



Highways and Minor Ports Department

**Policy Note
2017–2018**

Demand No. 21

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Chief Minister

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Government of Tamil Nadu
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HIGHWAYS AND MINOR PORTS DEPARTMENT

POLICY NOTE - 2017-18

1. INTRODUCTION

A Nation's progress in socio economic development is nowadays gauged by the level of the infrastructural facilities. Better infrastructure facilities have become game changers which attract financial investments from within the country as well as from abroad. Good roads with better connectivity along with easy access to a place/ region provide a sound basis for infrastructure facilities. Thus, the good road network plays a very important and vital role in the development of the region/ state and thereby the country itself. Well maintained road network system stimulates the economic activity by way of new investments in different fields of trade, industry and service sectors. Further it would be needless to point out that roads play a key role in national integration apart from connecting different modes of transports systems like Sea ports, Air ports and Railway stations. Coastal roads act as a force multiplier while prohibiting illegal economic activities through sea and protecting the nation's economic backbone.

Highways department has been established with the primary responsibility of forming new roads,

bridges, bypasses and widening/ strengthening the existing roads according to traffic needs. Railway Over Bridges (ROB) and Grade Separators are being constructed to reduce the travel time of the general public and speedy transportation of essential commodities in addition to reducing the vehicle operating costs (VOC). The best practices throughout the world are being adopted wherever necessary for successful implementation of the projects by this Department.

The Government have come up with integrated e-pathai system which helps to maintain the road network at desired service level by fixing performance indicators based on roughness index, traffic density and surface conditions for effective, efficient and transparent functioning of the department. Also e-pathai system helps to identify the black spots on the road network. The department has taken up a massive project to rectify the black spots all over the State with latest standard engineering practices in order to reduce the accidents and fatalities with more budgetary allocation to enhance Road safety.

Lot of innovative methods and latest technological inputs are being progressively adopted across all highway projects. Implementation of major projects are increasingly, being undertaken through Engineering Procurement and Construction (EPC) mode of contract which enables the department by shifting of

risks on the contractor and avoid cost and time overrun thereby reducing burden on Governments exchequer. Maintenance of roads is being done in selected districts employing innovative Performance Based Maintenance Contracts (PBMC) and Output and Performance based Road Contracts (OPRC) which reduces considerably the overall expenditure of this department. Investments are being attracted through Public Private Partnership (PPP) projects engaging prospective investors for providing good transport infrastructure for the development of society thus contributing to nation building.

1.1 HIGHWAYS AND MINOR PORTS DEPARTMENT IN TAMIL NADU

The Government of Tamil Nadu established the Highways Department in 1946. This department is maintaining 62468 km of road network spread across the entire length and breadth of the State. The **vision** of this department is to “**increase the *capacity, connectivity, efficiency and safety***” of the highways system.

The Highways and Minor Ports Department comprises of

1. Highways Department
2. The Tamil Nadu Road Development Company and 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 HIGHWAYS DEPARTMENT

1.2.1 CATEGORIES OF ROADS

1.2.1.1. National Highways (NH)

The road network connecting State capitals, Major Cities, Major Ports, large industrial areas and important tourist centers are classified as the National Highways by Ministry of Road Transport and Highways (MORTH), Government of India (GOI). National Highways form the economic backbone to the country enhancing quick movement of men and materials to the requisite destinations in right time and facilitate rapid development along their routes.

Totally 4994 km length of National Highways runs through Tamil Nadu State. Out of this 1985 km are maintained by State National Highways Wing and balance 3009 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 MORTH, GoI and some of them are also taken up under Public Private Partnership mode.

1.2.1.2. State Highways (SH)

The State Highways connect District headquarters with National Highways and neighbouring States. These stretches get maximum importance owing to heavy traffic intensity. The total length of State Highways in Tamil Nadu is 12095 km.

1.2.1.3. Major District Roads (MDR)

The Major District Roads connect towns and municipal areas with District headquarters. These roads connect the production and marketing centres with National Highways and State Highways. In Tamil Nadu, the total length of Major District Roads is 11628 km.

1.2.1.4. Other District Roads (ODR)

The Other District Roads (ODR) are the backbone of the rural economy and day to day activities of general public which connect villages with marketing, educational and health care centers and Taluk headquarters and other nearby important roads. Based on the traffic intensity, the Other District Roads are maintained as Single Lane or Intermediate Lane.

Sugarcane Development Roads are also under the ODR category, which are connecting the sugarcane cultivating areas with Sugar mills and in turn with nearby marketing centres. There was 33751 km of Other District Roads including 1676 km of Sugarcane Development roads in the State of Tamil Nadu.

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)	1985	NH wing
		3009	NHAI
	NH Total	4994	
2	State Highways (SH)	12095	C & M Wing
3	Major District Roads (MDR)	11628	
4	Other District Roads (ODR)	33751	
	Grand Total	62468	

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

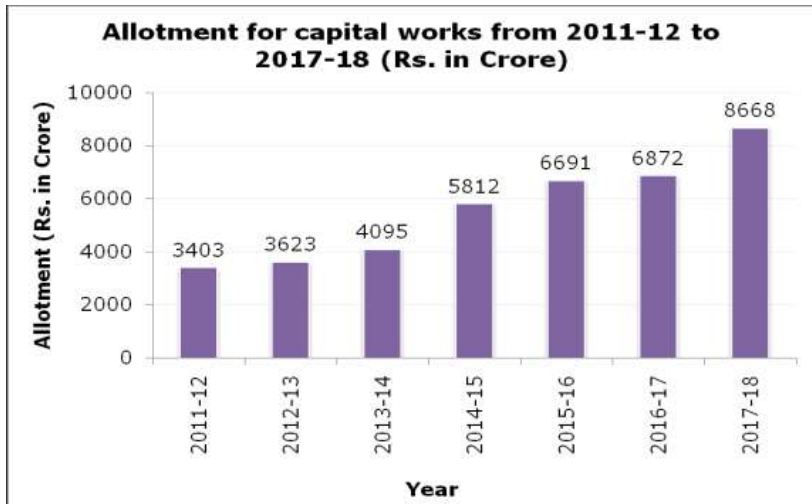
Table 1.2: Lane-wise Length Details

(Length in km)

Sl. No.	Cate gory	Single Lane	Interme diate Lane	Double Lane	Multi Lane	Total
1	NH	12	26	2731	2225	4994
2	SH	56	350	9795	1894	12095
3	MDR	422	7663	3367	176	11628
4	ODR	29287	3507	893	64	33751
	Total	29777	11546	16786	4359	62468

The **Figure 1.1** given below shows the growth of allotment on road sector of the State.

Figure 1.1: Plan Allotment Details



2. POLICY OUTLINE

Roads make a crucial contribution to economic development and growth and also bring important social benefits. They are of vital importance in order to make a nation grow to international standards. In addition, providing access to employment, social, health and education services makes a road network crucial in fighting against poverty. Hence, a robust road infrastructure is the most important of all public assets.

In order to safeguard the road assets through preventive maintenance and to meet the long-term societal needs, Road Asset Management system is being utilized for better planning and strategic decision making in order to benefit different stakeholders.

The various schemes being implemented to achieve the vision of the department are detailed below:

2.1 SCHEMES/ MAJOR PROJECTS BEING IMPLEMENTED

2.1.1 Comprehensive Road Infrastructure Development Programme (CRIDP)

The Hon'ble Chief Minister announced this flagship programme in the year 2004-05. For the economic and industrial development of the state, road infrastructure developments are being implemented under this programme. Infrastructure development like

widening and improvement of roads, construction of bridges, culverts, protective works, center medians, crash barriers, drains, road safety works and formation of bypasses are undertaken.

Improvements and strengthening of the road network always gain prominence under the dynamic leadership of the Hon'ble Chief Minister. Decongestion of roads and smooth traffic flow has been ensured by constructing new bypasses and ring roads for the Municipalities and corporations. Under the 'Comprehensive Road Infrastructure Development Programme', sanction has been accorded for an amount of Rs.15205 Crore in the last five years.

It has been announced that all State Highways will be widened to Double Lane and all Major District Roads will be widened to Intermediate Lane. Accordingly, large scale widening was taken up under CRIDP. In the last five years, 913 km length of State Highways has been widened to double lane and 3041 km length of Major District Roads has been widened to intermediate lane.

2.1.2 Maintenance Works

Maintenance is an integral part of planning and regular maintenance of road optimize the life span of road infrastructure. The Indian Roads Congress has prescribed norms for maintenance and works are prioritized based on those norms. Utilizing Non-plan

maintenance funds Periodical renewal, maintenance works including Special repairs are being carried out.

Timely and preventive maintenance strategies of roads reduces rebuilding cost and routine maintenance of bridges enhances its life span. In addition, routine maintenance of vulnerable locations will facilitate easy flow of surface water during monsoon thus reducing the damage to the riding surface.

The Government of India has issued a guidance note on merger of Plan and Non Plan classification from the financial year 2017-2018. Based on the above, the Government of Tamil Nadu has merged the existing sub heads consisting of Non plan and State plan and renamed as State Expenditure.

2.1.3 Bypasses

Bypass plays a major role in the diversion of through traffic and helps in protection of traffic condition in major towns. Bypasses results in reduction of travel time and vehicle operating cost.

In order to facilitate the road users, 30 bypasses have been completed and opened for vehicular traffic. The construction works of bypasses are in progress at 13 places. Lands are being acquired for constructing bypasses in 35 locations are in progress. Detailed Project Reports (DPR) is under preparation for 10 bypasses. In addition 1 bypasses are under scrutiny

by the Government. Totally 89 bypasses have been taken up in the Corporations, Municipalities and Town Panchayats.

2.1.4 CHENNAI PERIPHERAL RING ROAD (CPRR)

The Hon'ble Chief Minister has announced that Chennai Peripheral Ring Road (CPRR) will be formed connecting Ennore with Mamallapuram. The Chennai Peripheral Ring Road will provide better connectivity to decongest Chennai city road connecting villages around Chennai city catering to their future traffic requirements besides helping in achieving efficient commercial goods transportation and port connectivity through the Intelligent Transport System (ITS) also being planned.

The proposed Chennai Peripheral Ring Road starts at Ennore port travels through the proposed Northern Port Access Road and connects Mamallapuram near Poonjeri junction of East Coast Road (ECR). The Government has sanctioned Rs.10 Crore for the preparation of Detailed Project Report (DPR) for this work and the same has been completed. The proposal for external funding for civil works (85% of construction cost) from JICA has been sent to Government of India and it is under process. Currently, utility mapping on the proposed corridor is being carried out.

2.1.5 Railway Works Programme

With a view to reduce the accidents and to eliminate detention time at Level Crossings and to avoid traffic congestion at level crossing locations, the Level Crossings where the Train Vehicle Unit (TVU) exceeds 1 Lakh are replaced with ROB/RUBs under Railway Works Programme on 50:50 cost sharing with Railways. The Railways execute the bridge proper and the approaches are 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 1341 manned Level Crossings and 605 unmanned Level Crossings in the State. These will also be converted into ROB/RUB in a phased manner.

2.1.6 NABARD Loan Assistance Scheme

Construction/Reconstruction of Bridges are being implemented utilizing NABARD loan assistance. Improvement and Rebuilding of Major District Roads and Other District Roads are also taken up under this scheme.

During 2016-17, 177 Bridges and 72 Roads to a length of 200.65 km have been taken up for execution. Out of this 64 bridges and 40 roads to a length of 113.46 km have been completed.

2.1.7 Chennai Outer Ring Road

Chennai Outer Ring Road (ORR) is one of the major project being executed by Highways Department under Design, Build, Finance, Operate and Transfer (DBFOT) mode with an investment of Rs.2160 Crore. The project is being executed in 2 phases. phase-I covers 29.65 km starting from NH 45 in South Chennai to NH 205 in West Chennai. The second phase links NH 205 in west Chennai with Minjur in North Chennai for a length of 30.50 km. It is a six lane road. The Roadway includes 22 m open lands in the center with a view for future public transport corridor. Provision of 50 m width corridor along the entire stretch has also been made available for future development. This road will serve for the through traffic and traffic meant for ports and industries. Phase-I of the project has been completed. So far 90% of works have been completed and the remaining works are in progress in the second phase and likely to get completed shortly.

2.1.8 Public Private Partnership (PPP)

A paradigm shift is needed from the conventional approach of restricting planning from fixed budget allocation to a newer operational dimension in order to achieve the ambitious investment 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 mode is

one of the viable alternate method through which resource mobilization is possible to ensure faster delivery of road infrastructure.

PPP is claimed to infuse necessary resources and 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.

Widening and Improvement of Madurai Ring Road has been taken up under BOT mode by TNRIDC with Tamil Nadu Infrastructure Development Board (TNIDB) guidelines. The work is now entrusted and Preliminary works are in progress. In addition, upgradation of three corridors to a length of 146 km is about to be tendered under TNRSP.

2.1.9 Tamil Nadu Road Sector Project II (TNRSP II)

Tamilnadu Road Sector Project-II was formulated in the year 2013 envisaging upgradation of high density road corridors in the State.

Strategic Options Study II (SOS II) was carried out to arrive at a project proposal for TNRSP-II. Roads to a length of 2867 km were analysed and prioritized based on Economic Internal Rate of Return (EIRR) criteria.

An amount of Rs.65 Crore has been approved through Tamil Nadu Infrastructure development Board (TNIDB) under the Chairmanship of the Hon'ble Chief Minister for Detailed Project Report Preparation for upgrading core road network. Consultants have been engaged by TNRSP-II for various road improvements for a length of about 2079 km as prioritized from SOS study.

Detailed Project Report for various road improvement works for a length of about 573 km has been completed. Out of the above, 427 km of road works (Two lane plus paved shoulders) were taken up under Engineering Procurement Construction (EPC) mode and 146 km of four lane road Upgradation is proposed under Public Private Partnership (PPP) mode through World Bank funding. EPC works in 10 packages are in progress. For PPP works, tender for 3 packages are to be invited shortly. Civil works are in progress for the maintenance of 597 km of roads, adopting Output and Performance based maintenance Road Contract (OPRC) mode.

Three Supervision consultants and one monitoring consultant have been engaged for supervising 10 Engineering Procurement Construction contracts and maintaining 2 Output and Performance based Road contract (OPRC) respectively.

Institutional Capacity Enhancement (ICE) and Road Safety (RS) components of TNRSP-II are being implemented by the Director General of the Highways Department.

Detailed Project Report preparation for the remaining roads are at the final stage.

2.1.10 Performance Based Maintenance Contract (PBMC)

Performance Based Maintenance Contracts for roads are designed to increase the efficiency and effectiveness of road asset management and regular maintenance. During the contract period, PBMC ensures safe and travel comfort to the road users in the specified level. Minimum road surface 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 good surface condition of the roads under contract is mandatory 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 this scheme 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 and 498 km length of State Highways and 278 km length of Major District Roads in Thiruvallur Division have been taken up for maintenance under this scheme for five years.

2.1.11 Tamil Nadu Innovative Initiation Fund (TANII)

Tamil Nadu Innovative Initiation Fund (TANII) has been established in the State Planning Commission "to promote innovation culture in Tamil Nadu". Highways Research Station is carrying out research studies under this scheme.

2.2 INSTITUTIONAL CAPACITY ENHANCEMENT AND ROAD SAFETY

2.2.1 Institutional Capacity Enhancement

The capital outlay for the development of road infrastructure has increased from Rs.579 Crore in 2001-02 to Rs.6875 Crore in 2016-17, which has helped the Highways Department to widen all the State Highways to minimum Two Lane carriageway and all the Major

District Roads to Intermediate Lane carriageway. The department has realised the huge target set in Vision 2023, which conceptualizes a strategic plan for the comprehensive development of Road Infrastructure in the State with the key objective to 1) increase the per capita income by 2023, 2) attain high standards of social infrastructure and 3) provide high quality infrastructure to its residents. Keeping in view of the following, the department has taken up Institutional Capacity Enhancement Measures

- Increasing demands for the transport infrastructure due to urbanization, rapid growth of vehicles
- Vision 2023 goals
- Various funding models / Plan of action for realization of vision 2023 projects keeping in view the present funding.
- Various procurement models (all modes of PPP, PBMC/ OPRC, EPC etc) that are required to carry out these development activities
- Road Safety
- Land Acquisition, Rehabilitation and Resettlement and other socio-environmental aspects

It has been planned to take up the Institutional Capacity Enhancement (ICE) measures under the World Bank funded Tamil Nadu Road Sector

Project II. Under ICE, it has been planned to achieve the following

- Mobilization of funds through alternate funding sources and establishment of development funds through tolling, levy of cess on fuel, developmental charges, penalties etc.
- Scientific prioritization of works and allocation of funds, strategic planning
- Enhancement of capacity through i) IT-ICT initiatives, equal distribution of workload and special attention to planning, traffic engineering, road safety, research, public participation and effective inter and intra department coordination
- Human Resource Development through training and exposure visits
- E-governance for effective and transparent function including e-procurement, automation of selected procedures such as traffic counts, pavement condition survey and analysis etc.
- Process re-engineering to update the existing business rules and procedures and to amend Acts.

2.2.2 Road Safety

Government of TamilNadu realising the gravity of road safety situation of the State, has taken several important positive measures towards improved road safety. The initiatives are multipronged and dealt by all

the line departments concerned. Highways Department undertakes road safety engineering measures under various schemes. A comprehensive proposal for Rs.1130 Crore had been approved in the year 2014 and is being implemented in a phased manner. Under the comprehensive road infrastructure development programme, 2% of estimate under each work is earmarked for improving the road safety.

The original alignment of all the existing roads were engineered long back, considering the financial position, vehicle capacity, traffic condition existed by then. The focus has now been shifted keeping in view the motorised vehicle growth from nearly 5 million in the year 2000 to 21.6 Million in the year 2015, speed/efficiency of the vehicles, capacity of existing roads to cater to the increased traffic demands and vulnerability, availability of funds, all the new roads are being engineered and all the existing roads are being re-engineered in phased manner.

It has been planned for comprehensive road safety improvement initiative under the World Bank assisted Tamil Nadu Road Sector Project II (TNRSP II). Under the Road Safety component of TNRSP II, it has been planned to revisit the existing road safety policy, preparation of road safety promotion plan, framing methodology for monitoring & evaluation of road safety programmes and research and knowledge transfer as policy initiatives at State Level.

Also it has been planned for augmentation of enforcement systems targeting key behaviours through Police, review and enhancement of compliance systems targeting unsafe drivers and operators, suggestion towards funding/ resource allocation mechanism for the sustainable road safety programmes as operational level initiatives.

Besides, it has been planned for review and updating of Road Accident Data Management System. Road safety demonstration projects comprising of comprehensive road safety strategies at Kancheepuram and Thiruvannamalai Districts are to be implemented. Based on the success of the demonstration projects, road safety strategies for State will be devised.

In order to strengthen the lead agency, Government has established Road Safety Executive Leadership Group (RSLEG), Road Safety Management Cell (RSMC) and Road Safety Implementation Units (RSIU).

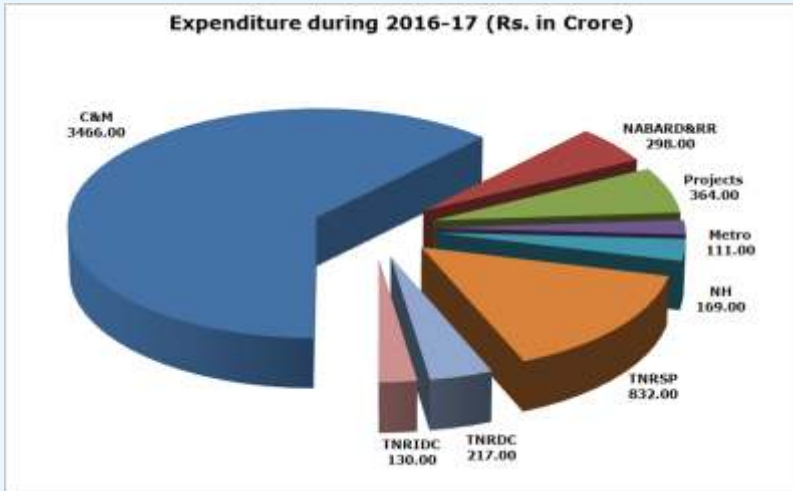
RSELG is headed by Additional Chief Secretary, Highways and Minor Ports Department with Secretaries to Government from other line departments as members, Road Safety Management Cell (RSMC) under the Chairmanship of Transport Commissioner with officials from Highways, Transport, Police, Health and Education departments in the cadre of Superintending Engineer and above as members, Road Safety

Implementation Units (RSIU) at the District Level Chaired by the District Collector with district level officials from line department as members have been established. These institutional arrangements will help in effective coordination, collective decision making, speedy implementation, monitoring and evaluation of various road safety initiatives including Road Safety component of TNRSP II.

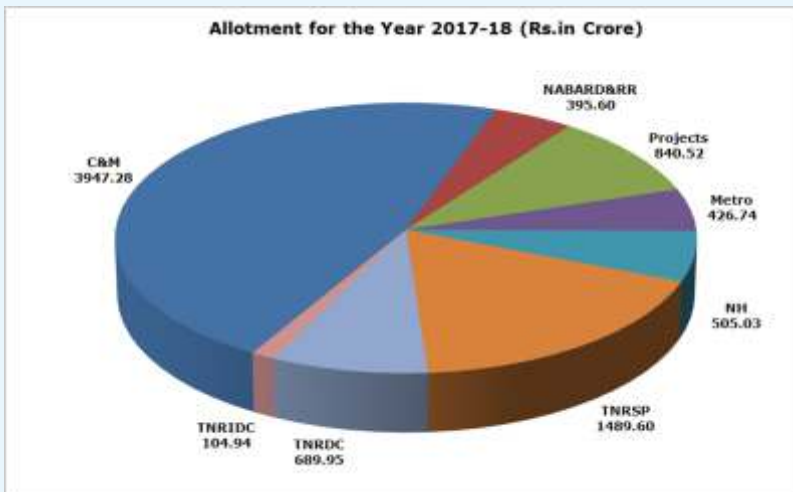
2.3 OVERALL EXPENDITURE (2016-17) AND ALLOTMENT FOR 2017-18

The funds received from State, Central and external agencies are being utilized for implementation of various schemes by this department.

During 2016-17, Rs.6875.40 Crore has been allotted for plan works. Later in the revised budget estimate, the allocation has been reduced to Rs.6255.67 Crore of which an expenditure of Rs.5588.09 Crore has been incurred that is 89%. Budget allotment of Rs.8668 Crore has been made for implementation of plan works in this financial year 2017-18.



Plan Expenditure during 2016-17 (Rs. in Crore)



Allotment for the year 2017-18 (Rs. in Crore)

3. STRUCTURE AND ACTIVITIES OF THE DEPARTMENT

3.1 ORGANISATION STRUCTURE OF THE DEPARTMENT

The Highways department is effectively engineered by the Director General with the coordination from all the 8 wings. The research works are carried out by the Highways Research Station Wing. The Planning, Designs and Investigation Wing carries out the required field investigation works and the design works. Apart from these two non execution wings, 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 (on funds sharing basis)
5. Metro wing-Chennai Metro Development Programme works
6. Tamil Nadu Road Sector Project – World Bank loan assistance works

In addition, the following two companies are executing Special Projects.

7. Tamil Nadu Road Development Company and ITEL Subsidiary of the Tamil Nadu Road Development Company
8. 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 to augment the efficiency of this department and for coordination with all 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.

- Supported by ICERS cell with one Superintending Engineer and one Divisional Engineer.

3.3 CONSTRUCTION & MAINTENANCE WING

- Maintenance of State Highways, Major District Roads, Other District Roads, sugarcane 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.
- Works are carried out by 8 Circles and 41 Divisions.

3.4 NABARD & RURAL ROADS WING

- Execution of bridges and roads with loan assistance from NABARD.
- Construction of Road Over Bridges / 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 utilising Sugar Cess fund.
- Works are carried out by 4 Circles and 10 Divisions.

3.6 METRO WING

- Execution of Plan works in Chennai Metropolitan Area (CMA).
- Road works, major bridge works and flyovers works in road junctions under CMDP.
- 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 and Highways, Government of India
- Developments of State roads are executed under Revamped Central Road Fund, Inter State Connectivity and 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 network 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 and Special Initiatives Department.
- National Highways wing comprises of 4 circles and 8 divisions.

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, Chief Engineer, 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.
- This wing functions under the Director with One Joint Director, 4 Deputy Directors, 8 Divisional Engineers (Quality Control) and 8 Regional Labs.

3.10 PLANNING, DESIGN AND INVESTIGATION WING

- Carrying out investigation for new road and bridge, flyovers, grade separator works.
- Preparation of structural designs, drawings and quantity estimates for bridge works costing Rs.2 Crore and above.
- Proof checking of Design and Drawings prepared by consultants.
- This wing comprises one Joint Chief Engineer, 4 Divisional Engineers and 5 Investigation Divisions.

3.11 TAMIL NADU ROAD DEVELOPMENT COMPANY (TNRDC)

- Implementing major PPP (Public Private Partnership) 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 carries out Overall administration, Planning and Quality Control, modernization of departmental works through Information Technology Cell and Capacity Enhancement (ICE) measures along with road safety works through (ICERS) Institutional Capacity Enhancement and Road Safety Cell for effective and efficient management of the works.

4.1 ADMINISTRATION

The office of the Director General is overall responsible for the establishment and personnel administration matters of all the staff of Highways Department.

4.2 HUMAN RESOURCES DEVELOPMENT

4.2.1 Staff Strength

Total strength of this department is 6863. Of this, 1587 are Engineers, 801 are Technical Staff and 4475 are Administrative and Ministerial staff.

4.3 INFORMATION TECHNOLOGY CELL

In the e-PATHAI application, RMMS (Road Maintenance Management System) has been developed to effectively prioritize the road works using a

computerized system. The RMMS database consisted of road condition data for State Highways and Major District Roads and now the system has been customized to upload the Other District Road (ODR) and Sugar cane road (SCR) data also.

The current system architecture of RMMS was developed in the year 2008. RMMS has been interfaced with other applications namely GIS and P&FMS. Further, the RMMS application has been facilitated to upload condition data surveyed using Advanced Data Collection Equipment (ADCE). As the data in P&FMS and RMMS tends to grow in future, enhancement to the RMMS architecture is needed for the effective use of RMMS. Hence, it is proposed to upgrade the existing RMMS in terms of appearance, data processing speed, query builder, report preparation, user friendliness and enhancing the capacity of database in line with the current trends of technology prevailing in the field of Road Management with further enhancement in terms of Bridge Management System in tune with Indian Bridge Management System (IBMS) which is an initiative of MoRT&H.

Another application in e-PATHAI namely, GIS is currently used for viewing spatial attributes of existing roads which are being maintained through RMMS. It is proposed to upgrade the existing Geographical Information System (GIS) application with

mobile applications and other current advance technologies.

The Integrated Project, Human Resource & Finance Management System (P&FMS) is an e-PATHAI application, which 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. Currently the application has about 1786 estimates of Plan works pertaining to Construction and Maintenance wing. The system is proposed to be revamped to suit the requirements of other wings of Highways Department.

The above upgrading works are proposed to be accomplished with the assistance of World Bank fund through ICERS Cell.

4.4 INSTITUTIONAL CAPACITY ENHANCEMENT AND ROAD SAFETY CELL (ICERS CELL)

4.4.1 Institutional Capacity Enhancement

Institutional capacity Enhancement & Road Safety Cell carryout the procurement, inter & intra department coordination for the effective implementation of ICE & RS components approved under TNRSP-II.

To meet the targets set for the enhancement of Institutional capacity, 17 sub tasks identified. Some of the key tasks are

- Conditional Road user satisfaction survey for obtaining the feedback from Road users/ stockholders to assess the performance of the projects.
- Process Re-Engineering to accommodate e-governance procedures, standardize the existing manuals, codes & documents so as to facilitate better functioning.
- Amendment of TN Highways Act 2001, to meet it a standalone act to simplify the land acquisition procedures, safe guard the road assets.
- Review and up gradation of existing e-pattern systems such as RMMS, P&FMS, GIS, etc. to suit the present needs including procurement of required hardware and software. This would also facilitate in automation of certain manual procedures.
- Conducting training need analysis and prepare training calendar including suggestion for resource mobilization for the continuance of training program.

- Strengthening of Institution, establishment of e-library, smart class rooms, etc. are also envisaged.

The tasks are being carried out as per world Banks procurement guidelines and are in various stage of procurement. In order to effectively implement the tasks, working committees, core group comprising of experts in different fields are being constituted.

4.4.2 Road Safety component

Recognizing the socio economic consequences of the road traffic accidents, the Government through multiple stakeholders is taking various measures to improve the road safety. The Highways Department has approved a comprehensive proposal for the improvement of Road safety under the World Bank assisted TNRSP II. The Road safety component includes strategic planning, Revision of Road Safety policy and formulation of long term investment proposal at the state level. It has been envisaged to improve the Road Safety through interventions from all the stakeholders such as Transport, Police, Health, Education and Engineering Department.

It is proposed to engage a Management committee to facilitate in conducting Road Safety Audit, iRAP survey, formulate the proposal for demonstration projects and to support State level initiatives such as

policy, Programme & Investments planning comprisions of all stake holders.

4.4.2.1. Road Safety Protocol

Further, for identification and removal of black spots through engineering measures, a protocol has been formulated and this will be facilitated by the engineering committees. The field level committee comprising of the Divisional Engineer (C&M) and Divisional Engineer (Investigation) carry out joint inspection and suggest suitable Engineering measures. At circle level, the Superintending Engineer (C&M) concerned will review, prioritize and shortlist the proposal received from field committee considering the factors such as accident fatalities, grievous injuries and the possible threats due to Engineering defects. The recommendations of the SE (C&M) concerned will be appraised, shortlisted further by the State Level Committee comprising of Director General, Highways, Chief Engineer (C&M) and Director, HRS. Shortlisted proposal will be recommended for sanctioning to government under appropriate scheme.

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:

1. **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.
2. **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.
3. **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 RASC proposals.

5. CONSTRUCTION AND MAINTENANCE

Construction and Maintenance wing of Highways Department is functioning under the control of a Chief Engineer with 8 circles and 41 divisions. It maintains a total length of 57,474 km of Government Roads categorized as State Highways, Major District Roads and Other District Roads.

Widening, strengthening and improvements of roads including construction of Bridges, Culverts, formation of Bypasses and Road safety works are implemented under various schemes and programmes besides few major infrastructure projects like construction of grade separators.

The details of various Government schemes and programmes undertaken by this wing are given below:

5.1 COMPREHENSIVE ROAD INFRASTRUCTURE DEVELOPMENT PROGRAMME (CRIDP)

The Comprehensive Road Infrastructure Development Programme (CRIDP) was introduced in the year 2004-05. This is the flagship scheme of Highways Department through which various infrastructural development works are implemented in this State.

Works like widening, strengthening, forming new bypasses, construction of bridges, flyovers and grade separators are being under taken in a comprehensive and holistic manner. Further, road safety works are being carried out under this scheme.

5.1.1 CRIDP - State Highways

During 2016-17, spillover works of widening/improvements to 1308.26 km length of roads and construction of 254 bridges/culverts/ protective works were taken up at a cost of Rs.2019.34 Crore.

New works of widening/improvements to 889.52 km length of roads, construction of 63 bridges/ culverts and 221 protective works were also sanctioned at a cost of Rs.997.51 Crore and are under progress.

During 2016-17, widening/ improvements in 1099 km length of roads and 118 bridges/ culverts/ protective works have been completed at a cost of Rs.1295.76 Crore.

Budget allotment of Rs.1249.48 Crore has been provided for the year 2017-18.

5.1.2 CRIDP - Major District Roads

Widening/ improvements to 863.39 km length of roads and construction of 191 bridges/ culverts/ protective works were taken up as spillover works at a cost of Rs.816.08 Crore.

During 2016-17, widening/ improvements to 660.41 km length of roads, construction of 57 bridges/ culverts and 115 protective works were sanctioned at a cost of Rs.485.49 Crore and are being implemented.

Widening/ improvements in 781.15 km length of roads and 78 bridges/culverts/ protective works have been completed at a cost of Rs.776.54 Crore in the year 2016-17.

Budget provision of Rs.847.34 Crore has been allotted for the year 2017-18.

5.1.3 CRIDP - Other District Roads

Spillover works costing to a tune of Rs.1467.41 Crore comprising of widening/ improvements to 2338.77 km length of roads and construction of 244 bridges/culverts were taken up for implementation.

New works of widening/improvements to 2044.65 km length of roads, construction of 99 bridges/culverts and 129 protective works have been sanctioned at a cost of Rs.811.88 Crore in the year 2016-17 and are under progress.

Widening/improvements in 1998.64 km length of roads and 117 bridges/ culverts/ protective works have been completed in the financial year 2016-17 at a cost of Rs.808.22 Crore.

Budgetary allocation of Rs.790.56 Crore has been made for the year 2017-18.

5.1.4 CRIDP - Other District Roads – Special Component Plan

Spillover works of widening/ improvements to 497.19 km length of roads and construction of 11 bridges/culverts were taken up in the year 2016-17 at a cost of Rs.186.53 Crore.

New works of widening/improvements to 570.87 km length of roads, construction of 4 bridges/culverts and 5 protective works were sanctioned at a cost of Rs.205.12 Crore and are being implemented.

During 2016-17, road works to a length of 463.95 km and 11 bridge/ culvert/ protective works were completed at a cost of Rs.188.85 Crore.

Budget provision of Rs.212.62 Crore has been allotted for the year 2017-18.

5.2 PART II SCHEME

Under this scheme, infrastructure facilities and research studies are undertaken. The State Government allocated funds for construction of buildings and Travellers' Bungalows. Also the Government defrayed funds for purchase of office and laboratory equipments, softwares and for conducting research studies.

Spillover works of 20 buildings were taken up for construction and 19 buildings have been completed at a cost of Rs.5.78 Crore.

Budget provision of Rs.40,000 has been allotted for the year 2017-18.

5.3 WORKS IN EXTENDED CHENNAI CORPORATION AREA

Highways Department maintains 251 Km length of roads in the Extended Chennai Corporation area in Chennai, Thiruvallur and Kanchipuram districts.

Hon'ble Chief Minister has announced that works will be taken up for Rs.1033 Crore in this extended Chennai Corporation Area in a phased manner.

In pursuance of the announcement, Government sanctioned Rs.400 Crore for 36 works in two phases during 2014-16.

During 2016-17, spillover works of 33 works to a length of 91.26 km were taken up at a cost of Rs.293.14 Crore and 9 works at a cost of Rs.152.72 Crore have been completed.

Budget provision of Rs.60.86 Crore has been allotted for the year 2017-18.

5.4 FORMATION OF BYPASSES

Bypasses are being formed to ease the traffic congestion in the built up areas of major towns and to ensure hassle free through traffic and reducing vehicle operating cost and time.

So far, 13 bypasses have been completed by this wing. 8 bypasses namely Thanjavur phase II (Part I), Thanjavur phase II (Part II), Pattukottai Phase II, Edappady, Pollachi Eastern Bypass, Thiruthani, Tharamangalam and Rasipuram Phase I, Part-II are in progress.

The list of 19 bypasses for which Land Acquisition process are under progress is shown in **Table 5.1.**

Table 5.1: List of Land acquisition works

S. No	Bypass	Length in Km	Cost in Crore
1	Tiruvarur	9.98	10.10
2	Thiruthuraipoondi	2.46	0.53
3	Periyapalayam	1.70	2.17
4	Sivagangai	10.60	1.00
5	Manachanallur (Trichy District)	2.62	14.40
6	Mannargudi Ring Road	21.40	10.06
7	Pudukottai Ring Road	21.25	13.60
8	Parthibanur Ring Road (Ramanathapuram district)	3.60	0.88
9	Sivakasi Ring Road	22.00	33.50

S. No	Bypass	Length in Km	Cost in Crore
10	Karur Ring Road	32.10	77.00
11	Uthiramerur	4.09	7.00
12	Illupur (Pudukottai district)	5.40	4.00
13	Walajabad	6.01	66.33
14	Kamuthi	6.40	1.50
15	Kumbakonam	9.42	28.00
16	Valangaiman	5.40	3.14
17	Mettupalayam	7.25	99.35
18	Coimbatore Western Ring Road	32.42	320.00
19	Vellore Ring road	13.29	38.82
	Total	217.39	731.38

Preparation of Detailed Project Report for bypasses to Thiruvallur, Vettavalam, Dindigul and Thuraiyur phase II are in progress.

Further, the proposal for sanction of land acquisition for bypass to Thirukattupalli is in perusal.

5.5 CONSTRUCTION OF RAILWAY OVER BRIDGES

Construction of Railway Over Bridge at Athipattu (L.C No. 13) in Thiruvallur District at a cost of Rs.23.30 Crore under Railway Works Programme (RWP) and Construction of ROB (L.C.No.216) at Sirkali in Nagappattinam district under State funds at a cost of Rs.12 Crore have been completed during the current year.

5.6 PERFORMANCE BASED MAINTENANCE CONTRACT (PBMC)

Performance Based Maintenance Contracting (PBMC) is a new concept designed to resolve the problems related to traditional methods of contracting and has significant potential to improve the maintenance and management of road infrastructure. Contracting out road maintenance to the private sector based on performance measures is an alternative solution to maintain road infrastructure in a cost-effective way. Many countries have succeeded in minimizing road infrastructure maintenance costs using performance-based maintenance contracts over the last two decades.

This scheme includes Initial Rectification, Periodical Renewal, Minor Improvements, Ordinary Maintenance and Emergency works.

During the year 2012-13 in Pollachi division, Performance Based Maintenance Contract (PBMC) has been taken up in 377.38 Km length of roads comprising 191.40 Km of State Highways (SH) roads and 185.98 Km of Major District Roads for a period of five years at a cost of Rs.233.93 Crore. Initial rectification works in 152.59 Km and periodical renewal works in 81.15 km have been completed and balance works are in progress.

Based on the experience in Pollachi Division, PBMC has been extended to Krishnagiri, Ramanathapuram and Thiruvallur Divisions in the year 2015-16. In Krishnagiri division, maintenance of 307 km length of State Highways and 274 km length of Major District Roads are also taken under Performance Based Maintenance Contract at a cost of Rs.450 Crore. Initial rectification works in 151.40 km have been completed and balance works are in progress.

In Ramanathapuram Division sanction was accorded for Rs.460 Crore for maintenance of 229 km length of State Highways and 340 km length of Major District Roads under Performance Based Maintenance Contract (PBMC). Out of 196.67 km length of Initial rectification works, 185.37 km has been completed and balance works are in progress.

An amount of Rs.630.38 Crore was accorded for the maintenance of 498 km length of State Highways and 278 km length of Major District Roads under this scheme in Thiruvallur Division. Out of 211.19 km length of Initial rectification works, 79.60 km has been completed and balance works are in progress.

Now the PBMC Scheme would be extended to Virudhunagar division in the current financial year.

5.7 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, Thachur, Ennore and Kattupalli.

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. This road will facilitate container movement from southern districts to Ennore Port.

This road starts at Ennore Port and ends at Poonjeri Junction near Mamallapuram having a length of 133.65 Km which is split into 5 sections

Section-I: Northern Port Access Road – Ennore Port to Thatchur on NH-5 (25.50 Km)

Section-II: Thatchur on NH-5 to start of Thiruvallur Bypass (26.25 Km)

Section-III: Start of Thiruvallur Bypass to Sriperumbudur on NH-4 (29.55 Km)

Section-IV: Sriperumbudur on NH-4 to Singaperumalkoil on NH-45 (24.85 Km)

Section-V: Singaperumalkoil on NH-45 to Mahabalipuram (27.50 Km)

The project cost including Land acquisition worked out to Rs.12301 Crore including Intelligent Transport System component cost in the Peripheral Road as well as in the Chennai city roads and formation of bypass to Minjur town. The proposal for external

funding through Japan International Co-operation Agency (JICA) has been sent to Government of India and is under consideration.

5.8 FORMATION OF ROAD GRIDS ALONG CHENNAI OUTER RING ROAD

Chennai Outer Ring Road is a major orbital corridor for Chennai Metro region. 18 Nos. of macro grid linkages along Outer Ring Road 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. The Government have sanctioned Rs.5.22 Crore for preparation of detailed project report. Preparation of detailed project report has been completed for 15 road grids. The Land plan schedule preparation is in progress.

5.9 ROAD SAFETY WORKS

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, some accidents occur. 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 improve the black spots in the Government roads has been prepared at an estimated cost of Rs.1130 Crore.

Considering the above shelf of projects, the Government have sanctioned Rs.300 Crore for road safety works under road safety fund. From 2014-15 onwards road safety works has been taken up under Comprehensive road Infrastructure Development Programme. Thus, road safety works to a tune of Rs.959.94 Crore were taken up under road safety funds and CRIDP so far as detailed below (**Table 5.2**).

Table.5.2 Road Safety Action Plan.

SI No	Year	Details of Fund allocation (Rs in Crore)		
		CRIDP	Road Safety Fund under Highways Head	Total
1	2014-15	250.00	200.00	450.00
2	2015-16	206.87	100.00	306.87
3	2016-17	203.07	-	203.07
			Total	959.94

A study was made to identify black spots where more than 5 fatalities took place for the past 3 years. Totally 169 black spots have been identified and 73 are being improved at a cost of Rs.31.58 Crore under CRIDP 2016-17. 50 black spots are being improved under other schemes. The remaining identified works will be taken up in the year 2017-18 on priority basis. By carrying out these various measures the accidents are reduced.

5.10 MAJOR WORKS ANNOUNCED BY THE HON'BLE CHIEF MINISTER OF TAMIL NADU

The Hon'ble Chief Minister has made announcements for implementation of some major works. Of which the following 3 road works, 3 bypass works and 4 flyover works are in progress.

- Improvements and rebuilding to Periyakulam-Kodaikanal (via) Adukkam road (Km.0/0-35/9) at a cost of Rs.69.50 Crore in Dindigul and Theni districts.
- In Theni district Rebuilding and widening from single lane to Intermediate lane of Chinnamanur – Iravangalar road via Megamalai (km.0/0 – 35/0) to a tune of Rs.80.67 Crore.
- Development of 14 km Girivalam Pathai roads in Tiruvannamalai by widening the footpath,

lighting and providing rest room facilities under progress for an amount of Rs.65 Crore.

- Forming Eastern Bypass to Pollachi Town starting from Thippampatty at Km.111/4 of NH-209 and ending Achipatty at Km.124/8 of NH-209 (via) Alampalayam, Rasakkapalayam, Kullakkapalayam to a length of 15.40 Km for Rs.20.63 Crore.
- Bypass road to Tharamanagalam town in Omalur - Sankari - Tiruchengode - Paramathy road (SH86) at a cost of Rs.20 Crore
- Phase I part II Bypass to Rasipuram town starting from Anaipalayam village to join at Ponkuruchi Village in Malliakarai - Rasipuram - Tiruchengode - Erode Road (SH79) at a cost of Rs.20 Crore
- Construction of two tier flyover at Five Roads Junction including construction of flyover upto Ramakrishna road junction and four road junction in Salem city at a cost of Rs.320 Crore
- Construction of combined flyover at Kuranguchavadi and AVR roundana junction for Rs.111.40 Crore in Salem city.
- Construction of flyover in Thiruvagoundanur Junction for Rs.26.77 Crore in Salem city.

- Construction of Flyover at the Junction of Km.32/4 of GST road and Vandalur-Mambakkam-Kelambakkam road at a cost of Rs.60 Crore.

The Land acquisitions for the following 5 works are in progress.

- Flyover along Athupalam and Ukkadam Junction upto Oppanakara Street in Coimbatore City for Rs.88.61 Crore.
- Flyover at Goripalayam junction in Madurai city for Rs.164.28 Crore.
- Elevated Corridor from Periyar Bus stand to Sethupathi High School, Meenakshi Mission Hospital junction in Madurai City for Rs.38 Crore.
- Western Ring Road to Coimbatore City for Rs.320 Crore.
- Widening and ground level improvement of Dindigul-Bangalore Road (NH-209), Pollachi-Palaghat Road (State Highways-78A), Municipal Bus Route Road (Other District Roads) and New Scheme Road (Pollachi Municipal Road) in Pollachi Town for Rs.33.57 Crore.

5.11 MAINTENANCE WORKS

An allocation of Rs.859.27 Crore has been made for maintenance of roads and bridges under Non-Plan maintenance works head during 2016-17 and renewal of 2862 km length of roads has been completed at an expenditure of Rs.805.57 Crore. From the year 2017-18 onwards the maintenance of the roads and bridges are taken up under Maintenance works head itself.

Budget provision of Rs.897.24 Crore has been made for 2017-18.

5.12 OVERALL EXPENDITURE (2016-17) AND ALLOCATION FOR 2017-18

During 2016-17, a total of 4343 km length of roads works, 324 bridges / culverts / protective works and 19 buildings have been completed at an expenditure of Rs.3813.26 Crore.

For 2017-18, a total budgetary allocation of Rs.4742.17 Crore has been earmarked.



**Bridge across Kollidam River at Srirangam in Trichy District
(Inaugurated by the Hon'ble Chief Minister on 14.02.2016)**



**Bridge at Kambainallur in Dharmapuri District
(Inaugurated by Hon'ble Chief Minister on 08.05.2017)**



**Bridge at Orakkattupettai in Kancheepuram District
(Inaugurated by Hon'ble Chief Minister on 04.03.2017)**



**Edamanal-Thirunagari Bridge in Nagapattinam District
(Inaugurated by Hon'ble Chief Minister on 07.03.2017)**

6. NATIONAL HIGHWAYS

The National Highway roads serve as through corridors for the movement of people and freight across State capitals, major ports, industrial areas and connects to popular tourist destinations of the nation. These roads are therefore subjected to heavy traffic intensity.

The length of National Highways in the State of Tamil Nadu is 4994 km out of which 1985 km are maintained by National Highways wing and the balance 3009 km are maintained by the National Highways Authority of India (NHAI). The lane-wise details of National Highways roads in the State are tabulated (**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	12	26	1825	122	1985
2	NHAI	-	-	906	2103	3009
	Total	12	26	2731	2225	4994

6.1 CORE ACTIVITIES

The Tamil Nadu National Highways wing is headed by Chief Engineer who administratively controls four circles and eight divisions. The works such as

improvements, widening the carriageway to two lane / two lane with paved shoulders / four lane / multi-lane, strengthening, construction of bridges and maintenance works are being carried out by this wing.

The following schemes are being implemented by this wing.

- **National Highways Works**
 - NH (O) Works
 - PR /IRQP works
- **Centrally Sponsored Scheme works**
 - Revamped Central Road Fund Scheme (RCRF).
 - Inter State Connectivity Scheme (ISC)
 - Economic Importance (EI) Scheme.
 - Hill Area Development Programme (HADP).
 - Pradhan Mantri Gram Sadak Yojana (PMGSY).

6.2 PROJECTS IMPLEMENTED BY NATIONAL HIGHWAYS WING

6.2.1 Plan Works

17 road works having a length of 418 km and 10 bridge works at a cost of Rs.1544 Crore were taken up as spill over works during 2016-17. Under Annual Plan 2016-17, the MORT&H, Government of India has

sanctioned 31 road works to a length of 69.84 km and 7 Bridge works amounting to Rs.307.91 Crore.

Out of the above, 9 road works to a length of 310 km and 6 bridge works have been completed incurring an expenditure of Rs.640.11 Crore. The remaining works are in progress

The following are a few major works which have been completed / under implementation in plan works

6.2.1.1. Completed projects:

1. Providing paved shoulder in km.120/0-183/2 of NH 49 (Madurai - Dhanushkodi road) to a length of 60.80 km at a cost of Rs.118.77 Crore.

2. Providing Paved Shoulder km 68/4-111/4 of NH 230 (Madurai – Thondi road) to a length of 43 km at a cost of Rs.65.24 Crore.

3. Widening from two lane to four Lane in km 24/3-36/0 of NH 49 Extn. (Madurai – Theni road up to Kerala border) to a length of 11.70 km at a cost of Rs.58.60 Crore

4. Construction of missing link in Dhanushkodi road from km 188/2-192/7 of NH 49 to a length of 4.50 Km at a cost of Rs.34 Crore

5. Construction of major bridge at Suchindram on NH 47 – Kanniyakumari - Kerala border road at a cost of Rs.7.54 Crore.

6.2.1.2. Projects under implementation:

1. Construction of flyover from Km.604/252 to Km.607/060 (Marthandam Junction) and from Km.630/116 to Km.631/650 (Parvathipuram Junction) of NH 47 - Kanniyakumari - Kerala border road, at a cost of Rs.307.70 Crore.

2. Construction of Paved Shoulders in Km.81/0-203/0 of NH 234 (Villupuram- Mangalore road) to a length of 116.60 km at a cost of Rs.268.92 Crore.

3. Widening to 4-lane / 4-lane with paved shoulders and strengthening of existing carriageway in km 0/0-31/8 of NH 381 (Avinashi - Tirupur - Avinashipalayam road) to a length of 31.8 km at a cost of Rs.162.72 Crore.

4. Rehabilitation and upgradation of NH226 Extn from Km 0/0-66/2 to 2 lane with paved shoulders for 66.2 km at a cost of Rs.161.70 Crore.

5. Providing paved shoulders /Four laning in km 0/0 - 57/8 of NH 532 (Cuddalore - Vridhachalam - Salem road) to a length of 50.2 Km at a cost of Rs.158.35 Crore.

6.2.2 MISSING LINK OF NH - 49 (Madurai – Dhanushkodi road)

The long felt need of the people of Rameshwaram has been fulfilled after 50 years by providing connectivity from Mugundharayarchatiram to Arichalmunai (Erosion point) in Madurai – Dhanushkodi

road (NH 49) at a cost of Rs.65.68 Crore to a length of 9.5 Km which was destroyed in the Dhanushkodi Cyclone during the year 1964.

6.2.3 RECTIFICATION OF BLACK SPOTS

The Ministry of Road Transport and Highways (MoRTH), Government of India (GoI) has formulated Road Safety cell (Engineering) with a vision to eliminate all black spots through out the country. Based on the fatality report for the year 2011, 2012 & 2013 obtained from the Home Department 100 Nos of the black spots were identified by MoRT&H, GOI.

Out of 100 No. of black spots, 20 No. of black spots are located on NHs under the control of State NH wing and the remaining 80 No. are located on NHs under the control of NHAI. A committee had been constituted for preliminary inspection and suggestion of remedial measures of 20 black spots by the Chief Engineer (National Highways). This committee inspected all the black spots and submitted its report

Out of the above 20 black spots, remedial measures for 3 black spots on NH 209, NH 47 and NH 226 Extn were included in ongoing NH(O)works. The estimates for the rectification of the remaining 17 black spots have been sanctioned by the Ministry for an amount of Rs.96.80 Crore and are in progress. In order to avert occurrence of accidents till the commissioning of these works, immediate cautionary measures in the

form of road signages, speed breakers etc., at a cost of Rs.42.79 Lakhs have been provided in these black spot locations. The details are given in **Table 6.2**

Table 6.2: Road safety -Rectification of black spots

Sl. No	Location of Black Spot	NH No	Cost required for Short Term/ Medium Term Measures Rs. in Crore	Cost required for Long Term Measures Rs. in Crore	Cost of Immediate Cautionary measures Rs.in Crore
Distirct:Cuddalore					
1	Maruvai Bridge	45C	0.08	-	0.01
2	Pannikkankuppam	45C	2.21	-	0.01
3	Cuddalore -OT Clock tower to karaikadu junction	45A	1.01	-	0.05
4	Cuddalore-Chidambaram road	45A	0.82	-	0.01
5	Cuddalore-Chidambaram road	45A	1.22	-	0.03
Distirct:Vellore					
6	Veppaneri to K.v.Kuppam santhaimedu - adugandhangal main 38/10, 42/5	234		3.75	0.05

District:Coimbatore					
7	Thernilai Unjawelampatty -	209		24.88	0.03
8	Mathampalayam Salval Company	67		8.13	0.01
9	Gas company	67		15.60	0.01
10	Viswanathapuram Near VG Hospital	67		9.53	0.01
11	Ondipudur Sungam -	67		22.78	0.07
12	North-Coimbatore to Mettupalayam Checkpost	67			
13	Saravanampatty - GP signal	209			
14	Ukkadam Eachanari -	209			
District:Nagapattinam					
15	V.Kaikattil four junction	227	1.40		0.04
16	Rajivpuram to Thirukadaiyur	45A	2.08		0.04
District:Tirunelveli					
17	Vasudevanallur to Othakadai	208		3.38	0.02
	Sub Total		8.84	87.95	0.43
Grand Total for all measures: Rs.96.79 Crore					0.43

6.2.4 Periodical Renewal (PR)/ Improvement of Riding Quality programme (IRQP) Works.

During the financial year 2016-17, 21 road works to a length of 243 km amounting to

Rs.151.90 Crore were taken up as spill over under Periodical Renewal (PR) / Improvement of Riding Quality programme (IRQP). Out of which 20 works to a length of 224.72 km have been completed incurring an expenditure of Rs.139.56 Crore.

Further, MoRT&H, GoI sanctioned 12 road works to a length of 91.44 km at a cost of Rs.61.52 Crore under PR/IRQP 2016-17. These works are in progress.

6.2.5 Centrally Sponsored Schemes

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

6.2.5.1. Revamped Central Road Fund Scheme (RCRF)

During the year 2016-17, 73 road works to a length of 479.31 km and 3 bridge works were taken up as spill over to a tune of Rs.263.92 Crore

Out of the above, 70 road works to a length of 454.11 km and one bridge work have been completed

at a cost of Rs.162.92 Crore during 2016-17. Balance works are in progress.

147 road works to a length of 762.67 km and one bridge work amounting to Rs.605.66 Crore was approved by the Government of India under RCRF 2016-17. These works are in progress.

6.2.5.2. Suchindram bypass

Construction of bypass to Suchindram town, between Ashramam and Ethankadu in Kanniyakumari to a length of 3.6 km amounting to Rs.24.50 Crore has been taken up under RCRF scheme 2015-16 and the work is in progress. The work is targeted to be completed by August 2017.

6.2.5.3. Inter State Connectivity Scheme (ISC)

Under this scheme, 2 road works to a length of 95.85 km were taken up as spillover to a tune of Rs.90.13 Crore and the works are in progress .

During the year 2016-17, the MoRT&H ,GOI has sanctioned 5 road works to a length of 69.80 km and amounting to Rs.90.99 Crore. Out of these four works are in tender stage and one work is in progress.

6.2.5.4. Pradhan Mantri Gram Sadak Yojana (PMGSY)

The PMGSY / Bharat Nirman Programme was launched by Ministry of Rural Development 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.

6.2.5.5. Pradhan Mantri Gram Sadak Yojana phase IX (2014-15)

Under this programme, 57 Other District Road works to a length of 164.04 km amounting to Rs.47.65 Crore have been taken up for upgradation and all these works have been completed in 2016-17 and the expenditure is Rs.36.67 Crore.

6.2.5.6. Pradhan Mantri Gram Sadak Yojana Phase X (2016-17)

In continuation to PMGSY-Phase-IX, MoRD, GOI has sanctioned 41 Other District Road works to a length of 129.69 km and amounting to Rs.37.02 Crore during the year 2016-17 under PMGSY Phase -X. Out of this, 28 road works to a length of 85.80 km have been completed incurring the expenditure of Rs.23.61 Crore.

6.3 OVERALL EXPENDITURE (2016-17) AND ALLOTMENT FOR 2017-18

Through Ministry funds, under National Highways works an expenditure of Rs.798.27 Crore has been incurred for the Widening/ Improvements/ Construction of bridges of National Highway roads and for the development of the state roads under Interstate connectivity scheme /Economic importance scheme, an expenditure of Rs.51.66 Crore has been incurred during the financial year 2016-17.

For the Centrally sponsored state schemes, under Revamped central road scheme and Bharat Nirman maintenance fund scheme, an expenditure of Rs.168.61 Crore has been incurred during the financial year 2016-17.

Further, for the financial year 2017-18, a budget provision of Rs.505.03 Crore has been earmarked for the Centrally sponsored state schemes .

6.4 OTHER ACTIVITIES

6.4.1 REHABILITATION OF BRIDGES / CULVERTS

Based on the instructions of the Ministry, weak Bridges / Culverts have been identified and the proposal for rehabilitation of the same amounting to Rs.101.83 Crore has been sent to Ministry and approval is awaited.

6.4.2 SETU BHARATAM - CONSTRUCTION OF ROB / RUBS IN LIEU OF LEVEL CROSSINGS ON NHS

Setu Bharatam programme was launched by Government of India on 04.03.2016 with an aim to make all National Highways free of railway level crossings by 2019. This is being done to prevent the frequent accidents and loss of lives at level crossings. Under this scheme, MoRT&H, GOI has engaged consultants for preparation of Detailed Project Report (DPR) for the construction of 8 Nos. of ROB / RUB in lieu of Level crossing on National Highways (**Table 6.3**). After approval of DPR from the Ministry, the works are proposed to be taken in the year 2017-18.

Table 6.3: List of ROB/RUBs proposed under Setu Bharatam Scheme.

Sl. No	NH No.	LC No.	Chainage and Location
1	49 Ext	17	Km 22/2 (Near Checkkanurani)
2	49 Ext	44	Km 50/3 (Near Usilampatti)
3	49 Ext	68	Km 72/6-7 (Near Theni)
4	49 Ext	85	Km 93/4 (Near Bodi)
5	49	518	Km 134/8 (Uchipuli)
6	208	503	Km 99/4 (Near Tenkasi Elanchi)
7	234	86	103/4 (Polur –Madimangalam)
8	234	109	Km 81/6 of (Kannamangalam – Kaniyambadi)

6.4.3 DECLARATION OF NEW NATIONAL HIGHWAYS

The MoRT&H has accorded 'In-principle' approval for the upgradation of 19 State Highways roads as National Highways to a length of 1333.40 Km. The details are furnished in the **Table 6.4**.

Table 6.4: List of State Highways declared "In-Principle" as National Highways

Sl. No	Name of State Road	Length (km)
1	Karaikudi - Pattukottai - Thanjavur road	70.00
2	Perambalur - Athoor road	55.00
3	Salem - Uttankarai - Thirupathur road	141.00
4	Thiruvannamalai - Kallakuruchi road	65.00
5	Thoppur - Mettur - Bhavani - Erode road	85.00
6	Srivilliputhoor - Sivakasi - Virudhunagar - Aruppukottai - Thiruchuli - Parthibanoor road	105.00
7	Dindugal - Karaikudi road	109.00
8	Vallioor - Thiruchendur road	70.00
9	Chengalpattu -Mamallapuram	29.00
10	Kodaighat -Kodaikannal-Palani	52.00
11	Tiruppur-Oddanchatram road	90.80
12	Kollegal-Hanur-MM hills-Palar road-Tamil nadu border extended upto Mettur in Tamil nadu	30.00
13	Mettupalayam-Bhavani road	98.00
14	Avinashi-Mettupalayam road	38.00

Sl. No	Name of State Road	Length (km)
15	Bhavani -Karur road	77.00
16	Trichy-Namakkal road	77.00
17	Palani-Dharapuram Road	31.00
18	Arcot – Tindivanam road	91.00
19	Nelvoy – Pallikonda road	19.60
	Total Length	1333.40

Out of the 19 road stretches, DPR for 4 State Highways prepared by TNRSP have been sent to Ministry for approval and land acquisition for the Tiruppur-Oddanchatram road is being carried out by the state government .Hence, the DPR for the remaining road stretches will be prepared in the current financial year.

6.5 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.

6.5.1 WORKS AWARDED BY NHAI DURING THE YEAR 2014-15.

During the year 2014-15, projects for a total length of 211.49 km at a cost of Rs.807.87 Crore have been awarded and the works are in progress.

The details of the projects awarded during 2014-15 are as under.

The Project of Two lane with paved shoulders of Thirumayam-Manamadurai section of NH-226 to an amount of Rs.252 Crore to a total length of 77.729 km has been awarded and the work is nearing completion.

The Project of Two lane with paved shoulders of Thanjavur-Pudukkottai section of NH-226 to an

amount of Rs.158.92 Crore to a total length of 55.228 km has been awarded and the work is nearing completion.

The Project of Two lane with paved shoulders of Nagapattinam-Thanjavur section of NH-67 to an amount of Rs.396.95 Crore to a length of 78.533 km has been awarded and the same is in progress.

6.5.2 WORKS UNDER IMPLEMENTATION BY NHAI IN THE YEAR 2016-17:

During the year 2016-17, projects for a total length of 211.803 km at a cost of Rs.2430.02 Crore have been awarded and the works are in progress.

The details of the projects awarded during 2016-17 are as under.

The project of Four-laning of Madurai – Paramakudi section and Two-lane with Paved Shoulders of Paramakudi – Ramanathapuram section of NH-49 for a total length of 115 km at a cost of Rs.937.08 Crore has been awarded and the work is in progress.

The stretch from Kerala TN Border – Villukuri section of NH-47 to a length 27.250 km for an amount of Rs.519.04 Crore and Villukuri- Kanniya Kumari section to a length of 42.703 km amounting to Rs.559 Crore has been awarded and the work is in progress.

The project of Four laning of Pollachi-Coimbatore section of NH-209 for an amount of Rs.414.90 Crore to a length of 26.85 km has been awarded and the work is in progress.

6.5.3 WORKS COMPLETED / UNDER IMPLEMENTATION BY NHAI

Since inception of NHAI, the 2177 Km have been upgraded to six/four/two-lane with paved shoulders in Tamil Nadu incurring an expenditure of Rs.20315 Crore. Balance works to a length of 1326.94 Km and amounting to Rs.11137 Crore are in progress.

6.5.4 WORKS TO BE AWARDED BY NHAI in 2017-18

In the year 2017-18, projects for a total length of 408 km at an estimated cost of Rs.6900 Crore, under various Phases of NHDP, are proposed for award in the State, subject to completion of the Land Acquisition process and other pre-construction activities.

6.5.5 PORT CONNECTIVITY SCHEME

In order to connect the 12 important ports in India through NHAI, Cabinet Committee on Economic Affairs (CCEA) approved the port connectivity scheme in the year 2000 by establishing a Special Purpose Vehicle (SPV). Special Purpose Vehicles (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.

6.5.6 Chennai - Ennore - Manali Road Improvement Project (EMRIP)

NHAI established a Special Purpose Vehicle (SPV), Chennai Ennore Port Road Company Limited with Government of Tamil Nadu, Chennai Port Trust, Ennore Port Limited and NHAI as Partners.

The estimated cost of the project is Rs.600 Crore. All the works have been completed except for a length of 300 m, pending land acquisition. The balance work will be commenced after handing over of land by Chennai Port Trust.

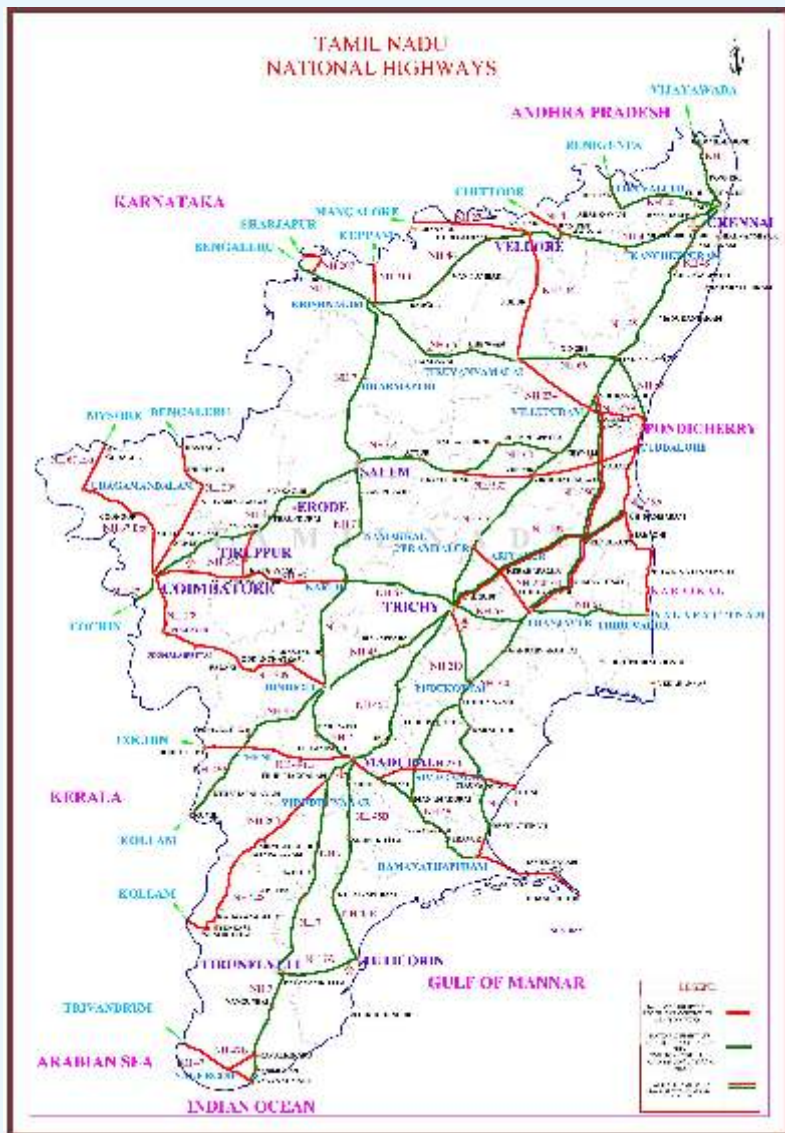
6.5.7 Bypasses taken up and executed by NHAI

As part of NHDP, 124 bypasses have been taken up by NHAI for execution. Out of this, 84 bypasses have been completed and 40 bypasses are in various stages of implementation.

6.5.8 Elevated Corridor connecting Chennai port to Maduravoyal

The project starts near the Chennai Port Trust Gate no: 10, crosses the Kamarajar Salai, passes along the river Cooum Bank, thereafter passes along the centre of the Poonamalee High Road from Koyambedu

and ends at Maduravoyal. The total Project length is 19 km. Of which, 14.20 km is proposed along the river Cooum Bank and 4.80 km runs in the middle of the Poonamalee High Road. The proposal warranted revision of Alignment at certain sections, the Government of Tamil Nadu has requested NHAI to furnish the revised alignment report. Furnished revised alignment by NHAI has been concurred by the State Government and now, the Government has given No Objection Certificate (NOC) to commence the work in the revised alignment.



National Highways in Tamil Nadu



**Section of Dhanushkodi - Arichalmunai Road
(1964 Cyclone affected missing link)**

7. NABARD AND RURAL ROADS

Under NABARD and Rural Roads wing 4 Circles and 14 Divisions are functioning under the control of a Chief Engineer.

NABARD and Rural Roads wing undertakes construction of river bridges which come across State Highways, Major District Roads and Other District Roads. This wing also implements bridge works on Panchayat and Panchayat Union Roads after getting clearance from the Directorate of Rural Development. Strengthening and Widening of Other District Roads, Major District Roads are also being taken up under NABARD loan assistance scheme. Road Over Bridge / Road Under Bridge works are implemented under Railway works programme. Acquisitions of Land for forming new Bypasses are also being executed by this wing.

7.1 NABARD LOAN ASSISTANCE SCHEMES

7.1.1 Construction of River Bridges in Government and Panchayat Union Roads

105 bridges at a cost of Rs.355.75 Crore has been taken up during 2016-17 as spillover works under this scheme. Also, 47 new bridge works costing Rs.147.38 Crore were sanctioned during 2016-17.

Further, 23 Minor Bridges/ Culverts/ Protective works in Flood affected Districts of Cuddalore, Tiruvallur, Kanchipuram and Salem to the tune of Rs.11.79 Crore were taken up for execution during 2016-17. Out of 175 bridge works mentioned above, 64 bridge works at a cost of Rs.230.76 Crore were completed during 2016-17 in all respects and put to use for general public. Presently, 97 bridge works are in progress and the balance 14 works are in pre-construction stage.

The details of Major Bridge works completed are given in **Table 7.1**.

Table 7.1. Major Bridges completed in 2016-17

Sl. No.	District / Constituency	Name of Work	Cost (Rs.in Crore)
1	Thiruvallur / Madhavaram	Construction of bridge at km 2/0 of AVP road to Manali-Mathur via Kosapur	5.20
2	Villupuram / Kallakurichi	Construction of High Level Bridge at km 18/2 of Thiyagadurgam - Adari road across Mayura river	4.60
3	Villupuram / Kallakurichi	Construction of High Level Bridge at km 0/10 of Kongarampalayam road across Manimuktha river	4.95

Sl. No.	District / Constituency	Name of Work	Cost (Rs.in Crore)
4	Cuddalore / Virudhachalam	Construction of Bridge at km 6/4 of Aadiyur - Pa. Kothanur - Maligaimedu road across Gomugi river.	5.00
5	Villupuram / Ulundurpet	Construction of Bridge at Km 0/2 of Killanur Road across Gedilam River	6.00
6	Vellore / Ranipet	Construction of bridge across palar connecting the villages Thenkal - Melvisharam	23.96
7	Vellore / Anaicut	Construction of High Level Bridge across Uthirakaveri river at Kollakottai village	3.90
8	Salem / Gangavalli	Construction of Bridge at km 0/2 of Krishnapuram Thottiyathankaradu road across Suvetha river	2.75
9	Salem / Attur	Reconstruction of High level bridge at Km 48/6 of Salem - Ulundurpet Road	3.24
10	Namakkal / Paramathyvelur	Construction of Bridge at Km 45/10 of Komarapalayam - Pallipalayam - Jedarpalayam - Pandamangalam - Velur Road in lieu of existing piped causeway.	2.75

Sl. No.	District / Constituency	Name of Work	Cost (Rs.in Crore)
11	Namakkal / Sendamangalam	Geometrical Improvements and Reconstruction of bridge at km 17/6 of Namakkal - Kannanur Road.	3.15
12	Salem / Omalur	Construction of Bridge at km 6/2 of Kamalapuram – Chinnatirupathi – Jodikuli road including geometric improvements.	2.42
13	Dharmapuri / Harur	Construction of High Level Bridge at km 0/4 of Sitling Malaithangi road across Kattaru River including approach road km 0/0-1/0	3.24
14	Dharmapuri / Harur	Construction of High Level Bridge at km 4/6 of Ponneri - Ellapudaiyampatty road in lieu of existing Bed Level Piped Causeway	2.99
15	Erode / Modakurichi	Construction of Bridge across Noyyal River connecting Avudaiyarparai in Erode district and Noyyal in Karur district	6.60
16	Tiruppur / Dharapuram	Construction of High level Bridge at km 0/4 of Kallivalasu – Murungaivalasu road branching from km 22/4 of Udumalpet – Dharapuram road to Kallivalasu across Amaravathi river	6.46

Sl. No.	District / Constituency	Name of Work	Cost (Rs.in Crore)
17	Karur / Aravakurichi	Construction of High level Bridge across Noyyal river from Thukkachi in Karur District and Vadivullamangalam in Erode District	4.34
18	Karur / Aravakurichi	Construction of High level Bridge across Amaravathi river at Km 2/8 of Nanjai – kalakurichi to Nagampalli Chellandiamman koil	6.63
19	Karur / Aravakurichy	Construction of High level Bridge connecting km 5/4 of Kasipalayam – Koombur Road (ODR) to km 38/8 of Karur – Esanatham – Koombur – Vedasandur Road (MD 606) Across Kudaganaru River	5.94
20	Coimbatore / Pollachi	Construction of High Level Bridge in lieu of damaged narrow bridge at km 16/8 off Km 122/0 of Dindugal - Bangalore Road to Nadupuni road	2.42
21	Coimbatore / Mettupalayam	Reconstruction of High level Bridge at Km 1/4 of Karamadai – Kariyampalayam Road	2.95

Sl. No.	District / Constituency	Name of Work	Cost (Rs.in Crore)
22	Coimbatore / Mettupalayam	Construction of High level Bridge at Km 3/6 of Devanapuram – Velliangadu (via) Kandiyur	2.50
23	Perambalur / Perambalur	Reconstruction of bridge at Km. 2/6 of Neduvasal Road	2.48
24	Pudukottai / Aranthangi	Construction of High Level Bridge at km 2/2 Of Aranthangi- Kamangadu road	10.82
25	Pudukottai / Thirumayam	Construction of High level bridge at Km $\frac{3}{4}$ of Cudalur – Panayappatti road across Gundaru River	2.60
26	Thanjavur / Thiruvaiyaru	Reconstruction of Bridge at km 2/6 of Road Branching from 2/2 of Thanjavur - Budalur Road to join at 3/4 of Thanjavur - Vallam Road	4.95
27	Tiruvarur / Nannilam	Reconstruction of Minor Bridge at Km.2/8 of Andankoil – Sithanvazhoor	2.14
28	Theni / Andipatti	Construction of High Level Bridge at Km 13/4 to 13/6 of Devathanapatti - Varusanadu Road	6.00

Sl. No.	District / Constituency	Name of Work	Cost (Rs.in Crore)
29	Sivagangai / Karaikudi	Construction of High Level Bridge across Virusuli River at km.0/2 of Eluvankottai to meet Kallal - Devakottai road (via) Borivayal - Sathani road	5.50
30	Virudhunagar / Sivakasi	Construction of Minor Bridge at Km 34/10 of Sattur - Sivakasi - Kalugumalai Road.	2.88

In addition, the NABARD has also given concurrence for the construction / reconstruction of 24 Bridges (located on SH and MDR) at a cost of Rs.56.75 Crore on 15.02.2017. G.O has been issued on 03.04.2017. Out of which 20 works are in tender stage and the balance 4 works are in Estimate stage.

Budgetary provision of Rs.310 Crore has been made for the year 2017-18.

7.1.2 Improvements to Other District Roads and Major District Roads

During 2016-17, spillover works comprising of 40 Roads to a length of 115.16 km were taken up at a cost of Rs.47.82 Crore. Out of these 39 road works to a length of 110.96 km have been completed incurring an expenditure of Rs.54.21 Crore. The remaining one road work to a length of 4.20 km is in progress.

Further, the Government accorded new sanction for 32 road works to a length of 85.49 km at a cost of Rs.42.27 Crore in the year 2016-17. Out of these, one road work to a length of 2.50 km have been completed incurring an expenditure of Rs.1 Crore and all the other 31 road works to a length of 82.99 km are now in progress.

Budgetary provision of Rs.42.27 Crore has been made for the year 2017 - 18.

7.1.3 Construction of River Bridges on Government Roads

Under this scheme, spillover work of one bridge at a cost of Rs.2.05 Crore was taken up for execution during 2016-17. An expenditure of Rs.1.73 Crore has been incurred.

Budgetary provision of Rs.0.38 Crore has been made for the year 2017 - 18.

7.1.4 Improvements to Rural Roads

Construction of a bridge work on Panchayat Union Road near Anakaputhur has been taken up as spillover at a cost of Rs.1.28 Crore during 2016-17. The alienation of Indian Air Force (IAF) lands to Highways Department awaits approval from Ministry of Defence. Once all formalities are completed by GOI, the required extent of land would be handed over to Highways

Department. After that work will be resumed and completed.

During the year 2017-18, the Government have made budgetary allocation of Rs.1.17 Crore for this scheme.

7.2 CONSTRUCTION OF ROAD OVER BRIDGES /ROAD UNDER BRIDGES

Spillover of 19 Road Over Bridges and 5 Road Under Bridges at a cost of Rs.255.33 Crore in lieu of the existing Level Crossings have been taken up for execution under the Railway Works Programme. Of these, 15 works are in progress and 9 works are in pre-construction stage.

The list of ROB/RUB works in progress are given in **Table 7.2**

Table 7.2 Works in Progress

Sl. No.	District / Constituency	LC No./ Location	Cost (Rs.in Crore)
1	Villupuram / Villupuram	LC 2, Venkatesapuram	34.75
2	Coimbatore / Singanallur	LC 4, Irugur	21.16
3	Tirunelveli / Tirunelveli	LC 18, Tirunelveli Yard	29.12
4	Coimbatore / Singanallur	LC 7, Irugur	30.50

Sl. No.	District / Constituency	LC No./ Location	Cost (Rs.in Crore)
5	Erode / Erode West	LC 124, Sastrinagar	10.09
6	Tiruppur/ Tiruppur North	LC 132, Tiruppur SRC Mill Gate	48.26
7	Tiruppur/ Tiruppur North	LC 133, Tiruppur	27.68
8	Thanjavur / Thanjavur	LC 304, Thanjavur Oriental tower	52.12
9	Dindigul / Dindigul	LC 309, Dindigul	26.40
10	Madurai / Madurai west	LC 366, Palanganatham	33.00
11	Madurai / Thiruparangundram	LC 371, Thiruparangundram	18.30
12	Tuticorin / Kovilpatti	LC 439, Kovilpatti	12.95
13	Virudhunagar / Virudhunagar	LC 403, Virudhunagar	20.53
14	Tiruvarur / Mannargudi	LC 22, Needamangalam	23.19
15	Virudhunagar/ Virudhunagar	LC 406, Virudhunagar	10.53

The details of 9 works which are in pre-construction stage are given in **Table:7.3**

Table 7.3 List of works in pre-construction stage

Sl. No.	District / Constituency	LC No. /Location	Cost (Rs. in Crore)
1	Tiruvallur / Avadi	LC 2, Pattabiram West	52.11
2	Coimbatore / Singanallur	LC 5, Neelikonampalayam	58.52
3	Coimbatore / Coimbatore South	LC 6, Thanneerpandal	12.65
4	Tiruvallur / Avadi	LC 7, Annanur	52.98
5	Coimbatore/ Goundampalayam	LC 9, Avarampalayam	22.55
6	Tiruvallur / Avadi	LC 9, Hindu college	8.55
7	Coimbatore / Coimbatore North	LC 10, Peelamedu	11.90
8	Tiruvallur / Poonamallee	LC 16, Putlur	33.09
9	Tiruppur/ Tiruppur North	LC 131, Tiruppur	18.19

7.3 BYPASSES

The Government has sanctioned an amount of Rs.116.73 Crore as the administrative sanction for land acquisition for forming of 11 Bypasses in major towns vide G.O. Ms.No. 8 / Highways and Minor Ports (HS2) Dept, dated 20.01.2012 & G.O. Ms.No. 84 / Highways and Minor Ports (HV2) Dept, dated 13.07.2011. The land acquisition works are now in process.

7.4 OVERALL EXPENDITURE (2016-17) AND ALLOTMENT FOR 2017-18

During 2016-17, an expenditure of Rs.298.26 Crore was incurred for all Plan Schemes by this wing. A total of 104 works including 64 bridges with an expenditure of Rs.234.84 Crore and 40 roads to a length of 113.46 km with an expenditure of Rs.55.21 Crore has been completed. Further an expenditure of Rs.8.21 Crore has been incurred for Land Acquisition for forming of bypasses.

For 2017-18, a total budgetary allocation of Rs.395.60 Crore has been made.



Bridge across Palar River connecting Thengal and Melvisharam in Vellore District



**Amachiyapuram Bridge in Theni District
(Inaugurated by Hon'ble Chief Minister on 14.02.2016)**



**Bridge at Jedarpalayam in Namakkal District
(Inaugurated by Hon'ble Chief Minister on 08.05.2017)**



**Bridge at Sithanvazhur in Tiruvarur District
(Inaugurated by Hon'ble Chief Minister on 07.03.2017)**

8. PROJECTS

The Projects wing of Highways Department functions under the control of a Chief Engineer with four Circles and ten Divisions.

Construction of Road Over Bridges (ROBs)/ Road Under Bridges (RUBs) are being implemented by this wing under Railway Works Programme in coordination with the Railways on 50:50 cost sharing basis with a view to eliminate the level crossings and vehicle detention time. It also ensures safety of the general public as well as hassle free vehicular traffic.

In addition to this, Grade Separators, Bypasses, Radial Roads, Ring Road works and Major river bridges including deposit works are also being carried out with State Funds.

Following salient activities are to be implemented prior to the construction of ROB/RUB works:

1. Feasibility Study
2. Site Plan Preparation, Alignment Approval
3. Finalization of GAD with Railways
4. Preparation of Design and Drawings
5. Preparation of Estimate and Technical approval
6. Preparation of Land Plan Schedule (LPS) for land acquisition.
7. Publishing 15(2) and 15(1) Notification

8. Preparation of Valuation for land & buildings
9. Approval of the Valuations
10. Passing of Award / Payments / Taking Possession
11. Shifting of utilities
12. Tendering and Award of works
13. Execution of work

8.1 FINALIZATION OF ALIGNMENT AND GENERAL ARRANGEMENT DRAWING (GAD)

Finalization of Alignment and GAD (General Arrangement Drawing) involves the following activities:

- On sanction of an ROB/ RUB work, the site is surveyed and all possible alternate alignments are studied and alignment proposals are prepared.
- The alignment proposals are examined at the site by the alignment approval committee comprising of four Superintending Engineers of various wings of Highways Department along with the Divisional Engineer of Investigation wing and the concerned Divisional Engineer of execution wing.
- Joint inspection of the site with the Railways for checking the adequacy and suitability of the alignment is conducted before obtaining alignment approval.

- The most feasible and economical alignment is approved by the Alignment approval committee.
- The approved alignment and the General arrangement drawing (GAD) for Highway approach portion are prepared and sent to Railways for concurrence.
- Railways scrutinize the proposal and send their Provisional Railway GAD to Highways.
- The Provisional Railway GAD is scrutinized by the Highways and the GAD is concurred and sent to Railways. Any modifications are to be carried out by both the Departments at this stage, if necessary.
- Railway accords final approval and the approved GAD is sent to Highways.

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

8.2 HURDLES FACED AND MEASURES TAKEN TO RESOLVE THEM IN THE ONGOING WORKS:

For almost all the ROB/ RUB works, during the course of land acquisition, court cases arise causing delay in implementing the project. Also shifting of service utilities such as EB lines, Telephone lines, Underground sewage and water lines also consumes considerable time to take up actual execution of the

project. When work is foreclosed due to the above mentioned reasons, retendering is done, which results in further delay. Also, in certain works, Historical Monuments, Religious sites, NHAI land, Defence land, Railway land etc., pose hindrance that necessitates revising the alignment as well as getting clearance from the respective departments causing much more delay in completion of the projects.

8.3 EFFORTS TAKEN TO REDUCE THE COMPLETION PERIOD

Presently, for the bridge works, where work fronts are available, Government accords Administrative Sanction, so as to take up the work for construction after awarding the contract. Wherever work fronts are not available, Government accords Administrative Sanction to take up the preliminary works such as preparation of Detailed Project Report, Land acquisition & Shifting of Utilities in order to avoid cost and time overrun of the project.

Rigorous efforts are being taken to overcome the constraints by constant monitoring so that the ongoing works are not delayed. Co-ordination meetings and joint site inspection are conducted periodically with the respective departments in critical issues. As a result of which, the average duration of completion of projects has considerably reduced.

During the period from 2006-11, the average completion period was 7 Years and 10 Months. This has been reduced to 6 Years and 4 Months during 2011-17, barring the 8 numbers of old long pending works, all of which have been completed.

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

There exist 1946 railway level crossings in Tamil Nadu, of which 1341 are manned and 605 are unmanned. Out of the 1341 manned crossings, 44 are located on NH and 352 manned crossings are located on SH, MDR and ODR. The remaining manned level crossings are on roads controlled by local bodies.

The Government of India has also taken up the construction of ROB/ RUBs to eliminate all the LCs on NH under the scheme namely Sethu Bharatam.

Out of 352 manned level crossings, 128 have a TVU more than 1 lakh in Tamil Nadu and are eligible for replacement with grade separators (ROB/RUB). Out of the 128 level crossings for 72 level crossings, the ROB/RUBs are under various stages of implementation. The balance 56 level crossings will be taken up for construction of ROB/ RUBs at an approximate cost of

Rs.3360 Crore in a phased manner in the subsequent years.

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

8.4.1 Railway Works Programme

Under the Railway Works Programme, 81 spillover works were taken up in 2016-17 by various wings of this Department. Of these, 46 spillover works (**Table 8.1**) and 5 new works were taken up by the Projects wing during 2016-17 at a total cost of Rs.1566.12 Crore.

In 2016-17, Construction of 2 ROB's have been completed (**Table 8.2**) at a cost of Rs.52.54 Crore and 30 works are in progress for a value of Rs.946.82 Crore (**Table 8.3**). The rest of 19 works are in various stages of pre-construction at a cost of Rs.566.75 Crore (**Table 8.4**).

Table 8.1: Spill over works

Sl. No.	District	No. of ROB/ RUB	Cost (Rs. in Crore)
1	Tiruvallur	4	91.49
2	Chennai	1	80.68
3	Kancheepuram	7	258.05
4	Vellore	7	189.25
5	Villupuram	4	88.09
6	Salem	3	146.36

Sl. No.	District	No. of ROB/ RUB	Cost (Rs. in Crore)
7	Coimbatore	5	117.50
8	Dindigul	2	80.15
9	Trichy	3	143.60
10	Cuddalore	1	21.25
11	Tuticorin	1	27.50
12	Tirunelveli	2	58.21
13	Tiruppur	1	19.79
14	Namakkal	1	40.16
15	Ariyalur	2	57.40
16	Dharmapuri	2	42.91
	Total	46	1462.39

Table 8.2: Completed Road Over Bridges and Road Under Bridges

Sl. No.	District	Level Crossing No. & Location	Cost (Rs. in Crore)
1	Kancheepuram	40, Guduvanchery	29.04
2	Coimbatore	146, Singanallur	23.50
		Total	52.54

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	Thiruvallur	15, Sevvapet	24.50
4	Chennai	Vyasarpadi ROB	80.68
5	Kancheepuram	36, Urappakkam	34.50

Sl. No	District	Level Crossing No. & Location	Cost (Rs. in Crore)
6	Kancheepuram	47, Singaperumal Koil	52.89
7	Vellore	86, Jolarpet	21.57
8	Vellore	78, Kannadikuppam	25.30
9	Vellore	126 & 127, Vellore Town	36.38
10	Vellore	80, Valayampattu	25.55
11	Villupuram	111, Vikaravandi	20.20
12	Villupuram	102, Mailam	22.43
13	Villupuram	93, Tindivanam	24.50
14	Salem	187, Leizh Bazaar	42.14
15	Namakkal	Pallipalayam ROB	40.16
16	Coimbatore	10, Karamadai	30.70
17	Coimbatore	162, Podhanur	22.60
18	Trichy	228, Lalgudi	26.60
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	Dindigul	2, 27 & 308, Dindigul	59.80
24	Dharmapuri	43, Kumarasampatti	22.60
25	Dharmapuri	46, Muthugovundankottai	20.31
26	Dindigul	8, Dindigul	20.35
27	Tiruppur	Chikkanna college ROB	19.79
New Works			
28	Vellore	123, Vellore Cantonment	21.96
29	Madurai	346, Sholavandan	18.18
30	Tirunelveli	6, Palayamkottai	23.91
Total			946.82

Table: 8.4 Road Over Bridges and Road Under Bridges in various stages of pre construction

Sl. No	District	Level Crossing No. & Location	Cost (Rs. in Crore)
1	Ariyalur	206, Kallagam	29.00
2	Ariyalur	201, Ariyalur	28.40
3	Coimbatore	13, Kannapan Nagar	14.00
4	Coimbatore	3, Irugur	26.70
5	Kancheepuram	59, Ottivakkam	30.40
6	Kancheepuram	75, Acharapakkam	32.30
7	Kancheepuram	64, Karunguzhi	29.50
8	Kancheepuram	29, Ponnerikarai	49.42
9	Tirunelveli	4, Kulavanigarapuram	25.51
10	Thiruvallur	13, Perumalpattu	28.72
11	Tuticorin	486 & 487, Tuticorin	27.50
12	Salem	184, Mulluvadi Gate	58.59
13	Salem	183, Anaimeedu	45.63
14	Vellore	81, Vaniyambadi	13.00
15	Vellore	128, Katpadi	53.35
16	Vellore	70, Valathur	14.10
17	Villupuram	88, Olakkur	20.96
18	Dharmapuri	38, Devarasampatti	12.075
19	Thiruvavarur	34, Singalancherry	27.60
		Total	566.75

In the year 2012-13, the Government has accorded Administrative Sanction for Rs.100.90 Crore to carry out preliminary works for 12 ROB/RUB works,

which are in various stages. In the year 2015-16, Administrative Sanction has been accorded for 6 works at a cost of Rs.117.42 Crore. For the remaining 6 ROB/RUB works, the preliminary works are in progress.

Out of 6 works for which Administrative Sanction has been accorded, 5 ROB works at LC 8, LC 43, LC 46, LC 346 and LC 6 are in progress (listed in Table 8.3) and estimate is under preparation for the remaining 1 work (**Table 8.5**). This work will be taken up shortly.

Table 8.5: Work sanctioned from preliminary work 2012-13

Sl. No	District /Name of Work	Cost (Rs. in Crore)
	Dharmapuri	
1	Construction of Road Over Bridge at km 144/4 of Old NH -7 in lieu of existing LC No 38 at Railway km 60/100-200 between Sivadi and Dharmapuri Railway Stations.	12.08
	Total	12.08

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 ROB/RUB works. Of these, Administrative Sanction has been accorded for 2 ROB's at LC 123 and LC 34 for

Rs.49.56 Crore. The preliminary works are in progress for the remaining 16 ROB/RUB works.

The ROB work at LC 123 at Vellore Cantontment is in progress (listed in Sl. No. 28 of Table 8.3) and the detailed estimate for the ROB work at LC 34 at Singalancheri listed in **Table 8.6**, is under preparation. Meanwhile Land Acquisition is in progress for the ROB work at LC 34.

Table 8.6: Estimate stage work sanctioned from preliminary work 2013-14

S. No	District /Name of Work	Cost (Rs. in Crore)
	Thiruvarur	
1	Construction of ROB in lieu of LC No.34 at km 2/4 of Thiruvarur - Mannargudi - Muthupetti road (SH 202) in between Railway km 50/800 - 50/900 between Kuzhikarai - Thiruvarur Railway Stations of Thanjavur - Nagore - Karaikal section.	27.60
	Total	27.60

Out of the remaining 16 works, 4 works are in estimate stage, 9 works are in DPR stage and 2 works are in GAD stage. The remaining 1 ROB work at LC 29 is dropped.

8.4.2 WORKS TAKEN UP IN RAILWAY WORKS PROGRAMME 2015-16

In 2015-16, the Government accorded sanction of Rs.3.52 Crore for the preparation of Detailed project report for 12 ROB/ RUB in 7 districts. Of these 12 works, 1 work is in Estimate stage (**Table 8.7**), 7 works are in DPR stage (**Table 8.8**) and balance 4 works are in GAD stage (**Table 8.9**).

Table : 8.7- Works in Estimate stage

Sl. No	District	Level Crossing No. & Location	DPR Cost (Rs. in Crore)
1	Vellore	72, Melpatti	0.22
		Total	0.22

Table : 8.8- Works in DPR stage

Sl. No	District	Level Crossing No. & Location	DPR Cost (Rs. in Crore)
1	Vellore	67, Goodanagaram	0.26
2	Madurai	377, Thirumangalam	0.39
3	Cuddalore	157, Kammiyampettai	0.21
4	Coimbatore	11, Karamadai	0.20
5	Salem	7, Peramachur	0.24
6	Salem	15, Tholasampatty	0.21
7	Salem	21, Kunjandiyur	0.35
		Total	1.86

Table : 8.9- Works in GAD stage

	District	Level Crossing No. & Location	DPR Cost (Rs. in Crore)
1	Salem	10, Omalur	0.41
2	Salem	18, Mecheri	0.25
3	Virudunagar	424, Thiruthangal	0.38
4	Kanyakumari	15B, Viricode	0.40
		Total	1.44

An expenditure of Rs.318.53 Crore was incurred under this scheme during 2016-17. A budget provision of Rs.751.47 Crore has been made for the year 2017-18.

8.5 WORKS TAKEN UP WITH STATE FUNDS

8.5.1 High Level Bridge Across Noyyal River Near Chikkana College

The High level bridge sanctioned for Rs.3.85 Crore under CRIDP scheme during 2006-07 and temporarily held up due to court case has been resumed in 2015-16 as the case has been disposed of. Now the work is in progress and will be completed in this financial year.

8.5.2 Erode Outer Ring Road

In order to ease traffic congestion in Erode Town and to ensure a free flow of traffic, Government

accorded sanction for the formation of a ring road from Kokkarayanpettai to Thindal to a length of 14.80 Km.

In Phase I & II, formation of the outer ring road from Km 0/0 to 2/2 including construction of a high level bridge across Cauvery River and formation of road 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 a Road Over Bridge at Km.11/2-11/6 for Rs.69.30 Crore was taken up. At present, 90% of works have been completed and the balance works are in progress in the portions other than where the court cases are pending for its final disposal.

8.5.3 Road Over Bridge at Pallipalayam

In 2013-14, Government has accorded Administrative Sanction for Construction of Railway Over Bridge at Km 90/2 of SH79 in Nammakal district for Rs.40.16 Crore under state funds. At present, 60% of work is completed and further work is in progress.

8.5.4 Construction of Grade Separator in Erode District

In 2013-14, Government has accorded Administrative Sanction for Rs.22.93 Crore to carry out preliminary works for construction of Grade Separator at

Km 1/8 of Erode – Perundurai – Kangeyam Road near Government hospital Junction. The preliminary works were completed. Administrative Sanction has been accorded to a tune of Rs.58.54 Crore and the work is in progress.

8.5.5 Road Over Bridge at Ambur

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

8.5.6 Ongoing Works

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

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

Out of the 24 works, Detailed Project Reports for 17 works have been completed. For 6 works, DPR preparation is in progress. One bypass work to

Suchindrum in Kanyakumari district has been dropped from State scheme and transferred to the State NH wing.

Out of the above 17 works for which DPR has been prepared, the River bridge work at Kallanai in Thanjavur district is in progress at a cost of Rs.61.02 Crore. Administrative Sanction for the remaining 16 works is under consideration.

In 2014-15, the preparation of Detailed Project Reports for 3 Foot Over Bridges and 4 River Bridges were taken up. The Government has accorded Administrative Sanction of Rs.58.70 Crore for the construction of 4 River bridges and Rs.30.18 Crore for 3 Foot Over bridges. The 4 River bridges (**Table 8.10**) are in progress. The 3 foot over bridge works (**Table 8.11**) are in various stages of pre-construction.

Table : 8.10 River Bridge Works in progress

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

Sl. No	District /Name of Work	Cost (Rs. in Crore)
	Cuddalore	
2	Reconstruction of Major bridge (HLB) across Vellar river at Km.104/2 of NH45A (Villupuram - Pondy - Nagapattinam road)	22.57
	Dharmapuri	
3	Construction of High level Bridge at Km 4/8 near Pappireddipatti across Vaniyar River	7.25
	Pudukkottai	
4	Construction of High Level Bridge across River Pambar with Approaches near Chithirambur.	18.81
	Total	58.69

Table : 8.11 Sanctioned FOB Works

Sl. No	District /Name of Work	Cost (Rs. in Crore)
	Coimbatore	
1	Construction of Foot Over Bridge with Escalator near Nanjundapuram junction at Coimbatore	10.72
	Coimbatore	
2	Construction of Foot Over Bridge with Escalator near Railway Station at Coimbatore City	8.09

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
	Total	30.18

During 2016-17, Government has accorded Administrative sanction for Rs.8.73 Crore for the preparation of Detailed Project Report (DPR) by engaging consultants for the construction of 22 bridge works in 11 districts comprising of 14 ROBs/ RUBs (**Table 8.12**), 7 HLBs (**Table 8.13**) and one Elevated Highway corridor along Avinashi road from Upplipalayam to Coimbatore International Airport (**Table 8.14**). DPR preparation will be completed in this financial year 2017-18.

Table: 8.12 DPR Sanctioned ROB/ RUB works

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Chennai	
1	Construction of Road Over Bridge in addition to the existing Road Under Bridge at Thillai Ganga Nagar at km 0/4 of Southern Sector of Inner Ring Road (SH2A).	0.51

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Coimbatore	
2	Construction of ROB at km 1/8 of Pollachi-Palakkad Road in lieu of existing LC.No. 122 at Railway Km 123/1-2 in between Pollachi and Kinathukadavu Railway stations.	0.38
3	Construction of ROB at km 3/2 of the road branching at km 133/8 of Salem - Cochin road to Karavazhi Madhappur (Via) Kaniyur in lieu of existing LC.No.141 at Railway Km 463/23-25 in between Somanur and Sular Railway stations.	0.26
4	Construction of ROB at Railway km 6/300-400 in lieu of existing LC.No.4 and construction of LUS at Railway km 6/800-900 in between Coimbatore North and Karamadai Railway stations.	0.28
	Vellore	
5	Construction of RUB at Railway km 64/4-6 in lieu of existing LC No.28 in between Arakkonam – Mosur Railway stations.	0.27
	Coimbatore	
6	Construction of RUB at Railway Km 453/7-9 at km 8/4 of the road branching from km 20/6 of Kamanaikanpalayam - Annur road to Vadukankalipalayam road in lieu of existing LC.No. 135 at Railway Km 453/11-13 in between Vanjipalayam and Somanur Railway stations.	0.23

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Coimbatore	
7	Construction of ROB at km 0/2 of Sedapalayam - Vaikkalpalayam Town Panchayat road branching at km 2/6 of the road from Kamanaickenpalayam - Annur road to Vadukankalipalayam at Railway km 457/9-11 in lieu of existing LC.No. 137 in between Vanjipalayam and Somanur Railway stations.	0.27
	Salem	
8	Construction of ROB at km 0/2 of Attur Perambalur Road (SH 157) in lieu of existing LC No. 131 at Railway km 139/100-200 in between Chinnasalem and Attur Railway stations.	0.31
	Coimbatore	
9	Construction of ROB at km 1/6 of Thudiyalur - Kovilpalayam road in lieu of existing LC.No.5 at Railway Km 8/000-100 in between Coimbatore North and Karamadai Railway stations.	0.24
	Salem	
10	Construction of ROB at km 0/2 of Salem - Thiruppathur - Vaniyambadi (SH 18) road in lieu of existing LC. No. 169 at Railway km 182/2-3 in between Minnampalli and Salem Town Railway stations.	0.23

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Vellore	
11	Construction of ROB at Km 2/2 of Patchur – Kothur road in lieu of existing LC No.95 at Railway Km 228/500-600 in between Pachur and Malanur Railway stations.	0.25
	Vellore	
12	Construction of ROB at Km 7/2 of Damalerimuthur road in lieu of existing LC. No 92 at Railway Km 220/500-600 in between Somanayakkanpatti and Pachur Railway stations.	0.23
	Krishnagiri	
13	Construction of ROB at km 1/10 of Hosur – Thenkanikottai (via) Thally (SH 17B) road in lieu of existing LC No. 104 at Railway km 160/000-100 in between Hosur and Anekkal Railway stations.	0.26
	Vellore	
14	Construction of ROB at Km1/2 of Kudiyankuppam road in lieu of existing LC No.91 at Railway Km 218/500-600 in between Jolarpet and Somanayakkanpatti Railway stations.	0.25
	Total	3.97

Table: 8.13 DPR Sanctioned HLB works

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Tiruvallur	
1	Construction of High Level Bridge across the river Kosathalaiyar at km 11/7 of Tiruttani - Nagalapuram Road (MDR 719) in lieu of existing vented causeway.	0.17
	Tiruvallur	
2	Construction of High Level Bridge across the river Coovam at Km.0/2, 4 of Korattur - Thinnanur - Periyapalayam Road (SH 50A) in lieu of existing vented and Piped causeway.	0.14
	Kanchipuram	
3	Reconstruction of High Level Bridge across Palar river at km 0/4-1/0 of Nerumbur - Pudhupattinam road to Edayathur road (via Irumbulicherry).	0.30
	Thanjavur	
4	Reconstruction of High Level Bridge at km 0/4 of Ayyampettai - Ganapathyagraharam road (O-658) across river Kudamuruti (Branch of the river Cauvery).	0.14
	Thanjavur	
5	Reconstruction of High Level Bridge at km 5/10 - 6/2 of Thirukattupalli - Sengipatti - Pattukottai road (SH-99) across river Vennar .	0.17

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Erode	
6	Construction of High Level Bridge in lieu of existing Steel girder Bridge across Bhavani river at km 5/4 of Karattadipalayam - Bungalowpudur Road.	0.15
	Cuddalore and Villupuram	
7	Construction of High Level Bridge across River Pennaiyar connecting Mettupalayam village of Villupuram District and Melkumaramangalam village of Cuddalore District.	0.28
	Total	1.35

Table: 8.14 DPR Sanctioned Elevated Highway work

Sl. No	District /Name of Work	DPR Cost (Rs. in Crore)
	Coimbatore	
1	Construction of Elevated Highway along Avinashi Road in Coimbatore City from Upplipalayam to Chinniyampalayam-Kalapatti Airport.	3.41
	Total	3.41

8.5.7 ROAD OVER BRIDGE FOR ELCOT AT MADURAI: (DEPOSIT WORK)

During 2015-16, Government has accorded Administrative Sanction for Rs.13.82 Crore for the

construction of Road Over Bridge at Vadapazhanji for ELCOT in SEZ, between Madurai and Usilampatty Railway Stations in Madurai district. The work is in progress.

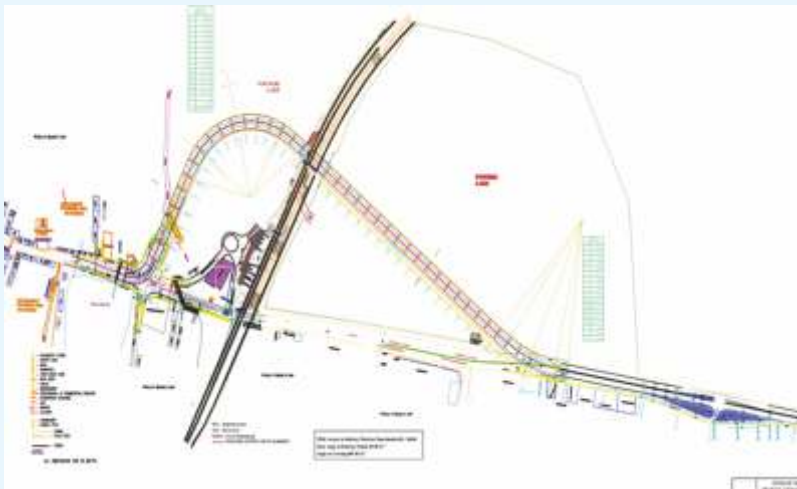
In the year 2016-17, an expenditure of Rs.44.11 Crore has been incurred for the works taken up under state government fund (other than CRIDP) and a provision of Rs.89.05 Crore has been made for the year 2017-18.

8.6 OVERALL EXPENDITURE (2016-17) AND ALLOCATION FOR 2017-18

During 2016-17, an expenditure of Rs.364.12 Crore was incurred and budgetary allocation of Rs.840.52 Crore has been made for 2017-18.



**Railway Over Bridge at Singanallur in Coimbatore District
(Inaugurated by Hon'ble Chief Minister on 18.03.2017)**



**Site plan of Railway over Bridge at Kancheepuram near
Kancheepuram Railway Station**



Bridge across Cauvery connecting Mohanur (Namakkal) and Vangal (Karur) inaugurated by the Hon'ble Chief Minister on 14.02.2016 (Longest River Bridge in TN)



Limited Use Subway at Tiruvanaikaval in Trichy District (Inaugurated by Hon'ble Chief Minister on 07.03.2017)

9. METRO

The main aspire of this wing is to achieve the objectives of Chennai Metropolitan Area second master plan under the head of Chief Engineer with one Circle and five Divisions.

The infrastructure facilities such as construction of Grade Separators, widening and strengthening of roads, providing new link roads, River Bridges, Foot Over Bridges with escalator, Pedestrian Subways, Railway Over Bridges and Railway Under Bridges are taken up in the Chennai Metropolitan Area to enhance the urban transport system. The improvements in infrastructure reduce traffic congestion at major intersection and minimizes incidences of road accidents in the Chennai Metropolitan Area.

9.1 CHENNAI METROPOLITAN DEVELOPMENT PLAN (CMDP)

The Chennai Metropolitan Development Plan is being implemented since 2003-04 utilizing State budgetary allocation to build infrastructure in the Chennai Metropolitan Area as per the Second Master Plan of the Chennai Metropolitan Development Authority (CMDA) for the year (2010-2026). The projects are prioritized based on the recommendations of the Comprehensive Traffic Transportation Study (CTTS).

Major works under implementation are detailed below:-

9.2 GRADE SEPARATORS

Grade separators are provided as a part of long term strategy for betterment of traffic management at major intersections to avoid traffic snarl caused due to road crossings and pedestrian crossing.

During 2016-17, Construction of 11 Grade Separators at a cost of Rs.877.75 Crore were taken up as spillover works. Out of which, 3 Grade Separator works at a cost of Rs.239.15 Crore were completed. 7 Grade Separator works at a cost of Rs.580.60 Crore are in progress. Land acquisition is in progress for one Grade Separator work at a cost of Rs.58 Crore for which Government accorded sanction for land acquisition only. The preparation of DPR is in progress for 2 Grade Separator works. Further, part of the completed work of Grade Separator on EVR Salai at Nelson Manickam road junction (Section -IV) the DPR is in preparation. The list of spill over works are shown in **Table 9.1.**

Table 9.1: Grade Separators

Sl. No	Nomenclature	Cost (Rs. in Crore)
COMPLETED WORKS		
1	Grade Separator on EVR Salai at the intersection of Nelson Manickam road and Anna Nagar 3rd Avenue road (Section -I, II, III)	117.00
2	Grade Separator at the intersection of N.S.K Salai (Arcot Road) with Inner Ring road at Vadapalani taken up under CMRL	69.43
3	Construction of a Grade Separator at the junction of Perambur – Redhills road near Kolathur Rettai Eri (LHS) in Inner Ring Road	52.72
	Total	239.15
WORKS IN PROGRESS		
4	Grade Separator at the intersection of Mount - Poonamallee road with Kodambakkam - Sriperumpudur road at Porur	54.00
5	Construction of a Grade Separator at the junction of Kundrathur road and Santhai road at Pallavaram in GST road	82.66
6	Construction of a Grade Separator at the junction of Taramani road, Tambaram – Velachery road and Velachery bypass in Velachery Vijayanagaram junction.	108.00

Sl. No	Nomenclature	Cost (Rs. in Crore)
7	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
8	Grade Separator at Medavakkam – Sholinganallur road junction, Medavakkam – Mambakkam road junction and Mount – Medavakkam junction in MaramalaiAdigal Bridge – Irumbuliyur (MBI) road.	146.41
9	Construction of Grade Separator at the intersection of mount Medavakkam road and Pallavaram-Thuraipakkam road near Kilkattalai	64.00
10	Construction of a Grade Separator at the junction of Perambur – Redhills road near Kolathur Rettai Eri (RHS) in Inner Ring Road	32.03
	Total	580.60
LAND ACQUISITION		
11	Grade Separator at the junction of ECR – Thiruvanmiyur road	58.00
	Total	58.00
	Grand Total	877.75
DPR STAGE		
1	Grade Separator at the junction of ECR – Thiruvanmiyur road	
2	Construction of RUB at Mount-Medavakkam road and Southern Sector of Inner Ring Road (DPR only)	

9.2.1 Widening Of Railway Over Bridges:

DPR for the work of widening of ROB at Km.20/8 of Mount – Poonamallee - Avadi road and widening of ROB to dual four lane at Km.12/2 -13/2 of Inner Ring Road are under progress. On completion of DPR, the Railways portion works will be executed through Railways as deposit work.

9.2.2 River Bridges

6 spillover works have been taken up in 2016-17 at a cost of Rs.128.24 Crore in Chennai Metropolitan Area. Out of which 1 work was completed at a cost of Rs.5.50 Crore.

3 works are in progress. Land acquisition is in progress for 2 River Bridges for which Government sanction is accorded for land acquisition only. The various stages of works are as listed in **Table 9.2.**

Table 9.2: Details of River bridges

Sl. No	Nomenclature	Amount Rs. in Crore
Completed Work		
1	Construction of an additional two lane bridge at Km.15/8 of Mount –Poonamallee -Avadi road (SH-55)	5.50
	Total	5.50

Sl. No	Nomenclature	Amount Rs. in Crore
Works in progress		
2	Construction of additional 3 lane bridge across the river Coovum near Aminjikai in EVR Salai	8.00
3	Widening of high level bridge at Km 2/6 across the river Adyar in Mount - Poonamallee Road near Ramapuram	17.00
4	Construction of high level bridge across Buckingham Canal at KM 0/6 of Thiruvottiyur - Ponneri- Panchetty Road.	58.64
	Total	83.64
Land Acquisition		
5	Construction of High level bridge across Coovum river at Nolambur road junction in NH 4 (Land Acquisition)	36.00
6	Construction of high level bridge across Coovum River at Km 0/6 from M.P.A Road at Paruthipattu (Land Acquisition).	3.10
	Total	39.10
	Grand Total	128.24

9.2.3 ROAD WORKS

During 2016-17, the following 5 road works at a cost of Rs.656.36 Crore were taken up as spillover works. The various stages of works are detailed in **Table 9.3.**

Table 9.3 Road Works

Sl. No	Nomenclature	Stage of work	Cost (Rs. in Crore)
1	Forming New Link Road connecting Puzhal Chennai GNT Road and Amullaivoyal in IRR at Km 20/8	Land demarcation is in progress	22.00
2	Forming link road and construction of Bridge across Buckingham canal connecting Rajiv Gandhi Salai and East Coast Road at Neelankarai	Land Acquisition is under progress	204.20
3	Formation of link road connecting Rajiv Gandhi Salai (OMR) with ECR at Palavakkam (DPR)	Work to be deleted	--
4	Formation of Tambaram Eastern By-pass Road km0/0 – 8/4 (LA only)	Land Acquisition is under progress	75.50
5	Six laning of ECR from Thiruvanmiyur to Akkarai km 11/8 – 23/2 (LA only)	Land Acquisition is under progress	354.66
	Total		656.36

9.2.4 Pedestrian subways:

5 No. of Pedestrian subways at a cost of Rs.19 Crore are taken up as spillover work for safe crossing of pedestrians and for ensuring uninterrupted traffic on the important roads. The various stages of works are detailed in **Table 9.4**

TABLE 9.4: List of Pedestrian Subways

Sl. No	Nomenclature	Stage of work	Amount Rs. in Crore
1.	Near Little mount A.G Church in Anna Salai.	Fresh AS to be accorded in lieu of original AS, as the scope of the work changes.	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.	RAS proposal under preparation incorporating shifting of utilities, Current SOR, etc.	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.	After completion of the Grade Separator at Kalamman Koil, Pedestrian Subway or FOB will be finalized	5.00
		Total	19.00

9.2.5 FOOT OVER BRIDGE (FOB)

To facilitate safe pedestrian crossing near Tambaram railway station and Bus Stand, administrative sanction has been accorded for construction of FOB at KM 26/8 of NH-45 with escalators at a cost of Rs.19.49 Crore. Tender under scrutiny.

9.3 DPR WORKS

The Government have accorded Administrative Sanction in the year 2017-18 for the preparation of Detailed Project Report of 7 works for availing external assistance from the Japan International Co-operation Agency (JICA). The details of the works are given in **Table 9.5**

TABLE 9.5 DPR Works

Sl. No	Name of work	Approximate cost Rs. in Crore
1	Forming six lane of ECR from Km: 11/8-23/2. Thiruvanmiyur to Akkarai including Grade Separator (only for work)	400.00
2	Providing Skywalk, Escalator and other accessories connecting East Tambaram to West Tambaram with Multi Model Integration connectivity to existing Bus stand, Tambaram Railway station including improvements to existing Bus stand.	100.00
3	Construction of Grade Separator at Km 18/3 of Marmalong Bridge - Irumbuliyur road at the intersection of Camp Road.	140.00
4	Providing Four lane Grade Separator at Km 76/8 of NH-205 (Chennai Thiruthani Renigunda Road) & junction of KM 6/4 of Vanagaram-Ambattur Road.	100.00

Sl. No	Name of work	Approximate cost Rs. in Crore
5	Construction of Grade Separator at Km 68/4 of NH-205 (Chennai Thiruthani Renigunda Road) and SH-55 (Mount-Poonamalle Avadi Road) at KM 20/8	100.00
6	Construction of Grade Separator at the Junction of Km 4/2 of Madhavaram Redhills road and KM 19/100 of Inner Ring Road.	80.00
7	Construction of Grade Separator at Km 2/10 of Mount Poonmallee Avadi Road at Ramapuram Junction.	80.00
	Total	1000.00

9.4 RAILWAY WORKS PROGRAMME:

Under Railway works program, 9 ROB/RUB works have been taken up as spillover during 2016-17 at a cost of Rs.283.04 Crore in the Chennai Metropolitan Area. Out of these 9 works, 2 works are under execution and the remaining 7 works are in various stages of pre-construction as listed in **Table 9.6**.

Table 9.6: Railway Over Bridges/ Under Bridges at Railway Level Crossing

Sl. No	Nomenclature	Cost (Rs. in Crore)
Works In Progress		
1	LC No.3 –Construction of Railway Over Bridge near Tiruvottiyur – Mattumandhai	47.00
2	LC No.14 – Construction of Railway Over Bridge near Veppampattu Railway station	29.50
	Total	76.50
Works To Be Taken Up For Execution		
3	LC No.4 –Construction of Railway Under Bridge near Tiruvottiyur Railway station.	28.00
4	LC No.6 – Construction of Railway Under Bridge near Tiruvottiyur - Wimco Nagar Railway station.	25.50
5	LC No.4 –Construction of Railway Under Bridge near Korattur Railway station	19.97
6	LC No.16 –Construction of Railway Over Bridge near Nandhiyambakkam- Minjur Railway station	28.32
7	LC No.32&33 – Construction of Railway Over Bridge near Perungalathur Railway station	76.00
8	LC No.22 –Construction of Railway Under Bridge near Thirusulam	14.00
9	LC No.27 –Construction of Limited Use Subway near Chrompet Radha Nagar	14.75
	Total	206.54
	Grand Total	283.04

9.5 TAMIL NADU URBAN DEVELOPMENT PROJECT–III (TNUDP-III):

The TNUDP –III Scheme was formulated in 2005 and was implemented with World Bank loan assistance till March 2014. In this scheme 5 roads works, 5 FOBs were sanctioned out of which 4 road works at a cost of Rs.84.82 Crore and 5 FOB at a cost of Rs.30.80 Crore were completed. The remaining one work of Widening and strengthening of the Taramani link road is nearing completion.

9.6 CONSTRAINTS:

The following major constraints are faced during execution:

- The projects are located mainly in the congested areas in Chennai city causing exerting burden on traffic management which warrants diversion of traffic to provide required work front.
- Major construction works are being restricted during night hours between 11 pm to 5 am to avoid traffic hindrances.
- Ascertaining all the service utilities fouling in the alignment of project is quite difficult at the time of DPR preparation itself. Furthermore, rerouting of service utilities is correlated with land acquisition, as it is the chaining process

viz., ascertaining of existing utilities, fixing the alternate alignment for service utilities, alternate land, land acquisition and ends up with shifting. Therefore, rerouting of utilities also leads delay in commencement of project.

- Cost overrun and time overrun are inevitable since shifting of public service utilities such as water pipe line, sewerage lines, EB cables, poles & transformers, bus shelters which necessitates other departmental coordination.
- Land acquisition process involves extensive time frame, eviction in many cases and delay also occurs if the land owners approach the Court of Law against land acquisition and for enhanced compensation.
- Implementation of projects need NOC and concurrence from CMRL, Mono Rail, NHAI, Southern Railways, IWAI and other departments causes delay.
- The works of CMRL & CMWSSB are under progress in CMDP project locations also adversely affect the progress of work.
- Contractors are deterrent for taking up works in CMDP area considering cost, time and above constraints.
- Apart from the constraints mentioned, specific issues are involved in the following ongoing works.

- In the Construction of grade separator at Velachery Vijayanagar, the diversion of traffic required formation of motorable box type structure for a width of 5.5m over PWD open canal for a length of 1.15 km on Velachery bypass and Tambaram Roads. The same is in progress. On Taramani side macro drain work being executed by PWD in the same location also hampers the speedy work of the grade separator. On both sides, EB lines shifting are a major issue in this project.
- In Medavakkam grade separator, no alternative road for diversion of existing traffic is available to take up the bridge proper work. Hence, the service road has been constructed partially and the traffic was diverted on service road. The Grade Separator work has been started and is in progress. Large numbers of residential cum commercial building are to be evicted, the lands acquired under ULC Act are to be transferred and huge number of electrical poles and transformers are being shifted.

In spite of these constraints concerted efforts are being taken to complete the works without delay.

9.7 OVERALL EXPENDITURE (2016-17) AND ALLOCATION FOR 2017-18

During 2016-17, an expenditure of Rs.110.90 Crore has been incurred for implementation of various works under the above mentioned schemes.

For the year 2017-18, a total budgetary allocation of Rs.426.74 Crore has been made under CMDP scheme.



**Grade Separator near Anna Arch in Chennai city
(Inaugurated by Hon'ble Chief Minister on 04.03.2017)**



**Grade Separator at Vadapalani Junction on Chennai
Inner Ring Road
(Inaugurated by Hon'ble Chief Minister on 04.03.2017)**



**Grade Separator at Rettai Eri Junction
on Chennai Inner Ring Road
(Inaugurated by Hon'ble Chief Minister on 04.03.2017)**



**Ongoing works of Grade Separator at Pallavaram Junction
on GST Road in Chennai**

10.TAMIL NADU ROAD SECTOR PROJECT

Tamil Nadu Road Sector Project II wing formed during 2013 with an objective to upgrade heavy traffic intensity road corridors in the State. The Tamil Nadu Infrastructure Development Board (TNIDB) under the Chairmanship of Hon'ble Chief Minister has allotted an amount of Rs.65 Crore for carrying out preparation of Detailed Project Report (DPR) for shelf of Projects to upgrade the roads for a length of 2079 km. DPR preparation work for these roads were taken up engaging five Consultants. Out of this DPR preparation for 1980 Km length of roads has been completed and the balance stretches are in final stage of completion.

Loan and Project Agreements for US\$ 300 Million (Rs.1800 Crore) covering road upgradation, maintenance, Institutional Capacity Enhancements and Road Safety were signed with International Bank for Reconstruction and Development (World Bank) on 28.05.2015 and loan became effective on 10.07.2015.

World Bank loan component will also support the associated activities like transaction advisory, supervision of quality control, and other related consultancy services.

Under the EPC & PPP mode of contracts, major risks related to design, time, and cost overrun 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 adopting e-procurement system (NIC platform) of International Competitive Bidding / National Competitive Bidding (ICB/NCB) procurement mode. The Tamil Nadu Road Sector Project is the first wing in Highways Department to carryout complete online procurement.

In order to expedite the land acquisition and resettlement implementation, three Special District Revenue Officers units have been established to look after these issues. A software has also been developed and implemented for continuous monitoring of Land Acquisition & Resettlement and Rehabilitation activities to the Project Affected Persons. In addition, utmost importance has been given to address environment and social impacts arising owing to project implementation.

Following are the major components approved under TNRSP-II

10.1 PROJECT COMPONENTS

COMPONENTS	Estimate Cost (Rs)
1. Road upgradation under EPC contracts (10 packages)- 427.65 km	: 2414.28 Cr.
2. Road upgradation under PPP contracts (3 packages)- 146.00 km	: 1499.06 Cr.
3. OPRC (2 packages)- 597 km	: 239.00 Cr.
4. Consulting Services	: 108.51 Cr.
5. Institutional Capacity Enhancement	: 66.00 Cr.
6. Road Safety	: 120.00 Cr.
7. LA and R&R	: 693.00 Cr.
8. Miscellaneous services	: 31.15 Cr.
Total	5171.00 Cr.

10.2 ROAD NETWORK IMPROVEMENT

This component envisages upgradation and long term maintenance of selected roads within the State's high density core road network, through three separate contracting methods as explained below.

10.2.1 UPGRADATION AND MAINTENANCE THROUGH EPC CONTRACTS:

Construction of civil works for widening and upgrading of 427 km of roads of Core Road Network (CRN) to two-lane with paved shoulders including maintenance for 5 years has been awarded and works are in progress. **Table 10.1** shows the details of works under EPC packages.

Table 10.1 Details of works under EPC Packages

Contract	SH No.	Name of the road stretch	Length in km	Agreement amount Rs. in Crore
EPC01	SH116	Upgrading Kanchipuram - Vandavasi Road (SH116) km 14/300 to km 36/700	22.34	184.98
	SH58	Upgrading Sadras - Chengalpattu - Kancheepuram - Arakkonam - Thiruthani Road (SH58) km 0/000 to km 26/811	26.14	

Contract	SH No.	Name of the road stretch	Length in km	Agreement amount Rs. in Crore
EPC02	SH4	Upgrading Arcot - Villupuram Road (SH4) km 29/800 to km 110/165 and km 113/325 to km 114/600	83.07	320.02
EPC03	SH9	Upgrading Cuddalore - Chittoor Road (SH9) km 41/700 to km 44/000 and km 45/000 to km 66/190 and construction of a new link road between SH9 and SH137 (km 66/190 to km 71/147)	28.45	95.22
EPC04	SH70	Upgrading Vridhachalam - Parangipettai Road (SH70) km 0/000 to km 35/800	35.80	162.41

Contract	SH No.	Name of the road stretch	Length in km	Agreement amount Rs. in Crore
EPC05	SH86	Upgrading Omalur - Sankari - Thiruchengode - Paramathy road (SH86) km 54/800 to km 81/000	26.20	103.81
EPC06	SH79	Upgrading Malliyakarai - Rasipuram - Trichengode - Erode Road (SH79) km 0/000 to km 30/600 and km 51/400 to km 71/300	50.50	224.06
EPC07	SH95	Upgrading Mohanur - Namakkal - Senthamangalam - Rasipuram Road (SH95) km 0/000 to km 13/100	13.39	63.95
EPC08	SH89	Upgrading Nanguneri - Bharatavaram - Ovari Road (SH89) upto ECR junction km 0/000 to km 35/200	35.20	110.99

Contract	SH No.	Name of the road stretch	Length in km	Agreement amount Rs. in Crore
EPC09	SH44	Upgrading Paruvakudi - Kovilpatti - Ettayapuram - Vilathikulam - Vembar Road (SH44) km 22/500 to km 38/750 and km 41/300 to km 56/700	31.65	152.97
EPC10	SH41	Upgrading Rajapalayam - Sankarankoil - Tirunelveli Road (SH41) km 1/800 to km 28/000 and km 33/800 to km 82/800	75.20	286.50
		Total	427.94	1704.91

10.2.2 UPGRADATION AND MAINTENANCE THROUGH PUBLIC PRIVATE PARTNERSHIP (PPP) UNDER MODIFIED ANNUITY MODE:

Widening of approximately 146 km of roads listed in Core Road Network to four lane standards has been proposed to be taken up through PPP (Modified Annuity Mode). On clearance of final NOC from the

World Bank, tenders for the following works will be invited shortly.

Table 10.2: PPP works

Contract	Name of the Road	Length in km	Cost Rs in Cr
PPP-01	Gobi - Erode Road (SH15) km 123/000 to km 153/600	30.60	259.01
PPP-02	Oddanchatram - Dharapuram-Tiruppur Road (SH37) km 37/400 to km 108/400	70.20	611.00
PPP-03	Tirunelveli – Tenkasi Road (SH-39) km 5/000 to km 50/600	45.64	348.00
Total		146.44	1218.01

10.2.3 ROAD MAINTENANCE WORKS UNDER OUTPUT AND PERFORMANCE BASED ROAD CONTRACT (OPRC)

In order to increase the efficiency and effectiveness of road asset management and maintenance, Output and Performance Based Maintenance Contracts for roads have been introduced as an innovative approach. Minimum road conditions and service levels are defined based on output and performance measures for which the contractor is responsible.

Roads improved under TNRSP I (Arcot – Tiruvarur and Nagapattinam – Tuticorin) for a length of

about 597 km have been entrusted at a cost of Rs.229 Crore in two packages for 5 years maintenance period adopting OPRC approach and the works are in progress.

10.3 CONSULTANCY SERVICES

Three consultancy services have been engaged to supervise the 10 EPC contract packages and one consultant has been engaged to monitor the 2 OPRC Contracts.

10.4 INSTITUTIONAL CAPACITY ENHANCEMENT (ICE)

This component aims to implement the Institutional Capacity Enhancement Plan (ICEP) broadly outlined by the HD 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

- Process improvements;
- Organizational restructuring;
- Sustaining investments in IT infrastructure; and
- Training & knowledge management.

An amount of Rs.66 Crore has been allotted for the ICE components under the World Bank loan.

10.5 ROAD SAFETY

The project will strive to achieve improved over all road safety in the State at two levels, viz., State and District levels.

An amount of Rs.120 Crore has been allotted for Road Safety components under the World Bank loan.

The implementation of ICE & RS components are being taken up through the newly formed ICERS Cell under the control of Director General, Highways Department.

10.6 LAND ACQUISITION (LA), RESETTLEMENT AND REHABILITATION (R&R) ACTIVITIES.

Government have 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 WB Operational guidelines for compensating the land acquired and Project Affected People(PAP). Also the RPF covers the principles and objectives of resettlement, process for conducting census survey of PAP, socio-economic surveys and preparation of Resettlement Action Plan (RAP).

RAP defines 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. Government have also given approval for the interim compensation to be paid for Land Acquisition.

10.7 MISCELLANEOUS SERVICES

In the project components, an amount of Rs.31.15 Crore has been provided for procurement of consultancy / advisory services, third party audit consultancy, Front End Fee and Project Contingencies.

10.8 OVERALL EXPENDITURE (2016-17) AND ALLOCATION FOR 2017-18

During 2016-17 an expenditure of Rs.832.33 Crore have been incurred for implementation of various works under the above schemes.

For this current financial year 2017-18 a total budgetary allocation of Rs.1508.10 Crore has been made under this project.



Project Roads under TamilNadu Road Sector Project-II



**Mohanur – Namakkal – Senthamangalam – Rasipuram
Road improved under EPC**



**Mohanur – Namakkal – Senthamangalam – Rasipuram
Road improved under EPC**

11. HIGHWAYS RESEARCH STATION

Highways Research Station was established in 1957 to keep pace with the latest developments in the field of Highways Engineering. Ever since its establishment, the Highways Research Station has been doing great service to the Highways Department in the adoption of new technology innovated worldwide to suit the climate, geography and traffic conditions of the state of Tamil Nadu. A Joint Director, Four Deputy Directors (Research) and Eight Divisional Engineers (Quality Control) are in-charge for the activities of HRS under the control of Director. The objectives and functions of Highways Research Station are as follows;

- Assurance of quality standards for all the materials used in the construction of roads at all stages of works executed by the Department
- Continuous Research in all fields of Highways Engineering with a view to utilize the resources optimally for achieving the best quality road network in the State
- Offering suggestions to field Engineers for arriving at a solution in distressed areas
- Identifying accident-prone areas, suggesting suitable remedial measures to minimize the accidents and suggesting improvements to Junctions

- Imparting training to the Engineers in various fields related to Highways works.

11.1 QUALITY CONTROL MECHANISM

A three-tier quality control system with well equipped laboratories at Circle and Division levels is in place to check the quality of works at all stages. The quality checks conducted at the preliminary stage of a work avoid considerable wastage of time, energy and financial resources and guide to corrective measures at initial stage itself avoiding major maladies/problems in execution of the work.

11.2 LABORATORIES

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

The broad functions of the above labs are;

- Suitability and quality assessment of essential materials used in the construction of roads and bridges.
- Conducting lab based and field based tests to ascertain the quality standard for a material / composite material used in the construction.
- Conducting field tests to assess the level of performance, state of behavior and quality of a

particular item / level of work in roads and bridges construction.

- To identify problem areas in highway construction and maintenance and to assist the field engineer in solving the problem with an optimal solution.
- To identify areas which are accident prone and to suggest suitable remedial measures to reduce accidents.

Highways Research Station is involved in designing flexible and rigid pavements, sub-surface soil exploration, 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 roads by conducting surface roughness tests, structural evaluation by carrying out Benkelman Beam Deflection (BBD) test , designing the pavements based on traffic data and assessing the Vehicle Damage Factor (VDF) by Axle load tests. Accident Black-spot inspection and suggestion for improvements and capacity analysis for the lane justification of Grade-separators ROB/RUBs are conducted.

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

11.3 RESEARCH ACTIVITIES

The following two Research Works were sanctioned under Tamil Nadu Innovative Initiation Fund (TANII) in the year 2015-16 were completed.

- Study on performance of Bituminous pavement laid over stabilized sub base
- Accident study for vulnerable road users

The following studies have also been completed during the year 2016-17, at HRS.

- Evolving Bituminous mix designs using recycled materials with virgin materials.
- Evolving Bituminous mix designs using waste plastics.
- Evolving Bituminous mix designs using copper slag.
- Evolving Concrete mix designs using steel slag.

11.4 TRAINING

Training is an important activity in any organization which paves the way for growth and development of human resources and updates the knowledge with the latest technological trends. HRS has been organizing training programmes to foster technical knowledge amongst the Engineers of the Department in the field of Highways Engineering.

Every Tuesday, Weekly Technical Lecture programme is being organized, by inviting speakers from different walks of professional stream. So far 204 lectures have been arranged.

Following training programmes were conducted during the year 2016-17:

- Orientation training for 205 newly recruited Assistant Engineers
- HDM-IV training for the Departmental Engineers.
- Training on Quality Control procedures and material testing for the Engineers from RD & PR Department.
- Road safety audit training imparted to 48 Engineers of the department by experts from CRRRI, New Delhi.

During this year training on Road Safety Audit has been imparted to 55 Engineers by the Central Road Research Institute, New Delhi.

11.5 NEWS LETTER

A News letter is brought out by the HRS for disseminating information of the activities and achievements of the Department.

11.6 CO-ORDINATION WITH IRC

The HRS has been actively coordinating with IRC in the promotion of technological innovation in the field of Highways Engineering. The Director, HRS is a member of various technical committees and sub-committees of IRC.

The Engineers of Highways Research Station have been actively taking part in the IRC annual sessions presenting research papers.

The Engineers of Highways Research Station participated in the recent 77th Annual Session at Hyderabad, Telangana.

“IRC Publication Sales Extension Counter’ at HRS is acting as an outlet to IRC Publications at the southern part of the country.

11.7 CO-ORDINATION WITH CRRI

Highways Research Station has arranged the following activities in collaboration with the prestigious Central Road Research Institute (CRRI) under Memorandum of Understanding.

Sl.No	Name of the project
1.	Road Safety Audit and Training Programme
2.	Collaborative Training Programme on Highways Development Manual (HDM)- IV

Sl.No	Name of the project
3.	Joint in-house Research Project For Accident Data Analysis Using TNRADMS
4.	Joint Test Track Performance Studies for new or Marginal Materials For Road Construction

Health Monitoring Systems for Bridges in Tamil Nadu is also to be taken up based on the MoU with CRRRI.

12. PLANNING, DESIGNS AND INVESTIGATION

The Planning, Designs and Investigation wing is conducting field investigation and preparing quantity estimates for the works proposed by various wings of the Highways department. It involves River Bridges, Grade Separators and Road Over Bridges (ROB)/Road Under Bridges (RUB). In addition to this proof checking of design and drawings prepared by consultants for various natures of works is carried out.

This wing is headed by the administrative control of one Chief Engineer supported by one Joint Chief Engineer with four Designs Divisions at Chennai and five field divisions at Chennai, Madurai, Tirunelveli, Salem and Coimbatore.

12.1 INVESTIGATION DIVISIONS AND THEIR ACTIVITIES

The investigation divisions undertake the following field works.

12.1.1 Field Investigation and Sub-Soil Exploration

1. Detailed investigation at proposed bridge site and collection of field data.

2. Integrating the particulars required for River Bridges from Public Works Department and from Railways for ROB and RUB works.
3. Sub-soil investigation through exploratory bores to ascertain the bearing capacity of the sub-soil and to decide the foundation of the bridges.

12.1.2 Preparation of Detailed Reports and Drawings

1. Preparation of site plans incorporating all the field details.
2. Preparation of alignment drawings and getting approval from the alignment approval committee.
3. Preparation of cross sectional and longitudinal sectional drawings along the stream & alignment and computation of hydraulic particulars.
4. Recommendation of suitable structures based on field investigation and sub-soil exploration.

12.2 DESIGNS DIVISIONS AND THEIR ACTIVITIES

The designs divisions undertake the following works:

1. Preparation of designs, drawings, and quantity estimates for river bridges, ROBs, RUBs, grade separators and other highway structures.
2. Proof checking of structural designs and drawings prepared by the consultants engaged by various wings of the department and also alternative designs furnished by the bidders.
3. Scrutinizing and giving recommendations to issue permit for transport of special ultra heavy weight machineries and equipments by special heavy motor vehicles to ply on roads.

12.3 WORKS COMPLETED:

During 2016-17, 57 works have been completed from Planning, Design and Investigation wing. This includes 6 ROBs / RUBs / LUS, 16 river bridges, 1 Grade Separator and 1 Pedestrian subway.

Further, 21 numbers of revision / modification works for river bridges, ROBs / RUBs / FOBs, grade separators have been completed. Apart from these, proof checking for construction of 6 river bridges, 2 Grade separators / Fly overs, 2 Foot Over Bridges, 1 Limited Use Subway and Design for construction of retaining wall at km 16/2 of NH207 (Sarjapur-Pagalur-Hosur Road) have been completed.

12.4 PROGRAMME OF WORK FOR 2017-18

During the current financial year 2017-18, 62 Design works in Design Divisions and 23 Investigation works in Investigation Divisions are taken up. In Design Divisions, 36 ROBs / RUBs, 5 High Level Bridges and 3 Limited Use Subways totaling to 44 works are in progress.

Further, 7 numbers of revision / modification works for river bridges, ROBs / RUBs, Grade separators are in progress. In addition, proof checking is being carried out for DPR works prepared by consultants for 5 ROBs / RUBs, 1 River Bridge, 4 Grade Separators and bridges in Chennai Peripheral ring road.

In addition guidance to Field engineers a "Hand book on collection of Field data and Formulation of proposals for Bridges" was released.

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 Additional Chief Secretary, Highways and Minor Ports Department and has representation from various stakeholders as well as Independent Directors in accordance with the Companies Act.

13.1 PROJECTS IMPLEMENTED BY TNRDC

13.1.1 East Coast Road Project (ECR) Chennai Akkarai to Puducherry

TNRDC had entered into a long term Concession Agreement with Government of Tamil Nadu on 22nd December 2000 and have taken up 113.20 km stretch of ECR (km 22/300 – km.135/500) from Kudimiyandithoppu near Akkarai on the outskirts of Chennai to Koonimedu on the outskirts of Puducherry

for improvement, operation and maintenance under PPP format.

TNRDC had commenced commercial operations from 21st March 2002 onwards and is maintaining the road.

13.2 PROJECTS UNDER IMPLEMENTATION BY TNRDC AS MANAGING ASSOCIATE

13.2.1 Chennai Outer Ring Road – phase I

The Government of Tamil Nadu have decided to provide a major connectivity corridor on the western side of Chennai city to ease the congestion and quick flow of traffic. Administrative sanctions have been accorded for the development of Chennai Outer Ring Road Project Phase-I as a Green Field Project under DBFOT model with the formation of dual three lanes with service roads for a length of 29.65 km from Vandalur on NH-45 to Nemilichery on NH-205 via Nazarathpet on NH-4 at a cost of Rs.1081.40 Crore.

The Hon'ble Chief Minister of Tamil Nadu inaugurated the project road to a length of 27 km from Mannivakkam to Nemilichery on 28.08.2014 and the road is in public use.

The land acquisition process for the balance works are expected to be completed and the balance

stretch of the road is expected to be completed by December 2017.

13.2.2 Chennai Outer Ring Road - phase II

The Government have sanctioned the Chennai Outer Ring Road Phase-II, a major six lane road connectivity project to a length of 30.50 km from Nemilicheri on NH-205 to Minjur on Thiruvottiyur - Ponneri - Panchetti (TPP) Road via Padiyanallur on NH-5 at a cost of Rs.1075 Crore under the Design, Build, Finance, Operate and Transfer (DBFOT) mode 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.

Presently 90% of the work has been completed and the balance works are expected to be completed soon.

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

The Project envisages the improvement of about 30 km of road network in North Chennai with the objective of establishing seamless and effective 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.

This work has been completed in all respects except a small stretch at N.T.O.kuppam and Kasimedu fish drying yard.

Negotiations with Stakeholders is in progress and on resolving the issue the balance work will be completed soon.

13.2.4 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 bulk cargo movements. The proposed new road will connect the Northern Gate of Ennore Port with Thatchur on NH-5 and with an additional spur road linking Thiruvottiyur – Ponneri - Panchetti (TPP) Road. This will also cater to the needs of the recently developed Kattupalli Port by L&T.

The length of this road connecting Ennore Port to Thatchur is about 21.15 km and the TPP link Road is 4.35 km. The work is proposed for execution in two phases.

Phase-I: Construction of the road from Ennore Port entrance to Neidavoyal village (6.2 km), from Neidavoyal village to TPP Link road (4.35 km) totaling 10.55 km.

Phase-II: Construction of the balance length of 14.95 Km from Neidavoyal to Thatchur on NH-5.

The Government has accorded administrative sanction of Rs.9.51 Crore, vide G.O.33/Highways and Minor ports department dated:19.02.2016 for carrying out Land Acquisition for Northern Port Access. Land acquisition work is under process in 15 Villages of Ponneri Taluk in Thiruvallur District. Land is being acquired under Highways Act 2001 and notification under clause 15(2) for 5 villages published and 15(2) enquiry completed for 4 villages.

13.2.5 Widening of East Coast Road (ECR) Chennai-Pondicherry (km 22/300-km 135/500)

The East Coast Road, from Akkarai (near Chennai) to Koonimedu on outskirts of Puducherry state limit was initially improved to two lane carriageway with hard shoulders and is being maintained by TNRDC as a Toll Road from 21st March 2002. The growing traffic intensity and the absence of centre median are the causes of increased accidents. Besides, insufficient carriageway has necessitated the widening of this road to four lane with divided carriageway. The stretch from

Akkarai to Mamallapuram has been taken as Phase I, including geometric improvements to curves and junctions between Mamallapuram and Puducherry border wherever necessary.

Accordingly all the works has been completed on 31.01.2017 and opened to traffic for public use.

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 Chennai, Adyar, 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 Mamallapuram, the Government has proposed construction of six lane road from Siruseri to Mamallapuram 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. Private lands have to be acquired to a width of 60m for a total extent of 88.62 hectares in 13 villages for widening this road. So far, possession of land in 8 villages has been handed over to the Highways Department and the land acquisition process is at various stages for the remaining 5 villages.

The consultant had submitted the final DPR for Phase II. 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. The total estimated cost for Kelambakkam and Tiruporur bypasses are assessed as Rs.250 Crore. This work is proposed under TNIPP-II and the same is under scrutiny.

13.5.2 Multi Level Car Parking (MLCP) at Siruseri

The **Honourable Chief Minister of Tamil Nadu** 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 9 floors to accommodate 632 cars including a commercial complex. The project will be executed under Design, Build, Finance, Operate and Transfer (DBFOT) basis. The estimated cost of this project is Rs.200 Crore.

The concession period is fixed as 25 years including 36 months construction period.

The proposal is submitted to TNIDB for approval, since it is Public Private Partnership (PPP) project.

13.6 ELEVATED CORRIDOR

The **Hon'ble Chief Minister of Tamil Nadu** made an announcement for the construction of an Elevated Corridor from Taramani to Siruseri under Phase-I and from Siruseri to Mamallapuram under Phase-II, for a total length of 45 km. The Government has accorded Administrative sanction for a sum Rs.5 Crore for the preparation of Detailed Project Report (DPR).

The DPR has been finalized for the construction of Elevated Road from Taramani to Siruseri. As the Metro Rail is also planned on this corridor, the integration work of both the projects are in progress. Once it is finalized, the construction of the Elevated Road will be taken up most probably during 2018.



Four lanned East Coast Road from Akkarai to Mamallapuram



Four lanned East Coast Road from Akkarai to Mamallapuram



Additional Bridge at Muttukadu on East Coast Road



Chennai Outer Ring Road at Thennambakkam

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 Government's special schemes/programmes to upgrade and maintain road infrastructure listed in the core road network of Tamil Nadu. The Oragadam Industrial Corridor project and four laning of Madurai Ring road project are now in progress.

Phenomenal growth in industrial and related activities, noticed in and around Oragadam and Sriperumpudur area situated in Kancheepuram district are one of the largest and formidable developed industrial areas of Tamil Nadu. There are 4 SIPCOT units having several prominent Indian and well known Multinational companies, Six Global car manufacturing industries, lots of supporting small scale industries and National Automotive Testing and R&D Infrastructure Project (NATRIP) are also functioning in and around Oragadam and Sriperumpudur.

Rapid development in industrial activities and continuous growth of industrialization have resulted in exponential increase of traffic intensity. The raw materials for manufacture and finished products to end users are usually transported through Multi axle trucks

and Goods carriers of non-standard heavy motor vehicles to their respective destinations. In order to cope with the present day traffic needs it is decided to improve the road infrastructure facilities in and around Oragadam Industrial Area under Oragadam Industrial Corridor Project.

14.1 PROJECT COMPONENTS

The development of road infrastructure network is being implemented in a phased manner as detailed below.

Phase - I

Widening of Singaperumalkoil – Sriperumpudur road (SH-57 part 24.00 km) and Vandalur – Wallajabad road (SH-48 part 33.40km) were taken up at a cost of Rs.300 Crore in the year 2005-06 for a total length of 57.40 km under this phase. One Grade Separator at the Junction of the above two roads was also taken up in this project. The cost of the project was Rs.300 Crore during 2005-06. Now the project cost has been revised and sanctioned by the Government to a tune of Rs.547.82 Crore. The works are in progress and nearing completion.

Phase - II

In this phase the work of Improvements from four laning to six laning of Singaperumalkoil – Sriperumpudur road from Km 12/6 to 24/6 was taken

up during 2011-12 at a cost of Rs.86.50 Crore. Now the Government have accorded revised sanction for Rs.108.66 Crore and the works are in progress.

Phase - III

During the year 2014 -15, under this phase the work of Improvements from four laning to six laning of Singaperumalkoil – Sriperumpudur road km 0/6 – 12/6 (SH-57) was taken up for implementation at a cost of Rs.115 Crore and the works are in progress.

Phase - IV

The work of Improvements from four laning to six laning of Vandalur to Wallajabad road km 30/400 – 47/000 including Land Acquisition for formation of Padappai bypass Road upto Oragadam was taken up under this phase during 2015-16. The Government have accorded sanction of Rs.189.81 Crore for this phase. The works are in progress.

14.2 PRESENT STATUS OF THE ABOVE PROJECT

Under phase-I, out of 57.40 Km length of Oragadam Industrial Corridor Project, 55.10 Km four land road have been completed in all respects. Now the work in 1.80 km is in progress. After completion of LA process the balance stretch of 0.50 Km will be taken up for execution. The Grade Separator work at Oragadam junction has been completed and is in public use.

So far an expenditure of Rs.474.88 Crore has been incurred in phase-I works which includes expenditure of Rs.184.62 Crore for Land acquisition.

In phase-II, 12.00 Km length of road was taken up for six laning out of total length of 57.40 km of Oragadam Industrial Corridor Project. So far 11.20 Km length have been completed except 0.80 Km stretch which requires completion of LA process in Sriperumpudur and Mathur. So far an expenditure of Rs.96.41 Crore has been incurred.

Six laning of Singaperumalkoil – Sriperumpudur road from km 0/6 to km 12/6 for a length of 12.00 km has been taken up in phase-III. So far 10.50 Km have been completed. The work is in progress for a length 1.30 Km and the balance stretch of 0.20 Km will be taken up after completion of Land Acquisition. An expenditure of Rs.98.03 Crore has been incurred so far.

In phase-IV, 16.60 Km of six laning including Land Acquisition for new bypass to Padappai town have been taken up. Now the works are in progress at various stages in 13 Km length. The land acquisition process are underway for Padappai bypass work. So far an expenditure of Rs.37.61 Crore has been incurred in this phase.

14.3 FOUR LANING OF MADURAI RING ROAD

Madurai Ring Road connects abandoned NH-45B near Meenakshi Mission Hospital and Mattuthavani integrated bus stand with NH-7 near Kappallur Industrial Estate. Now the existing road is of two lane configuration with a total length of 27.20 km. This road traverses on eastern and southern sides of Madurai city and provides connectivity to Madurai – Sivagangai road (SH-33), Madurai- Rameswaram Road (NH-49) and Madurai – Thondi road (NH-230). Since the existing traffic on this ring road exceeds the capacity of two lane norms it becomes imperative to widen this road to four lane with divided carriage way to cater the needs of present day traffic.

Accordingly, this project was taken up at a cost of Rs.213.69 Crore under BOT (Toll) scheme during the year 2015-16. This four laning proposal consists of widening on both sides so as to have a 9 m carriageway on either sides with center median of 1.20 m. Further it involves widening of 2 Railway Over Bridges and 1 River bridge.

Agreement with the concessionaire has been executed and the work has been commenced.



Singaperumalkoil - Sriperumbudur Road Improved under Oragadam Industrial Corridor Project



Singaperumalkoil - Sriperumbudur Road Improved under Oragadam Industrial Corridor Project

15.TAMIL NADU MARITIME BOARD

Tamil Nadu Maritime Board was established under the Tamil Nadu Maritime Board Act 1995 (Act 4 of 1996) on 18.03.1997 for the purpose of Administration, Management and Control of Minor Ports in the State of Tamil Nadu. The objectives and functions of TNMB are detailed below:-

- 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.
- To ensure port accessibility to the industries located in the Central / Western Districts of Tamil Nadu state.
- To decongest the major ports in the State of Tamil Nadu.
- To decongest goods movement on Highways and Railways by providing facilities for coastal shipping
- To promote 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 Km. Three Major Ports namely, Ennore,

Chennai and Tuticorin notified under the Major Port Trust Act, 1963 and 24 Non-Major (Minor) Ports notified under the Indian Ports Act 1908, are located on its coastline. The major ports are under the control of Government of India and the non-major ports are under the control of the Government of Tamil Nadu.

15.2 MINOR PORTS IN TAMIL NADU

The following are the declared minor ports in Tamil Nadu:-

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

Cuddalore, Nagapattinam, Pamban, Kanyakumari, Kattupalli, Ennore Minor Port and Thirukkadaiyur are the operational minor ports. The other declared minor ports are under various stages of obtaining statutory clearances, etc

15.3 ACTIVITIES OF MINOR PORTS

15.3.1 Government Ports

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

M/s Chennai Petroleum Corporation Ltd., (CPCL) export Petroleum Products from their Narimanam (Nagapattinam District) refinery through their captive open sea jetty located within the port limits of Nagapattinam port. Edible oil import take place at Nagapattinam port regularly.

Small ships are piloted through Pamban Channel. Kanyakumari and Rameswaram ports are used for short trip 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.

Kattupalli Port (Thiruvallur District), Ennore Minor Port (Thiruvallur District) and Thirukkadaiyur Port (Nagapattinam District) operate either for import / export of cargo. Kattupalli Port handle commercial cargo also.

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,
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
2.	Ennore Minor Port	----	Liquid Ammonia
3.	Thirukkadaiyur	----	Naphtha and Natural Gas.

15.5 MINOR PORT DEVELOPMENT POLICY

Tamil Nadu Maritime Board encourages in setting up of new captive Ports, Jetties and Moorings in order to stimulate the economic development along with the fast industrialization of the State. The policy envisages development of ports, for port based Oil Industries, Thermal Power Projects and also multi-user ports on Build Own Operate and Transfer (BOOT) basis.

The Port policy formulated by the Government of Tamil Nadu is intended for attracting new investments for the development of infrastructure facilities in sea ports.

15.6 INITIATIVES OF THE BOARD IN DEVELOPMENT OF PORTS

15.6.1 Development of Cuddalore port

The Government of Tamil Nadu have proposed to develop existing Cuddalore port as a Deep water, all weather port to handle small size vessels, coastal vessels etc., under Sagarmala Project / Coastal berth scheme with the financial assistance from the Ministry of Shipping, Government of India. Accordingly, the following development proposals were sent to Ministry of Shipping by Maritime Board:-

- | | |
|--|------------------|
| 1. Extension of North and South breakwaters | ... Rs.25 Crore |
| 2. Construction of Coastal berths | ... Rs.40 Crore |
| 3. Capital Dredging upto (-)9.0m Contour depth throughout the approach Channel | ... Rs.50 Crore |
| Total estimated cost | ... Rs.115 Crore |

As per guidelines of the Sagarmala / Coastal Berth Scheme, 50% of the project cost will be shared by the Government of India and the balance 50% shall be borne by the State Maritime Board / State Government. The proposals sent by the Tamil Nadu Maritime Board were approved by the Ministry of Shipping, Government of India and has released Rs.28.75 Crore as first installment of their share to Tamil Nadu Maritime Board for this project.

Indian Institute of Technology (Madras) has been engaged as a consultant for the preparation of Detailed Project Report. Obtaining statutory clearances such as Coastal Regulation Zone, Environmental Clearance are in progress for this project.

15.6.2 Public Private Participation

Tamil Nadu Maritime Board will invite proposals for development of non-major Ports having potential of export/import opportunities through private investment or on Public Private Participation (PPP) mode.

15.7 REVENUE OF BOARD FOR 2016-17

In the year 2016-17 about 11,69,916 MT of cargo 2,39,646 Nos. of containers and General cargo including vehicles 283 Nos. were handled through the Minor Ports and the Board earned about Rs.39 Crore as revenue.

15.8 TAMIL NADU MARITIME ACADEMY

The Tamil Nadu Maritime Academy functioning at Thoothukudi is under the control of Tamil Nadu Maritime Board. The Academy is conducting pre-sea General Purpose rating course of 6 months duration with 40 trainees per batch, and conducted 27 batches so far. The 28th batch of GP rating course has commenced from January 2017. The Academy also trains candidates on STCW-2010 courses namely,

'Personal Survival Techniques', 'Elementary First Aid', 'Personal Safety and Social Responsibility', 'Oil Tanker Familiarization' and 'Augmentation of Fire Prevention and Fire Fighting'.



MINOR PORTS IN TAMIL NADU



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GOVERNMENT PORTS

1. CUDALORE
2. NAGAPPATTINAM
3. PAMBAN
4. RAVESWARAM
5. VALINOKKAM
6. KANNIYAKUMARI
7. COLACHEL

CAPTIVE PORTS (C.P)

1. KATTIPALLI
2. ENVORE MINOR PORT
3. MUGAIYUR
4. PANAIYUR
5. THIRUCHOPURAM
6. SLAMBANGALAM SHIPYARD
7. PARANGIPETTAI
8. PF-03 OILFIELD
9. KAVENI
10. VARADERI
11. TIRUCHKADAIYUR
12. CHETTINAD THARANGAMBADI
13. THIRUCHIKULAI
14. PUNNAKKAYAL
15. UDANGUDI
16. MANAPPAD
17. KOODANKULAM

16. POOMPUHAR SHIPPING CORPORATION LIMITED

16.1 HISTORY

The Government of Tamil Nadu established 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 domestic coal allotted by the Indian Coal companies to the Tamil Nadu Generation and Distribution Corporation Ltd., (TANGEDCO) erstwhile Tamil Nadu Electricity Board for generation of electricity. This is the only State owned Shipping Corporation in our country.

16.2 ADMINISTRATION

The Chairman is the head of this Corporation. The Chief Executive Officer is the Managing Director. The Board of Directors nominated by the Government manages the affairs of the Corporation. The day-to-day activities are executed by the various wings namely technical, operation, finance and personnel & administration headed by qualified persons in their respective fields.

16.3 CORE ACTIVITIES

The core activities of the corporation are transportation of thermal coal along the East Coast of

India and transportation of tourists from the boat jetty at 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, eight to nine vessels are also chartered from other shipping companies for transportation of the coal.

16.4.2 Coal movement for NTECL

The corporation has entered into a Memorandum of Understanding on 12.03.2012 with M/s. NTPC Tamil Nadu Energy Company Ltd., (NTECL), a joint venture Company of TANGEDCO and NTPC, for transportation of entire domestic coal from the load ports of Paradip/ Dhamra Ports to Kamarajar Port, Ennore, for their 3 x 500 MW thermal power station at Vallur, North Chennai. As per the Memorandum of

Understanding, PSC is transporting coal by engaging chartered vessels.

16.4.3 Discharge operation and workshop 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. The maintenance work of the front end loaders used for discharge operation is being carried out by the workshop at Tuticorin.

16.4.4 Kanniyakumari Ferry Service

This corporation is also undertaking ferrying of tourists from the boat jetty at Kanniyakumari to the Vivekananda Rock Memorial and Ayyan Thiruvalluvar statue. Three ferries namely M.L.Guhan, M.L.Pothigai and M.L.Vivekananda with a seating capacity of 150 passengers each are being operated for the use of tourists.

16.4.5 PRICING POLICY

The main objective of the corporation is to transport coal from various loading ports on the East Coast of India to the thermal power stations of TANGEDCO at Ennore and Tuticorin. The Corporation operates its own vessels on cost plus "Return on Equity

of 12%". The chartered vessels are operated on "No Profit and No Loss" basis.

The corporation collects 5% as service charges on the charter hire charges for the vessels chartered for NTECL.

16.5 PERFORMANCE

16.5.1 Transportation of coal

The physical and financial performances 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)	
2014-15	162.68	161.54	628.12	6.89
2015-16	192.63	192.01	556.61	6.37
2016-17	171.86	169.37	525.60*	5.80*

*Estimate

16.5.2 Dividend

This corporation has declared a dividend of Rs.125.88 Lakh being 30% of the net profit after tax for the financial year 2015-16 and paid to Government of Tamil Nadu.

16.5.3 Passenger transportation

The ferry service has earned a profit of Rs.179.60 Lakh during 2014-15 and Rs.184.25 Lakhs during 2015-16.

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)
2014-15	19.42	713.28	179.60
2015-16	19.80	666.16	184.25
2016-17*	20.65	708.06*	190.11*

*Provisional

16.6 PLANS FOR 2017-18

16.6.1 Coal transportation

The corporation aims to transport the total estimated coal allotment of 115 Lakh MT and 70 Lakh MT by Indian coal companies to TANGEDCO and NTECL respectively through its own and chartered vessels.

17. CONCLUSION

Highways Department is focused in enhancing its contribution to the prosperity of the State by building and maintaining durable and safe road assets under the guidance of the Hon'ble Chief Minister of Tamil Nadu. The department is determined to execute the promises made in spite of various hurdles faced during the execution of the work.

The highways Department constructs new roads, bridges across rivers and widens roads so as to accommodate larger traffic. It also constructs grade separators at major road junctions which help in the smooth movement of traffic with lesser time spent on signals. Construction of road over bridges and road under bridges are also taken up for safe movements of vehicles across railway lines without loss of time. Pedestrian footpaths and foot over bridges are constructed for safe movement of pedestrians thereby enhancing overall road connectivity and mobility.

It also aims at the research based innovative technologies that could be adopted to regularize and accommodate the growing traffic in the State of Tamil Nadu.

Management of the road assets involve the application of engineering, financial and management practices to optimize the level-of-service in return for the most cost-effective financial input.

The design of the roads is done in such a way that the stability of vehicles is maintained in the curves and gradients. The geometric design of the highways is well designed for the safety of the people. The roads connecting the industrial areas have been improved to promote industrial development by facilitating transportation of goods efficiently.

The Highways department strives to provide high quality roads by utilizing the latest technology and innovative methodologies to improve the efficiency of the transportation. Road Safety Cell is effectively and efficiently functioning to identify the accident prone spots through the data management system and providing safety measures to the road users.

Delivery of services to international standards along with safety and comfort is the duty of this department and is working together with the concerned departments to achieve the goal of provision of robust transportation infrastructure in Tamil Nadu to meet the growing requirements of the society.

Edappadi K. Palaniswami

Chief Minister

