Departmental Disaster Management Plan for Roads & Buildings Department

Prepared by
Road and Building Department, Government of Andhra Pradesh

Supported by
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FOR ROADS & BUILDINGS (R&B) DEPARTMENT

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<tr>
<td>Dissemination and Review</td>
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<td>Ensure plan dissemination &amp; periodic review system</td>
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<tr>
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<td>Bring clarity on roles in varied disaster scenarios</td>
<td>Make sure responsibilities disaster phase wise</td>
</tr>
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</table>
1 Introduction

The Roads & Buildings (R&B) Department is responsible for construction and maintenance of the State Principal Road Network including National highways (on behalf of Govt. of India), State Highways and Major District Roads and assigned buildings of various Departments under the control of State Government. The Department strives to provide efficient, affordable, customer-focused, environmentally sustainable integrated transportation solutions, connecting villages, towns, cities and centers of industry, commerce, tourism and pilgrimage across the State. The department constructs and maintains roads and bridges on all roads under its control.

1.1 Profile of Roads & Buildings Department (R&B)

The Roads & Buildings Department deals mainly with the construction and maintenance of roads, bridges, causeways, and National Highways. The Department also deals with the construction and maintenance of certain public buildings that belong to the Government of Andhra Pradesh. The Department is regulated by the Government of Andhra Pradesh in terms of policy formulation and its implementation. The Department meets its set objectives through the following wings:

- The Administration Wing, which handles all administrative matters
- The Buildings Wing, which is responsible for construction and maintenance of Government Buildings
- The National Highways Wing, which is in charge of construction and maintenance of National Highways
- The Externally Aided Projects Wing, which manages all Externally Aided Projects
- The National Bank for Agriculture and Rural Development (NABARD) Project, which handles all schemes sanctioned under the NABARD Schemes
- The Andhra Pradesh Road Development Corporation (APRDC), which is mainly responsible for funds raising, management, and formulation of policies

1.2 Objective and Scope

1.2.1 Objective of the Plan

a. To mitigate the impact of natural and man-made disasters on roads and buildings through preparedness at various levels.
b. To bring together the information related to equipment, skilled manpower and critical supplies available in the affected area for repair & maintenance of roads.
c. To know the standard operating procedures of department at the time of disaster. The role and responsibility of each and every officer can be detected at the time of disaster
d. To assess its own capacity in terms of available resources and get ready to mitigate any unexpected disaster effectively and to prevent the loss of human lives and property through preparedness, prevention & mitigation of disasters.

e. To assist the line departments, block administration, communities in developing compatible skills for disaster preparedness and management.

f. To disseminate factual information in a timely, accurate and tactful manner while maintaining necessary confidentiality.

g. To develop immediate and long-term support plans for vulnerable people in/during disasters.

h. To have response system in place to face any eventuality.

### 1.2.2 Scope of Plan (DMP)

Under the Section 39 and 40 of National Disaster Manage Act 2005, it is mandatory on the part of Departments of the State Government, to adopt a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary and expedient for prevention as well as mitigation of disasters.

**Scope:**
The disaster management plan of R&B Department shall lay down the following details:

i) Types of disasters to which different parts of the State are hazard prone and vulnerable,

ii) Assess the existing capacities and comprehensiveness of R&B Department, in terms of multi hazard risk management, operational efficiency and appropriateness in the aftermath of disaster,

iii) Integration of strategies for prevention and mitigation of disasters, its interlinking with development plans and programmes by the department,

iv) The Roles & responsibilities of R&B Department in the event of any disaster or threatening situation and the emergency support functions in response,

v) Capacity building and preparedness measures proposed to be put into effect for disaster risk reduction, its financial provisioning, implementation & periodic review.
Andhra Pradesh is one of the most natural hazard prone states in India because of its long coastline and geographical location. About 44 percent of the state is vulnerable to tropical storms and related hazards. In addition to cyclones and related hazards, monsoon depressions bring heavy to very heavy rains causing floods in the inland rivers between June and September. Many areas in the state adjacent to coastal districts are vulnerable to flash floods. The state has a population of 49.4 million (population density – 308 persons/sq.km), out of which proportion of rural population is 70.4% while that of urban is 29.6%. Visakhapatnam is the most urbanized district of the state having 47.5% as urban population. Out of total 13 districts in the state, nine are coastal districts and account for approximately 69% (34.19 million) of its total population. The coastal region of Andhra Pradesh comprises of around 980 km coastline and includes 9 districts of the state. The four districts of Vishakhapatnam, Vizianagaram, Srikakulam and East Godavari make up nearly half of the coastal region of the state. The geographic location combined with high population density makes these districts highly vulnerable to cyclones and its associated hazards like storm surge, high winds and heavy rainfall. Recurrent cyclones account for a large number of deaths, loss of livelihood opportunities, loss of public and private property, and severe damage to infrastructure, thus reversing developmental gains at regular intervals.

Considering the natural hazards and localized conditions of existing roads & buildings, as per multi hazard profiling, the overall risk assessment can be understood, as explained below:

2.1 Multi Hazards Profile

2.1.1 Nature, frequency and intensity of potential hazard to linked to TR&B

The probable disaster situations to happen includes both natural and operational.

<table>
<thead>
<tr>
<th></th>
<th>Natural</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Flood</td>
<td>(i) Flood</td>
</tr>
<tr>
<td></td>
<td>Earthquake</td>
<td>(ii) Earthquake</td>
</tr>
<tr>
<td></td>
<td>Cyclone</td>
<td>(iii) Cyclone</td>
</tr>
<tr>
<td></td>
<td>Tsunami</td>
<td>(iv) Tsunami</td>
</tr>
<tr>
<td>2)</td>
<td>Operational</td>
<td>(i) Fire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Explosion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Accidents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Hazard Gas / chemical leakage / burning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(v) Riots / strikes etc.</td>
</tr>
</tbody>
</table>

2.1.2 Major applicable hazards/ History of past disasters in State

Andhra Pradesh is extremely vulnerable to cyclones, storm surges and floods. The state risks being battered by cyclones of moderate to severe intensity every two to three years. Since the 1975, the state had faced more than 60 cyclones. Some of them moderate and a few of them very severe. In the past 40 years, there may not be a single year in which the state did not experience either a storm, a cyclone or heavy rains and floods.
The deadliest cyclone in the past 40 years was the one that struck Andhra's coast in November 1977, killing about 10,000 people. About 250,000 cattle heads perished, one million houses were damaged and crops on 1.35 million hectares (ha) were destroyed that year.

**Major cyclones**

- **November 1977:** Severe cyclonic storm—the most devastating in the past 40 years. Eight coastal districts affected. About 10,000 people killed. About 250,000 cattle heads perished; 1 million houses damaged and crops on 1.35 million hectares were damaged. Estimated loss: INR 172 crore.
- **May 1979:** Cyclonic storm with core of hurricane winds. Heavy rains and floods. As many as 748,000 lakh houses damaged. Estimated loss: INR 242 crore.
- **October-November 1987:** There were three cyclonic storms. First one in October, which was a severe storm but with no casualty. The second one, on 2-3 November was very severe. 10 districts affected. 119 people died; more than 100,000 houses and 960,000 ha of crops damaged; estimated loss: INR 126.48 crore.
- **July 1989:** Cyclone followed by heavy rains and floods. 22 districts affected. Death toll: 232; crops on about 600,000 ha lost; estimated loss: INR 913.5 crore. It was followed by a cyclonic storm with no casualty.
- **May 1990:** Severe cyclonic storm with core of hurricane winds. 14 districts affected. Death toll: 817; houses damaged: 1.4 million; crop loss: more than 500,000 ha; loss INR 2,137.27 crore. It was followed by heavy rainfall in August in which 50 people died and the loss was assessed at INR 179 crore.
- **November 1996:** Severe cyclonic storm with core of hurricane winds. Four districts affected. Death toll: 1,077; houses damaged: 600,000; crop loss: 500,000 ha; loss INR 6,129.25 crore. One more severe cyclone in December claimed 27 lives.
- **May 2010:** Cyclone Laila. 14 districts affected. Death toll: 22; houses damaged: 14,298; crop loss: 260,000 ha; loss INR 1,603 crore.
- **November 2012:** Severe cyclone Nilam. Death toll: 30; crop loss: over 700,000 ha; loss: INR 1,710 crore.
- **October-November 2013:** Severe cyclone Phailin. Death toll: 40; crop loss: INR 2,400 crore; loss: INR 420 crore.
- **October 2014:** Severe cyclones Hudhud.

**Floods:**

The major river basins of AP are Godavari and Krishna, while the minor river basins are Nagavali and Vamsadhara on the north and Pennar in the south. The floods in the Godavari and Krishna Rivers caused havoc in the East and West Godavari and Krishna districts. Inadequate capacity of the rivers to contain the heavy water flows after heavy rainfalls leads to flooding. The Passage of storms/cyclones in quick succession over a river basin invariably leads to severe floods. The problem is exacerbated by factors such as silting of the riverbeds, reduction of the carrying capacity of river channels, beds and banks leading to changes in river courses, obstructions to flow due to landslides, synchronization of floods in the main and tributary rivers and retardation due to tidal effects.
**Industrial (chemical) vulnerability**

Accidents and fatalities that occur on the premises of an industrial establishment is a very common occurrence; government regulations in labor safety, safety guidelines issued by Chief Inspector of Broilers and Commissioner of Industries would cover on-site industrial incidents. However, industrial catastrophe of the magnitude of Union Carbide Industry’s in Bhopal would lead to mass casualties and the impact is beyond industry’s location. Fortunately, Andhra Pradesh has not encountered a major tragedy of the magnitude of Bhopal. However, casual attitude and negligence to follow industrial safety regulations could prove catastrophe. Andhra Pradesh Fire Services department maintains a list of hazardous industries that has to meet the fire code as per AP Fire Act. Industrial chemical vulnerability is being addressed through developing capacities of concerned stakeholders.

**Earthquakes:**
The state of Andhra Pradesh has a history of earthquakes from the year 1800 to date but fortunately there have not been major losses due to the low intensity of earthquakes. Earthquakes in the recent past have occurred along and off the Andhra Pradesh coast and in regions in the Godavari river valley. Earthquake of magnitude of 5.0 – 5.7 have been recorded on the Richter scale in Ongole, Bhadrachalam, Srikakulam, Secunderabad and Vizianagaram areas of AP. Mild tremors have also hit the capital city of Hyderabad in September 2000.

**Urban areas vulnerability**

Urban growth in the Andhra Pradesh has accelerated alongside its rapid economic growth. The road accidents due to congestion and increased ratio of vehicle to roads; water-borne diseases; health related vulnerability in the event of disasters such as floods or earthquakes are result of unplanned urban growth in the state. Urban flooding is largely human-caused; water logging due to clogged up storm drainage systems, expansion in urban settlements without proper planning of storm and sewer drainage systems lead to waterlogged roads. Years of siltation of tanks; encroachment of nalas, river beds choke the streams and reduce water storage capacity. The development work for new state capital is also being looked at critically, with the purpose to address urban vulnerability.

2.1.3 **Causes of losses/ Emerging concerns**

Most lives are lost during a cyclone on account of floods and the devastating storm surge that often accompany cyclones. In case of severe cyclonic storms with storm surges, more than 90% of the fatalities occur due to drowning, either during the incoming water phase or during the out surges. In severe cyclonic storms without storm surges, the deaths are more or less evenly divided between drowning and the collapse of buildings, urban infrastructure. The most
common health problems include water borne diseases such as diarrhea, dysentery, typhoid, viral hepatitis, respiratory diseases such as pneumonia and whooping cough, measles, gastroenteritis, cholera, conjunctivitis, and fever. Some of the factors responsible for vulnerability of the state to disasters are:

- Almost half of the storms in the Bay of Bengal become severe cyclones often accompanied by storm surges
- Low lying areas along the coast are vulnerable to extensive flooding and deep inland sea water incursion.
- High concentration of population, infrastructure and economic activities along the coast.
- Lack of proper maintenance of the flood protection and irrigation systems, drains, embankments etc.
- Lack of comprehensive coastal zone and delta management
- In the past two decades, major cyclones caused immense loss of human lives and livestock and massive damage to property, both of people and the Government viz., November 1977, May 1979, November 1984

### 2.2 Vulnerability Profile wrt Department (to which the State is prone and Department is connected)

As extreme weather events become more common, transport infrastructure is increasingly being tested by these events. Highway engineers are responding to the challenge by to correcting vulnerabilities in the existing road network and factoring changing weather patterns in the design of new roads.

Major roads and the transportation facilities break down, and get disrupted in significant ways during extreme weather events – thus requiring transportation engineers plan and design systems such that the infrastructure is both resilient and redundant. Resilience calls for the transportation system to recover rapidly from a disruption, while redundancy calls for the inclusion of back-up systems that can continue to provide service when some facilities break down. In particular, the transportation system should continue to serve the needs of people by facilitating evacuation, emergency services, relief supplies, and flow of goods even in the event of extreme conditions.

Many measures can be taken to lessen the impacts or reduce the risk of damage from severe storms occurring as a consequence of climate change. These include updating building codes to account for stronger events and larger floods; moving roads in vulnerable areas near coastlines, around lakes and along rivers; insuring that bridges and culverts have adequate capacity to accommodate major storm flows as well as debris; having redundant transportation routes and a good inventory of available roads; and designing structures and pavements to accommodate warmer weather and more extreme temperatures.
The following table indicates the hazard wise vulnerability to which the TR&B is prone:

<table>
<thead>
<tr>
<th>Type of hazard</th>
<th>Magnitude of vulnerability</th>
<th>Areas/Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Disaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclone</td>
<td>Medium to High</td>
<td>In the pockets of 10 coastal districts</td>
</tr>
<tr>
<td>Flood/Flash flood</td>
<td>Medium to High</td>
<td></td>
</tr>
<tr>
<td>Earthquake</td>
<td>Medium to High</td>
<td></td>
</tr>
<tr>
<td>Landslide</td>
<td>Low to Medium</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>Low to Medium</td>
<td></td>
</tr>
<tr>
<td>Man-made Disaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidents</td>
<td>Low to Medium</td>
<td></td>
</tr>
<tr>
<td>Explosion</td>
<td>Low to Medium</td>
<td></td>
</tr>
</tbody>
</table>

2.3 Capacity of Department (Institutional, Organizational & Infrastructural) to deal with disasters

The capacity and needs assessment of the Department have to be carried out for the district administration as well as for communities. The capacity in terms of response and relief with respect to knowledge, skills, and awareness towards mitigation and also the adaptation measures needs comprehensive analysis. The R&B Deptt administration has reasonably good infrastructure, knowledge and resources for disaster management. It is essential to enhance the knowledge about climate change impacts on disaster, and their adverse impacts on the areas to mainstream disaster management into developmental planning. At the community level, awareness on building codes, land use restrictions, hazard zones etc. are required. There should be sensitization programs and preventive measures for minimizing damages particularly during disaster situations. NGOs and community organizations need to be encouraged to be part of community capacity building activities.

2.4 Comprehensive Risk Assessment

Considering the potential hazards and existing vulnerabilities applicable to the State of Andhra Pradesh, the comprehensive resource mapping of Roads & Buildings Department will be carried out, to evaluate the actual risk assessment.

The mapping of resources will help in analyzing the capacity of the Roads & Buildings Department in an extensive manner. The capacity gaps of Deptt, will be identified, reviewed and addressed periodically.

The comprehensive risk assessment, including the hazards, vulnerabilities and capacities of the Roads & Buildings Department will be carried out periodically.
3 Prevention and Mitigation

3.1 Prevention & Mitigation Measures

**Following are the key prevention & mitigation measures: being taken by the Deptt:**

1. Private buildings will be identified suitable for use as shelters by the departments at Districts. and Mandals. Prepare list of such buildings and provide them to necessary authorities.

2. Direct Dist. and Mandal authorities to inspect and identify roads, bridges, culverts and buildings which are vulnerable for floods and repair/strengthen them.

3. The identified weak bridges and culverts weak once should be demolished and the new ones are to be constructed. Buildings which are in collapsible stage should be demolished. New roads/repair of roads should be carried out. The roads/buildings should be made hazard proof.

4. Ensure that building codes are strictly followed by public in disaster prone areas. They should be made mandatory.

5. In case of heavy rains, the roads are prone to breaches. Vulnerable points have to be listed out in advance and indicated in maps. They shall be reviewed every year before the monsoon and repair accordingly.

6. Ensure that the new construction does not block natural drainage lines. Enough culverts etc. may be provided.

7. A good network of motorable roads should be constructed in all vulnerable coastal areas. This not only facilitates quick evacuation at the time of need, but also the supply of relief to the needy, in the aftermath of flood.

8. Retrofitting of buildings, building foundations and structures should be made as a component of disaster management policy, applicable in vulnerable areas. Suitable guidelines may be issued for retrofitting.

3.2 Provision of funds for disaster mitigation and related interventions

Roads & Buildings Deptt of Andhra Pradesh will actively contribute in the associated disaster related preparedness, mitigation and relief measures at the State level.

The Deptt will make budgetary provisions for disaster mitigation and related interventions, through the integration with the ongoing or proposed development/ support programs associated with Roads & Buildings sector.

**Roads & Buildings Department:**

Road is one of the basic modes of Transportation System and is an important sector of infrastructure. Systematic development of Road is one of the pre-requisites for development and acceleration of growth of the Economy. Among the different modes of domestic Transportation Systems, Road Transport carries more than 80% of the Goods and Passenger Traffic. The network of Roads, particularly from Rural to Urban facilitates speedy movement of goods and services and ensures higher growth trends, social integrity and well being of the society. The productivity and
efficiency of Road Transport is directly linked with the availability and quality of Road Network. In view of the high potential in Agricultural activity, there has been huge demand for increase in Road Network. The construction and maintenance of roads and bridges on State Highways, Major District Roads, and Rural Roads are taken up. Particularly Roads taken over from Panchayat Raj Department or other Local Bodies are brought to the required standards and kept in motorable condition.

The Roads & Buildings department deals mainly with the construction and maintenance of roads, bridges, causeways, State Principal Road Network including National highways (on behalf of Govt. of India), State Highways and Major District Roads and assigned buildings of various Departments under the control of State Government.

The Department, which was maintaining a road network of 21,510 kms in 1965, now maintains a total of 41,956 kms of roads (excluding NH roads) comprising 6,485 kms of State Highways, 19,807 kms of Major District Roads and 15,664 kms of Rural Roads had taken over from Panchayat Raj Department and other local bodies.

There are 19 National Highways in the state covering a length of 4,913 Kms, of which Four-lane and above are 1695.05 kms, Two-lane with paved shoulder is 2079.98 Kms and Intermediate lane is 320.32 kms and Single lane is 327.65 Kms. The density of National Highways is 8.71 kms per lakh population (2011) in the state as against all India average of 7.67 kms and in terms of area coverage; a length of 26.80 kms is available for every 1,000 sq.kms in the state as against all India average of 28.2 kms.

A total amount of Rs.192422.00 lakh is provided in the budget 2016- towards implementation of various project works to the R&B department which, Rs.20000.00 lakh is provided under Externally Aided Projects Rs.16170.00 lakh as Central Assistance to State Development Plan and Rs.176252.00 lakh under State Government.

The Department meets its set objectives through the following wings:

- The Administration Wing, which handles all administrative matters
- The Buildings Wing, which is responsible for construction and maintenance of Government Buildings
- The National Highways Wing, which is in charge of construction and maintenance of National Highways
- The Externally Aided Projects Wing, which manages all Externally Aided Projects
- The National Bank for Agriculture and Rural Development (NABARD) Project, which handles all schemes sanctioned under the NABARD Schemes
- The Andhra Pradesh Road Development Corporation (APRDC), which is mainly responsible for funds raising, management, and formulation of policies

The Roads & Buildings department is responsible to execute different works, as detailed below.

- Construction and maintenance of Roads, Bridges, Causeways.
- Construction and maintenance of National Highways with the fund support from Government of India.
- Construction and maintenance of certain public buildings that belongs to the Government of Andhra Pradesh.
- The operations of the Department are in the name and authority of the Governor of Andhra Pradesh.
- The Minister for Roads & Building and Ports in the State Cabinet is responsible to the State Legislature relating to the works of the Department.
- At the Government level, the functions of the Department are looked after by Secretary to Government of Andhra Pradesh.
- The Department is headed by one Engineer-in-Chief (R&B), with jurisdiction over the entire Department in administrative matters.
- One Corporation by the name Andhra Pradesh Road Development Corporation (A.P.R.D.C.) has been established in October 1997 by raising funds through public contributions, for development of important roads.

**TRANSPORT, ROADS AND BUILDINGS DEPARTMENT**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Schemes</th>
<th>Key components</th>
<th>Key aspects for mainstreaming DRR &amp; CCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RESTORATION OF MAJOR DISTRICT ROADS (R &amp; B DEPT.) UNDER APDRP:</td>
<td>• To restore the connectivity lost due to the disaster through the reconstruction of damaged major district roads.</td>
<td>*Develop all-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Road works will cover four districts – Vishakhapatnam, Vizianagaram, Srikakulam and East Godavari</td>
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<td></td>
<td>• Involve repair, reconstruction, strengthening and widening of roads.</td>
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<td></td>
<td></td>
<td>• Also includes repair of old cyclone shelters.</td>
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<tr>
<td></td>
<td></td>
<td>• An amount of Rs.2000.00 lakh is provided in the budget 2016-17</td>
<td></td>
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<tr>
<td>2</td>
<td>CONSTRUCTION OF ROADS AND BUILDINGS (STATE DEVELOPMENT PLAN)</td>
<td>• An amount of Rs.1000.00 lakh is provided in the budget 2016-17.</td>
<td>*Develop all-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Install energy-saving system in the buildings</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CONSTRUCTION OF ROADS AND BUILDINGS (CENTRAL ASSISTANCE TO STATE DEVELOPMENT PLAN)</td>
<td>• An amount of Rs.2800.00 lakh is provided in the budget 2016-17</td>
<td>*Develop all-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency</td>
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<tr>
<td></td>
<td></td>
<td>* Increasing energy efficiency in street lighting system</td>
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</tbody>
</table>
### 4. IMPLEMENTATION OF VARIOUS PROJECT WORKS

- A total amount of Rs.192422.00 lakh is provided in the budget 2016-17 of which Rs.20000.00 lakh is provided under Externally Aided Projects, Rs.16170.00 lakh as Central Assistance to State Development Plan and Rs.176252.00 lakh under State Development Plan.

- All-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency

- Utilize energy-saving system

### CHIEF ENGINEER, (R&B), CORE NETWORK ROADS (CRN), ROAD DEVELOPMENT CORP. (RDC) & PPP DEPARTMENT EXTERNALLY AIDED PROJECTS

### 5. ANDHRA PRADESH ROAD SECTOR PROJECT (APRDC)

- Andhra Pradesh Road Sector Project (APRDC) is being implemented from 2010 onwards with the loan assistance of World Bank. The two major components under

  - APRSP are ‘Up-gradation Component’ and ‘Output and Performance Based Road Contract’ (OPRC). All the works under these components were grounded during the period from 2010 to 2016 and works are completed / in progress and land acquisition is involved in the works being taken up under APRSP up-gradation package works.

  - Major portion of amounts required towards Land Acquisition has already been deposited with the Revenue Department. R&R involved in these works will also be taken up under the scheme.

  - An amount of Rs.17300.00 lakh is provided in the budget 2016-17.

- All-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency

- Increasing energy efficiency in street lighting system

- Provision of safe footpaths, cycle tracks etc to promote non-motorised transport

### 6. ANDHRA PRADESH ROAD SECTOR PROJECT - PPP FACILITATION SUPPORT

- PPP Facilitation is one of the components under Andhra Pradesh Road Sector Project. Under the scheme, the payments towards to consultancy services will be paid for implementation of PPP projects.

- Interlink private and public transport modes so as to minimise the use of private transport
| 7. | ANDHRA PRADESH ROAD SECTOR PROJECT-INSTITUTIONAL STRENGTHENING | **An amount of Rs. 10.00 lakh is provided in the budget 2016-17.** | **Institutional Strengthening** is one of the components included in the APRSP for making studies on Operationalization of APRDC, APRDC organisational structure, road financing options and creation of road fund board, training, etc., and also for establishment of road management information systems, etc.  
**In view of the state bifurcation, these consultancy works are to be re-organized.**  
**An amount of Rs. 1500.00 lakh is provided in the budget 2016-17.** | * Design or redesign road networks so as to facilitate smooth traffic movement  
* Enhance the share of public transport in the total transportation mix and the share of low emission/fuel-efficient vehicles and vehicles that run on alternate fuels |
|---|---|---|---|---|
| 8. | ANDHRA PRADESH ROAD SECTOR PROJECT-ROAD SAFETY | **An amount of Rs. 1190.00 lakh is provided in the budget 2016-17.** | **Road Safety** is one of the important components included in the APRSP to improve the road safety in the state by implementing road safety on a model demo corridor and black-spot improvement program on certain coronet roads. The implementation study on demo corridor will be useful to prepare state’s road safety policy and action plan.  
**An amount of Rs. 1190.00 lakh is provided in the budget 2016-17.** | * Encourage non-motorised transport like walking and cycling  
* Provision of safe footpaths, cycle tracks etc to promote non-motorised transport |
| 9. | ROAD SAFETY WORKS | **An amount of Rs.2500.00 lakh is provided in the budget 2016-17.** | * Provision of safe footpaths, cycle tracks etc to promote non-motorised transport  
* Enhance the awareness of citizens in sharing the public transport and  
* Enhance the share of public transport in the total transportation mix and low emission/fuel-efficient vehicles and vehicles that run on |
<table>
<thead>
<tr>
<th>No.</th>
<th>Project Description</th>
<th>Details</th>
<th>Notes</th>
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</table>
| 10. | **CONSTRUCTION OF BRIDGE ACROSS RIVER GODAVARI (BOT PROJECT)** | - An amount of Rs.600.00 lakh is provided in the budget 2016-17.  
- **Design the bridge to reduce the vulnerability in disasters and climate change**  
- **Interlink private and public transport modes so as to minimise the use of private transport** | alternate fuels |
| 11. | **CORE NETWORK ROADS (WORKS):** | - Under the scheme, various developmental activities of road works will be taken up. 8352.15 kms of roads has been identified in addition to the existing core road network of 6369.43 kms which are to be classified as state highways and to be maintained by APRDC. Provision for the land acquisition cost/charges of new coronet plan works will be taken up under the scheme.  
- An amount of Rs.41379.00 lakh is provided in the budget 2016-17 | *All-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency*  
*Utilize energy-saving system* |
| 12. | **KADAPA ANNUITY PROJECT** | - Nine road works were taken up under BOT-Annuity Scheme in Kadapa district were completed and are now under operation stage. Under the scheme, semi-annual annuity payments will be made for these works.  
- An amount of Rs.12753.00 lakh is provided in the budget 2016-17 | *Evaluate the road-works’s capability to be resilient in disaster and climate change* |
| 13. | **STATE SUPPORT TO PPP PROJECTS** | - Under the scheme, provision of balance payments to the concessionaire towards state VGF, independent engineer charges and transaction advisor charges and payments to the consultants who were appointed for feasibility studies of new PPP Projects will be taken up. Payment of land acquisition charges for new PPP Projects which are being planned to be grounded will also be taken up under the scheme.  
- An amount of Rs.8000.00 lakh is provided in the budget 2016-17 | Research about vulnerability of the current road networks of systems and methods to mainstream DRR & CAA |
| 14. | **ASSISTANCE TO CORE NETWORK** | - This is a new state development plan. Under the scheme, payment of Output | *Remodel or strengthen existing network* |
| **ROADS UNDER ANDHRA PRADESH ROAD DEVELOPMENT CORPORATION:** | and Performance Based Road Contract (OPRC) long term maintenance including periodical maintenance charges will be taken up.  
- An amount of Rs.7500.00 lakh is provided in the budget 2016-17. | systems to reduce vulnerability to disaster and climate change  
*Upgrade road works to all-weather roads to ensure access to goods and services, and for evacuation in emergency* |
| --- | --- | --- |
| **15. TR & B, SECRETARIAT DEPARTMENT** | • An amount of Rs.9930.00 lakh is provided in the budget 2016-17 under State Development Plan towards cost sharing with Railways for construction of new Railway lines.  
* Protect both built and natural heritage where the new railways passed by  
* Rail based MRTS in emerging cities and expansion of existing MRTS  
* Enhance awareness to use public transportation | |
| **ENGINEER-IN-CHIEF(R&B), ADMINISTRATION, STATE ROADS & RSW STATE DEVELOPMENT PLAN** | |
| **16. STATE HIGHWAYS:** | • Under the scheme, 45 kms of road length of other roads of state highways will be improved / widened.  
• An amount of Rs.1.00 lakh is provided in the budget 2016-17. | *All-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency* |
| **17. ROAD SAFETY ENGINEERING WORKS (RSEW):** | • An amount of Rs.600.00 lakh is provided in the budget 2016-17 | * Provision of safe footpaths, cycle tracks etc to promote non-motorised transport  
* Enhance the share of public transport in the total transportation mix and low emission/fuel-efficient vehicles and vehicles that run on alternate fuels |
| **18. MAJOR DISTRICT ROADS:** | • Under the scheme, 574 kms of road length of major district roads and state | * Connect with minor district roads to build a |
| 19. OTHER ROADS: | • An amount of Rs.1404.00 lakh is provided in the budget 2016-17. | * All-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency  
* Remodel or strengthen the current roads to become resilience during disasters and use energy-efficient lighting system  
* Utilize energy-saving system  
* Interlink private and public transport modes so as to minimise the use of private transport  
* Utilize energy-saving system  
* Provision of safe footpaths, cycle tracks etc to promote non-motorised transport |
| --- | --- | --- |
| 20. CONSTRUCTION OF ROADS & BRIDGES UNDER RAILWAY SAFETYWORKS: | • Road Over / Under Bridges (ROBs/RUBs) are mainly constructed in lieu of busy level crossings (manned) where Train Vehicular Units (TVUs) are more than 1.00 lakh. The constructions are being taken up under cost sharing basis with Railways on 50:50 basis as per the norms of the Ministry of Railways and as approved by Railway Board.  
• An amount of Rs.5030.00 lakh is provided in the budget 2016-17. | * Interlink private and public transport modes so as to minimise the use of private transport  
* Utilize energy-saving system  
* Provision of safe footpaths, cycle tracks etc to promote non-motorised transport |
| 21. CENTRAL ROAD FUND WORKS | • Government of India collects cess on diesel and petrol at Rs.1.50 per litre as per “The Central Road Fund Act  
* Enhance the awareness in using alternate fuel  
* Impose taxes on |
<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Details</th>
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<tr>
<td>2000”</td>
<td>27% of 50% of CESS on HSD Oil and the entire CESS on petrol is spent for roads other than National Highways i.e., for CRF scheme works. The GoI reimburses 100% for the works sanctioned under CRF scheme.</td>
<td>transport vehicles which have completed 7 years from the date of registration.</td>
</tr>
<tr>
<td>22.</td>
<td>ENGINEER-IN-CHIEF (R&amp;B), RURAL ROADS</td>
<td>A total amount of Rs.36135.00 lakh is provided in the budget 2016-17 for implementation of various works under Rural Roads (R&amp;B). Of which Rs.20000.00 lakh is provided under Rural Infrastructure Development Fund (RIDF) and Rs.16135.00 lakh under State Development Plan.</td>
</tr>
</tbody>
</table>
| 23. | RIDF CONSTRUCTION AND DEVELOPMENT OF RURAL ROADS UNDER RIDF: | Government of Andhra Pradesh identified the urgent need to create adequate employment opportunities in rural areas through development of infrastructure. As a part, Government has been taking up infrastructure development in rural areas through financial assistance of NABARD since 1995-96 with funds of RIDF (Rural Infrastructure and Development Fund) to improve the connectivity of rural roads with nearby villages and towns to transport the agriculture produce to nearby market yards. Under the scheme, spill over works from the previous years, strengthening of rural access as per action plan and improvement of the roads in tribal areas will be taken up. An amount of Rs.19000.00 lakh is provided in the budget 2016-17. | * Develop all-weather road connectivity to ensure habitations’ rural access goods and services (water tank, hospitals,...), and for evacuation in emergency.  
* Interlink private and public transport modes so as to minimise the use of private transport.  
* Connect with existing roads system to build a comprehensive transport system. |
<table>
<thead>
<tr>
<th></th>
<th>CONSTRUCTION AND DEVELOPMENT UNDER RIAD:</th>
<th>• An amount of Rs.1000.00 lakh is provided in the budget 2016-17.</th>
<th>* Develop all-weather road connectivity to ensure habitations’ rural access goods and services (water tank, hospitals,...), to ensure livelihood of the people, and for evacuation in emergency * Connect with existing roads system to build a comprehensive transport system</th>
</tr>
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<tbody>
<tr>
<td>24.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>CONSTRUCTION OF ROADS UNDER RIAD AREAS:</td>
<td>• An amount of Rs.10.00 lakh is provided in the budget 2016-17.</td>
<td>* Develop all-weather road connectivity to ensure habitations’ rural access goods and services (water tank, hospitals,...), to ensure livelihood of the people, and for evacuation in emergency</td>
</tr>
<tr>
<td>26.</td>
<td>ROADWORKS:</td>
<td>• An amount of Rs.10.00 lakh is provided in the budget 2016-17.</td>
<td>* All-weather road connectivity to all habitations for access to goods and services, and for evacuation in emergency * Remodel or strengthen the current roads to become resilience during disasters and use energy-efficient lighting system</td>
</tr>
<tr>
<td>27.</td>
<td>UPGRADEATION OF NREGP WORKS (ROAD WORKS CONVERGENCE WITH MGNREGS):</td>
<td>• The main aim of the scheme is to upgrade the roads which were improved up to GSB / WBM layer under MGNREGS to BT standard. It was decided to identify the roads improved under MGNREGS in Tribal areas and the roads need to be upgraded by way</td>
<td>* All-weather road connectivity to all habitations for rural access to goods and services, and for evacuation in emergency</td>
</tr>
<tr>
<td>28. RURAL ROADS:</td>
<td>• An amount of Rs.2980.00 lakh is provided in the budget 2016-17.</td>
<td>* Interlink private and public transport modes so as to minimise the use of private transport</td>
<td></td>
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<td>---</td>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>29. BUILDINGS DEPARTMENT</td>
<td>• An amount of Rs.13135.00 lakh is provided in the budget 2016-17.</td>
<td>* Develop all-weather road connectivity to ensure habitations’ rural access goods and services (water tank, hospitals,...), to ensure livelihood of the people, and for evacuation in emergency</td>
<td></td>
</tr>
<tr>
<td>30. CHIEF ENGINEER, R &amp; B (BUILDINGS)</td>
<td>• An amount of Rs.2688.00 lakh is provided in the budget 2016-17 for construction of various buildings and providing electricity in different departments under state development plan.</td>
<td>* Mandatory rainwater harvesting in the constructed buildings</td>
<td></td>
</tr>
<tr>
<td>31. CHIEF ENGINEER, R &amp; B (ELECTRICAL)</td>
<td>• An amount of Rs.2388.00 lakh is provided in the budget 2016-17 for construction of offices, Guest Houses, Inspection Bungalows, and other Buildings in different departments including vigilance&amp; enforcement department under state development plan.</td>
<td>* Use energy efficiency lighting, climate control equipment etc.</td>
<td></td>
</tr>
</tbody>
</table>

| GENERAL SERVICES | |

| 29. BUILDINGS DEPARTMENT | • An amount of Rs.2688.00 lakh is provided in the budget 2016-17 for construction of various buildings and providing electricity in different departments under state development plan. | * Mandatory rainwater harvesting in the constructed buildings |
| 30. CHIEF ENGINEER, R & B (BUILDINGS) | • An amount of Rs.2388.00 lakh is provided in the budget 2016-17 for construction of offices, Guest Houses, Inspection Bungalows, and other Buildings in different departments including vigilance& enforcement department under state development plan. | * Use energy efficiency lighting, climate control equipment etc. |
| 31. CHIEF ENGINEER, R & B (ELECTRICAL) | • An amount of Rs.300.00 lakh is provided in the budget 2016-17 towards electrical works of various office buildings under state development plan. | * Use energy efficiency lighting, climate control equipment etc. |

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of black topping so as to create durable assets.  
• An amount of Rs.2980.00 lakh is provided in the budget 2016-17.
### 3.3 Minimizing Losses

The prevention, preparedness and mitigation measures of Roads & Buildings Department will certainly help to reduce the direct and indirect losses. In addition to it, through capacity building of stakeholders, the potential risks and losses can surely be minimized.

*It is also the overall objective of Sendai Framework is to build resilience of communities to disasters, by achieving substantive reduction of disaster risks and losses in lives, and in physical, social, economic, businesses & environmental assets of communities and countries.*

Apart from it *Insurance is the best way to transfer risk, as per disaster management experts. It is a mechanism for spreading the cost of losses over time. Further, it is highly recommended to go for the equal participation of gender (especially women), for all the disaster prevention and mitigation related initiatives by Department.*

#### i) Action Plan for mainstreaming DRR and CCA

The suggested Action Plan for mainstreaming DRR and CCA the department is as follow.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities to be undertaken for mainstreaming DRR &amp; CCA</th>
<th>Responsible Authorities/Agencies</th>
<th>Tentative Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Remodel or strengthen existing cyclone shelters/damaged roads to reduce vulnerability to climate change</td>
<td></td>
<td>Within One Year</td>
</tr>
<tr>
<td>2.</td>
<td>Interlink private and public transport modes so as to minimise the use of private transport</td>
<td></td>
<td>Within 5 years</td>
</tr>
<tr>
<td>3.</td>
<td>Increasing energy efficiency in street lighting system</td>
<td></td>
<td>Within 5 years</td>
</tr>
<tr>
<td>4.</td>
<td>Mandatory rainwater harvesting in the constructed buildings</td>
<td></td>
<td>Within One Year</td>
</tr>
<tr>
<td>5.</td>
<td>Incentives for rooftop solar power generation and provision of grid connectivity</td>
<td></td>
<td>Within One Year</td>
</tr>
<tr>
<td>6.</td>
<td>Encourage non-motorised transport like walking and cycling</td>
<td></td>
<td>Within One Year</td>
</tr>
<tr>
<td>7.</td>
<td>Enhance the share of public transport in the total transportation mix and low emission/fuel-efficient vehicles and vehicles that run on alternate fuels</td>
<td></td>
<td>Within One Year</td>
</tr>
</tbody>
</table>
4 Preparedness Planning

Disaster preparedness planning measures will primarily focus on the preparedness of R&B Department of Govt. of Andhra Pradesh, by protecting assets and efficient utilization of resources by taking appropriate actions to face any disaster.

4.1 Coordination with agencies

It is very important for R&B Deptt to get connected with Revenue, Transport, Home & Fire Services, Civil Supplies, RWS, Health & other Departments, for required support during/ post disaster. R&B Deptt may offer emergency support in the form of vehicles during disaster time, as well as may also assist in the shifting of victims, persons from affected site to the identified safe locations, and also supply of the essential items at particular locations. R&B Deptt will also coordinate with Urban Development, and Rural Housing Depttts for safety of buildings.

The preparedness plan of the Deptt will further ensure that the all concerned departments and agencies are able to respond to potential damage zones in a prompt & coordinated manner. In most disaster situations the loss of life, injuries and infrastructure damage could be significantly reduced through appropriate preparedness measures taken by Department.

4.2 Key preparedness steps on the ground

Following are the key preparedness steps being taken at the field level:

- Identification of vulnerable points

- Preparation and submission of estimates for taking up and strengthening of vulnerable points.

- List out the machinery like power saws, JCBs etc., with their conditions and submit to the Dy. Executive Engineer.

- List out the contractors with their address and contacts numbers.

- Inspection of weak and narrow Bridges, Culverts and cause ways with details of repairs to be taken up.

- Identification of over flowing locations impending disaster.

- Identify and removal of weak and dried trees along the road side.

- Alternate routes to be identified and listed out.
5 Capacity Building and Training

5.1 Capacity Development Plan of Deptt

It is very important to prepare and follow the capacity development plan of Department. The plan should be reviewed and revised every year. According to the training needs assessment the training calendar will be prepared and followed.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Training Need</th>
<th>Departments</th>
<th>To Whom</th>
<th>Suggested duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Implementation of Disaster Management Act 2005 – Department’s Role &amp; Responsibilities</td>
<td>All Departments concerned</td>
<td>Senior Middle / Middle / Support/ grassroots level functionaries</td>
<td>3 days</td>
</tr>
<tr>
<td>2</td>
<td>Incident Response System (IRS); Basic and intermediate</td>
<td>All Departments concerned</td>
<td>Senior Middle / Middle / Support/ grassroots level functionaries</td>
<td>3 days</td>
</tr>
<tr>
<td>3</td>
<td>Community Based Disaster Preparedness</td>
<td>All Departments concerned / NGOs /CBOs</td>
<td>Senior Middle / Middle / Support/ grassroots level functionaries of ULBs/PRIs</td>
<td>3 days</td>
</tr>
<tr>
<td>4</td>
<td>Preparation and Implementation of State/ District Disaster Management Plans</td>
<td>All Departments concerned</td>
<td>Senior / Middle / support level functionaries</td>
<td>2 days</td>
</tr>
<tr>
<td>5</td>
<td>Basics of integrating DRR into departmental activities/ programs (DRR implementation Strategies)</td>
<td>All Departments concerned</td>
<td>Senior / Middle / support level functionaries</td>
<td>2 days</td>
</tr>
<tr>
<td>6</td>
<td>Mainstreaming DRR &amp; CCA into development planning Approaches/Strategies</td>
<td>All Departments concerned</td>
<td>Senior/Middle/support level functionaries</td>
<td>3 days</td>
</tr>
<tr>
<td>7</td>
<td>Hazard Risk and Vulnerability Assessment</td>
<td>All Departments concerned</td>
<td>Senior/Middle/support level functionaries</td>
<td>2 days</td>
</tr>
</tbody>
</table>

5.2 Status/ Inventory of trained professionals

The status/ inventory of trained disaster management professionals will be properly maintained and documented by the Deptt.

5.3 Simulation/ Table Top and Mock Exercises
To measure the training effectiveness, and to check the actual disaster preparedness, the mock exercises and simulation drills will be chalked out at regular intervals, by R&B Deptt. The mock exercise observations will be discussed and documented for the future actions and record purpose.

6 Response Plan

The need for an effective disaster management strategy is to lessen disaster impact which can be achieved through strengthening the existing organizational and administrative structure at the Department of R&B. The Emergency Response Plan provides a framework includes specific disaster action plans along with modal scenarios in detail to conduct practice drills at department level. The Response plan establishes an organized setup to conduct Emergency Support Functions (ESF) operations for any of the Natural and Manmade Disasters. It outlines an implementing framework of sharing resources as per the requirement within National and State level department will be engaged to support during an emergency situation.

6.1 Role of Department in context of Incident Response System (IRS)

(Trigger mechanism, Officers appointment wrt ESFs, Roles of agencies & actions)
A fully understood IRS mechanism shall adapt to address various scale/extent of operations as well as suit the department requirements. IRS constitutes an important part of the disaster response at the National, State, District and Local level (disaster affected site). The IRS is essentially a management system which is used for organizing the human and material resource which is pressed in to service while responding to disasters. IRS is guided by a thorough planning ensures that the critical resources which are used while responding to disasters are deployed in its rightful positions, are mobilized & demobilized in a timely manner to avoid wastage, and further emphasis on a detailed documentation of use of resources, actions and decisions.

As the functional expertise required for responding to disasters are various kinds, the IRS envisages to draw human resource with different expertise from different department or agencies.
(such as the **Roads & Buildings**, Health and Medical, Water and Sanitation, Veterinary, food and Roads & Buildings etc) and deploy them as a part of the responding team under the IRS framework.

**6.2 The response plan - Incident Response Teams - Command Staff & General Staff**

IRS organization functions through Incident Response Teams (IRTs) in the field (depicted below). Responsible Officers (ROs) have been designated at the State (Chief Secretary) and District (District Magistrate) Level as overall in-charge of the incident response management. The RO may however delegate responsibilities to Incident Commander (IC), who in turn will manage the incident through IRTs.

![Diagram of Incident Response Teams](Source: NDMG Incident Response System, July 2010, NDMA)

IRTs are pre-designated at three levels - State, District, Sub-Division Tehsil and Block. The RO will activate on receipt of early warning. In case of no warning, IRT will respond and contact RO for further support. A Nodal Officer (NO) has to be designated for proper coordination between the District, State and National Level in activating air support for response.

Apart from RO and NO, the IRS has two main components: Command Staff and General Staff.

**Function of Command Staff**
The Command Staff consists of Incident Commander (IC), Information & Media Officer (IMO), Safety Officer (SO) and Liaison Officer (LO). They report directly to the IC and may have assistants. The Command Staff may or may not have supporting organizations under them.

**Functions of General Staff**
General Staff has three components:

The **Operations Section (OS)** is responsible for directing the required tactical actions to meet incident objectives. Management of disaster may not immediately require activation of Branch, Division and Group. Expansion of the OS depends on the enormity of the situation and number of different types and kinds of functional Groups required in the response management.

**Planning Section (PS)** is responsible for collection, evaluation and display of incident information, maintaining and tracking resources, preparing the Incident Action Plan (IAP) and other necessary incident related documentation. They will assess the requirement of additional resources, propose from where it can be mobilized and keep IC informed.
Logistics/Finance Section (L/FS) is responsible for providing facilities, services, materials, equipment and other resources in support of the incident response. The Section Chief participates in development and implementation of the IAP, activates and supervises Branches and Units of his section. In order to ensure prompt and smooth procurement and supply of resources as per financial rules, the Finance Branch has been included in the L/FS.

6.3 Formation of IRT at State, District, Sub-Division, Tehsil and Block levels and involvement of Department of Roads & Buildings (R&B)

The IRT is a team comprising of all positions of IRS organisation headed by IC. The OS helps to prepare different tactical operations as required. The PS helps in obtaining different information and preparing plans as required. The L/FS assesses the availability and requirement of resources and takes action for obtaining them. IRTs will function at State, District, Sub-Division, Tehsil and Block levels. These teams will respond to all natural and manmade disasters. The lowest administrative unit (Sub-Division, Tehsil/Block) will be the first responder as the case may be. If the incident becomes complex and is beyond the control of IRT (Sub-Division, Tehsil/Block), the higher level IRT (District or State) will be informed and they will take over the response management. In such cases the lower level IRT will merge with higher level IRT. For formation of Incident Response Teams at State, District, Sub-division, Tehsil and Block levels, guidelines on Incident Response System published by NDMA may be followed.
Role of R&B Department in context of Incident Response System (IRS)

Ground Support Unit will be supplemented by the representation of Roads & Buildings Deptt. The Deptt representative will be the part of Logistics Section, depending upon disaster type.

It will be his/her responsibility to facilitate in the planning of Roads and Safety of Buildings related functions and documenting allied information.

Roads and Buildings Deptt will be responsible for repair, upkeep and also the maintenance of all the State roads & highways, National highways (on behalf of Govt. of India) and Major District Roads and assigned buildings of various Departments under the control of State Government.

For detailed information, the last chapter on Standard Operating Procedures (SOPs) may also be referred for detailed responsibilities.

6.4 Trigger mechanism

As soon as Emergency Operation Centre would get the information about any event, the staff on duty in EOC will pass the information the concerned authority and seek for his instruction for further actions. If the information pertains to the occurrence of a disaster in any part of the district, the staff on duty shall also try to inform District Disaster Management Committee members, Emergency Support Functions-team leaders, Major hospitals and District Disaster Management Authority etc.
7 Recovery, Reconstruction and Rehabilitation

7.1 Detailed damage and needs assessment:

The Roads & Buildings Department will play an important role in the disaster loss & damage at the required locations. According to the current situation and the loss occurred, the Secretary – Roads & Buildings, will take a final call on the kind of support of support required from the other Departments, such as Revenue, Transport & allied agencies.

7.2 Restoration/relief measures to normalcy

Control rooms will be made operational at the district level in all disaster affected areas and coordination mechanism to be set up to keep in direct touch with the all concerned departments.

- Supervisory teams consisting of revenue and Roads & Buildings Deptt officials have to be constituted to supervise the enumeration work
- Teams have to be constituted at district level also with senior officials to extend support on the ground, in & around the affected areas.
- Consolidate the information of damaged roads & buildings, bridges and the allied work.
- Liaison with other line departments and concerned agencies for proper coordination.

8 Knowledge Management:

8.1 Creating network of knowledge institutions

The Roads & Buildings Deptt, will identify competent technical institutions (region wise) in the State to institutionalize the mechanism of knowledge sharing. Then a network of knowledge institutions will be created. All related institutions will get connected.

8.2 Documentation of lessons learnt & practices

Under the knowledge management initiative, the key lessons learnt of past disasters so far and also the best disaster management practices pertaining to Roads & Buildings sector will be documented. The same will also be uploaded on the departmental website.

9 Financial Arrangements

9.1 Annual budget for Deptt’s DM plan implementation

As per the National DM Act 2005, Section 40, sub-section (2) concerned State Deptt shall make (annual) provisions for financing the activities specified in the disaster management plan of Deptt and its smooth implementation.

9.2 Provisioning of funds for specific DRR interventions
Roads & Buildings Deptt will coordinate with other concerned Deptts for provisioning of funds, specific to Roads & Buildings related DRR interventions. This will include funds for prevention, mitigation and disaster risk insurance. The other financing options will also be explored here.

9.3 **Provisioning of funds for Disaster Response**

As per DM Act Section 48, State Disaster Response Fund & District Disaster Response Fund will be established by State Govt. Further, there is a provision for release of National Disaster Response Fund amount as per the specified items and norms of assistance of MHA. According to the type, the assistance will be provided as per norms, through State Disaster Response Fund (SDRF) with regard to losses.

Apart from it, there is a continuous focus by Govt on the cashless economy and digitalization for easy, safe and prompt transaction, which will surely help in timely delivery of payment to the concerned entity associated with the Roads & Buildings Department, internally as well as externally.

10 **Dissemination, Review and updating of DM Plan:**

10.1 **Dissemination of DM plan to stakeholders**

Disaster Mgmt Plan of Roads & Buildings Deptt will be communicated and disseminated to all concerned stakeholders for clarity of roles, pertaining to Roads & Buildings aspects, in case of disasters and specific responsibilities point of view.

10.2 **Periodic review of plan, annual updating**

As per the DM Act 2005, Section 40(2) the Departmental DM plan will be reviewed and updated annually. Especially the contact list of nodal persons and resources will be checked, verified and updated.
11 Summarized Standard Operating Procedures (SOPs) of Roads & Buildings Deptt

The roles and responsibilities of the department (focusing on the ground) shall be:

Disaster Phase wise

11.1. Pre-Disaster

1. Conduct disaster preparedness meeting twice in a year and advice the field functionaries to gear up for the situation, such meetings shall be organized well advance before the onset of monsoon.

2. Keep the available machinery such as Power saws under the control of one competent Work Inspector/ Gang mazdoor who frequent trails so that the available machinery will be in working condition for upkeep and maintenance of roads and buildings, at all times.

3. The Dy. EE shall verify the working condition of the machinery once in three months.

4. Shelters and private buildings identified for use as relief camps should be checked and strengthened where ever necessary. Special attention should be given for securing weak doors, windows and compound walls.

5. Direct Districts. And Mandals to make a final check of roads, bridges, culverts and buildings and carry out urgent repairs where ever necessary.

6. State & Dist. authorities to make a final check of roads, bridges, culverts and buildings and carry out urgent repairs where ever necessary.

7. Move machinery and equipment meant for repair of roads and buildings. And for removing obstructions nearest to the vulnerable areas for use during emergency.

11.2. During Disaster

1. Observation of the cyclone movement and situation

2. Alerting of field teams to be ready for roads & buildings related work.

3. Enquiring the availability of machinery and requesting them to keep them ready for deployment were ever necessary.

4. Deputing of field staff from non effected areas to assist staff in likely effected areas.

5. Staff on leave should return to their Head Quarters.

6. No leave shall be sanctioned at the time of disaster.

7. Preparation for post disaster activities.

11.3. Post Disaster

1. Ensure restoration of the traffic movement where ever possible by quick repair of breaches. Inspection of roads and removal of traffic obstruction. And inspection of roads for assessment of damages and reporting in higher authorities and preparation of its estimations.

2. Coordinate with State and plan for providing adequate number of drains by the side of roads, particularly considering the past experience.

3. Sanction and entrustment of temporary restoration works. And updation of maps
4. Steps will be taken for raising the stretches of roads passing through low areas and increase drainage facilities with prior approval of the State.

5. R&B/PRE will create a reliable road network that connects vulnerable areas and selected nodal centers, from where transport, relief and rehabilitation operations can be undertaken during future disasters.