, Highways Research Station has signed "Memorandum of Understanding" with CRRI on 17th March 2015. On similar lines, MoUs have

been planned with IIT-Madras and Anna University, Chennai.

Based on the initiatives of the World Bank, Engineers of Assam Public Works Department have approached the technical support and guidance of Highways Research Station in setting-up of their Research Laboratory at Guwahati, Assam. Further, Afghanistan Road Development Authorities have addressed the State Government seeking permission to visit Highways Research Station to seek its technical support and guidance.

12.PLANNING, DESIGNS AND INVESTIGATION

This wing undertakes field investigation works at bridge sites and preparation of project reports for road projects through Investigation divisions and preparation of detailed design, drawings and quantity estimates and offers technical guidance through Designs Divisions for the bridge projects proposed and implemented by various wings of the Highways Department.

This wing comprises one Chief Engineer, one Joint Chief Engineer, four Designs Divisions and six Investigation Divisions with their Headquarters.

12.1 INVESTIGATION DIVISIONS AND THEIR ACTIVITIES

The six investigation divisions with their Headquarters at Chennai, Trichy, Madurai, Tirunelveli, Salem, and Coimbatore undertake the following field works:-

12.1.1 Field Investigation and Sub-Soil Investigation

- Detailed investigation at bridge site and collection of field data.
- Obtaining required particulars from Public Works Department for River Bridges and from Railways for ROBs and RUBs.

- Sub-soil investigation through exploratory bores to arrive at the bearing capacity of the sub-soil to design the foundation of the bridges.

12.1.2 Preparation of Detailed Reports and Drawings

- Preparation of alignment drawings and getting approval from the alignment committee.
- Preparation of cross sectional and longitudinal sectional drawings along the stream & alignment and arriving at hydraulic particulars.
- Recommending suitable proposals based on field and sub-soil investigations.
- Preparation of site plans and details for the works of formation of new bypasses and link roads.

12.2 DESIGNS DIVISIONS AND THEIR ACTIVITIES

The activities of designs divisions are as follows:

- Preparation of designs, drawings, and quantity estimates for river bridges, ROBs, RUBs grade separators and other highway structures.
- Scrutinizing the alternative designs furnished by the tenderers and according approval.

- Proof Checking the Detailed Project Reports prepared by the consultants who are engaged by various wings of the department.
- Scrutinizing and giving recommendations to facilitate issue of permit for non-standard heavy motor vehicles to ply on roads based on the rules prescribed.

12.3 WORKS COMPLETED

During the year 2014-2015, Design, Drawings and quantity estimate for 14 Railway Over Bridges, 42 River Bridges and proof checking of DPRs prepared by the consultant for 2 Railway Over Bridges, 22 River Bridges, 4 Grade Separators, 2 Pedestrian sub ways, 1 Training centre at Highways Research Station Complex and Revised Design for 9 Bridge works totalling 96 works have been completed so far.

12.4 WORKS TAKEN UP/ TO BE TAKEN UP

It is proposed to collect field particulars and prepare design for 43 ROBs / RUBs, 21 River Bridges, 1 Grade Separator and 7 design modifications totaling 72 Bridge works and proof checking of DPRs prepared by the consultant for 10 ROBs/ RUBs, 6 River Bridge, 7 Grade Separators, 3 Pedestrian subways and Components of Chennai Peripheral Ring Road totalling 30 works are taken up/ to be taken up for proof checking the Design,

Drawings, Quantity and estimate during 2015-16 financial year.

Further the Engineers of the design wing have successfully prepared the booklet "**Standard Drawings for RCC Slab Bridges (Square)**" adopting limit state design and the same was released during the month of January 2015.

13.TAMIL NADU ROAD DEVELOPMENT COMPANY LTD

Tamil Nadu Road Development Company (TNRDC) Ltd, was incorporated in 1998 for identifying and implementing major infrastructure projects in road sector in the State of Tamil Nadu under Public Private Partnership format by attracting and mobilizing private sector investments.

TNRDC is a joint venture of TIDCO and TIDEL with the equity share capital in the proportion of 50:50 both of which are undertakings of Government of Tamil Nadu. The Chairman of the Board is the Principal Secretary, Highways Department and has representation from various stake holders as well as Independent Directors in accordance with the Companies Act.

13.1 PROJECTS IMPLEMENTED BY TNRDC SO FAR

13.1.1 East Coast Road Project (ECR) Chennai Akkarai to Puducherry (km 22/300 – km.135/500)

TNRDC had entered into a long term Concession Agreement with Government of Tamil Nadu in December 22, 2000 and taken up the 113.20 km stretch from Kudimiyandithoppu near Chennai-Akkarai to Koonimedu on the outskirts of Pondicherry for improvement, operating and maintenance under PPP format.

TNRDC had completed the project at a cost of Rs.60 Crore much ahead of the scheduled completion date and the commercial toll operations started on March 24, 2002 and continues to attend the regular maintenance works also.

13.2 PROJECTS UNDER IMPLEMENTATION BY TNRDC AS MANAGING ASSOCIATE

13.2.1 Chennai Outer Ring Road – Phase I

The Government of Tamil Nadu has decided to provide a major connectivity Corridor on the western side to ease the congestion for free and quick flow of traffic. Administrative sanctions have been accorded for the development of Chennai Outer Ring Road Project Phase-1 as a Green Field Project with the formation of dual three lanes with Service Roads for a length of 29.65 Km from Vandalur in NH-45 to Nemilichery in NH-205 Via Nazarathpet in NH-4 at a cost of Rs.1081.40 Crore.

The completed portion of the project road to a length of 27.00 Km from Mannivakkam to Nemilichery has been inaugurated by the **Hon'ble Chief Minister of Tamil Nadu** on 28.08.2014 and put to public use.

13.2.2 Chennai Outer Ring Road - Phase II

The Government have sanctioned the Chennai Outer Ring project Phase-II, a major six lane road connectivity project to a length of

30.50 Km from Nemilicheri in NH-205 to Minjur in Thiruvottiyur - Ponneri - Panchetti (TPP) Road via Padiyanallur in NH-5 at a cost of Rs.1075 Crore under the Design, Build, Finance, Operate and Transfer (DBFOT) with Semi Annual Annuity payment.

The **Hon'ble Chief Minister of Tamil Nadu** laid Foundation Stone for Chennai Outer Ring Road Phase-II on 28.08.2014.

At present 55% of the works are completed and the balance works are under progress. The project work is expected to be completed by September 2016.

13.2.3 Ennore Manali Road Improvement Project (EMRIP) / Chennai Ennore Port Road Connectivity Project

The Project envisages the improvement of about 30 km road network in North Chennai with the objective of establishing seamless and efficient road connectivity from Chennai and Ennore Ports to NH network. The roads that are being improved include the Ennore Expressway, Manali Oil Refinery Road, Northern part of Inner Ring Road and Thiruvottiyur-Ponneri-Panchetti Road.

NHAI, the project lead sponsor, has engaged TNRDC as its Managing Associate and subsequently as Supervision Consultant.

As on date, 90% of the works have been completed and the remaining works will be completed soon.

Under the rehabilitation and resettlement programme for the project affected families in Ennore Expressway, 1824 tenements have been constructed at Ernavoor. So far, 1814 families have been shifted to the new tenements.

13.2.4 Improvements to North Chennai Thermal Power Station Road (including Athipattu ROB) and Ennore Port Road

M/s. Toshiba, a Japanese concern-JSW (JV) Turbine and Generator Pvt. Ltd., have set up a manufacturing plant in Andarkuppam Km.6/150 of Thiruvottiyur – Ponneri -Panchetti Road. The heavy Special Transport Vehicle (525 MT) will have to travel 7.35 km on the Thiruvottiyur-Ponneri-Panchetti (TPP) road, 4.8 km on North Chennai Thermal Power Station (NCTPS) road and 2.4 km on the Ennore Port road to reach Ennore Port. Among these three roads, Thiruvottiyur-Ponneri-Panchetti Road which is part of the Ennore Manali Road Improvement Project (EMRIP) is being improved in EMRIP project.

This is a unique project in which the road and bridges are designed to take 525 MT Special Over designed Cargo for the first time in Tamil Nadu including the Railway bridge with massive

Challenges technically because of the difficult terrain, area wise and location being proximate to the sea. All these challenges have been overcome successfully and all the bridges have been completed and tested successfully.

TNRDC is the Managing Associate for the projects in other two roads viz.,

- (i) North Chennai Thermal Power Station Road
Km 0/0 – 4/8 and
- (ii) Ennore Port Road km 0/0 – 2/4

At present, 98% of work has been completed.

13.2.5 Northern Port Access Road (Chennai Peripheral Road Phase-I)

The proposed Northern Port Access Road is an important link to the fast growing Ennore and Kattupalli Ports which handle major cargo movements. The proposed new road will connect the Northern Gate of Ennore Port and Thatchur on NH-5 with an additional spur road for connecting to the Thiruvottiyur – Ponneri - Panchetti (TPP) Road. This will also cater to the needs of the recently developed Kattupalli Ship Yard by L&T.

The total length of this road connecting Ennore Port to Thatchur will be about 21.15 Km and length of the TPP link Road will be 4.35 Km. The work is proposed for execution in two phases as under:

Phase-I: Construction of the road from Ennore Port entrance to Neidavoyal village (Km 0/0 to Km 6/2, from Neidavoyal village to Vallur Link road (Km 4.350) totaling 10.550 Km length.

Phase-II: Construction of the balance portion of length 14.95 km from Neidavoyal to Thatchur in NH-5.

The Land Cost works out to Rs.360 Crore for Phase I and Rs.900 Crore for Phase II, which is being funded by the State Government.

13.2.6 Widening of East Coast Road from double lane into four lane from km.22/300 to km 55/800 including improvements to 13 curved stretches and 7 junctions from km 55/800 to km.135/500

The East Coast Road, maintained by TNRDC as a Toll Road from Akkarai to Puducherry, was initially improved in 2002 to a two lane carriage way. The ever growing traffic, increasing accidents in the absence of centre median and insufficient carriage way necessitated the widening of this road to four lane with divided carriage way from Akkarai to Mamallapuram as Phase I including curves and junction improvements between Mamallapuram to Puducherry border wherever necessary.

Accordingly, administrative sanction was accorded by the Government for Rs.272.10 Crore. Out of this, a sum of Rs.108.84 Crore was

sanctioned being 40% of Project Cost to TNRDC and the balance is to be mobilized by TNRDC.

The work was commenced on 28.2.2014 and more than 50% of works have been completed as on date. The balance is expected to be completed by February 2016.

13.2.7 Reconstruction of existing bridge and Construction of additional two lane Bridge across River Palar in ECR (km.76/000)

The Government have sanctioned an amount of Rs.134 Crore for "Reconstruction of the existing Palar Bridge and construction of an additional Two Lane Bridge near Vayalur on the East Coast Road (km 76/000)".

The revised estimated cost works out to Rs.105.2 Crore including the construction cost of Rs.85.19 Crore, supervision charges, Quality control, escalation etc. The construction period is 2 years and at present 70% of works have been completed. The balance work is expected to be completed by March 2016.

13.3 IT EXPRESSWAY LTD (ITEL)

M/s IT Expressway Ltd (ITEL) was incorporated by TNRDC in the year 2004 as its wholly owned subsidiary for domiciling the IT Corridor Project, with a shareholding pattern of 77% by TNRDC and balance 23% by TIDCO.

13.4 PROJECT SO FAR COMPLETED BY ITEL

13.4.1 Rajiv Gandhi Salai (IT Corridor) Phase-I

The Rajiv Gandhi Salai (IT Corridor) Phase-I was developed as a dual three lane road from Madhya Kailash to Siruseri for a length of 20.10 km. The link road connecting Sholinganallur and East Coast Road for a length of 2.15 km was also included in the project and was widened to a four lane road. This road is being maintained as a toll road.

13.5 PROJECT IN PIPELINE WITH ITEL

13.5.1 Rajiv Gandhi Salai (IT Corridor) Phase-II

In view of extending the Phase-I of Rajiv Gandhi Salai (IT Corridor) upto Mahabalipuram, the Government has proposed the formation of six lane road from Siruseri to Mahabalipuram for a length of 25 km, including two bypasses (Kelambakkam and Thiruporur) in Phase- II of Rajiv Gandhi Salai, under a viable financial arrangement through public private partnership.

The Government have sanctioned Rs.294.68 Crore for land acquisition works in First Phase. An extent of 88.62 hectares is required to be acquired in 13 villages for widening this road to a width of 60 m and out of 32.40 hectares have been

acquired so far and the Land Acquisition process in respect of the balance extent of lands is in progress under various stages.

The Consultant had submitted the final Detailed Project Report (DPR). The estimated Project Cost as per the DPR is Rs.573.99 Crore. The Government have decided to implement the two Bypasses for Kelambakkam and Tiruporur in the first stage.

13.5.2 Multi Level Car Parking (MLCP) at Siruseri

The **Honourable Chief Minister of Tamil Nadu** has made an announcement for “The Construction of a Multi Level Car Parking (MLCP) at Siruseri, under Public Private Partnership mode”. It will be designed with 20 floors to accommodate 2000 cars and Bus Parking area to park 50 buses at a time. The project will be executed under Design, Build, Finance, Operate and Transfer (DBFOT) basis. The cost estimate is Rs.200 Crore. The Detailed Feasibility Report (DFR) has been received and it is under consideration.

13.5.3 Elevated Road

The Hon’ble Chief Minister of Tamil Nadu has made an announcement for the construction of an Elevated Road from Taramani to Siruseri under Phase-I and from Siruseri to Mahabalipuram under Phase-II, for a total length of 45 Km. Administrative

sanction of Rs.5 Crore has been accorded for the preparation of DPR for the above work.

The preparation of Phase-I of Detailed Project Report (DPR) is expected to be completed by September 2015 and Phase-II by June 2016.

14. TAMIL NADU ROAD INFRASTRUCTURE DEVELOPMENT CORPORATION

Tamil Nadu Road Infrastructure Development Corporation was established in the year 2005-06 as a non profitable organization to implement, upgrade and maintain road infrastructure in the State of Tamil Nadu. The Oragadam Industrial Corridor project is being implemented by TNRIDC in phases.

Oragadam is Chennai's largest and most developed industrial belt with over 22 Fortune-500 companies located including six Global car manufacturers. Oragadam along with Sriperumpudur has seen Major investments from foreign companies in recent times.

Due to rapid growth of industrial activities and continuous growth of industrialisation the traffic intensity has drastically increased. Hence further expansion of road is necessitated to cater the present day traffic volume.

Considering the speedy development of industries in and around Sriperumpudur in Kancheepuram District, it was decided during the year 2005-06 to improve the road infrastructure facilities in Oragadam Industrial Park at an estimated cost of Rs.300 Crore in Phase-I and Rs.86.65 Crore in Phase-II in 2011-12, and Rs.115 Crore in Phase-III in 2014-15. The scheme

is under implementation with the revised estimated cost of Rs.547.82 Crore for Phase-I and Rs.108.66 Crore for Phase-II.

14.1 PROJECT COMPONENTS

The following works were taken up for implementation in the **first phase**:

(a) Singaperumalkoil-Sriperumpudur road (SH-57) Km 0/6 to 24/6 (24.00 Km) – Widening the road to four lane with centre median

(b) Vandalur – Wallajabad road (SH-48) Km 30/4 to 63/8 (33.40 Km) – Widening the road to four lane with centre median.

(c) Construction of a Grade Separator at Oragadam junction in Vandalur-Wallajabad road.

In **second phase**, the work of improvements to the existing four lane road to six lane at Km 12/6 to 24/6 in Singaperumalkoil – Sriperumpudur road was taken up for implementation.

In **third phase**, the following work was taken up for implementation. The widening of stretch from Km.0/6 to 12/6 Singaperumalkoil – Sriperumpudur road from four laning to six laning.

14.2 PRESENT STATUS

Out of 57.40 Km, 44.60 Km have been completed in Phase-I work. Out of balance

12.80 Km, 9.40 Km work is in progress. Balance 3.40 Km will be completed after the completion of land acquisition. The work of construction of a Grade Separator at Oragadam junction has been completed and in public use.

All the works in the first phase will be completed by October 2015. The total expenditure incurred in phase I is Rs.451.23 Crore which includes the expenditure of Rs.184.62 Crore for land acquisition.

In second phase, out of 12 Km, 10 Km have been completed and the balance work is in progress. An expenditure of Rs.75.51 Crore has been incurred so far. The Phase-II works (excluding Sriperumbudur land acquisition stretch) will be completed during this financial year.

Under Phase-III, the widening of stretch from Km 0/6 to 12/6 of Singaperumalkoil-Sriperumpudur road from four lane to six lane work was announced by **Hon'ble Chief Minister of Tamil Nadu**. Administrative sanction for Rs.115 Crore was accorded for this work. Agreement has been executed for two packages and the work is in progress for this six laning work including 2.5 km stretch in the Phase-I four laning in which land acquisition process is nearing completion.

14.3 FOUR LANING OF MADURAI RING ROAD

Madurai Ring Road is the main arterial road of two lane, catering to Madurai City traffic and there is heavy traffic flow in this road due to the connectivity provided by this road to Madurai-Rameswaram Road(NH 85), Madurai - Thondi road (SH 33) and important places such as Meenakshi Mission Hospital, Mattuthavani integrated bus stand, Velammal medical college, Airport etc.

It has been announced by the **Hon'ble Chief Minister of Tamil Nadu** that "Four laning of Madurai Ring Road of 27 km starting from Madurai Meenakshi Mission Hospital to Kappalur will be taken up at a cost of Rs.200 Crore to reduce traffic congestion in Madurai City"

It is proposed to widen the road from two lane to four lane by widening on both sides so as to have a 9.0m carriageway on either sides with centre median of 1.20 m. Further it involves widening of 2 Railway Over Bridges and 1 River bridge. The project is to be executed under BOT basis with suitable Viability Gap Fund (VGF) through Tamil Nadu Road Infrastructure Development Corporation (TNRIDC).

15.TAMIL NADU MARITIME BOARD

The Tamil Nadu Maritime Board was formed under the Tamil Nadu Maritime Board Act, 1995 (Act 4 of 1996) from 18.03.1997, whereby the erstwhile Tamil Nadu Port Department was converted into a Maritime Board for the purpose of Administration, Management and Control of the Non-Major Ports in the State of Tamil Nadu and for matters connected therewith, with the following objectives:

1. To facilitate / encourage establishment of Port based industries such as Thermal Power Plants, Refineries, Fertilizer plants etc., by providing exclusive port facilities to handle the cargo required for such industries.
2. To provide port connectivity to the industries in the Central / Western Districts in the State of Tamil Nadu.
3. To decongest the major ports in the State of Tamil Nadu.
4. To decongest Highways and Railways by providing facilities for coastal shipping and
5. To promote the maritime training activities on par with international standards.

15.1 COASTLINE AND PORTS

The State of Tamil Nadu has a coast line of about 1076 Kms. Along this coastline, there are three Major Ports, namely, Ennore, Chennai and Tuticorin notified under the Major Port Trust Act, 1963 and 23 Non-Major (Minor) Ports notified under

the Indian Ports Act 1908. The major ports come under the control of Government of India and the non-major ports come under the control of the State Government.

15.2 MINOR PORTS IN TAMIL NADU

The following are the minor ports either active or under various stages of development in Tamil Nadu:

Government Ports	Captive ports	Ports under process yet to be notified
1) Cuddalore 2) Nagapattinam 3) Pamban 4) Rameswaram 5) Valinokkam 6) Kanyakumari 7) Colachel	1) Kattupalli 2) Ennore Minor port 3) Mugaiyur 4) Thiruchopuram 5) Silambimangalam Shipyard 6) PY-03 Oil Field 7) Parangipettai 8) Kaveri 9) Vanagiri 10) Thirukkadaiyur 11) Thirukkuvalai 12) Punnakkayal 13) Udangudi 14) Manappad 15) Koodankulam 16) Chettinad Tharangampadi	1) Cheyyur (Panaiyur)

All the minor ports in Tamil Nadu, except Kattupalli Port, which is a Deep Water Direct

Berthing port, are of different natures like anchorage ports, Single point moorings, Multiple buoy moorings, Open sea jetty, Trestle jetties etc.,

15.3 ACTIVITIES OF MINOR PORTS

15.3.1 Government Ports

Out of the seven Government Ports, M/s. Chemplast Sanmar Ltd., imports Vinyl Chloride Monomer (VCM) for their P.V.C. factory established at Cuddalore SIPCOT Complex through their Captive Marine Terminal facility located within the port limits of Cuddalore Minor port limits.

Similarly, M/s Chennai Petroleum Corporation Ltd., (CPCL) exports Diesel and Naphtha from their Narimanam (Nagapattinam District) refinery through their captive open sea jetty located within the port limits of Nagapattinam port. Import of wooden logs and edible oil take place occasionally at Cuddalore and Nagapattinam ports respectively. Small ships are piloted through Pamban Channel. Kanniyakumari and Rameswaram ports are used for passenger ferry service.

15.3.2 Captive Ports

The Captive Ports are operated by private companies for their own use. The development of entire infrastructure facilities in these captive ports are the responsibility of the companies concerned.

Out of the sixteen Captive ports, five ports, viz., Kattupalli Port (Thiruvallur), Ennore Minor Port (Thiruvallur), PY-03 Oil Field (Cuddalore),

Thirukkadaiyur Port (Nagapattinam) and Koodankulam Port (Thirunelveli) operate the port either for import / export of cargo for their captive industry.

The remaining eleven ports are under various stages of obtaining the requisite statutory approvals / financial closure to commence the construction of the port based industry/port.

15.4 COMMODITIES HANDLED IN MINOR PORTS

15.4.1 Government Ports

Table 15.1: Cargo Handled in Government Ports

Sl. No	Port	Shipped	Landed
1.	Cuddalore	----	Vinyl Chloride Monomer, Timber Logs
2.	Nagapattinam	Diesel and Naphtha	Edible Oil and General cargo

15.4.2 Captive Ports

Table 15.2: Cargo Handled in Captive Ports

Sl. No	Port	Shipped	Landed
1.	Kattupalli Port	Containers	Ship building and ship repair activities take place @ Kattupalli Port, General cargo

Sl. No	Port	Shipped	Landed
2.	Ennore Minor Port	----	Liquid Ammonia
3.	Thirukkadaiyur	----	Naphtha and Natural Gas.

15.5 MINOR PORT DEVELOPMENT POLICY

Considering the importance of the industrialization for the economic development of the State, Tamil Nadu Maritime Board encourages setting up of Captive Ports, Jetties and Moorings for the port based Oil Industries, Thermal Power Projects and also multi-user ports on Build Own Operate and Transfer (BOOT) basis. The Government of Tamil Nadu has formulated and is implementing a port policy to provide for investment opportunities for the development of Minor Ports in Tamil Nadu and to optimize on the investments and the Port Infrastructure.

15.6 INITIATIVES OF THE BOARD IN DEVELOPMENT OF PORTS

15.6.1 Development of a Green Field Port at Nagapattinam

The existing Nagapattinam Minor Port, located at the mouth of the Kaduvaiyaru river, is a lighterage port handling General cargo.

Government issued orders to develop an All Weather, Deep Water, Direct Berthing, Greenfield Port through PPP Mode by obtaining a Techno Economic Feasibility Report through I.I.T., Madras.

Tamil Nadu Maritime Board selected a consultant and the Tender Inviting Notice, Qualification and Financial Eligibility Criteria, Selection of a Prospective developer, draft concession agreement submitted by the consultant were examined and the Consultants have been requested to update the Techno Economic Feasibility Report, so that, it reflects the correct status of the project viability in line with the cargo potential. After obtaining this report, action will be taken to call for tenders for developing this port.

15.6.2 Development of a port at Cuddalore.

The hinterland of the proposed Greenfield port at Cuddalore comprises of the districts of Cuddalore, Perambalur, Villupuram, Salem, Namakkal, Karur, Thanjavur, Thiruvarur and Erode districts. The Cuddalore district has a sizeable industrial composition with over 30 large scale industries.

Based on this, Tamil Nadu Maritime Board has decided to approve the proposal of appointment of a consultant for developing the existing Cuddalore Minor Port on PPP Mode. Tamil Nadu Infrastructure Development Board (TNIDB) has been requested to sanction approximately Rs.1.24 Crore from Project

Preparation Fund of TNIDB for appointment of a consultant from the empanelled consultant of TNIDB.

Action is being taken to develop this port by appointing consultants by calling for tenders.

15.7 OTHER INITIATIVES OF THE BOARD

15.7.1 Establishing a Maritime College at Tuticorin

For the purpose of establishing a Maritime College at Thoothukudi, 6 hectares of land at Tharuvaikulam in Tuticorin District was identified and the Government accorded permission to establish a Maritime College on PPP Mode. The consultants were engaged through tender for establishing the Maritime College and they have submitted the bid document containing Technical and Financial Eligibility Criteria of the bidders, financial selection criteria and draft concession Agreement that would be entered into with the successful bidder. The updated draft Techno-Economic Feasibility Report has been sent to TNIDB for approval. Also, based on the suggestions of TNIDB, "Request for Expression of Interest (REOI)" was called and the remarks of the Consultants were obtained and sent to TNIDB for further action.

15.8 REVENUE OF THE BOARD FOR 2014-15

In the year 2014-15, about 825470 MT of cargo and 28371 containers and 1104840 MMBTU of Gas were handled through the Minor Ports and the Board earned about Rs.18 Crore towards shipping activities.

From the above, Rs.4.06 Crore is collected by Tamil Nadu Maritime Board through land lease rent.

15.9 VISION OF MARITIME BOARD

The Government of Tamil Nadu, in its "VISION 2023" document, has targeted attracting private investment to the tune of about Rs.15000 Crore in the port sector alone.

Keeping the above target in mind, this Board aims to attract about Rs.5000 Crore investment in the next five years and another Rs.10000 Crore in the subsequent five years.

This will increase the cargo throughout through the non-major ports to about 50 Million Metric Tonnes in the first five years and to take it to about 150 MMT in the subsequent five years.

To achieve this target, the Tamil Nadu Maritime Board will invite proposals and promote non-major ports through private investment or on Public Private Participation (PPP) mode.

15.10 TAMIL NADU MARITIME ACADEMY

The Tamil Nadu Maritime Academy at Thoothukudi is functioning under Tamil Nadu Maritime Board. The Academy has so far conducted 24 batches of pre-sea (GP) rating courses. It is conducting General Purpose Crew training Course of 6 months duration with 40 trainees per batch. The Academy is also conducting five STCW-95 courses namely, 'Personal Survival Techniques', 'Elementary First Aid', 'Personal Safety and Social Responsibility', 'Oil Tanker Familiarization' and 'Fire Prevention and Fire Fighting'. The 25th batch of GP rating course has commenced from July 2015.

16. POOMPUHAR SHIPPING CORPORATION LIMITED

16.1 HISTORY

The Government of Tamil Nadu formed a shipping company on 11.04.1974 under the companies Act, 1956, in the name of Poompuhar Shipping Corporation Limited (PSC) with the main objective of transporting the entire coal, required by Tamil Nadu Generation and Distribution Corporation Ltd., (TANGEDCO) erstwhile Tamil Nadu Electricity Board for generation of electricity. This is the only one, State owned shipping corporation in our country.

16.2 ADMINISTRATION

The Corporation is headed by the Chairman. The Managing Director is the chief executive. The affairs of the Corporation are managed by the Board of Directors consisting of officers nominated by the Government of Tamil Nadu. The day to day activities are executed by the various departments namely technical, operation, finance and personnel and administration headed by qualified persons in the respective fields. The human resources of the corporation is 116 personnel ashore apart from the floating staff of 102 personnel for operation of three own vessels.

16.3 CORE ACTIVITIES

The core activities of the corporation are transportation of thermal coal along the east coast of India and transportation of passengers from the shore of Kanniyakumari to Vivekananda Rock Memorial and Ayyan Thiruvalluvar statue.

16.4 COAL MOVEMENT

16.4.1 Coal movement for TANGEDCO

The entire domestic coal allotted by Indian coal companies to TANGEDCO is transported by the corporation utilizing its three specially designed shallow draft 45000 tonnage vessels namely M.V.Tamil Anna, M.V.Tamil Periyar and M.V.Tamil Kamaraj from the load ports of Haldia, Paradip and Visakhapatnam to discharge ports at Kamarajar Port, Ennore and VOC Port, Tuticorin. In addition, depending on the requirement, seven to eight vessels are also chartered from the private shipping companies for transportation of the coal.

16.4.2 Coal movement for NTECL

The Corporation is also transporting entire domestic coal from the load ports of Paradip and Gangavaram to Kamarajar Port, Ennore for M/s. NTPC Tamil Nadu Energy Company Ltd., (NTECL), a joint venture Company of TANGEDCO and NTPC, for their 3 x 500 MW thermal power stations at Vallur, North Chennai as per the Memorandum of Understanding.

16.4.3 Discharge operation at Tuticorin

Apart from providing transportation of coal, the Corporation also undertakes the stevedoring function of discharging the coal from the hatches of the ships to the hoppers installed at the coal jetty-1 at VOC Port, Tuticorin using the ship's cranes, by engaging its own qualified manpower.

16.4.4 Workshop at Tuticorin

The maintenance work of the front end loaders used for discharge operation and minor repairs of the vessels are being carried out by the workshop at Tuticorin.

16.4.5 Kanniyakumari Ferry Service

This Corporation is also operating passenger ferry service from the shore of Kanniyakumari to the Vivekananda Rock Memorial and Ayyan Thiruvalluvar statue and back to shore. For transporting the passengers, three ferries namely M.L.Guhan, M.L.Pothigai and M.L.Vivekananda with a seating capacity of 150 passengers each are being used.

16.4.6 Pricing Policy

As the Corporation was formed with a main objective of providing the service of transportation of coal to TANGEDCO, the Corporation operates its own vessels on "Cost plus Return on Equity of 12%" and chartered vessels on "No Profit and No Loss" basis. The transportation of coal for NTECL is undertaken with service charges of 5% on charter

hire charges of the vessels chartered for their operations.

16.5 PERFORMANCE

16.5.1 Coal transportation

The Corporation transported almost the entire coal received at the load ports during the financial year through its own and chartered vessels. The physical and overall financial performances of the corporation during the last three financial years are given in **Table 16.1**.

Table 16.1: Physical and overall financial performances

Year	Quantity of coal received at load ports	Quantity of coal moved	Turn Over	Profit
	(In lakh MT)		(Rs. in Crore)	
2012-13	131.53	127.60	544.90	5.17
2013-14	147.24	149.65	667.21	6.85
2014-15	162.68	161.54	625.13	7.72

16.5.2 Dividend

This Corporation has declared a dividend of Rs.130.15 Lakh being 30% of the net profit after tax for the financial year 2013-14 and paid to Government of Tamil Nadu.

16.5.3 Passenger transportation

The ferry service has earned a profit of Rs.166.19 Lakh during 2012-13 and Rs.237.72 Lakh during 2013-14.

The physical and financial performances of Kanniyakumari ferry service during the last three financial years are given in **Table 16.2**

Table 16.2: physical and financial performances of Kanniyakumari ferry service

Year	No.of passengers Transported (in Lakh)	Fare collection (Rs. in Lakh)	Profit (Rs. in Lakh)
2012-13	20.59	632.01	166.19
2013-14	18.70	719.19	237.72
2014-15	19.46	716.27	179.98

16.6 PLANS FOR 2015-16

16.6.1 Coal transportation

The Corporation proposes to transport the total estimated coal allotment of 197.51 lakh MT and 65.00 lakh MT by Indian coal companies to TANGEDCO and NTECL respectively through its own and chartered vessels.

17.CONCLUSION

To be effective, policies must be based on local evidence and research, and designed to suit the social, political, and economic circumstances. As a result, strategies to increase research itself must develop alongside steps to stimulate policymakers and practitioners to demand and use research evidence. Strengthening and upgrading the road network to international standards and reducing the risk factors for a proper safe, easy and comfortable journey is the need of the hour.

With the introduction of newer technologies, the process of infrastructure planning, design, implementation and monitoring have undergone major changes. There has been a paradigm shift and improved focus on development of road infrastructure by the Government in the recent years which has paved way for providing safer, reliable and comfortable road network in the State.

Despite effective measures of Better Engineering practices, Sound Infrastructure, Visionary Road Safety Policy, accident data logging, umbrella organizational set-up exclusively to deal with road safety, handling of road accidents remains a challenge due to various reasons. The Government of Tamil Nadu have launched a strategic road safety programme to mitigate the road accidents and casualties.

Under the inspirational leadership of the **Hon'ble Chief Minister of Tamil Nadu**, Highways and Minor Ports Department with a firm and unwavering commitment to the creation of infrastructure has started implementing the projects envisaged in Vision 2023. As part of this, 29.65 km Chennai Outer Ring Road Phase I has been opened to traffic and more than 55% of works in 30.50 km Outer Ring Road Phase II has been completed. In the second phase of the Tamil Nadu Road Sector Project (TNRSP) funded by World Bank works have commenced in 427 km.

Besides, DPR is under finalisation for 133.65 km Chennai Peripheral Road and is nearing completion for 2079 km of strategically important roads under TNRSP. The proposals for key projects such as Six/ Eight Lanning of 1335 km Chengalpattu – Thoothukudi – Coimbatore triangular corridor, select corridors in SH and MDR (2511 km) in Northern, Western, Southern and Central Regions are also on the anvil.

With conscious and continuous efforts, the Highways Department is striving to improve the quality of road infrastructure in the State in order to improve the overall socio – economic status of the State.

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