PUBLIC WORKS DEPARTMENT
Government of Uttar Pradesh, India

UTTAR PRADESH STATE ROADS PROJECT
Under IBRD Loan No. 4684-IN

Technical Assistance for Implementation of Institutional Reforms in the Road Sector of Uttar Pradesh

REPORT FOR IMPLEMENTING PROGRESSIVE PWD RE-STRUCTURING AND STAFFING RE-ALIGNMENT, INCLUDING ONGOING INTERNAL STAFF COMMUNICATIONS ON ALL MAJOR ASPECTS (FINAL)

Report No. 11

September 2008

LEA International Ltd., Canada
in joint venture with
LEA Associates South Asia Pvt. Ltd., India
in association with
Ministry of Transportation of Ontario, Canada
# Technical Assistance for Implementation of Institutional Reforms in Road Sector of Uttar Pradesh

Report No. 11

September 2008

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<td>RSC</td>
<td>Road Safety Cell</td>
</tr>
<tr>
<td>RTI</td>
<td>Right to Information</td>
</tr>
<tr>
<td>SBU</td>
<td>Static Business Unit</td>
</tr>
<tr>
<td>SDBC</td>
<td>Semi Dense Bituminous Concrete</td>
</tr>
<tr>
<td>SE</td>
<td>Superintending Engineer</td>
</tr>
<tr>
<td>SH</td>
<td>State Highway</td>
</tr>
<tr>
<td>SRF</td>
<td>State Road Fund</td>
</tr>
<tr>
<td>SRP-II</td>
<td>State Road Project-II</td>
</tr>
<tr>
<td>SRB</td>
<td>State Road Safety Board</td>
</tr>
<tr>
<td>SRSF</td>
<td>State Road Safety Fund</td>
</tr>
<tr>
<td>STC</td>
<td>Staff Training College</td>
</tr>
<tr>
<td>STP</td>
<td>State Training Policy</td>
</tr>
<tr>
<td>TA</td>
<td>Technical Assistance</td>
</tr>
<tr>
<td>TDCU</td>
<td>Temporary Departmental Construction Unit</td>
</tr>
<tr>
<td>TCS</td>
<td>Tata Consultancy Services</td>
</tr>
<tr>
<td>TNA</td>
<td>Training Needs Assessment</td>
</tr>
<tr>
<td>ToR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>UP</td>
<td>Uttar Pradesh</td>
</tr>
<tr>
<td>UPAAM</td>
<td>Uttar Pradesh Academy of Administration and</td>
</tr>
<tr>
<td></td>
<td>Management</td>
</tr>
<tr>
<td>UPDESCO</td>
<td>Uttar Pradesh Development Systems Corporation</td>
</tr>
<tr>
<td>UPRNN</td>
<td>Uttar Pradesh Rajikiya Nirman Nigam</td>
</tr>
<tr>
<td>UPSBC</td>
<td>Uttar Pradesh State Bridge Corporation</td>
</tr>
<tr>
<td>UPSRP</td>
<td>Uttar Pradesh State Road Project</td>
</tr>
<tr>
<td>UPSHA</td>
<td>Uttar Pradesh State Highway Authority</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

1.1 NEED FOR RESTRUCTURING OF UP PWD

The following is taken from the Project Appraisal Document relating to the Uttar Pradesh State Roads Project by the World Bank, 18th November 2002.

"The majority of the road network, including the most highly trafficked roads, is under the administration of the State's Public Works Department. The PWD oversees the planning, design, construction and maintenance of most state roads, bridges and buildings, as well as construction and maintenance of National Highways on behalf of the Government of India (GoI). The PWD is organized along a four tier geographically based structure, with responsibilities distributed to senior staff across functions. This structure has not altered significantly since its creation more than a century ago. However, before 2000 - 2001, the PWD have never gone through a systematic organisational review in response to external environmental changes.

Although the PWD has probably the best technical engineering capacity within the State's numerous departments, it currently suffers from a number of managerial and institutional problems, many of which are common throughout the public sector in Uttar Pradesh. As part of project preparation, a participatory institutional audit was conducted by management consultants. This audit encouraged the PWD's own staff to identify weaknesses in the sector's institutional and financial framework. The following concerns were raised:

i. multiple functions of the PWD, including being both a client and provider as well as managing roads at different administrative levels (i.e. state and local);

ii. lack of PWD autonomy, particularly for financial planning (unpredictable and unreliable resources) and staff management (high transfer rate);

iii. geographic rather than functional separation of responsibilities;

iv. inadequate coordination amongst the various government agencies with a role in the road transport sector;

v. ambiguity in ownership of roads assets leading to poor maintenance and accountability for road operations and safety;

vi. lack of multi-year or strategic planning leading to ineffective resource allocation and investment inefficiency;

vii. lack of customer focus and absence of role for road users in monitoring sector performance;

viii. lack of modern human resource management techniques;

ix. poorly developed management information systems;

x. outdated core processes in areas such as financial management, procurement, maintenance planning which are generally over centralized."
1.2 VISION STATEMENT

The Vision Statement for the UP Road Sector is:

"Creation and Maintenance of an Available, Accessible and Affordable Road Network in Uttar Pradesh which is safe, Encroachment Free, and Eco-friendly for Everyone at All Times" ¹

One of overall objectives of this Report was to create an organisation structure such that it could effectively implement the above Vision Statement.

1.3 ORGANISATIONAL CHANGES SET OUT IN THE TERMS OF REFERENCE

The Policy Development and Institutional Development Study (IDS) completed in June 2002 by Tata Consulting Engineering Services listed the following Units/ Cells that were to be established within the PWD:

1. HRD and Training
2. Environmental and Social Development
3. Quality Management
4. Projects Policy and Planning
5. IT Management and Planning
6. Road Safety Planning and Engineering
7. PSP / PPP Development Cell

The establishment of these Units was endorsed by the Project Steering Committee in January 2007 and have been incorporated within the proposed changes to the organisational structure included in this report.

Until the PWD organisation structure has been developed it will not be feasible to indicate the location of any of these additional Cells / Units within the PWD. For that reason alone the decision was taken to concentrate on the PWD organisation structure at Headquarters and to indicate on it the proposed location of these new Cells / Units.

In addition Report No. 3: "Inter-Agency Working Group study to facilitate GoUP decisions, legislation, and other actions on an effective long-term 'ownership' and funding framework for 'non-core' UP roads, addressing sustainable devolution of 'village roads' and orphan roads" set out proposals with respect to the management of the 'core road network' and that for the 'non-core road network'.

¹ TCE Consulting Engineers Ltd Tata Consultancy Services, Sir Owen Williams Innovestment Ltd - Final Report June 2002
In the Description of Services the proposal to split the following functions was made:

- Quality Management
- Construction
- Maintenance

The above comment was taken into consideration when the revised organisation structure was under discussion. The end result was that the function of procurement would be incorporated into the Contracts and Specification Unit.

Having decided to split the road sector into Core Roads and Non-Core Roads it was considered that to further split maintenance and construction operations could hinder the effectiveness and efficiency of PWD staff in the field.

1.4 METHODOLOGY ADOPTED TO DEVELOP A REVISED STRUCTURE

This Report is the second written under the same heading. The first Report was a basic introduction to the proposed re-structuring of the PWD Headquarters. This Report is based upon further work undertaken on the organisation structure during the intervening period. It includes not only revised organisational structures, based on discussions with PWD HQ and Field staff, but also an assessment of staffing changes. These changes will also be incorporated in Reports 15 and 27 which cover Human Resources.

Internal staff communications will be addressed once the content of this Report has been accepted by the Focus Group and Project Steering Committee. It is accepted that this topic is of vital importance since it will need to be based on the PWD policy relating to organisational change.

The decision was taken to develop the revised organisation structure in stages, with each stage concentrating on the functions to be carried out at the following level within the PWD:

- **Stage 1**: Review the functions of PWD Headquarters and put the same in a logical order.
- **Stage 2**: Review the functions of the PWD at Zone level
- **Stage 3**: Review the functions of the PWD at Circle level
- **Stage 4**: Review the functions of the PWD at Divisional level downwards
- **Stage 5**: Review the entire re-organisation structure to ensure that there were no anomalies ensuring that all functions were coordinated and integrated
- **Stage 6**: To assess staff requirements and consider staff re-alignment
- **Stage 7**: To discuss Change Management with PWD senior officers prior to preparing the third version of Report No. 11
1.5 VISIT TO ZONE, CIRCLE AND DIVISION

Stages 2 to 6 involved one visit to Lucknow Zone and two visits to Varenasi Zone. Discussions took place with the two Chief Engineers and many of their staff. During the second visit to Varenasi Zone discussions focussed on the Superintending Engineers and Executive Engineers, in Circle and Division of Mirzapur. Besides this, discussions and interactions with several other widely experienced field officers (SE's and EE's) were held. These officers all made valuable contributions to the preparation of this Report. (See Annexure 1)

The whole process has taken several weeks and involved discussions and interactions with the IDS Cell without whose close involvement and participation the proposed changes will neither be sustainable nor acceptable by the PWD in general.

1.6 ZONES TO BE THE OPERATIONAL (STRATEGIC BUSINESS) UNITS

One of the major objectives of the re-organisation of the management structure of the PWD was to create the situation whereby the Zones became the operational units of the PWD. As such they should be perceived as the strategic business units with HQ acting in a regulatory role. The previous system whereby HQ was empowered to make decisions needs to change with that empowerment and authority given to the Zones. The Zones must be the decision makers and given considerable autonomy. HQ must act as the regulatory body setting out policies and preparing budgets. Except in very exceptional cases HQ must not become involved in the decision making process of field work. Having set out the policy and strategy to be adopted the Zones must be left to get on with their job. Obviously HQ needs to be involved in the monitoring process but this must be at the macro and not the micro level.

In all these aspects the Zones would be supported by Headquarters and act in accordance with the regulations and guidelines laid down by them. With the greater involvement of the Zones, the Executive Engineers should be freed from many of their current burdens so that they are able to operate in a more effective and efficient manner.

Uttar Pradesh has a population of around 180,000,000 thus making it the largest State in India. If Uttar Pradesh was a country in its own right with respect to size of population it would rank in the top ten. The very size of the State makes it very difficult to manage under a centralised system and power must be devolved to the Zones if the PWD is to become an efficient and effective organisation.

1.7 STRUCTURE OF THE REPORT

Report No. 11, excluding this chapter on the introduction has been structured into the following nine sections.

- Section 2 sets out the Present Functions and Organisation Structure of PWD
- Section 3 discusses the Inadequacies of Present Structure of PWD with reference to the Policy Development and Institutional Development Study (IDS), the future needs and the need to enhance efficiency and effectiveness
• Section 4 outlines the **Key Drivers and Principles of Organisation Structure**.

• Section 5 presents the **Steps to Arrive at Restructuring** with discussions being held at Lucknow and Varanasi Zone, Circle and Division offices. Review has also been done for the structure of similar large engineering organisations like the CPWD and the Railways.

• Section 6 on **Proposed Organisation Structure** provides the structures for Headquarters, Zone, Circle and Division along with their respective functions and responsibilities.

• Section 7 on **Staffing for the Restructured PWD** discusses about the staffing realignment and need for a manpower study.

• Section 8 comments on the **Implementation of Restructuring** which is to be done in a phased manner, with strong internal communication. However it is considered that this should be covered in more detail in a follow-up Report.

### 1.8 SCOPE OF THIS REPORT

This Report is an extension of the one Submitted in April 2007. The submission date for the Draft Report was changed from November 2006 to April 2007, so as to make it more comprehensive in scope. Some of the work may yet be required with respect to internal communications regarding the restructuring of the PWD, which the PWD should look into seriously.

The Report point out some of the problems and failings within the current organisation structure: nevertheless it is possible that some issues may still crop up later and will need to be addressed then.

Organisational review, design (re-structuring) and change management are major undertakings and form Consultancy projects in their own right. The volume of work necessary for such undertakings is enormous and should not be under-estimated. In order to make the re-structuring and change management process successful, spending a considerable time providing the necessary PWD resources is essential. Considerable work and effort has already been expended by both the PWD and TA Consultants in the production of this Report. However further work is still required for its implementation, which is going to be an intensive and time consuming operation.

The TA Consultants believe that, with the help and support of the PWD, they have produced a quality Report, even though the subject area is complex. Implementation of any management change is a difficult task which will be addressed in the final version of this Report, along with an Action Plan. It is of paramount importance that the PWD appreciates the complexity of such re-organisational changes and take the necessary steps to ensure that such changes are implemented in a way that is likely to be successful.
2. CURRENT FUNCTIONS AND ORGANISATION STRUCTURE OF PWD

The organisation has evolved over time based on the premise of aggregating, coordinating and integrating functions and decisions at different levels, while optimally utilizing the overall resources and ensuring effective geographical coverage. It has grown and developed as deemed necessary to meet the current challenges but no recent attempt has been made to review or rationalise the functions of PWD, or the organisation Structure. (See Annexure 2)

2.1 CURRENT FUNCTIONS OF PWD

2.1.1. Current Functions

The existing functions of PWD are given below.

a. PWD is responsible for the construction repair and maintenance of roads and State owned buildings. It is also responsible for other related structures financed from the State and Central budget allocations in UP.

b. PWD also carries out construction and repair work for other government departments, autonomous bodies, local bodies, boards, corporations, trusts, institutions, or corporations as deposit works after levying agency charges as per Government rules.

c. PWD is also responsible for the execution of development, renewal and repair works of National Highways (NH) within the State of UP. This work is financed through the Ministry of Shipping, Road Transport and Highways (MoSRTH), Government of India, after levying agency charges at the rates agreed between the State and Central Government.

d. PWD also takes up construction works of buildings, roads and bridges as relief works in the event of famine and floods. Such works are executed as per UP Famine Code and rules thereof framed from time to time by the Government.

e. As a construction wing of GoUP, PWD has to undertake the following additional functions:

- Technical guidance to various institutions, local bodies and other government undertakings, including execution and guidance to Local Bodies and police Department about safety for VIP visits and traffic management related activities during special events;
- Research activities pertaining to buildings, roads and bridges;
- Operating and maintaining ferry services;
- Works of rostrum and barricading at the time of VIP visit as desired by District Administration;
- Running and maintenance of circuit houses, rest houses, and inspection bungalows; realization of rent of Government buildings under PWD; assessment of rent and valuation of private buildings acquired by the government on hire or purchase. Maintenance and upkeep of Minister’s bungalows and Government residences of MLA’s, MLC’s and other office bearers nominated by Government;
f. PWD also maintains a register of land, buildings and properties belonging to the Government under the charge of PWD.

g. PWD is also responsible for ensuring that no encroachment or structure, whether temporary or permanent, shall be erected on the land and property in the charge of PWD. It shall also be responsible for removal of all such encroachments as per the rules.

The PWD has been entrusted with the responsibility of creating and maintaining infrastructure vital to the State. As the primary physical infrastructure agency it is also expected to guide other agencies and help in the development of technical know–how and its larger adaptation.

Emphasis of the department on the different functions has changed over time to reflect the State’s requirements emerging from socio-economic-political development. In the initial years, building works were the major activity. Most of the State buildings are being constructed by UP Rajkiya Nirman Nigam, Samaj Kalyan Nirman Nigam Police Avas Nigam, (these are corporations under different State Government State Departments), RES, etc. Only a few building construction and all road related activities constitute most of the Departmental works.

The creation of specialized agencies like Uttar Pradesh State Bridge Corporation (UPSBC) for bridges, and Uttar Pradesh Rajikiya Nirman Nigam (UPRNN) for buildings construction has reduced PWD’s focus and commitment of resources towards shared responsibilities. With the establishment of Central Road Research Institute, (CRRI), Delhi, the mandate and resources committed towards basic research undertaken at the Research Institute of PWD has reduced substantially.

2.1.2. Functions of Chief Engineers at PWD Headquarters

The functions handled by different Chief Engineers at Headquarter are given in Table No.1.
Table No. 1: Functions of Chief Engineers at PWD Headquarters

<table>
<thead>
<tr>
<th>Position</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Engineer (HQ-I)</td>
<td>• Budget and Planning</td>
</tr>
<tr>
<td>Chief Engineer (HQ-II)</td>
<td>• Establishment of Ministerial cadre of ENC office, Zone Chief Engineers office and Class IV staff of ENC office. Manages the head office of E-in-C</td>
</tr>
<tr>
<td></td>
<td>• Regularisation of gang labour etc.</td>
</tr>
<tr>
<td></td>
<td>• Registration of Contractors.</td>
</tr>
<tr>
<td>Chief Engineer (Complaints)</td>
<td>• Investigation and monitoring of department related complaints against different level of Departmental level officers and officials, and disciplinary proceedings.</td>
</tr>
<tr>
<td></td>
<td>The complaints are from Government, Public Representatives and road users. Also gets reports on complaints investigated by Zone Chief Engineers and Superintending Engineers for further action.</td>
</tr>
<tr>
<td></td>
<td>• Liaise with the Government in the matters of punitive actions against the departmental officers and officials.</td>
</tr>
<tr>
<td>Chief Engineer (World Bank)</td>
<td>• Responsible for managing the World Bank funded Projects and also other externally aided projects.</td>
</tr>
<tr>
<td>Chief Engineer (National Highways)</td>
<td>• Responsible for Up gradation and Maintenance of National Highways in UP with the funds of Government of India</td>
</tr>
<tr>
<td></td>
<td>• Coordinate with MoRT&amp;H and NHAI</td>
</tr>
<tr>
<td>Chief Engineer (Buildings)</td>
<td>• Government Buildings - Construction and Maintenance including maintenance of Minister's bungalows and different secretariat buildings and Vidhan Sabha at Lucknow</td>
</tr>
<tr>
<td></td>
<td>• Establishment of JE's and subordinate technical staff like draftsman, tracer etc</td>
</tr>
<tr>
<td>Chief Engineer (Electrical and Mechanical)</td>
<td>• Responsible for all Mechanical/Electrical Works in all the Civil Works handled by PWD.</td>
</tr>
<tr>
<td></td>
<td>• Responsible for tools and plants, machines and vehicles, AC and AC Plants etc.</td>
</tr>
<tr>
<td>Finance Controller</td>
<td>• CCL, Pension, GPF, Co-ordination with AG office and Finance Department of GoUP</td>
</tr>
<tr>
<td></td>
<td>• Audit – Paras, Draft and PAC Paras</td>
</tr>
<tr>
<td>Staff Officer</td>
<td>• Establishment of Class I officers</td>
</tr>
<tr>
<td>SE (Establishment-1)</td>
<td>• Establishment of Class II officers</td>
</tr>
<tr>
<td>SE (Establishment-2)</td>
<td>• Establishment of Class III Technical staff (JE's, Draftsmen, Tracers, etc)</td>
</tr>
<tr>
<td>SE (Establishment-3)</td>
<td>• Establishment of Ministerial staff and Class IV staff</td>
</tr>
<tr>
<td>PA (Ministerial)</td>
<td>• Establishment of the clerical staff of ENC office and promotion of clerical staff of circle office.</td>
</tr>
<tr>
<td></td>
<td>• Function as DDO of all the staff in ENC office.</td>
</tr>
<tr>
<td></td>
<td>• Supervision and Management of Miscellaneous works in ENC office, stationary etc in ENC office.</td>
</tr>
</tbody>
</table>
2.1.3. Functions of Sections at PWD Headquarters

The following sections at Headquarters deal with various functions: Table No. 2 lists these sections along with their primary functions and reporting relationships.

<table>
<thead>
<tr>
<th>Section</th>
<th>Headed By/Reporting To</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>• Senior Architect&lt;br&gt;• Chief Architect&lt;br&gt;CE (Buildings) / ENC Rural Roads</td>
<td>• Preparation of plans for Government buildings and preparation of their construction drawings</td>
</tr>
<tr>
<td>Bridges</td>
<td>• SE – Bridges (SE 31st Circle)&lt;br&gt;• ENC (Rural Roads)</td>
<td>• Design and construction of minor bridges (Mandate for major bridges with UPSBC)&lt;br&gt;Checking of estimates of major bridges received&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from MD UPSBC and that of approaches from respective Zone Chief Engineers and thereafter their compilation to send to the GoUP for sanction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Processing them after compilation with the estimate of bridge portion to send to Government for sanction. The allocation of funds received from Government to UPSBC for Major Bridges and for approach roads to the concerning Zone Chief Engineers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Checking and Processing of special repair, estimates of Bridges to send them to Government for sanction. After sanction is received from Government, allotment of fund to MD UPSBC to carry out the works</td>
</tr>
<tr>
<td>Buildings</td>
<td>• CE – Buildings&lt;br&gt;• ENC Rural Roads</td>
<td>• Construction maintenance and upkeep of government buildings including Vidhan Sabha building, Minster's bungalows, Raj Bhawan, and all Secretariat buildings in Lucknow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Responsible for fixing specifications and plinth area rates for construction of different categories of buildings and updating them from time to time. He is the technical advisor to the Government in the EFC meetings.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Responsible for condemnation certificate for weak and dangerous buildings through a constituted Technical Committee as per requirement</td>
</tr>
<tr>
<td>Electrical and</td>
<td>• CE - E &amp; M&lt;br&gt;ENC Development and HOD</td>
<td>• Management and allocation of PWD Plant, Equipment, Machines, Vehicles, and Tools&lt;br&gt;Maintenance of Government Buildings including Vidhan Sabha building, Minster's bungalows, Raj Bhawan, and all Secretariat buildings in Lucknow</td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Headed By/Reporting To</td>
<td>Functions</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| National Highways       | CE - National Highways ENC Development and HOD | • Undertake maintenance and up-grading of NH's on an agency basis for MoRT&H (GoI)  
• Coordination work with NHAI and liaison with GoUP                                                                                                       |
| Planning                | SE – Planning  
CE - HQ-I ENC Development and HOD | • Planning exercise for PWD budgets  
• Checking of all estimates for new construction and upgrading of roads  
• Updating of records of roads for new works, upgrading, and maintenance and also updating the traffic survey data  
• Maintaining D to I Register                                                                                                                                         |
| Projects                | SE – Projects  
CE - HQ-I ENC Development and HOD | • Checking estimates for maintenance, renewal, and special repairs. After the work is sanctioned by Government allocation of funds for construction and maintenance on the basis of which CCL is released by Finance Controller  
• Approval of the kms for renewal during the year district wise / division wise / road wise  
• Monitoring for works (physical and financial) sanctioned in the budget under different schemes and convene meeting at ENC and Government level  
• Maintaining records with respect to time of renewal                                                                                                                  |
| Legal (Court Cases and Law) | SE - Court Cases  
CE – HQ II ENC Rural Roads  
Law Officer (some Zones) – 3 at HQ and 4 in zones  
CE Zones | • Monitoring of Court cases pertaining to establishment/HR against the officers of E-in-C office and Government  
• Grant of contest permissions  
• Contract awarding and related disputes  
• Other necessary assistance for proper contest of court cases                                                                                                           |
| Establishment           | Staff Officer with ENC (Development and HOD) | • HR and Personnel matters of Class I officers                                                                                                                                                    |
|                         | SE - E1; with ENC (Rural Roads)          | • HR and Personnel matters of Assistant Engineers                                                                                                                                                 |
|                         | SE - E2; with CE – Buildings / ENC (Design and Planning) | • HR and Personnel matters of Junior Engineers, Junior Engineer (Technical), Draftsman and Tracers                                                                                                   |
|                         | SE - E3; with CE - HQ-II / ENC Rural Roads | • HR and Personnel matters of Ministerial staff and Class IV including gangmen                                                                                                                                 |
|                         | PA (Ministerial) with CE HQ II / ENC Rural Roads | • Establishment of clerical staff of ENC office and promotion of clerical staff of Circle offices  
• Functions of DDO and of all staff in the ENC office  
• Supervision and management of miscellaneous works in ENC office such as stationery, etc.                                                                                                                   |
<table>
<thead>
<tr>
<th>Section</th>
<th>Headed By/Reporting To</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and</td>
<td>• Chief Finance and Accounts officer</td>
<td>• Deals with sanction of 90% General Provident Funds (Up to class III level employee) and related matters such as loan application related</td>
</tr>
<tr>
<td>Accounts</td>
<td>• Senior Finance and Accounts officer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Financial Controller</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENC Development and HOD</td>
<td></td>
</tr>
<tr>
<td>Audit Cell</td>
<td>• Senior Finance and Accounts officer</td>
<td>• Issue of CCL to different divisions on the basis of allocation on different works</td>
</tr>
<tr>
<td></td>
<td>• Financial Controller</td>
<td>• Liaison with Finance Department of GoUP and that with AG office</td>
</tr>
<tr>
<td></td>
<td>ENC Development and HOD</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>• PA - Ministerial (E-in-C Office) / CE HQ II / ENC Rural</td>
<td>• Receipt and dispatch of correspondence, and other information for E-in-C office and PWD</td>
</tr>
<tr>
<td>Dispatch</td>
<td>Roads</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>• SE IDS and Computerisation</td>
<td>• Operation Maintenance and control over computers</td>
</tr>
<tr>
<td>Dispatch</td>
<td>• CE – National Highways ENC Development and HOD</td>
<td></td>
</tr>
<tr>
<td>World Bank</td>
<td>• SE - World Bank</td>
<td>• Execution, supervision and control of World Bank funded (SRP) projects</td>
</tr>
<tr>
<td></td>
<td>• CE - World Bank</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENC Development and HOD</td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>• Director Research</td>
<td>• Regulation and Operation of the library and its assets</td>
</tr>
<tr>
<td></td>
<td>ENC Development and HOD</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>• Director Research</td>
<td>• Promote research and development in defined areas and promote dissemination of latest and cost effective techniques in road construction</td>
</tr>
<tr>
<td></td>
<td>ENC Development and HOD</td>
<td>• Testing of samples referred from different PWD field divisions / circles / zonal offices and also from other departments of GoUP.</td>
</tr>
</tbody>
</table>
2.2 CURRENT STRUCTURE AND LEADERSHIP

2.2.1. Current Structure

The existing organisation structure of UP PWD is given in Figure No. 1.

The organisation structure has four levels, as follows:

A. Government Level Structure

The Public Works Department is accountable to the State Government through the Minister of Public Works, is sometimes assisted by one Minister of State. The Principal Secretary heads the organisation at Government level. He is assisted by one or two Secretaries, under whom the charge of Works and Establishment is distributed. The structure in both the Works and Establishment Sections comprises of Special Secretaries, Joint Secretaries, Deputy Secretaries and Under Secretaries. At the subsequent level are the section officers along with the Sameeksha Adhikari (Review Officer) and Sahayak Sameeksha Adhikari (Assistant Review Officer).

B. PWD Organisation Hierarchy

For field work the State has been geographically divided into Zones, which have been sub-divided into Circles, and Divisions, for administrative convenience. Accordingly, the organisation has a four-tier hierarchy with each level entrusted with definite responsibilities. Chief Engineers, Superintending Engineers and Executive Engineers head each Zone, Circle and Division respectively.

C. Organisation Structure: Headquarter Organisation

PWD headquarter, located in Lucknow, houses the office of 3 Engineer-in-Chiefs and 7 Chief Engineers. Chief Architect and Finance Controller are also placed at the Headquarter and report directly to Chief Engineer (Buildings) and ENC respectively. Finance Controller is an officer who is on deputation from Finance Department of Government of Uttar Pradesh (GoUP).

D. Field Level Organisation

Field level organisation includes offices at Zone, Circle, and Division levels. At the Division level there are Junior Engineers and Assistant Engineers for first and second level technical supervision of works. Divisional offices are the main executing units and all other offices (higher offices) act as coordinating, guiding and monitoring units.
Figure No. 1: Existing Organisation Structure of PWD, Uttar Pradesh

[Diagram showing the organisational structure of PWD, Uttar Pradesh]

[As per Performance Budget 2007-2008 and details (Division) received from Establishment 'A' Section]
2.2.2. Comments on the Present Structure - Number of Zones, Circles, and Divisions

The total number of working and non-working Circles and Divisions are given in Table No. 3.

<table>
<thead>
<tr>
<th>Details</th>
<th>Zones</th>
<th>Circles</th>
<th>Total Circles</th>
<th>Divisions</th>
<th>Total Divisions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Working</td>
<td>Nonworking</td>
<td>Working</td>
<td>Nonworking</td>
</tr>
<tr>
<td>Civil</td>
<td>12</td>
<td>29</td>
<td>3</td>
<td>160</td>
<td>18</td>
</tr>
<tr>
<td>National Highways</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>World Bank</td>
<td>-</td>
<td>7</td>
<td>2</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>PMGSY</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>55</td>
<td>2</td>
</tr>
<tr>
<td>Electrical and Mechanical</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>Maintenance (Building)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>DASP/SODIC</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>7</td>
<td>60</td>
<td>273</td>
<td>25</td>
</tr>
</tbody>
</table>

In addition to those at Headquarter there are 2 Chief Engineers (Civil) designated as CE HQ I and CE HQ II respectively, along with one Chief Engineer (Complaints). There are 32 Circles of which 29 are working and 3 are non-working; there are 298 Divisions of which 273 are working and 25 are non-working. In this context 'non-working' is defined as those Divisions which do not execute field work (operations) but are engaged in such activities as planning and design.

The current number of sanctioned posts together with the number of staff actually in post, for PWD technical staff from Junior Engineer up to Engineer-in-Chief, is given Table No. 4. The term 'deputation' refers to PWD staff seconded to other Government organisations.

The PWD recently elected to establish three PMGSY Zones for proper management of work and funds allocated by Central Government. Staff in these Zones have been drawn from existing PWD staff.

2.2.3. Staff Employed

The numbers of staff employed in the PWD is given in Table No. 4. Sanctioned posts, as approved by the GoUP have also been shown. Deputation relates to those officers who are employed by the PWD (seconded) but whose duties are carried out in other Government Departments.

In general Table No. 4 indicates that the PWD is currently understaffed with one vacant post at Engineer-in-Chief level, thirteen vacant posts at Chief Engineer level and twelve vacant posts at Superintending level. These vacancies represent over 20% of the senior management posts.
### Table No. 4: UP PWD Staff Strength (Sanctioned and In-position) as on September 2007

<table>
<thead>
<tr>
<th>Designation / Position</th>
<th>Total Number of officers</th>
<th>Sanctioned Post</th>
<th>In-position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General</td>
<td>Deputation</td>
<td>General</td>
</tr>
<tr>
<td>Engineer-in-Chief (ENC)</td>
<td>3</td>
<td>Nil</td>
<td>2</td>
</tr>
<tr>
<td>Chief Engineer (CE) Civil – Level I</td>
<td>3</td>
<td>Nil</td>
<td>2</td>
</tr>
<tr>
<td>Chief Engineer (CE) Civil – Level II</td>
<td>29</td>
<td>7 (out of 29)</td>
<td>18</td>
</tr>
<tr>
<td>Chief Engineer (CE) Electrical/Mechanical</td>
<td>1</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>Superintending Engineer (SE) Civil</td>
<td>85</td>
<td>14 (out of 85)</td>
<td>73</td>
</tr>
<tr>
<td>Superintending Engineer (SE) Electrical/Mechanical</td>
<td>4</td>
<td>Nil</td>
<td>4</td>
</tr>
<tr>
<td>Executive Engineer (EE) Civil</td>
<td>366</td>
<td>40 (out of 366)</td>
<td>349</td>
</tr>
<tr>
<td>Executive Engineer (EE) Electrical/Mechanical</td>
<td>28</td>
<td>1 (out of 28)</td>
<td>27</td>
</tr>
<tr>
<td>Assistant Engineer (AE) Civil</td>
<td>1225</td>
<td>Nil</td>
<td>676</td>
</tr>
<tr>
<td>Assistant Engineer (AE) Electrical/Mechanical</td>
<td>124</td>
<td>Nil</td>
<td>113</td>
</tr>
<tr>
<td>Junior Engineer (JE) Civil</td>
<td>4176</td>
<td>Nil</td>
<td>3087</td>
</tr>
<tr>
<td>Junior Engineer (JE) Electrical/Mechanical</td>
<td>322+385</td>
<td>Nil</td>
<td>267+289</td>
</tr>
<tr>
<td>Junior Engineer (JE) T</td>
<td>467</td>
<td>Nil</td>
<td>325</td>
</tr>
<tr>
<td>Draftsman</td>
<td>319</td>
<td>Nil</td>
<td>344</td>
</tr>
<tr>
<td>Tracer</td>
<td>208</td>
<td>Nil</td>
<td>61</td>
</tr>
</tbody>
</table>

Source: Establishment ‘A’ (Staff Officer), Establishment A (‘AE’ Section), Senior Staff Officer Establishment E-2 and PA Ministerial

At Assistant Engineer level there are 560 vacant posts, which represents over 41% of the total posts at this level. At Junior Engineer level there are 1,382 vacant posts which represents over 25% of the posts at this level.
3. WEAKNESSES IN THE CURRENT ORGANISATION STRUCTURE OF PWD

3.1 OUTDATED ORGANISATION STRUCTURE

The current PWD structure was designed to deliver 'Works' complying with the Government's orders and policies. The effectiveness of multiple layer reporting (monitoring) as promoted by the current organization structure is questioned by staff at all levels, as evident during discussions. It could possibly have arisen as a result of the need felt by senior officers to exert their authority.

Over time, PWD's organization structure has changed in response to specific functional needs. However, there is no evidence to suggest that in the past PWD has initiated any comprehensive organizational review and change exercise in response to environmental changes. The structural changes in PWD have largely been organic and spontaneous. Consequently, the integration of the organisation, over a period of time has lost its original clarity.

The resultant situation is characterised by diffused responsibilities at various positions and overlapping functions between tiers straining the organizational coordination and integration capacities. It has resulted in an organisation with excessive reporting and monitoring requirements which are neither feasible nor practical. The end result is an organisation where officers want to perform but where motivation and progress is severely restricted and stifled.

There is a lack of management systems which would help PWD staff in their day to day activities. Of prime concern is the fact that the UP PWD Financial Handbook is over 70 years old and is now out of date. It is essential that this handbook is revised and brought up to date to reflect the changes brought about by the proposed re-organisation of the PWD management structure.

3.2 FUNCTIONS OF SENIOR OFFICERS

One of the basic problems is that the functions of senior officers have evolved without due consideration of their work load. Currently senior staff carry a number of responsibilities with the end result that their effectiveness is reduced. This does not imply that senior staff are not capable but that the various and diverse responsibilities which they carry prevent them from operating as they should operate, or as they wish to operate.

There are a number of problems which restrict and constrain the functioning of the PWD. For example, nearly all the operational requirements are centred round the Executive Engineer in charge of the Divisions. The inevitable result is that because of work overload it is almost impossible for an Executive Engineer to function. In particular he hardly has the time to make site inspections and review the performance of the Contractor and site operations. When the Executive Engineer fails to function much of the PWD fails to function as well.
This officer has to carry out almost all of the tasks that are covered by the PWD as follows:

1. Engineering Works - concept, feasibility, planning, design, estimating
2. Bidding
3. Contracts
4. Procurement
5. Construction and Supervision duties
6. Quality Control and Testing
7. Payments to contractors (disbursement)
8. Financial Accounting
9. Legal aspects
10. Public Complaints
11. Court Cases
12. Welfare
13. Social obligations
14. Meeting with District Authorities, Public Representatives, etc
15. Management and operation of his own Division

3.3 KEY ORGANISATIONAL DEFICIENCIES

The following key functions are either totally missing in the PWD or are in need of strengthening:

- Strategic planning, road network master plan

Without a clear policy and strategic plan the activities of the PWD become reactive to situations and pressures and ad hoc at best. There is no overall road network master plan so that development is uncoordinated and sometimes outside the remit of the PWD.

- Monitoring and Financial control

Generally monitoring of works and financial control have not been accorded the priority that they deserve. Financial monitoring has been left to others (Finance Controller and Divisional Authorising Officer). Senior PWD managers need to develop their financial management skills with the help and support of qualified accounting staff at Headquarters and Zone level.

- Management Information Systems

Computerisation is at a low level within the PWD with many processes, especially accounting, carried out manually.
HRD and Training

HRD is currently fragmented with different officers charged with the HRD responsibilities for given levels of staff. Integration and co-ordination are difficult. Training within PWD is not coordinated and almost non-existent. Training is not perceived as an important requirement for promotion.

Road Maintenance Management Systems and allied budgeting processes

The PWD do not have a road maintenance management system in place. Road condition surveys, if they are carried out, take place in a fragmented fashion. There is no rationale behind the development of PWD annual budgets for maintenance works. Maintenance interventions need to be revised and based on need. Budgets should be robust and able to withstand scrutiny at the highest level of Government.

Environmental and Social Management

This is an area which needs strengthening and all prospective projects, both maintenance and construction, subject to environmental assessment.

Road Safety

The PWD should have a greater involvement in road safety and work alongside other organisations to improve the safety of those travelling on the roads whether in a vehicle, on a bicycle, or on foot.

Procurement

There is a need to review and revise the procurement process and forms of contract used by the PWD.

Regulations

These need to be reviewed and revised (reduced) to enable a manager to operate and make decisions, and to take responsibility for so doing. Regulations should provide guidelines for management action but not so restrict a manager that he is unable to function.

Quality assurance

Quality control is inadequate and difficult. Much needs to be done to strengthen quality control within the PWD. But to be effective this will require considerable legislative support to ensure that quality work is supported by law so that non-compliance is met with suitable penalties. The same conditions must also apply to those who flout other contract conditions and requirements.

3.4 THE CHANGING ROLE OF PWD

The present management is characterised by multiple agencies with Government playing the role of policy maker, implementer, financier and evaluator. Recourse to stakeholders’ “concerns” is indirect and diffused and not regarded as a priority.
It would seem that too many organisation external to the PWD, but with political influence, are deeply involved in what should be the domain of the PWD. Such areas include development of the road network and maintenance issues. Many of these problems stem from lack of a clear policy statement and strategic plan endorsed by Government. The effect however is far reaching. Executive Engineers spend much of their time dealing with demands for the development and improvement of roads in their Divisions. Issues are reduced to Divisional level with little regard for the overall development and improvement of the road network.

In future the PWD must act as policy makers, strategic planners, project managers and financial managers. They must become pro-active with respect to management of the road network and not reactive, as at present. With a clear policy statement and strategic plan some of the problems faced by the Executive Engineers should be removed, or at the very least, be considerably reduced.

The Zones must be enabled and empowered to become autonomous with policy frameworks and strategic plans set and provided by PWD Headquarters. The Zones will have total responsibility and commensurate authority to manage the road network within their Zone. This will include setting budget levels and preparing annual work plans. These will be submitted to, and discussed with, PWD Headquarters as part of the process of establishing the overall PWD budget for developing and maintaining the road network in Uttar Pradesh.

Maintenance budgets for the core road network will be prepared on need, using a road maintenance management system and HDM-4. This will require regular condition surveys of roads and structures to be carried out. A similar but far less complicated system will be adopted for the non-core road network.

It is envisaged that the core road network will be developed and maintained using external suitably qualified contractors (out sourced). In time this will include the use of performance based maintenance contracts, but this can only be done once a section of road is need based fully strengthened and widened and is in a maintainable condition.

Development and maintenance of the non-core road network will, based on Government policy, continue to use direct labour. This will require a completely different level and type of supervision process. Both the PWD technical staff and labour force would benefit from training so that operations can run smoothly and produce the required quality of finished works.

3.5 ACCOUNTABILITY TO STAKE HOLDERS

Accountability to Stakeholders is an essential role for any Public Sector Organisation, especially the Public Works Department. Stakeholders include those bodies or organisations which represent the majority of road users, plus others. Commerce is dependent upon good road communications. One of the tasks of the PWD is to listen to the comments from stakeholders, as they are the ones who are using the road network.
It is also important for the PWD to have an input into road safety aspects and improvements required based on accident statistics. Ways of reducing the number and severity of accidents will contribute to the overall economy of the State. Simple road improvements have the propensity to reduce accidents and thus are cost effective.

Included in the list of Stakeholders are those responsible for managing the Road Fund Board. This is not always an easy relationship. However the PWD and the Road Fund Board need to work together to review the funds required to maintain the road network, and to ensure that the funds are being used prudently so that if necessary the Roads Fund Board can recommend to Government necessary changes to the Road Fund levy on fuel.

3.6 PRIVATE SECTOR PARTICIPATION

One of the major changes which will have an impact on the PWD is the expected increase in the extent and scope of private participation. As seen in the developed economies the sector would have to be prepared to deal with increased private sector participation in the execution of key functions. Private sector participation is now acknowledged and accepted by GoUP as efficient and desirable. The PWD must be set up to manage private sector participation.

Private participation today has been mostly in the implementation function with the contractors carrying out works like:

- Preparation of DPR’s
- Construction and maintenance activities
- Independent quality monitoring (in a limited scale)
- In the foreseeable future, the private sector would play a larger role in the sector, like entering into BOT toll based contracts, or managing a certain section of road network. So the new organisation structure needs to be designed to enable enhanced scope of private sector involvement.

This work will expand and increase with the advent of performance based maintenance contracts and the change in management role which such contracts will induce.

In the current organisation structure, the role of the private sector has been limited mainly to the execution of new roads, upgrading, and maintenance works besides toll collection on bridges, etc. Experience from other road agencies shows that it is bound to increase in the future if favourable mechanisms are put in place. If managed well private sector participation improves the overall efficiency and effectiveness of the service delivery. It is therefore imperative that the PWD creates the mechanisms to improve private sector participation and manage it well.
The extent would largely depend on the viability (risk – return balance) of the projects for both the private sector and the government agency. The viability of these projects is in most cases a direct function of the economic importance of the road networks. Thus in the first instance private sector participation would be considered for strategic core and core road network rather than the non-core road network. The extent of private sector participation would depend on the results of private sector participation in the strategic core road network and also on the preparedness of the private sector to take on these activities.
4. KEY COMPONENTS OF A REVISED ORGANISATION STRUCTURE

4.1 INTERACTION BETWEEN STATE AND PWD

Roads are at the forefront of economic growth and development. Because of this there needs to be a close relationship between the Government of Uttar Pradesh (GoUP) and the PWD. The volume of funding currently provided by the GoUP is an indicator of the importance and role of the State road network in enabling the GoUP to implement its policies and achieve its principle objectives.

One of the key tasks in formulating the revised organisation structure is to ensure that both the needs and concerns of the GoUP and the PWD can be met without diluting the management and operations of the PWD. For this reason the post of Director General Works has been proposed whose main function is to act as the link between GoUP and the PWD. The policies and concerns of the GoUP must be intimated to the PWD, and vice versa. It is essential that the GoUP and PWD work in close harmony.

Of equal importance is the need for the PWD to implement the mandate given by the GoUP. In that respect its senior officers (Engineer-in-Chiefs and Chief Engineers) must, as far as possible, be free from political and other interference so that they can manage the road network on behalf of the GoUP.

4.2 POLICY AND PLANNING

There is a need for the PWD, in its role as managing the State road network, to become actively engaged in policy making that would deal with broad level issues which would impact the sector and hence impact the State economy as whole. Both the GoUP and the PWD need to agree on a policy framework that will enable the PWD to plan its operations over say a three year period and thus avoid the current ad hoc development process.

In the context of the road sector, planning needs to be looked at in two dimensions. First, strategic planning for the entire network and secondly, planning for each of the road networks viz. strategic roads, feeder roads and rural roads. It is important to have one agency which has the overall perspective of road sector development and its relation to the economy to carry out the strategic planning exercise.

The PWD must prepare a State Road Network Master Plan which clearly sets out plans for the development of the road network which are based on defined policies that are agreed with the GoUP and are in harmony with them.

All proposals for development of the road network, regardless of the source of those proposals, must be channelled through the PWD. This is not the case at present with the inevitable result that proposals are not scrutinised in the light of the overall transport needs of the State, nor are they subject to the stringent financial requirements that would be part of an economic appraisal.
Planning includes a gamut of issues ranging from the long and short term strategic planning for the sector to project level planning for individual projects. Annual budgets must be prepared and developed in accordance with these plans. These budgets must be robust and able to withstand at the highest level of the GoUP. This will require the application of a Road Maintenance Management System which can be used to assist the PWD in the preparation of its annual maintenance budget with a rolling forecast for the next four years giving budget projections for the next five years.

Budgets are broken down into physical works and their associated anticipated expenditure. Strong financial control is vital to ensure that money is neither wasted nor misappropriated. Progress on projects must be measured not only in physical terms but also in financial terms.

4.3 OPERATIONS - CORE ROADS

The annual budget for the Core Road network amounted to some INR 3,750 Crore in 2006/7. On this basis alone the Core Road network must be treated as a separate business unit headed by an Engineer-in-Chief in Headquarters, with Chief Engineers in charge of each Zone. Included in this Unit should be National Highways, World Bank funded Projects, UPSRP IDS.

These roads represent the sections of the overall State road network that could utilise Private Sector Participation and revised forms of contracting such as performance based contracts. All work will be contracted out. No work will be undertaken using gang labour.

One other major aspect is that these roads will be maintained using a Road Maintenance Management System coupled with HDM-4. Annual, or possibly twice annual, condition surveys and other surveys, will need to be undertaken to ensure that the right roads and intervention treatment are considered for maintenance.

Over a period of time it is envisaged that the more heavily trafficked core roads will come under UPSHA. This organisation already has responsibility for the management of some 1,500 kms of the core road network. It has the mandate from the GoUP to collect fees in the forms of tolls and would seem to be the ideal vehicle for managing the more heavily trafficked core road network. It was established with the objective of encouraging private sector participation but currently requires institutional strengthening so that it can function effectively.

4.4 OPERATIONS - NON-CORE ROADS

The annual budget for Non-Core Road Network amounted to approximately half that for the Core Road Network. Even so the Non-Core Road network must be treated as a separate business unit headed by an Engineer-in-Chief in Headquarters, with Chief Engineers in charge of each Zone.

These roads represent the sections of the overall State road network which will probably continue to be maintained using gang labour.

Maintenance of these roads will be based on a simplified road maintenance system. This system will still be computer based but maintenance decisions will be based on simple criteria. Collection of condition data will not be as frequent or as rigorous as that for the Core Road network.
PMGSY roads are part of the Non-Core road network and will thus be subsumed into this Unit. Since work on the Core Road network will all be outsourced the Electrical and Mechanical Unit will be included in this Unit since it will be utilised by the gang labour.

4.5 ADMINISTRATION

A key requirement in the revised management structure of the PWD is that of Administration. This Unit will include Human Resource Management and Legal issues, including Complaints, and Rights of Way. It will also include Public Relations and Right-to-Information.

Human Resource Management is crucial to the success of the PWD. In future staff must be well trained with promotion based on ability (performance) with transparent staff appraisal systems in place. It is hoped that this process alone will reduce the time and resources wasted resolving internal issues which should never have been given the chance to arise in the first place.

Public Relations includes not only releases of information to the Press and TV, but also meetings with Stakeholders so that the PWD can be actively involved in promoting their efforts whilst getting feedback on work done.

4.6 QUALITY AUDIT, DESIGN STANDARDS, ETC

The PWD needs to have a separate Unit responsible for quality. This Unit will have regulatory powers which are considered to be essential if the PWD is to get quality work done. Value for money is a prerequisite. With the increasing use of external Contractors the PWD must have a body capable of ensuring that work is completed in accordance with the Specification. And that includes provision of plant and equipment in accordance with the Contract Documents. The whole process must be backed up with a legal system capable of, and interested in, imposing heavy penalties on those Contractors who flout the requirements set out in the Conditions of Contract.

Design standards must be established and imposed on all elements of the construction and maintenance processes.

Road safety is likely to be of growing concern. As the state of the road network is improved there will be inevitable tendency for vehicles to travel faster. One result of this will be an increase in the number and severity of accidents. The PWD need to be aware of these issues and ensure that the design of roads is such as to mitigate these concerns as explained in Report No.25.

Environmental aspects are also of growing concern. As he road network expands there is a real possibility that the number of people affected by this growth will increase. The PWD must be alert to these issues and have suitable measures in place.

Included in this cluster of Units would be one specialising in conditions of contract, specification, and procurement issues. It is envisaged that this would be a small unit providing specialist advice and charged with he task of ensuring compliance with the various forms of contract.
4.7 MANAGEMENT INFORMATION SYSTEMS

The future PWD will be heavily reliant upon computer based management information systems. At present this is not the case. Much remains to be done to establish a management information system that incorporates a number of software programs designed to provide managers with up to date information on which to base their decisions.

A road maintenance management system linked to HDM-4 is only one such example. The PWD needs to implement a financial management system that will meet the requirements of the Department of Finance (Finance Controller), the Accountant General's Office (Divisional Accounts Officer) as well as their own managers.

The complexity and enormity of this task should not be underestimated. Once established the management information system will need regular and frequent support and maintenance to ensure its continuing operation.
5. ORGANISATIONAL RESTRUCTURING

If the restructuring process is to have any chance of success it is imperative that the PWD takes positive ownership of every stage of the process. This Report is part of that process and has been prepared with considerable input from senior officers within the PWD. However if the process is to achieve its objectives the PWD will need to appoint a Chief Engineer dedicated to manage and oversee the whole process. Without this dedicated support the reorganisation structure proposed, and the internal communication processes vital to its implementation, will fail. In all cases where the reorganisation process has been successful there has been a "Champion" to head and lead a carefully selected team dedicated and motivated to achieve the changes.

5.1 STUDY OF RELATED ORGANISATION STRUCTURES

As part of the restructuring process a study of similar organizations in India was made to draw some lessons for the restructuring exercise. The selection of the organisations was based on the following criteria:

a. Organisations which were established long back and are providing continuous service to the citizens of the country / state.
b. Organisations providing services in the Civil Engineering domain.
c. Organisations with a large geographical spread like the UPPWD and serving a large population like the State of Uttar Pradesh and with large budgets.
d. Organisations with a large employee base of Engineering personnel like the UPPWD.
e. Examples of other states where Organisational Developments have been taken up.

Meeting the above broad criteria, the Consultants identified two major organisations with a close resemblance to the UPPWD. They were the Central Public Works Department (CPWD) and Indian Railways. Both these organisations are part of the Government of India with country wide responsibilities and in the engineering / transportation sector. Both of these organisations are bigger than the UPPWD: more details are given in Annexure 3 which includes the organisation structures of CPWD and Indian Railways.

5.2 COMMENTS ON THE STRUCTURE OF CPWD

The CPWD is the principal agency of the Government of India, under the Ministry of Urban Development, for the construction and maintenance of all Central Government assets excluding those belonging to Railways, Defence, Communication, Atomic Energy, Airports (National and International), Department of Posts and All India Radio.

It was founded in July 1854 as a multi disciplinary engineering organisation offering integrated construction management services from concept to completion and post construction maintenance management. CPWD also performs many regulatory functions for the Government of India.
The CPWD has an organisational setup tailor-made to meet its objectives. The Department is headed by the Director General Works, who is also the technical advisor to the Government of India.

Each of the seven Regions is headed by an Additional Director General Works functioning as mini directorates. The Director General Works is assisted by two Additional Director General Works, one of whom is responsible for Strategy and Planning, and looks after all administrative functions and issues related to the growth and future policies of the Department. The other is responsible for Technology Development, and looks after the development and implementation of technical policies, innovations in working etc.

The CPWD has a decentralized system of working. Autonomy, in most areas, has been given to the Regional Units headed by Additional Director General Works (ADGs). The Regions have been sub-divided into Zones each of which is headed by a Chief Engineer.

The salient points of the CPWD organisation structure are as follows:

- CPWD is managed by Technocrats / Engineers at the topmost level
- The organisation is headed by a Director General Works assisted by 5 Additional Director Generals Works at Headquarters, responsible for Strategy and Planning, Technology Development, Architecture, Training, and Borders.
- The organisation has total operational autonomy The Regional Headquarters are empowered to function with full authority and responsibility
- The CPWD has a unit responsible for strategy and planning
- Separate organisations / units exist in the CPWD structure to look after specialist functions, rather than all positions being filled by generalists
- There is a strong focus on HRD and Training with its own training institute (CPWD Training Institute, Ghaziabad) and Regional Training Centres at Delhi, Mumbai, Chennai and Calcutta. The function is headed by an officer of ADG rank.

5.3 COMMENTS ON THE STRUCTURE OF INDIAN RAILWAYS

The Indian Railways is acknowledged as one of the more efficient technical institutions in the country. The Indian Railways is autonomous, to the extent, that the organisation is headed by the Railway Board which functions as the Ministry of Government of India. There is no separate Ministry in the Central Government for Railways

The Indian Railways, like most other railway agencies is organised broadly by functional groups, consisting of the following 3 tiers:

1. Railway Board
2. Zonal Headquarters
3. Divisional Organisations
A list of the various departments in the Indian Railways and the officers heading these departments at the Zonal and Divisional level is given in Table No. 5.

**Table No. 5 : List of the Departments in Indian Railways and the Officers Heading these Departments at the Zonal and Divisional Level**

<table>
<thead>
<tr>
<th>Department</th>
<th>Zonal Railway</th>
<th>Division</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Administration</td>
<td>General Manager</td>
<td>Divisional Railway Manager</td>
</tr>
<tr>
<td>General Administration</td>
<td>Additional General Manager</td>
<td>Additional Divisional Railway Manager</td>
</tr>
<tr>
<td>Engineering (Construction)</td>
<td>Chief Administrative Officer</td>
<td>-</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Principal Chief Engineer</td>
<td>Senior Divisional Engineer</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>Chief Electrical Engineer</td>
<td>Senior Electrical Engineer</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Chief Mechanical Engineer</td>
<td>Senior Mechanical Engineer</td>
</tr>
<tr>
<td>Signal and Telecom</td>
<td>Chief Signal and Telecom Engineer</td>
<td>Senior Divisional Signal and Telecom Engineer</td>
</tr>
<tr>
<td>Stores</td>
<td>Controller of Stores</td>
<td>Divisional Controller of Stores</td>
</tr>
<tr>
<td>Transportation (Traffic)</td>
<td>Chief Operations Manager</td>
<td>Senior Divisional Operations Manager</td>
</tr>
<tr>
<td>Commercial</td>
<td>Chief Commercial Manager</td>
<td>Senior Divisional Commercial Manager</td>
</tr>
<tr>
<td>Accounts</td>
<td>Financial Advisor and Chief Accounts Officer</td>
<td>Senior Accounts Officer</td>
</tr>
<tr>
<td>Personnel</td>
<td>Chief Personnel Officer</td>
<td>Senior Personal Officer</td>
</tr>
<tr>
<td>Public Relations</td>
<td>Chief Public Relations Officer</td>
<td>-</td>
</tr>
<tr>
<td>Medical</td>
<td>Chief Medical Director</td>
<td>Senior Medical Superintendent</td>
</tr>
<tr>
<td>Safety</td>
<td>Chief Safety Officer</td>
<td>Senior Safety Commissioner</td>
</tr>
<tr>
<td>Security</td>
<td>Chief Security Commissioner</td>
<td>Senior Divisional Security Officer</td>
</tr>
<tr>
<td>Vigilance</td>
<td>Senior Deputy General Manager and Chief Vigilance Officer</td>
<td>-</td>
</tr>
<tr>
<td>Legal</td>
<td>Chief Law Officer</td>
<td>-</td>
</tr>
<tr>
<td>Hindi</td>
<td>Chief Rajbhasha Adhikari</td>
<td>Senior Rajbhasha Adhakari</td>
</tr>
</tbody>
</table>
5.3.1. Railway Board

The apex management organization of the Indian Railways is the Railway Board also called the Ministry of Railways. The primary function of the Board is to frame corporate goals, objectives; issue policy decisions, monitor the day-to-day railway operations and implementation of its directions, and provide the budget for execution of various works and day-to-day functioning of the railway. Secondly, the Board is entrusted with the responsibility to monitor performance based on periodic reports from the Zonal Railways and for the issue of directives. Only in exceptional cases does the Board get involved in operational matters.

The Board is headed by a Chairman, who is also ex-officio Principal Secretary to the Government of India, and has six other members:

1. Member Engineering
2. Member Electrical
3. Member Mechanical
4. Member Traffic
5. Member Staff
6. Member Finance

The detailed organisational chart is given in Figure No. 4 in Annexure 3.

Railway Board is managed entirely by 'railway men'. Ever since its inception in 1905 the Members of Railway Board were required to "have a practical knowledge of railway matters and should be ‘men of high railway standing’. "The same is true of other Principal Officers of Indian Railways. Each senior post is occupied by a seasoned, experienced railway man eminently qualified in his/her area of expertise. This sets Indian Railways apart from any other government organisation in the country, and is in stark contrast to the UPPWD, where the top positions of Principal Secretary and the Secretaries are occupied by bureaucrats who are not 'road men' and have no connection to the PWD.

At the Board level, the Members are assisted by Additional Members, Advisors and Executive Directors in carrying out duties in their designated areas. The areas of jurisdiction are clearly delineated for officers not only at the Board level but also at the Zonal and Divisional levels.

5.3.2. Zonal Headquarters

The Indian Railways has 16 Zonal Railways, headed by a General Manager. Each Zone has an average track length of some 4,000 km. and average staff strength of 80,000. Zonal Headquarters are responsible for implementing the instructions of Railway Board in its territorial jurisdiction, for framing action plan and monitoring their implementation to achieve the goals and objectives set by Railway Board. They are also responsible for determining budget requirements which are forwarded to the Board, and for the distribution of the funds allotted by the Board to the Divisions for execution of various works and day-to-day working of the railway. The Zonal Headquarters help to resolve problems encountered in the field through the issue of policy guidelines from the Board. Each Zone also manages the workshops, but this does not include the Production Units which are managed by General Managers reporting directly to the Railway Board.
The General Manager is assisted by the Principal Heads of Departments of various disciplines who are in turn assisted by one or more Deputy Principal Officers as shown in Figure No. 5 in Annexure 3.

In each Zone there is a Chief Administrative Office (CAO) who is from IRSE cadre. He is responsible for all construction works in the Zone, supported by a full-fledged self-contained organization, such as accounts, stores, security officers etc.

5.3.3. Divisional Organisations

Each Zone is divided into 4 to 7 Divisions headed by a Divisional Railway Manager (DRM) Each Division has an average track length of some 1,000 kms and staff strength of about 15,000. The Divisions are primarily involved with running trains, but may have local sheds (repair shops for locomotives), coaching depots and wagon depots for repair and maintenance.

The Divisions are basically responsible for implementing at the field level the various instructions issued by Railway Board through Headquarters. They prepare Action Plans to achieve the various goals and objectives set for the Divisions and monitoring the activities of day-to-day maintenance, train operations, and execution of various related works. They also submit proposals to Headquarters for improving of the Railway System based upon feedback from the users and experience gained in the Division.

A new probationer who joins as Assistant Divisional Engineer is responsible for some 1,000 staff spread over 200 kms of the rail network.

An organization chart for Divisional level is shown in Figure No. 6 in Annexure 3.
6. THE RESTRUCTURING PROCESS

A number of factors were taken into account at the start of the restructuring process. These included the requirement to build into the structure six new operational Units as determined in the TCS Report and as subsequently endorsed by the Project Steering Committee in January 2007.

One of the overriding factors was the need to totally re-design the current organisation structure concentrating on functions, and the logical grouping of functions. Of prime importance was the consideration of those functions which constituted the basic work of the PWD.

The process involved a number of meetings with senior PWD staff from which the proposed re-organisation structures evolved over a period of time. The basic steps involved in this process are given below in Table No. 6.

Table No. 6 : Steps Taken in Evolution of Organisation Structure

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determine those functions of prime importance to the PWD, and its reason for existence. These form the core business of PWD.</td>
</tr>
<tr>
<td>2</td>
<td>Put those functions onto logical groups</td>
</tr>
<tr>
<td>3</td>
<td>Review the groupings and determine any logical split to break them down into manageable groups</td>
</tr>
<tr>
<td>4</td>
<td>The desire was to create autonomous Zones with the authority to act and take decisions. Thus leaving PWD Headquarters to act as a regulatory body, to liaise with GoUP, to set policy and strategic plans for the PWD, and to determine annual budgets</td>
</tr>
<tr>
<td>5</td>
<td>Consider the core business of PWD, and determine if the groupings derived during Step 3 can be considered as Strategic Business Units (SBU's).</td>
</tr>
<tr>
<td>6</td>
<td>Review the SBU's to determine possible annual turnover. In terms of annual turnover are the SBU's viable?</td>
</tr>
<tr>
<td>7</td>
<td>What other functions were necessary to enable the SBU's to operate effectively and efficiently? What functions were vital to the SBU's and what functions, if any, should cease or be curtailed?</td>
</tr>
<tr>
<td>8</td>
<td>Review these functions and put in logical groups</td>
</tr>
<tr>
<td>9</td>
<td>Consider the management of PWD and of the function groupings</td>
</tr>
<tr>
<td>10</td>
<td>Draw organisation structure starting with PWD Headquarters, and working down to Zones, Circles, and Divisions.</td>
</tr>
<tr>
<td>11</td>
<td>Critically appraise same and revise accordingly</td>
</tr>
</tbody>
</table>
6.1 NEW CELLS / UNITS TO BE INCORPORATED INTO THE PWD

The proposed re-organisation structure must incorporate the seven Specialist Units / Cells mentioned in Section 1.3, and listed below together with the Report No. which lists the functions to be undertaken by these Units / Cells:

1. HRD and Training - Report No. 4
2. Environmental and Social Development - Report No. 20
4. Projects Policy and Planning - Report No. 18
5. IT Management and Planning - Report No. 13
7. PSP / PPP Development Cell - Report No. 22

It was agreed with the PWD that the PSP / PPP Development Cell already existed in the form of Uttar Pradesh State Highways Authority (UPSHA) and was therefore excluded for the re-organisation structure. UPSHA has a separate mandate from GoUP and as such is not part of the PWD organisation structure although senior PWD staffs have an involvement in same.

6.2 STEPS IN THE RE-STRUCTURING PROCESS

The functions and responsibilities in the reorganised structure for all Units / Cells and Wings of the PWD are included in this Section.

During the process a number of re-organisation structures were prepared and are included in this Report for consideration. They evolved over a period of time and in consultation with senior officers of the PWD. The task facing the Focus Group is to review these structures and associated functions to determine that which in their opinion will serve the future PWD and enable it to meet its role as 'Managers of the Uttar Pradesh Road Network'.

Organisation structures are vital to the effective and efficient functioning of any organisation and should be reviewed from time to time. They should not be regarded as 'fixed' but capable of change or modification to meet future changes. However these changes should not be regarded as frequent events and should only be considered when problems arise with the functioning of the existing structure.

In all cases where re-organisation of existing structures are considered it is essential to consider the functions first before drawing up the revised structures. However in this Report, in order to simplify and clarify the work done, the proposed re-organisation structures precede the functions.
6.3 MANAGEMENT OF THE PWD

The PWD is a major Department within the GoUP which currently receives more than 20% of the total State Budget. It is currently responsible for the management of over 130,000 kms of roads and over 6,000 bridges in addition to other structures. It has a major role to play in the development of the State since the movement of goods and people a road network is vital ingredient to economic growth. A well maintained road network enables goods and people to move swiftly, economically, and safely over long distances. Moreover good communications, roads, are attractive and act as an encouragement to investors.

The current top level management of the PWD needs to be strengthened and its interaction with the GoUP improved. To that end the decision was taken to create new posts of Director General Works (DGW) and Additional Director General Works (ADGW). Similar posts exist within the CPWD and will greatly assist the PWD in the successful achievement of its mandate and Vision Statement. These post holders must be proven managers from a background of highway engineering with postgraduate training in management coupled with wide experience.

In future the PWD will need to spot potential DGW's and ADGW's and train them for these positions. PWD staff must be appointed to these posts based on merit, previous performance, and coupled with at least 2 years, and preferably 3 years, of remaining service.

Engineer-in-Chiefs would report to either the DGW or ADGW and oversee the work of the Strategic Business Units and groupings of the functions necessary to enable the SBU’s to function effectively.

Chief Engineers would act as the heads of the Strategic Business Units reporting to an Engineer-in-Chief. The reporting process must not be such as to remove the authority and motivation from the Chief Engineers, but rather one of setting broad operational guidelines and gathering data to pass on to the GoUP.

6.4 THE CORE BUSINESS OF THE PWD

The core business of the PWD is related to the construction and maintenance of roads and bridges. Based on this approach this work was considered from at least two angles. In the first place the separation of construction from maintenance work was considered. Secondly the separation of the road network into core roads and non-core roads, as defined in Report No. 3, was considered.

From discussions with the PWD, and in particular with the Chief Engineer and PWD staff in Varenasie Zone it was decided that separation of construction from maintenance would create major problems, but that separation of core roads and non-core roads was feasible. The major reason was that management of the core roads would require a different process from that required for non-core roads. The former would use a road maintenance management system (RMMS) linked with HDM-4, with both construction and maintenance works outsourced. The non-core road network would require a much simplified maintenance management system with much of the construction and maintenance works undertaken by gang labour.
During initial discussions it was decided to separate structures from roads at Headquarters level. Subsequent discussions suggested that there would be insufficient work to warrant an Engineer-in-Chief as head of structures. Thus in later re-organisation considerations the decision was made for a Chief Engineer Structures to be based in PWD Headquarters working under an Engineer-in-Chief responsible for 'Technical' issues that embraced more than structures.

Retention of the Zones, Circles, and Divisions was considered to be vital. They are well established with no need or reason to change them.

An initial decision was taken to group together those functions which were funded by other than the State of Uttar Pradesh. Included in this group were projects funded by the World Bank, and National Highways which were funded by Central Government.

Two other groupings were considered, with each group headed by an Engineer-in-Chief: One group was to be 'Administration', which included Human Resource Management, Legal, Complaints, Public Relations, and Right to Information. The second group was 'Technical' which included Structures (design and design standards), Road Design and Consultancy, Road Safety and Traffic Management, Contracts and Specifications (including procurement), Quality Management, and Environmental and Social Development.

The Electrical and Mechanical Unit was included under the Roads Unit since it is responsible for construction plant and equipment that would be used by the Roads Unit.

The remaining functions of Finance, Policy and Planning, MIS/IT, and GIS/RMMS were grouped together and placed under the direct control of the ADG. These functions were considered to be of prime importance and essential for the successful functioning of the PWD. All information will flow through this group, which would also be responsible for setting the strategic plans and budgets for the PWD.

During the development of the re-organisation structure the PWD made the decision to create a Unit for PMGSY Roads headed by an Engineer-in-Chief because of the high workload in terms of volume and money. This Unit has been included in the proposed re-organisation structure.
7. PROPOSED RE-ORGANISATION STRUCTURE - PWD HEADQUARTERS

Three different organisation structures were prepared for PWD Headquarters, Option 1, Option 2, and Option 3. As discussions took place it was considered that Option was not the most viable so that only Option 2 and Option 3 were further developed for the Zones, Circles, and Divisions.

7.1 ORGANISATION STRUCTURE FOR UP PWD HEADQUARTERS – OPTION 1

Initial discussions concentrated on the core business of PWD which was confined to roads and structures. Accordingly all upgrading and maintenance works, along with the construction of link roads associated with the State budget, are to be headed by an Engineer-in-Chief 'Roads'. Similarly that for structures was to be headed by an Engineer-in-Chief 'Structures'.

The post of a third Engineer-in-Chief 'Aided Projects' was proposed to head up those activities associated with Projects that were not funded by GoUP as follows:

- Projects which are funded by World Bank and other donor agencies,
- National Highways (since their budget is provided by Central Government and not by the State and the work is executed by State PWD on Agency charges basis).
- PMGSY Roads which are funded by Government of India.

A fourth post of Engineer in Chief 'Works Support’ was proposed to head up activities which could best be described as supporting the core business activities. These included:

- HRM / HRD and Training
- Legal aspects
- Complaints
- Public Relations
- Right to Information

A fifth post of Engineer-in-Chief 'Other Works' was proposed to head up those activities which are a necessity for the smooth functioning of the PWD but which are not part of the core business. These activities include:

- Finance
- Procurement
- Technical Audit
- Quality Control
- Road Safety and Traffic management
- Environmental and Social Development Unit
- Research and Development
- Public Private Participation / Public Sector Participation since their work is related to arranging funds from the sources other than through the State government
- Electrical and Mechanical
For completeness, the post of a sixth Engineer-in-Chief 'Buildings' was proposed to head up the PWD functions associated with buildings. Under whom the specifications and norms and standards along with the fixation of plinth area rate for estimation purposes and also the standardization of plans with their plinth area of different important Government buildings would be carried out. As such, he will be responsible for the functions of Architects as well.

A copy of the possible organisation structure of PWD Roads at Headquarters Option – 1 is given in Figure No. 2.

7.2 POSSIBLE ORGANISATION STRUCTURE FOR UPPWD HEADQUARTERS – OPTION 2

Further consideration and discussions with respect to Option 1 indicated that improvements could be made. A revised possible organisation structure of PWD Roads at Headquarters Option – 2, given in Figure No. 3, was drawn up which incorporated the following changes.

Engineer-in-Chief Roads: The split between core and non-core roads was shown more clearly with the intention that the functional split between these two would take place at Division level. At Circle, Zone, and HQ levels the Superintending Engineer, the Chief Engineer, and the Engineer-in-Chief would be responsible for both core and non-core roads.

Engineer-in-Chief Structures: This post was considered to be unwarranted since the volume of work was insufficient. Accordingly the functions associated with this post were moved to the ‘Other Works’ Wing.

Engineer-in-Chief Technology Development: This was considered to be a better title than ‘Other Woks’.

Finance: This function was considered to be closely related to the functions given to the Additional Director General Works and was subsequently moved.

Electrical and Mechanical: This was moved to the Engineer-in-Chief Roads since it was involved with the provision of plant and equipment for construction and maintenance operations.

Procurement: This function was renamed Contracts and Specification since this was considered to be more appropriate to the required functions. It remained under ‘Technology Development’ formerly ‘Other Works’.

Quality Control: This was more appropriately renamed ‘Quality Management’

Technical Audit: This was moved and placed under the Engineer-in-Chief Roads, although not indicated as such.

Research and Development: This was renamed Road Design, Research and Consultancy.

PPP / PSP: This Unit was removed since its functions are the same as those for the UPSHA.
Figure No. 2: Possible Organisation Structure of PWD Headquarters – Option - 1

These Officers are based in the Zones and not in HQ
Figure No. 3: Possible Organisation Structure of PWD HQ - Option 2

New Units / Cells to be established in PWD
1. HRD and Training
2. Projects Policy and Planning
3. IT Management and Planning
4. Quality Management
5. Environmental and Social Development
6. Road Safety Planning and Engineering

* CE UPIDS will continue till the implementation of IDS Project
7.3 POSSIBLE ORGANISATION STRUCTURE FOR UPPWD HEADQUARTERS – OPTION 3

As discussions continued further information regarding the annual expenditure of PWD was considered. The annual PWD budget for the year 2006/7 amounted to some INR 6,600 Crore (US$ 1,650,000,000). The approximate breakdown of this budget is given in Table No. 7.

Table No. 7 : Breakdown of PWD Budget for 2006/7

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Budget Head</th>
<th>INR Crore</th>
<th>US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Core Roads Network</td>
<td>3,200</td>
<td>800,000,000</td>
</tr>
<tr>
<td>2</td>
<td>Non-Core Roads Network</td>
<td>1,570</td>
<td>392,500,000</td>
</tr>
<tr>
<td>3</td>
<td>PMGSY</td>
<td>385</td>
<td>9,6250,000</td>
</tr>
<tr>
<td>4</td>
<td>World Bank, etc</td>
<td>480</td>
<td>120,000,000</td>
</tr>
<tr>
<td>5</td>
<td>National Highways</td>
<td>150</td>
<td>37,500,000</td>
</tr>
<tr>
<td>6</td>
<td>Establishment, etc</td>
<td>645</td>
<td>161,250,000</td>
</tr>
<tr>
<td>7</td>
<td>TOTAL</td>
<td>6,430</td>
<td>1,607,500,000</td>
</tr>
</tbody>
</table>

However the budget can be combined under the headings of Core Roads and Non-Core Roads. World Bank funded projects are generally in connection with Core Roads and in one sense National Highways are also part of the Core Road Network. If these three Budget Heads are combined the budget for Core Roads becomes:

“Core Road Network”: INR 3,830 Crore or US$ 957,500,000

PMGSY Roads are all part of the Non-Core Road Network and when combined with the Non-Core Road Network the budget becomes:

“Non-Core Road Network”: INR 1,855 Crore or US$ 463,750,000

With 12 Zones established throughout the State the average budget for each Zone is:

Core Road Network – Average Budget per Zone: INR 320 Crore or US$ 80,000,000

Non Core Road Network – Ave. Budget per Zone: INR 155 Crore or US$ 38,750,000

The enormity of these budgets is sufficient reason for splitting the management of the Uttar Pradesh Road Network into two separate and independent Wings: Core Roads and Non-Core Roads with separate and independent organisations at Zone, Circle, and Division level.
It is anticipated that the size of the Non-core Road Network will increase considerably over the next few years. This increase will be twofold. Firstly, the length will increase as the network is expanded in line with Central and State Government policy. Secondly, it will increase as ownership of 'orphan' roads becomes the responsibility of UPPWD.

Apart from budgetary considerations, several other factors are worthy of consideration.

- **Management processes**: The difference between the two types of management has been stated previously. Maintenance of the Core Road Network will be based on condition surveys with data fed into a Road Maintenance Management System linked to HDM. Annual budgets will be prepared based on maintenance priorities.

Management of the Non-Core Road Network will be based on a much simpler and less data hungry maintenance management system requiring a simple form of condition survey.

- **Operations and Contracts**: Construction and Maintenance operations on the Core Road Network will be out-sourced. Initially, these contracts may be of the standard form, but in time, as the quality of the road network improves, there will be a move to performance-based maintenance contracts. Out-sourcing is clearly a form of Private Sector Participation. Over a period of time, it may be possible to transfer the more heavily trafficked roads of the Core Road Network to UPSHA which has the mandate to engage in Private Sector Participation on a major scale which includes private sector funding, and the creation of toll roads.

It is envisaged that much of the Construction and Maintenance operations on the Non-Core Road Network will be carried out either by gang labour or by smaller contractors who do not have the experience or equipment to gain contracts on the Core Road Network. This work will enable them to develop their skills, expertise, plant and equipment holding. From a PWD point of view, it is essential that they enable development of healthy contracting organisations. Without able and qualified contractors, the work of UPSHA will be severely restricted.

- **Training**: Because the construction and maintenance operations will be different for staff engaged in Core Roads and Non-Core Roads, it is perceived that their training requirements will have some difference, and must be accommodated accordingly.

A revised possible organisation structure of PWD Roads at Headquarters Option – 3, given in Figure No. 4, was drawn up which incorporated the above changes.
Figure No. 4: Possible Organisation Structure of PWD HQ - Option 3

New Units / Cells to be established in PWD
1. HRD and Training
2. Projects Policy and Planning
3. IT Management and Planning
4. Quality Management
5. Environmental and Social Development
6. Road Safety Planning and Engineering
* CE UPSERP IIDS will continue till the implementation of IDS Project

These Officers are based in the Zones and not in HQ
8. MAJOR FUNCTIONS OF PWD HQ

As previously stated, although these functions follow the possible organisation structures they must be considered before drawing any organisation structures. Each box, or person, or Unit shown on an organisation chart is a defined amalgamation of functions. It is the functions which dictate a structure and not the other way round. However for clarity the possible structures were shown first.

Listed below is a simplified version of the functions associated with each post shown on the organisation chart Option 3 in Figure No. 4. This does not imply that Option 3 is the chosen or preferred option but simply to indicate the various functions associated with that structure.

8.1 DIRECTOR GENERAL WORKS, HEAD OF PWD

The Director General Works would represent the PWD and report direct to the Minister of the Department. This proposal is in line with that adopted by CPWD: other similar posts have been created in the State for the Police Department, Jail Department, and Department of Tourism. It is vital that, just like the Chairman of Indian Railways, the Director General has been professionally trained.

The size and complexity of the road network (over 130,000 kms of road, and over 6,000 bridges, not including other structures) is such that each of the designated posts of Engineer-in-Chief will be primarily a management position. Furthermore the PWD currently receives more than 20% of the total State budget. These facts alone indicate the need for senior PWD staff to be excellent managers as well as having highly experienced technical skills.

The post of Director General Works has been created to coordinate the functions, duties, and responsibilities of the PWD. The Director General Works will also represent the PWD at the highest levels in the State. He will be the most senior level PWD officer trained in management and also in governance but with a highway engineering background and familiar with all aspects of the work undertaken by the PWD. He must be able to successfully negotiate with both Ministers and Civil Servants, a role of vital importance simply because of the onerous responsibilities placed upon the PWD. One of his major roles will be that of setting the policy framework for the PWD and to prepare such a framework in consultation with State Government and the transport sector in general.

The Additional Director General Works and the four Engineer-in-Chiefs all report to the Director General Works.

8.2 ADDITIONAL DIRECTOR GENERAL WORKS

The post of Additional Director General Works that it is proposed to create, will be responsible for the following Units ' Cells:
a) **Policy and Planning Unit:** headed by a Chief Engineer. One of the major functions of the PWD is to develop a policy framework for the roads sector that is in harmony with the transport sector in general and with GoUP policy in particular. The task of strategic planning should be to identify the areas of development or potential for development within the state that are in conformity with the policy framework. This will require a database of the existing road network within the state; identification of the roads which are most strategic for balanced development in the State and to provide for a good and efficient road network (new roads as well as upgrading and maintaining existing ones) within the State to aid development of the economic activities. This Unit will also be responsible for producing, and updating, the Road Network Master Plan.

b) **Management Information System / Information Technology Unit:** headed by a Chief Engineer. Information flow will be the life-blood of the PWD. Management of this Unit is vital to the whole of the PWD.

c) **GIS / Road Maintenance Management System:** headed by a Chief Engineer. (See Report No. 42 for further details). GIS and RMMS will aid work related to maintenance and enable robust maintenance budgets to be prepared based on need. This will include records of condition and other surveys updated on an annual or semi-annual basis.

d) **Finance - Accounts and Budgeting Cell:** headed by a Chief Engineer / Chief Finance Manager. This Unit will work closely with the other Units under the ADGW. This Unit will be responsible, in conjunction with the Policy and Planning Unit, for determining the PWD budget for maintenance work on the road network, defined as 'non-plan' works. They will be assisted in this task by the Road Maintenance Management Systems Unit who will be charged with the responsibility for preparing the prioritised list of roads for maintenance under a constrained budget using HDM 4. HDM 4 is a software program developed by World Bank for prioritisation of maintenance works and associated budgets.

   In accordance with the Policy and Planning Unit and the Road Network Master Plan the Accounts and Budgeting Cell will be responsible for determining the budget for the planned development of the road network, defined as 'plan' works.

   This work will cover preparation of the PWD budget for submission to the State Government. Each Zone will be responsible for preparing their own budget but the Accounts and Budgeting Cell will have the ultimate responsibility for consolidating these budgets and for determining the budget request made to GoUP. This Cell will have close liaison and work in conjunction with the Finance Department of the GoUP.

   The scheme-wise total budget allocation or provision made by the GoUP to the PWD will be allocated to the Zones in accordance with their original budget requirements. These budgets will then be made available to the Finance Manager in each Zone.

   After the works are approved / sanctioned the Chief Finance Manager will make allocation of funds on different sanctions/ approved works (roads and bridges) scheme-wise / road or bridge wise and similarly with respect to the maintenance works concerning the Divisions under intimation to CE/SE.
Establishment related expenditure in the Divisions, Circles, and Zones including payroll for all classes of staff employed in the Zone, will be the responsibility of the Assistant Finance Manager. The Finance Manager will compile these figures to produce those for the entire PWD.

Further details are given in Report No. 17.

The Additional Director General Works should be professionally trained with a highway engineering background and be familiar with the work undertaken by the PWD. He will be trained in management, probably specialising in policy and strategic planning, but with knowledge and understanding of IT and Finance.

One of the additional tasks will be the preparation of the PWD Annual Report and Strategic Plan. The Annual Report will detail 'Asset Value' on an annual basis. The Strategic Plan will set out long-term policy, management goals, and planned accomplishments. It will also provide an opportunity to bring together government, industry, academia, and other stakeholders to work towards a shared vision.

**8.3 ENGINEER-IN-CHIEFS**

It is vital that Engineer-in-Chiefs have a thorough understanding of technical matters but have also been trained in management. Strong and effective management is a pre-requisite for the revised organisation structure. These senior posts must be career posts filled by staff trained in management and who have developed proven management skills. They must not be treated as posts to be held in the short term by staff with only a few months to serve before retirement.

The Engineer-in-Chief Core Roads and Engineer-in-Chief Non-core Roads are basically line managers responsible for operations. The other two Engineer-in-Chiefs are staff managers who support the line management functions. The general functions of these two Engineer-in-Chiefs are set out in Table No. 8.

<table>
<thead>
<tr>
<th>Table No. 8 : General Functions of Engineer-in-Chiefs (CR) and (NCR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engineer-in-Chief Core Road Network</strong></td>
</tr>
<tr>
<td>➢ Function as an “Executive” who will plan and direct all aspects of the PWD’s strategy, planning, construction, upgrading, and maintenance function with respect to the Core Road Network.</td>
</tr>
<tr>
<td>➢ Refer the Annual Report, Business Plan and Corporate Plan prepared by the Policy and Planning Unit (PPU)</td>
</tr>
<tr>
<td>➢ Review the network master plan</td>
</tr>
<tr>
<td>➢ Planning of Investment Strategy</td>
</tr>
<tr>
<td>➢ Develop an Agenda which would lead to a Mission Statement or a Strategic Framework / Strategic Goals</td>
</tr>
</tbody>
</table>
8.3.1. Engineer-in-Chief Core Roads

The Core Roads Network Wing will be headed by an ENC (CR) assisted by other technical and secretarial staff. The work of the Core Roads Wing has been divided into twelve Zones, each headed by a Chief Engineer. The Core Road Network consists of the State Highways, Major District Roads, and some other District Roads with a total of 40,000 to 50,000 kms. All the other roads fall in the Non-core Road category.

The task of the ENC (CR) will be to oversee the twelve Zones and coordinate their operations to ensure they comply with Government regulations and to provide the Director General Works with the necessary reports and annual reports covering all the zones. The role of the ENC (CR) is primarily that of monitoring and regulating. The objective must be for the Zones to be the decision makers whilst the PWD Headquarters keeps a watchful eye on operations.

One of the major functions will be the coordination and preparation of the annual budget for the Core Road Network. This will be carried out in conjunction with the Chief Engineers from the Zones and the Additional Director General Works and heads of Units serving under him. These officers will determine the overall PWD budgets for all construction, upgrading, and maintenance operations and for their breakdown into actual budgets for each Zone following GoUP approval.

Under the guidance of the ENC (CR), with the support of the Additional Director General Works and heads of units serving under him along with the Chief Engineers from each Zone, the strategy to be adopted in each Zone will be determined.
The ENC (CR) will ensure that condition and other surveys are implemented and updated information given to the GIS/RMMS Cell. He will monitor financial progress and payments produced by the Zones to ensure compliance with Government and PWD requirements. He will also ensure that Quality Audits are implemented to ensure that the PWD gets value for money.

The ENC (CR) will be responsible for matters relating to the development and maintenance of the Core Road Network. These and other related issues are covered in Report No. 29: "Review report development of road network master plan". It is envisaged that maintenance of the Core Road Network will be based on a suitable RMMS program linked to HDM-4. This system will produce a prioritised list of roads for maintenance based on specific maintenance criteria and available budget. It is also anticipated that the greater majority, if not all, of construction, upgrading, and maintenance work will be outsourced.

**Additional Responsibilities of ENC (CR)**

**World Bank Funded Projects**: headed by a Chief Engineer with responsibility for the following functions:

- To manage World Bank funded Projects from Inception to Completion and Handover to PWD

**National Highways**: headed by a Chief Engineer with responsibility for the following functions:

- On behalf of the PWD to manage all work relating to National Highways. The budget for National Highways is provided by Government of India and not by the State Government. The work on National Highways is undertaken by the PWD on agency charges basis.
- He is responsible for liaison with the National Highways Authority of India (NHAI) regarding resolution of problems with respect to moving utilities in connection with upgrading works carried out on different National Highways and corridors in the State.

**8.3.2. Engineer-in-Chief Non-core Roads**

The functions of the Engineer-in-Chief (NCR) are basically identical with those set out for the Engineer-in-Chief (CR), other than those listed under additional responsibilities. However one of the major differences will be that the RMMS linked to HDM-4 will not be used to help with budget preparation. Instead a simpler and 'less data hungry' computer program will be used. A further difference is that some of the construction, upgrading, and maintenance operations will be undertaken by gang labour.

Report No. 3: Inter-Agency Working Group study to facilitate GoUP decisions, legislation and other actions on an affective long-term ownership and funding framework for non-core UP roads, addressing sustainable devolution of village roads and orphan roads" and the above mentioned Report No. 29 are relevant to the work of the Engineer-in-Chief (NCR).
Additional Responsibilities of ENC (NCR)

Pradhan Mantri Gram Sadak Yojana (PMGSY): headed by a Chief Engineer in accordance with the directions of UPRRDA. He will not be entrusted with any other responsibilities since he is to be totally dedicated to PMGSY works. He will carry out these responsibilities as follows:

- Management of all PMGSY operations and works will be through the Zone Chief Engineers (NCR) and their staff.
- Ensure that the roads constructed are in accordance with the Road Network Master Plan.
- Ensure that the roads are constructed in accordance with the PWD design standards.
- Implement construction and supervise the work.
- Ensure that the roads constructed by Rural Engineering Services are in accordance with PWD design standards and that maintenance work is being undertaken.

Electrical and Mechanical Unit: headed by a Chief Engineer, based in PWD HQ, with responsibility for the following functions:

- To manage, through the Zone Chief Engineers (NCR), Plant, Tools, Vehicles, and Equipment owned by PWD.
- To develop a maintenance and replacement policy for all plant and equipment.
- To ensure that workshops are suitably equipped.
- To ensure that stores handling spare parts are resourced and function effectively - computer based records for spare parts.
- To ensure that plant and equipment registers are updated and record all breakdowns and maintenance work carried out on each individual piece of plant and equipment - computer based records.
- Responsible for all Mechanical / Electrical Works in all the Civil Works handled by PWD.

8.3.3. Engineer-in-Chief Administration

It is proposed that the Engineer-in-Chief Administration (Admin) will head up those activities which could best be described as supporting the core business activities. In all probability the Engineer-in-Chief (Admin) will be a qualified Human Resource Management or Training Specialist. Human Resource Development is a key to the future development of the PWD and it is essential that the person appointed to this very senior position has a thorough knowledge of, and grounding in, Human Resource Management.

The Units or Cells reporting to the Engineer-in-Chief (Admin) are:

a) HRM / HRD and Training: headed by a Chief Engineer. This Unit for will be responsible for establishing the professional HR services in the PWD and fulfilling the set of HRM, HRD and Training tasks of:
Training and Development Functions:

- Policy Formulation
- Training Needs Identification
- Training Database
- Organising Training Programmes
- Planning and Establishment of PWD Training Centre
- IT Skills Development
- Extension Services

HR and Organisational Development Functions:

- HR Database Management
- Manpower Planning
- Recruitment
- Performance Management and Career Management
- Communications and Change Management

b) Legal: headed by a Chief Engineer level officer having a thorough background in law. This Unit will combine and oversee the legal work of the department. He will monitor the Court cases and expeditiously in a time bound manner monitor the filing of the counter affidavits in respect to Courts by concerned Field Officers. He will also monitor the Court cases and content of Court matters related to ENC and the Officers of the GoUP.

c) Complaints, Public Relations (PR), and Right to Information (RTI): headed by a Chief Engineer who will be responsible for the following functions:

- Investigation of PWD related complaints and liaison with GoUP on the matters of punitive actions against the departmental officers and officials
- Review of complaints from Government, Public Representatives and road users. Also receive reports on complaints investigated by Zone Chief Engineers and Superintending Engineers for further action.
- Promotion of public understanding and awareness of PWD programmes, policies, and strategies;
- Provision of information to the media and general public about the PWD’s operations and programmes, for example publication of the PWD Annual Report.
- Participate in meetings with Stakeholders and other interested parties
- Provides support and assistance to PWD headquarters and field offices
8.3.4. Engineer-in-Chief Technology Development

It is proposed that the Engineer-in-Chief will head up those activities which are a necessity for the smooth operation of the PWD but which are not a part of the core business. With the shifting of the Finance Unit to the Additional Director General, and the PPP/PSP Unit to the UPSHA, the activities under this Engineer-in-Chief are now basically technical engineering or technology development activities as follows:

a) **Structures: Design and Standards, and Buildings**: headed by a Chief Engineer who will be responsible for:

- Collection of condition data of all structures which are part of the PWD Road Network for both Core and Non-Core Roads.
- Preparation of annual budget for construction, upgrading and maintenance of structures. This will be carried out in conjunction with the Chief Engineers from the Zones and the Additional Director General Works and heads of Units serving under him. These officers will determine the overall PWD budgets and prioritization of those structures to be taken up for sanction during the year as per budget provisions and approval of such prioritised proposal from the GoUP. This will include all construction, upgrading, and maintenance operations involving structures and for their breakdown into actual budgets for each Zone following GoUP approval.
- Support to the Zones in the preparation of estimates of approved prioritised structures from UPSBC and for the approach roads of bridges from Zone Chief Engineers and their checking by the division under SE 31st Circle Bridges.
- Assistance to the Zones with respect to monitoring of works relating to structures (physical and financial) with respect to the fixed target and control or watch over the quality of works.
- Evaluation of standards for roads and bridges and formulation of specifications taking into account new technologies and materials.
- Review and approve all structural designs
- Approve out-sourcing structural design work as appropriate and checking of same
- Establishing the norms, standards and specifications for building works
- Setting the 'Plinth Area Rates' for estimation purposes which are a guideline for different other departments in the Government. Management of buildings for which the PWD has responsibility
- Preparation of standard plans and working drawings for buildings to be constructed in different districts of the State through the Chief Architect/Architects section of PWD.
- To provide technical support to Principal Secretary Finance Depart of GoUP in the expenditure finance committee meetings.
b) Road Design, Research & Consultancy, and Road Safety and Traffic Management: headed by a Chief Engineer. The major functions of the Road Design, Research and Consultancy Unit are;

- To determine road design standards relating to the construction and upgrading of Core and Non-Core Roads
- To ensure that road designs keep abreast of technical and material developments and comply with road safety and other requirements
- To ensure compliance with these design standards for all road works whether arising from PWD or other agencies
- To prepare maintenance mitigation measures and to develop those measures to incorporate technical developments in plant and equipment, and materials
- On behalf of PWD to provide consultancy services to other agencies involved in road design

With respect to Road Safety and Traffic Management, an internal Unit, to be managed by a Superintending Engineer, will be formed as detailed in Report No. 12. This Unit can act as the nodal road safety design and construction standards approval organisation for all other agencies. The major functions of this Unit are:

At Macro Level

- To carry out road safety appraisal of all new road upgrading projects undertaken by the PWD and all other agencies in the State
- To ensure that deficiencies of existing roads by undertaking road safety audits and suggest mitigating measures are expeditiously carried out
- To develop or adopt IRC type safety standards for road projects

At Micro Level: to ensure that the following tasks are undertaken by his Field Officers:

- To approve or otherwise road cut by utilities and to establish safety installations.
- To take immediate action to rectify any damage to the carriageway which may affect road safety, such as, improperly restored road cut by utilities,
- To carryout by specifying a time-limit, the actions required for the eviction of encroachers and removal of materials from the road side.
- To arrange training of highway engineers and town planners in road safety, in coordination with the PWD Training Cell.

The PWD Road Safety cell should work in close coordination with the Road Safety cell of the Department of Road Safety and Highways under the Ministry of Shipping, Road Transport and Highways, Government of India. This central unit acts as a Nodal Unit in all matters relating to National Road Safety Planning. At the State level, the cell should work in coordination with the State Road Safety Council (the State level policy maker) and the State Road Safety Board (the lead state level implementer).
Other areas in which the Unit at HQ may have full or partial involvement, and/or require close coordination with other departments in order to obtain information etc., may include:

- enabling of appropriate legal, institutional and financial environment for raising road safety standards
- reporting of accidents
- provision of a road safety database
- road and road infrastructure design
- ensuring maintenance of roads for safety reasons
- enhancing the safety of vulnerable road users
- emergency medical services for road accidents
- human resources for reforming road safety

c) **Contracts and Specifications:** headed by a Chief Engineer. The major functions of this Unit are:

- To review Conditions of Contract and ensure that they meet the requirements of PWD (HQ and Zones) and take into account developments in this area (see Report Nos. 21 and 38).
- To review different Forms of Contract and advise the PWD (HQ and the Zones) on their application and possible implementation e.g. Performance Based Management Contracts. (See Report Nos. 54 and 38).
- To Liaise with the HRM Training Unit to establish appropriate training courses for PWD (HQ and the Zones) and others (e.g. Contractors) as appropriate.
- To review Specifications and revise in accordance with developments in plant and equipment and materials. This work to be done in conjunction with the Structures Design Unit and Road Design Unit as appropriate.
- To provide advice to HQ and the Zones with respect to procurement and packaging of contracts.

d) **Quality Management Unit:** headed by a Chief Engineer. The major functions of this Unit are (see Report No. 19 for further details):

- Advise the GoUP and PWD (HQ and Zones) on technical matters related to quality in design, construction, upgrading, and maintenance works
- Provide advice on Specifications and compliance testing
- Review quality procedures in Zones, Circles, and Divisions
- Carry out appropriate testing to ensure compliance with the Specification
- In conjunction with the Zones initiate suitable measures for prevention and resolution of problems related to quality
- To develop training courses on quality with the HRD Training Unit
e) **Environment and Social Development Unit**: headed by a Chief Engineer. The Environment and Social Development Unit (ESDU) proposed to be established in UP PWD is unique in character. The strengthened unit would adopt a “Preventive Environmental and Social Policy” rather than mitigative and corrective processes.

The major functions of this Unit are (see Report No. 20 for further details):

- Ensuring compliance of Projects with national policies on environment, resettlement and rehabilitation
- Preparation of Terms of Reference for all environmental and social issues
- Review of environmental and social issues at Project inception stage.
- Analysis of Impacts and Mitigation measures and alternatives
- Consultation with Communities and others, e.g. NGO's

The post of **Finance Controller** is shown on the organisation structures for PWD HQ but this officer is not a member of the PWD. He is from the Department of Finance with the mandate to issue cash credit limits. He is also responsible for the two Cells dealing with:

1. Chief Account Officer - Pension
2. Senior Accounts Officer - (90% G.P.F)
9. POSSIBLE RE-ORGANISATION STRUCTURE AND MAJOR FUNCTIONS OF HQ CORE ROADS WING AND NON-CORE ROADS WING

It is anticipated that each of the Engineer-in-Chiefs for Core Roads and Non-core Roads will require a secretariat to enable them to function and meet the requirements of the GoUP. In all cases it must be stressed that the functions of the Secretariat are to ensure compliance with, and to respond to, GoUP requirements and requests for information. The Secretariat is not an additional regulatory role. Its function is not to approve or sanction works (that task remains with each Zone Chief Engineer) but to ensure that the PWD policies and strategies are being followed, to monitor finance (budgets, expenditures, and cash flow) at the macro level, and to carry out Quality Audit checks in accordance with GoUP requirements.

The major functions and posts in this Secretariat are detailed in the remainder of this Section.

9.1 QUALITY AUDIT

This Unit will be headed by a Chief Engineer who will be responsible for:

- Compliance with G.O No. 4031-EBR/XXIII-PWB-183-EBR/1958, through which the GoUP in 1958, introduced a system of administrative audit of works in the Public Works Department
- Developing and implementing the IRC’s ‘Guidelines on Quality Systems for Roads’ resulting in a proper quality audit system to examine all aspects of the workings of UPPWD, i.e., policy, procedures, systems, documentation etc. all the way from planning, surveying, pre-engineering investigation, design, specifications, tendering, construction to maintenance of roads and bridges

It is also recommended that a third party audit along the lines of PMGSY be instituted. For this purpose senior retired PWD Engineers can be empanelled to carry out a quality audit on a pre-agreed cycle. It is important that these Engineer-Auditors should be trained in conducting the audit in accordance with ISO 19011 standards.

This outsourcing will, in addition to having the benefit of a proper audit of the PWD’s processes and products, result in relieving 10 engineers from the Irrigation Department, including one Chief Engineer, who can return to their own Department to carry on their normal duties. The same would be the case with the ten engineers from PWD who are presently deputed to carry out audit of irrigation works, who can return to the PWD which is desperately short of engineers.

9.2 MONITORING UNIT

This Unit will be headed by a Chief Engineer who will be responsible for:

- monitoring on a regular basis, at the macro level, the physical and financial progress of works with respect to the budget allocation and disbursement
- monitoring financial progress at GoUP level to review release of funds
- monitoring financial progress to review release of funds for externally funded Projects
10. POSSIBLE RE-ORGANISATION STRUCTURE FOR PWD ZONES - OPTION 2

As part of the revised organisation structure the Zones will become the empowered operating units with full autonomy and freedom to act within the constraints placed upon them by PWD HQ. These constraints must not be so restrictive as to stifle initiative and motivation but are those considered necessary for the PWD to be accountable to the GoUP for the budget allotted to them.

Each of the twelve Zones will be managed by a Chief Engineer who will have a strong Highway Engineering background but trained in management, including project management and financial management. This training will have been undertaken through the courses run by the PWD HR Unit.

It is proposed that the post of Finance Manager be created in each zone. The ultimate objective is that each zone will act as an autonomous operational business unit. As such it will need a Finance Manager to provide the financial data upon which management decisions can be based.

One of the possible organisation structures for a Zone is given as Option-2 in Figure No. 5. The functions associated with this structure are given in the following Sections.

10.1 POSSIBLE RE-ORGANISATION STRUCTURE FOR PWD ZONES - OPTIONS 3A AND 3B

When the value of works undertaken in the Zones is considered one of the more feasible propositions is to split Core Roads from Non-Core Roads.

Figure No. 6 and Figure No. 7 - Options 3A and 3B show the organisation structures when Core Roads and Non-core Roads are split. As previously stated the average value of work undertaken by each Zone under Core Roads and Non-core Roads is more than sufficient reason for the split.

Although it will mean an increase in the number of Zones from the current 15 (12 PWD Zones and 3 PMGSY Zones) to 24 the volume of work under PMGSY is expected to increase. It is vital that the PWD has the management structure to undertake the increased volume of work.

It is also anticipated that the total length of Non-core Roads will increase dramatically as 'orphan roads' are brought under the management of the PWD. This could mean an increase of some 145,000 kms of roads compared with the 80,000 kms currently managed by the PWD.

The above comments have been based on averages regarding road lengths and value of work. However before implementation of any organisational restructuring it is imperative that the Zones for both Core Roads and Non-core Roads are re-assessed to ensure a more even and manageable distribution of the respective road networks and workload. This may result in a reduction of the total number of Zones from the proposed 24 as at present.

If the road network is to be managed so that the goals set out in the Vision Statement are to be achieved the PWD management structure must be strengthened and officers suitably trained.
Figure No. 5: Possible Organisation Structure of PWD Zone - Option 2

Chief Engineer Zone
- Core Road (CR)
- Non Core Road (NCR)

Additional Chief Engineer Project Management

SE Quality Audit

Finance Manager SE / EE

Project Preparation EE

Policy & Planning Unit (PPU) EE

IT/ MIS EE

RMMS / GIS EE

Roads SE - Circle
- CR
- NCR

CR Division EE

NCR Division EE

Electrical and Mechanical

These Officers are based in the Circle/Division and not in Zone Offices

Initially all four functions will be conducted by an EE

Roads SE - Circle
- CR
- NCR

CR Division EE

NCR Division EE

Electrical and Mechanical

Administration (HRD) SE
- HRD
- RS

Legal

Complaints

Public Relations

Right to Information

Technical SE

Structures & Roads Buildings

- Contracts & Specifications
- Quality Management
- Road Safety
- Toll Management

Initially these functions will be conducted by an EE

September 2008
Figure No. 6 : Possible Organisation Structure of PWD Zone : Core Roads – Option 3A

Initially all four functions will be conducted by an EE

Initially these functions will be conducted by an EE
Figure No. 7: Possible Organisation Structure of PWD Zone: Non-Core Roads – Option 3B

Chief Engineer Zone
NON CORE ROADS

Additional Chief Engineer
Project Management

Finance Manager
SE / EE

Project Preparation
EE

Policy and Planning Unit
(PPU) EE

IT / MIS
EE

RMMS / GIS
EE

SE
Quality Audit

Roads
SE - Circle

Division EE

Division EE

Enclosure
EE

Electrical and Mechanical

These Officers are based in the Circle/Division and not in Zone Offices

Initially all four functions will be conducted by an EE

Roads
SE - Circle

Division EE

Division EE

Electrical and Mechanical

Administration (HRD)
SE

HRD
EE

Legal

Complaints

Public Relations

Right to Information

Technical
SE

Structures & Roads
Buildings

Environmental & Social EE

Initially these functions will be conducted by an EE

Road Safety / Traffic Management

Quality Management

Compendium & Spec.
Procurement
11. MAJOR FUNCTIONS OF PWD ZONE

Listed below is a simplified version of the functions associated with each post shown on organisation charts as Option-1 in Figure No. 5. This does not imply that Option 1 is the chosen or preferred option but simply to indicate the various functions associated with that structure.

11.1 CHIEF ENGINEER

The task of the Chief Engineer is to implement the Zone work plans within the overall budget sanctioned and apportioned to the Zone, and to the desired quality. The Zones will be the main movers for identifying construction, upgrading, and maintenance of Projects in accordance with the Road Network Master Plan

The Zones will be responsible for both Core Roads and Non-Core Roads and for all stages of operations from inception to completion. All new works, construction and upgrading, will be in accordance with the Road Network Master Plan and implemented in accordance with the appropriate budget sanctioned by the GoUP and apportioned to each of the twelve Zones.

All periodic maintenance work will be undertaken as detailed in the prioritised road maintenance plan prepared by PWD Policy and Planning Unit and implemented in accordance with the appropriate budget sanctioned by the GoUP and apportioned to each of the twelve Zones.

Routine maintenance will also be undertaken in accordance with the budgetary provision sanctioned by the GoUP.

Quality Audit: This Unit will be headed by a Superintending Engineer. The tasks are as detailed for the Unit in PWD HQ. The Quality Audit Units will report to the Chief Engineer:

11.2 ADDITIONAL CHIEF ENGINEER ACE (PM)

The main task of the Additional Chief Engineer is that of Project Management. He will be head of the following Units whose functions are:

- **Policy and Planning**: this Unit will be headed by a Superintending Engineer. The functions of this Unit are similar to those for the similar Unit in HQ but only for the Zone. One of their tasks is to translate policy and strategic plans into actual plans to be implemented within the Zone. These actual plans are then passed on to the Project Preparation Unit.

- **Project Preparation**: this Unit will be headed by a Superintending Engineer. The functions include preparation of feasibility studies, design, cost estimates, and preparation of contract documents. The ACE (PM) is responsible for approving projects and the contract documents prepared by this Unit. This work will be carried out in conjunction with the Circle. Once the contact documents have been approved the Superintending Engineer in the Circle will be responsible for the tendering process and award of contracts.

From financial data received from the Divisions this Unit will be responsible for developing the costs of new works, upgrading, and the various road maintenance interventions. This work will also be extended to include structures.
• **Finance**: this Unit will be headed by a Finance Manager with the rank of Superintending Engineer. This Unit is responsible for financial management and management accounting activities in the Zone.

His tasks are to monitor cash credit limits and deposit credit limits and also disbursements made against these items.

He will receive copies of the monthly Expenditure Statement for all Projects being undertaken in all the Divisions. These will be used as the basis for management decisions regarding progress, payments, and other contractual issues.

He will compile monthly variance reports for each Circle broken down into Divisions so that actual progress can be measured against planned progress in physical and financial terms.

Establishment related expenditure in the Divisions, Circles, and Zones including payroll for all classes of staff employed in the Zone, will be the responsibility of the Assistant Finance Manager.

There will be an Internal Auditor at every Zone serving under the Finance Manager. This officer will scheduled visits all Divisions throughout the year, conducting the audit by checking cash books, works registers and other records on a test-check basis. The Internal Auditor will report all serious discrepancies observed at Divisional level to the Finance Manager, who will seek rectification, clarification, and take action on the basis of the reports.

Further details are given in Report No. 17.

• **IT / MIS**: this Unit will be headed by a Superintending Engineer. The functions of this Unit are to maintain and develop the MIS in the Zone and to work in conjunction with the IT / MIS Unit in PWD HQ.

• **RMMS / GIS**: this Unit will be headed by a Superintending Engineer. This Unit has similar functions to those in HQ but limited to the Zone.

### 11.3 SUPERINTENDING ENGINEER - CIRCLE

The Superintending Engineer is head of the Circle. His main task is project implementation, supervision, quality control, and financial control with respect to all the Projects being carried out in the Divisions for which he is responsible. He will also be involved in project preparation, including feasibility studies, design, and cost estimates and also procurement. As such he will maintain a record of all Contractors in accordance with Report Nos. 21, 38 and 54.

The Superintending Engineer is responsible for all the work undertaken in the Divisions. The head of each Division is an Executive Engineer who reports to the Superintending Engineer. He is responsible for updating the schedule of rates used for estimating purposes.
11.4 SUPERINTENDING ENGINEER - ADMINISTRATION

The SE (Admin) will be responsible for the following Units:

- **Human Resource Development**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Legal**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Complaints**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Public Relations**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Right to Information**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.

Initially it is envisaged that the Legal, Complaints, Public Relations, and Right to Information Units will be combined under one Executive Engineer.

11.5 SUPERINTENDING ENGINEER - TECHNICAL

The SE (Tech) will be responsible for the following Units:

- **Structures: Design and Standards and Buildings**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Contract and Specification, and Procurement**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Quality Management**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Road Safety and Traffic Management**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.
- **Environmental and Social**: This Unit will be headed by an Executive Engineer. The functions of this Unit mirror those of the identical Unit in PWD HQ but for the Zone.

11.6 SUPERINTENDING ENGINEER - ELECTRICAL AND MECHANICAL

The SE (E&M) will be responsible for the management, repair, and maintenance of all the plant and equipment allocated to some three Zones and will need to be based at the most convenient Zone. He will also be responsible for the Workshops, mechanics, repair equipment, and stores associated with spare parts and for the supply of same.

He will keep a register of all plant and equipment together with details of repairs and maintenance schedules for each item. He will also be responsible for updating the schedule of rates used for estimation purposes.
12. **POSSIBLE RE-ORGANISATION STRUCTURE FOR PWD CIRCLES - OPTION 2**

Each Zone is split into two to four Circles with a Superintending Engineer as head of each Circle. A possible re-organisation structure for a Circle is given in Figure No. 8. This has been based on the assumption that Core Roads and Non-core Roads will be managed by the same Circle, and corresponds to the possible organisation structure given for a Zone as shown in Figure No. 5.

12.1 **POSSIBLE RE-ORGANISATION STRUCTURE FOR PWD CIRCLES - OPTIONS 3A AND 3B**

Based on the average annual value of work done by each Zone a better arrangement is for the Core Roads and Non-core Roads to be split as shown in Figure No. 6 and Figure No. 7. The corresponding organisation structures for the Circles are given in Figure No. 9 and Figure No. 10.
Figure No. 8: Possible Organisation Structure of PWD Circle - Option 2

- Superintending Engineer Circle
  - Core Road (CR)
  - Non Core Road (NCR)

- Executive Engineer
  - Project Management

- Assistant Finance Manager
- MIS, RMWS, and OIB
- AE

- Project Planning and Preparation
- AE

- Executive Engineer

- Division:
  - Core Roads (CR)
    - EE
  - Non Core Roads (NCR)
    - EE

- These Officers are based in Divisions and not in Circle Offices

- EE
- Quality Audit

- Electrical and Mechanical
  - EE

- Technical
  - EE
  - Structures and Roads
    - Buildings
    - AE
  - Quality Management
    - AE
  - Road Safety, Environmental & Social
    - AE
Figure No. 9: Possible Organisation Structure of PWD at Circle: Core Roads – Option 3A

Superintending Engineer Circle Core Roads

Executive Engineer Project Management

Assistant Finance Manager

MIS, RMMS and GIS AE

Project Planning and Preparation AE

EE Quality Audit

Division Core Roads (CR) EE

These Officers are based in Divisions and not in Circle Offices

Division Core Roads (CR) EE

Technical EE

Structures and Roads Buildings AE

Quality Management AE

Road Safety, Environmental & Social AE
Figure No. 10: Possible Organisation Structure of PWD at Circle: Non-Core Roads – Option 3B

Superintending Engineer Circle Non Core Roads

Executive Engineer Project Management

Assistant Finance Manager

MIS, RMMR and GIS AE

Project Planning and Preparation AE

EE Quality Audit

Division Non Core Roads (NCR) EE

Division Non Core Roads (NCR) EE

Division Non Core Roads (NCR) EE

Division Non Core Roads (NCR) EE

Electrical and Mechanical EE

These Officers are based in Divisions and not in Circle Offices

Technical EE

Structures and Roads Buildings AE

Quality Management AE

Road Safety, Environmental & Social AE
13. MAJOR FUNCTIONS OF PWD CIRCLE

The Circle will be headed by a Superintending Engineer responsible for the Core and Non-Core road network. He will be responsible for procurement and award of contracts and other functions as detailed in Section 11.3. Additional responsibilities include maintaining details of the road network in the Circle and updating the Road Network Master Plan as appropriate: ensuring that condition and other surveys are carried out as required.

**Quality Audit:** The Superintending Engineer will also be responsible for assisting those who carry out the Quality Audit.

The major functions of the Circle will be undertaken by the following:

13.1 EXECUTIVE ENGINEER: PROJECT MANAGEMENT

His main task is to develop and manage project controls, including estimating, schedule of rates, planning/scheduling, and cost analysis, for all projects, both actual and planned, within the circle. He will provide guidance and specialized assistance to projects for the resolution of difficult and complex problems.

He will manage the preparation of and scheduling of construction work and the respective work personnel. He will gather and analyse data to prepare reports on the physical and financial progress of projects, ensuring that assignment and scheduling of work follows Department’s policy and evaluating current procedures and recommending changes to improve the efficiency of planning and scheduling of projects.

This officer will give advice regarding forms of contract and contract documents. As such he will need to liaise with the Contracts and Specification, and Procurement Unit in the Zone.

He will be responsible for the following Units who will assist him in these tasks:

**Finance:** This Unit will be headed by an Assistant Finance Manager with the rank of Executive / Assistant Engineer, who will be responsible for keeping records of Cash Credit Limits and Deposit Credit Limits. It is proposed that all Deposit Credit Limit works are channelled through this officer in conjunction with the Superintending Engineer. It may be necessary to set an upper limit on the DCL which can be handled at Circle level. DCL works in excess of this figure would need to be channelled through the Zone.

He will receive monthly physical and financial reports of all projects undertaken in the each Division within the Circle and will prepare discrepancies between actual cost expenditure with Standard Costs for the same work element. He will also produce cost variances and update the costs used to prepare cost estimates. These variances will be forwarded to the Superintending Engineer in the Circle and copies sent to the appropriate Executive Engineer in Divisions.

The rate of anticipated take up of the cash credit limit for each Project, ‘S’ curve, will be compared with the actual monthly payments made, or requested, by the Contractor. Any serious variances must be investigated in conjunction with the Superintending Engineer.
As part of this work he will prepare a comparative cost study, which will make a comparison of actual cost and original estimated cost, highlighting serious discrepancies. Cases of high expenditure on work done during the previous month, and also cases of works delayed for want of funds, will be reported monthly. The Finance Manager will initiate a detailed study of cases where serious discrepancies are reported. Timely monitoring of on-going Works costs will assist management in their role as decision makers. The experience will benefit subsequent works executed in the Division concerned, as well as in other Divisions.

The Assistant Finance Manager will be responsible for all payments to Contractors and Suppliers subject to approval from the Executive Engineer in the Division.

Further details are given in Report No. 17.

- **MIS**: This Unit will be headed by an Assistant Engineer who will be responsible for the day to day operation and of running of the MIS in the Circle and Divisions.

- **Project Planning and Management**: This Unit will be headed by an Assistant Engineer whose main task is to schedule construction work in accordance with the project schedule prepared for the Circle by the Zone Chief Engineer and, in particular, by the Policy and Planning Unit in the Zone.

This Unit will coordinate work on project preparation in accordance with instructions received from the Project Preparation Unit in the Zone.

### 13.2 EXECUTIVE ENGINEER: TECHNICAL

He will be responsible for coordinating the work undertaken by the following Units who will report to him:

- **Quality Management**: This Unit will be headed by an Assistant Engineer whose main task is to ensure that the finished quality of work is in accordance with the Specification.

- **Road Safety and Traffic Management**: This Unit will be headed by an Assistant Engineer who will work in conjunction with the Executive Engineer who has responsibility for this Unit in the Zone.

- **Environmental and Social**: This Unit will be headed by an Assistant Engineer who will work in conjunction with the Executive Engineer who has responsibility for this Unit in the Zone.

### 13.3 EXECUTIVE ENGINEER: ELECTRICAL AND MECHANICAL

He will be responsible for coordinating the management, repair, and maintenance of the plant and equipment allocated to the Circle.

The Executive Engineers will be based on the Divisions according to work load and will be responsible for more than one Division.
13.4 EXECUTIVE ENGINEER: DIVISIONS

The Executive Engineer will be responsible for all functions to be undertaken in the Divisions. In particular he will be responsible for execution of the contracts ensuring that they are completed on time, within budget, and to the required quality as laid down in the Specification.

As part of this work he will be responsible for the preparation of reports and performance reports to be submitted to the Project Management Unit in the Circle. The performance reports will give details of Project expenditure against budget heads and analysis of the variances so that physical progress can be compared with financial progress.

He will also be involved in the preparation of cost estimates for future Projects working in conjunction with the Project Management Unit in the Circle.

The Executive Engineer will be responsible for implementing routine maintenance work. Contracts shall be prepared by the Executive Engineer supported by Project Management Unit in the Circle as appropriate. The Executive Engineer will be empowered to sign contracts for all works up to an agreed value. Works in excess of this agreed value will require approval from the Superintending Engineer as head of the Circle.

Executive Engineer - Core Roads: listed below are the more detailed functions and responsibilities of this officer:

- To be the “Project Manager” who will oversee and direct construction, upgrading, and maintenance works. He will be responsible for allocating time between communicating directly with contractors/designers concerning project cost, staffing, and scheduling as well as working to ensure plans adhere to contract specifications.
- To assist in the preparation, review, and administration of contractual proposals relating to construction, upgrading, and maintenance contracts. Preparing bids, negotiating for supply of materials and other construction services, and securing all necessary approvals
- Maintain a database of the existing Core Road Network with its condition, capacities, traffic levels, origin and destination survey (OD) etc
- Engage external service provider for data collection
- Inform Superintending Engineer of major deficiencies like crust and width requirements, drainage / cc roads requirements in abadi areas together with proposals to resolve same.
- To look for agencies who will carry out the maintenance work
- Coordinate the road survey with bridge inventory and condition survey as instructed by Superintending Engineer

Executive Engineer - Non-Core Roads: the more detailed list of functions and responsibilities of this officer are similar to those listed above, but for the Non-core Road Network.

In addition these functions and responsibilities an Assistant Engineer - Electrical and Mechanical will report to Executive Engineer. The Assistant Engineer will be responsible for the management, maintenance and repair of the plant and equipment allocated to the Division.
14. POSSIBLE RE-ORGANISATION STRUCTURE FOR PWD DIVISIONS - OPTION 2

Each Division will be headed by an Executive Engineer. He will be supported by Assistant Engineers and Junior Engineers as appropriate.

As previously stated the main task of the Divisions is award of contract, implementation, supervision, and acceptance of all works including routine and periodic maintenance, new construction and upgrading. The latter term includes pavement strengthening and widening.

The Divisions will assist the Circle in the preparation of feasibility studies for new works. They will also undertake, or supervise, condition and other surveys.

A possible organisation structure for the Divisions is given in Figure No. 11. This structure is based on the premise that Core Roads and Non-core Roads will be managed by the same Zone. In all options work relating to Core Roads and Non-core Roads was to be split at Division level but not at Circle level with the Superintending Engineer responsible for both Core and Non-core roads.

14.1 POSSIBLE RE-ORGANISATION STRUCTURE FOR PWD DIVISIONS - OPTION 3A AND 3B

The organisation structures given in Figure No. 12 are based on the premise that Core Roads and Non-core Roads will be split at HQ level.

The functions for the Divisions will remain unchanged since the original proposal was to split Core Roads and Non-core Roads. This proposal was endorsed by all PWD officers with whom discussions were held on this topic.
Figure No. 11: Possible Organisation Structure of PWD in Divisions - Option 2
Figure No. 12: Possible Organisation Structure of PWD in Divisions - Core Roads and Non-Core Roads – Option 3A and 3B
15. MAJOR FUNCTIONS OF PWD DIVISION

The structure at Division will be divided between the Core and Non-Core road. The organisation for Core Road will be replicated for Non-Core Road.

One of the key issues is that all levels of officers in the Divisions must accept individual responsibility for the work entrusted to them. They must not be able to hide behind 'collective responsibility' as at present.

15.1 EXECUTIVE ENGINEER

The Executive Engineer is head of the Division and as such he will keep and update records of the road network and structures for which he is responsible. His functions and responsibilities are given in Section 12.4. He is also responsible for the following:

Quality Audit: The Executive Engineer will give support to those engaged in carrying out the Quality Audit.

Divisional Accounts Officer (DAO): Accountant General's Office

The Divisional Accounts Officer is an employee of the Accountant General's Office, and is not an employee of the PWD. He is posted in the Divisional Offices of the GoUP Departments such as PWD, Irrigation, Minor Irrigation, and RES, etc.

Under his supervision monthly accounts of the expenditure in the Divisions is prepared as per directions and guide lines of Financial Handbook and sent to the office of the Accountant General to reach his office before the fixed date each month. A copy of these accounts should be submitted to the Executive Engineer for onward transmission to the Assistant Finance Manager in the Circle.

More complete details of the functions of this officer are given in Report No. 17.

Accounts Clerk: It is proposed that an additional Accounts Clerk be engaged in each Division with the task of maintaining a record of all assets, other than the road network, owned directly by PWD in the Division. He will also keep an inventory stock register and, following approval, order replacement stock as necessary. He will receive records from the sub-Divisional Storekeepers and maintain a record of stores held in the sub-Divisions.

Electrical and Mechanical: This Unit will be headed by an Assistant Engineer who will have Junior Engineers (JE's E/M) to work under him.

This Accounts Clerk will be responsible for maintaining a plant and equipment register giving details of current location of each item listed and a record of all maintenance and repairs, including costs, carried out on each item.
15.2 ASSISTANT ENGINEER - CORE ROADS

The tasks of this Assistant Engineer are:

- To oversee the construction activities at a work site. He will ensure that a daily diary of site activities is kept which will record scheduling of workers, delivery of equipment and materials, and progress of the project. He is to supervise the works to ensure that projects are completed on time and according to the Specification. He will advise the Executive Engineer of any problems encountered and assist him to resolve contract disputes and arrange any necessary order changes. He will be assisted in these duties by the Junior Engineer and Work Agent and his team of Mates. These latter two members of staff are based full time on site.

- To supervise surveys: Road - Inventory, Condition and Traffic. Structures - Inventory, Condition: to provide help and support to the Structural Engineer from the Circle

- To Check survey data and ensure that it complies with the contract in all aspects particularly quality, accuracy, and reliability. This data must be provided on a disc for entry into the RMMS at the Circle.

- To forward all survey data to the Circle for entry into the RMMS program linked to HDM-4

- To assist with the analysis of survey data and answer any queries arising there from

- To assist the Executive Engineer in updating records of roads and structures

15.3 ASSISTANT ENGINEER NON-CORE ROADS

The tasks of this Assistant Engineer are:

- Where out-sourced Contractors are engaged he will to oversee the construction activities at a work site. He will ensure that a daily diary of site activities is kept which will record scheduling of workers, delivery of equipment and materials, and progress of the project. He is to supervise the works to ensure that projects are completed on time and according to the Specification. He will advise the Executive Engineer of any problems encountered and assist him to resolve contract disputes and arrange any necessary order changes. He will be assisted in these duties by the Junior Engineer and Work Agent and his team of Mates. These latter two members of staff are based full time on site.

- Where Gang Labour is employed he will oversee the construction activities at a work site and advise on the work to be done and methodology to be employed. He will ensure that a daily diary of site activities is kept which will record scheduling of workers, delivery of equipment and materials, and progress of the project. He will ensure that projects are completed on time, within the allocated budget, and according to the Specification. He will advise the Executive Engineer of any problems encountered and assist him to resolve contract disputes and arrange any necessary order changes. He will be assisted in these duties by the Junior Engineer and Work Agent and his team of Mates. These latter two members of staff are based full time on site.
• To supervise, or carry out, road and structures surveys such as Inventory, Condition and Traffic (surveys to be undertaken as per the requirement)
• To Check survey data for accuracy and reliability
• To enter Inventory, Condition and Traffic Data in the excel spreadsheet
• To assist with the analysis of survey data and to answer any queries arising there from
• Compilation of data with respect to structures
• To assist the Executive Engineer in updating records of roads and structures
• To advise the Executive Engineer with respect to training required to improve the quality and efficiency of work undertaken by the Gang Labour, and changes in manpower, plant and equipment

15.4 JUNIOR ENGINEER - CORE ROAD

The main tasks of the Junior Engineer are to assist and support the Assistant Engineer and to accept responsibility for carrying out the work assigned to him.

• The main task of the Junior Engineer is to supervise the works at site and ensure that the executed work is carried out in accordance with the Specifications. He is responsible for ensuring the testing of materials and finished works.

• He is responsible for recording the measurements of all executed works as per the Specifications and conditions of contract in the measurement books issued by the Executive Engineer. During the pendency period of the bond these measurements are used as the basis for making the payments to the contractor as a running bill and after the completion of all items at the end of closing period of contract as a final bill.

• He is responsible for the quality and quantity of different items of work for which the measurements have been recorded by him.

• He will regularly inspect the road and get the minor repairs done as needed. For major/special repairs he will inform immediately the details of damage and proposals for repair to the AE/EE.

• He will ensure control over the gang labour and assign to them the duties/works to be executed. He will closely monitoring the maintenance works carried out by the gang labour and ensure that the quality of the finished works is in accordance with the Specification.

• He is responsible for proper upkeep and maintenance of the road stretch under his jurisdiction as a root level technical supervising officer of the road.

• He is responsible for maintaining proper accounts of materials procured at site for maintenance/construction works and their consumption during the month. On a monthly basis he will submit the monthly records of procurement and consumption of materials in the prescribed forms of RMR (Road Metal Return) and MAS (Material at Site) to the Executive Engineer through Assistant Engineer.
- He is responsible for preparation of the Project Report as per guidance of Assistant Engineer and Executive Engineer.
- He will give layout etc to the contractor for start of any work as per provision in the drawings etc in the contract bond and also as per PWD norms and specifications.
- He is also responsible for keeping the Right of Way of the road stretch free from any encroachment etc.
- He will assist in all matters relating to the road under his jurisdiction to the Assistant Engineer and the Executive Engineer.

15.5 JUNIOR ENGINEER - NON-CORE ROADS

The main task of the Junior Engineer is to assist and support the Assistant Engineer. His responsibilities are as listed above.

15.6 JUNIOR ENGINEER - NON-CORE ROADS

The main tasks of JE E/M are

- ensure that all the equipment, vehicles, and machines are in good working order
- responsible for plant operators, drivers, and mechanics
- he will ensure that he gets immediate information regarding any breakdowns or defect in the plant and equipment and to make arrangements for their expeditious repair
- if special repairs are needed he will submit a report and proposals to the AE or EE E/M to get these special repairs done in a time bound manner
- he will maintain a running log book of every item of plant and equipment, and vehicles and ensure that it is updated monthly on the basis of which the balances of fuel etc are evaluated.
- he will maintain the repair log book for every vehicle and item of plant and equipment and record all repairs and special repairs on the basis of these repair details he will prepare a summary to reflect whether the item is running economically or not. If the item of plant is not economic to maintain or operate with respect to the prescribed norms he will under the guidance of the AE or EE E/M prepare a survey report for sanction to dispose of same by public auction.
- he will get advance programmes for works so that he can ensure that plant and equipment are available and that non-utilisation time is minimised. This should be carried out in conjunction with AE E/M and JE Non-Core Roads.
- he will record the measurements of all the repairs and special repairs for plant, equipment, and vehicles, and for new purchases also
- he will maintain an inventory of all plant and equipment and submit a report to the EE E/M through the AE at the beginning of every year. This report will include all details of the plant and equipment and vehicles in the prescribed format.
- he will assist in all matters relating to the plant and equipment and vehicles to the AE and EE E/M.
16. STAFFING RE-ALIGNMENT FOR THE RESTRUCTURED PWD

16.1 ESTIMATION OF MANPOWER NEEDS OF RESTRUCTURED PWD ORGANISATION - OPTION 2

The minimum level manpower needs at various levels/ cadres in the restructured PWD have been computed based on the possible organisation structures of PWD HQ, Zones, Circles and Divisions given earlier in this Report. The estimated manpower needs for Option 2 are given in Table No. 9 and Table No. 10.

16.2 MINIMUM NEEDS CADRE STRENGTH OF UP PWD

Training, Leave and Deputation Reserve

These tables showing the manpower estimates have been prepared based on the following general assumptions:

a. PWD Zones: Eight Executive Engineers in Zone Headquarters with Two Assistant Engineers reporting to each Executive Engineer and Four Junior Engineers reporting to each Assistant Engineer

b. PWD Circles: One Executive Engineer and Four Assistant Engineers in Circle Headquarters

c. PWD Divisions: One Executive Engineer in each Division with Four Assistant Engineers reporting to each Executive Engineer and Four Junior Engineers reporting to each Assistant Engineer

It is anticipated that not all personnel will be present on duty in the respective posts for various reasons such as leave, sickness, training, and on deputation. The cadre strength (sanctioned strength) of PWD for minimum needs staffing would need to take into account ‘RESERVES’ for the above needs.

As per GOI norms, the cadre strength is calculated by adding the following reserve to the sanctioned positions:

a. Training Reserve @ 3.5 % of total posts
b. Leave Reserve @ 16.5 % of total posts
c. Deputation Reserve: calculated based on the actual needs.

For UPPWD, the training and leave reserve is taken as 20 % of total posts. The reserves for deputation posts are taken as per existing sanction (CE - 7, SE - 14 & EE – 40).

Further details on manpower and core staff resources are given in Report Nos. 15 and 27.
### Table No. 9: Estimation of Manpower Requirements Based on Option 2

<table>
<thead>
<tr>
<th>Post</th>
<th>Proposed Requirement</th>
<th>Existing Sanction</th>
<th>Surplus (+) Deficit (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWD Senior Managers</td>
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<tr>
<td>Director General Works</td>
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<tr>
<td>Additional Director General Works</td>
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<td>Engineer-in-Chief</td>
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<td>Chief Engineer (Civil)</td>
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<tr>
<td>Chief Engineer (Electrical &amp; Mechanical)</td>
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<tr>
<td>Chief Engineer on Deputation</td>
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<td><strong>Total: Senior Managers: (CE and Above)</strong></td>
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<tr>
<td>Superintending Engineers (Civil)</td>
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<tr>
<td>Based in PWD Headquarters</td>
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<tr>
<td>Zone Headquarters - PWD 12 No.</td>
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<tr>
<td>Zone Headquarters - PMGSY 3 No.</td>
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<td>Circles - PWD 29 No.</td>
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<td>Circles - Buildings 1 No.</td>
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<td>Superintending Engineer on Deputation</td>
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<td>Executive Engineers</td>
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<td>Circles - NH 4 No.</td>
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<tr>
<td>Divisions: assume 2 No. Core and 3 No. Non-core Divisions per Circle</td>
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<td>Divisions: World Bank</td>
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<td>Executive Engineers on Deputation</td>
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<td><strong>Total: Executive Engineers</strong></td>
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<td><strong>366</strong></td>
<td><strong>-157</strong></td>
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### Table No. 9: Estimation of Manpower Requirements Based on Option 2 Continued

<table>
<thead>
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<th>Post</th>
<th>Proposed Requirement</th>
<th>Existing Sanction</th>
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<td>Divisions: National Highways</td>
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<td>Divisions: World Bank</td>
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<td><strong>Total: Assistant Engineers</strong></td>
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<td><strong>1,225</strong></td>
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<td>Junior Engineers (Civil)</td>
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<td>Divisions: Building</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total: Junior Engineers (Civil)</strong></td>
<td><strong>4,385</strong></td>
<td><strong>4,176</strong></td>
<td><strong>-209</strong></td>
</tr>
<tr>
<td>Junior Engineers (Technical)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PWD Headquarters</td>
<td>30</td>
<td></td>
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</tr>
<tr>
<td>Zone Headquarters - PWD 12 No.</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PMGSY 3 No.</td>
<td>6</td>
<td></td>
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</tr>
<tr>
<td>Circles - PWD 29 No.</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - WB 9 No. (7 + 2)</td>
<td>18</td>
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</tr>
<tr>
<td>Circles - PMGSY 9 No. (8 + 1)</td>
<td>18</td>
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<tr>
<td>Circles - NH 4 No.</td>
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<td>Divisions: PWD</td>
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<tr>
<td>Divisions: Provincial</td>
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<tr>
<td>Divisions: PMGSY</td>
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<tr>
<td>Divisions: National Highways</td>
<td>20</td>
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<td>Divisions: World Bank</td>
<td>45</td>
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<td></td>
</tr>
<tr>
<td>Divisions: Building</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total: Junior Engineers (Technical)</strong></td>
<td><strong>491</strong></td>
<td><strong>467</strong></td>
<td><strong>-24</strong></td>
</tr>
</tbody>
</table>
Table No. 10: Manpower Needs in PWD Headquarters – Option 2

<table>
<thead>
<tr>
<th>Unit / Cell</th>
<th>Superintending Engineer</th>
<th>Executive Engineer</th>
<th>Assistant Engineer</th>
<th>Junior Engineer (Civil)</th>
<th>Junior Engineer (Technical)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1</td>
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<tr>
<td>Office of ADGW</td>
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<td></td>
</tr>
<tr>
<td>Policy and Planning</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td></td>
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</tr>
<tr>
<td>Budgeting and Accounts</td>
<td></td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT / Data Management</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineer-in-Chiefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EiC: Roads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Roads</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Core Roads</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>Electrical and Mechanical</td>
<td></td>
<td>1</td>
<td>2</td>
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<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
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</tr>
<tr>
<td>EiC: Special Projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>National Highways</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Bank</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDS</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EiC: Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>HRM and Training</td>
<td>7</td>
<td>7</td>
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</tr>
<tr>
<td>Complaints</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>EiC: Technology Development</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Structures Design</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Design</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Safety</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract and Specification</td>
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<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Management</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental/Social Man.</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>29</td>
<td>52</td>
<td>75</td>
<td>50 *</td>
<td>30 *</td>
</tr>
</tbody>
</table>

Note: * Indicates that the number is an estimate

Computation of Minimum Needs cadre strength for UP PWD - Option 2

Table No. 11 gives the minimum needs staffing requirements including training and leave reserve requirements. This has been for the three cadres of Class I (EE’s and above), Class II (AE’s) and Class III (JE-Civil and JE-T).

The details included in this Section are given as a guide to the possible staffing re-alignment that will be brought about by any changes in the organisation structure. Until any decision has been made with respect to the likely organisation structure the figures given can only be regarded as an estimate.

Further details can be found in Report Nos. 15 and 27.
Table No. 11: Minimum Needs Cadre Strength for UP PWD: Civil Engineers - Option 2

<table>
<thead>
<tr>
<th>Cadre</th>
<th>Total Posts</th>
<th>Training / Leave Reserve 20% of Total Posts</th>
<th>Total Requirement</th>
<th>Sanction Existing</th>
<th>Surplus / Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE &amp; Above</td>
<td>44</td>
<td>-</td>
<td>-</td>
<td>36</td>
<td>(-) 8</td>
</tr>
<tr>
<td>SE</td>
<td>140</td>
<td>-</td>
<td>-</td>
<td>85</td>
<td>(-) 55</td>
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<tr>
<td>EE</td>
<td>523</td>
<td>-</td>
<td>-</td>
<td>366</td>
<td>(-) 157</td>
</tr>
<tr>
<td>Total Class I</td>
<td>707</td>
<td>141</td>
<td>851</td>
<td>486</td>
<td>(-) 365</td>
</tr>
<tr>
<td>AE</td>
<td>1,575</td>
<td>315</td>
<td>1,890</td>
<td>1,225</td>
<td>(-) 665</td>
</tr>
<tr>
<td>JE (Civil)</td>
<td>4,385</td>
<td>877</td>
<td>5,262</td>
<td>4,176</td>
<td>(-) 1,096</td>
</tr>
<tr>
<td>JE (Technical)</td>
<td>491</td>
<td>98</td>
<td>589</td>
<td>467</td>
<td>(-) 122</td>
</tr>
</tbody>
</table>

16.3 ESTIMATION OF MANPOWER NEEDS OF RESTRUCTURED PWD ORGANISATION - OPTION 3

The estimated manpower needs for Option 3 are given in Table No. 12 and Table No. 13.

The estimates have been based on the same premises as used for those relating to Option 2. It must be stressed that these are estimates and that the ratio of Assistant Engineers to Executive Engineers may be slightly different to the assumptions made.

Computation of Minimum Needs cadre strength for UP PWD - Option 3

Table No. 14 gives the minimum needs staffing requirements including training and leave reserve requirements. This has been for the three cadres of Class I (EE’s and above), Class II (AE’s) and Class III (JE-Civil and JE-T).

The details included in this Section are given as a guide to the possible staffing re-alignment that will be brought about by any changes in the organisation structure. Until any decision has been made with respect to the likely organisation structure the figures given can only be regarded as an estimate.
### Table No. 12: Estimation of Manpower Requirements Based on Option 3

<table>
<thead>
<tr>
<th>Post</th>
<th>Proposed Requirement</th>
<th>Existing Sanction</th>
<th>Surplus (+) Deficit (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWD Senior Managers</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Director General Works</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>Additional Director General Works</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>Engineer-in-Chief</td>
<td>4</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>Chief Engineer (Civil)</td>
<td>36</td>
<td>25</td>
<td>-11</td>
</tr>
<tr>
<td>Chief Engineer (Electrical &amp; Mechanical)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Chief Engineer on Deputation</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total: Senior Managers: (CE and Above)</strong></td>
<td>50</td>
<td>36</td>
<td>-14</td>
</tr>
<tr>
<td>Superintending Engineers (Civil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based in PWD Headquarters</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Core Roads 15 No.</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Non-Core Roads 12 No.</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Core Roads 15 No.</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Non-Core Roads 12 No.</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - Buildings 1 No.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superintending Engineer on Deputation</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total: Superintending Engineers (Civil)</strong></td>
<td>171</td>
<td>85</td>
<td>-86</td>
</tr>
<tr>
<td>Executive Engineers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWD Headquarters</td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Core Roads 15 No.</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Non-Core Roads 12 No.</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Core Roads 30 No.</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Non-Core Roads 36 No.</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: PWD Core Roads - assume 2 No. Divisions per Circle</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: PWD Non-Core Roads - assume 4 No. Divisions per Circle</td>
<td>144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: Building</td>
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<td></td>
</tr>
<tr>
<td>Executive Engineers on Deputation</td>
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<tr>
<td><strong>Total: Executive Engineers</strong></td>
<td>593</td>
<td>366</td>
<td>-227</td>
</tr>
<tr>
<td>Post</td>
<td>Proposed Requirement</td>
<td>Existing Sanction</td>
<td>Surplus (+) / Deficit (-)</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Assistant Engineers</td>
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<td></td>
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</tr>
<tr>
<td>PWD Headquarters</td>
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</tr>
<tr>
<td>Zone Headquarters - PWD Core Roads 15 No.</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Non-Core Roads 12 No.</td>
<td>192</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Core Roads 30 No.</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Non-Core Roads 36 No.</td>
<td>144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: PWD Core Roads - assume 2 No. Divisions per Circle</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: PWD Non-Core Roads - assume 4 No. Divisions per Circle</td>
<td>576</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: Building</td>
<td>12</td>
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<td></td>
</tr>
<tr>
<td><strong>Total: Assistant Engineers</strong></td>
<td>1,625</td>
<td>1,225</td>
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<tr>
<td>Junior Engineers (Civil)</td>
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</tr>
<tr>
<td>PWD Headquarters</td>
<td>50</td>
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<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Core Roads 15 No.</td>
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<tr>
<td>Zone Headquarters - PWD Non-Core Roads 12 No.</td>
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<tr>
<td>Circles - PWD Non-Core Roads 36 No.</td>
<td>576</td>
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<td></td>
</tr>
<tr>
<td>Divisions: PWD Core Roads - assume 2 No. Divisions per Circle</td>
<td>960</td>
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<td></td>
</tr>
<tr>
<td>Divisions: PWD Non-Core Roads - assume 4 No. Divisions per Circle</td>
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</tr>
<tr>
<td>Divisions: Building</td>
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<td></td>
</tr>
<tr>
<td><strong>Total: Junior Engineers (Civil)</strong></td>
<td>6,146</td>
<td>4,176</td>
<td>-1,970</td>
</tr>
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<td>Junior Engineers (Technical)</td>
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<td>PWD Headquarters</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Headquarters - PWD Core Roads 15 No.</td>
<td>30</td>
<td></td>
<td></td>
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<tr>
<td>Zone Headquarters - PWD Non-Core Roads 12 No.</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circles - PWD Core Roads 30 No.</td>
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<td></td>
</tr>
<tr>
<td>Circles - PWD Non-Core Roads 36 No.</td>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: PWD Core Roads - assume 2 No. Divisions per Circle</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: PWD Non-Core Roads - assume 4 No. Divisions per Circle</td>
<td>144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisions: Building</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total: Junior Engineers (Technical)</strong></td>
<td>468</td>
<td>467</td>
<td>-1</td>
</tr>
</tbody>
</table>
Table No. 13: Manpower Needs in PWD Headquarters – Option 3

<table>
<thead>
<tr>
<th>Unit / Cell</th>
<th>Superintending Engineer</th>
<th>Executive Engineer</th>
<th>Assistant Engineer</th>
<th>Junior Engineer (Civil)</th>
<th>Junior Engineer (Technical)</th>
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</thead>
<tbody>
<tr>
<td>Office of DGW</td>
<td>1</td>
<td>1</td>
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<td></td>
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<tr>
<td>Office of ADGW</td>
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<td></td>
</tr>
<tr>
<td>Policy and Planning</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budgeting and Accounts</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT / Data Management</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineer-in-Chief</td>
<td></td>
<td></td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EiC: Core Roads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Roads</td>
<td>4</td>
<td>8</td>
<td>16</td>
<td></td>
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</tr>
<tr>
<td>Monitoring</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EiC: Non Core Roads</td>
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</tr>
<tr>
<td>Non Core Core Roads</td>
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<td>8</td>
<td>16</td>
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<td></td>
</tr>
<tr>
<td>Electrical and Mechanical</td>
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<td>2</td>
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<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EiC: Administration</td>
<td></td>
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<td>Legal</td>
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</tr>
<tr>
<td>Complaints</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EiC: Technology Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structures Design</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td>Road Design</td>
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<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Safety</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract and Specification</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Management</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental/Social Man.</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>36</td>
<td>62</td>
<td>101</td>
<td>50 *</td>
<td>30 *</td>
</tr>
</tbody>
</table>

Note: * Indicates that the number is an estimate

Table No. 14: Minimum Needs Cadre Strength for UP PWD: Civil Engineers - Option 3

<table>
<thead>
<tr>
<th>Cadre</th>
<th>Total Posts</th>
<th>Training / Leave Reserve 20 % of Total Posts</th>
<th>Total Requirement</th>
<th>Sanction Existing</th>
<th>Surplus / Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE &amp; Above</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>36</td>
<td>(-) 14</td>
</tr>
<tr>
<td>SE</td>
<td>171</td>
<td>-</td>
<td>-</td>
<td>85</td>
<td>(-) 86</td>
</tr>
<tr>
<td>EE</td>
<td>593</td>
<td>-</td>
<td>-</td>
<td>366</td>
<td>(-) 227</td>
</tr>
<tr>
<td><strong>Total Class I</strong></td>
<td><strong>814</strong></td>
<td><strong>163</strong></td>
<td><strong>977</strong></td>
<td><strong>486</strong></td>
<td>(-) 491</td>
</tr>
<tr>
<td>AE</td>
<td>1,625</td>
<td>325</td>
<td>1,950</td>
<td>1,225</td>
<td>(-) 725</td>
</tr>
<tr>
<td>JE (Civil)</td>
<td>6,146</td>
<td>1,229</td>
<td>7,375</td>
<td>4,176</td>
<td>(-) 3,189</td>
</tr>
<tr>
<td>JE (Technical)</td>
<td>468</td>
<td>94</td>
<td>562</td>
<td>467</td>
<td>(-) 95</td>
</tr>
</tbody>
</table>
17. INTERNAL STAFF COMMUNICATION

Restructuring of a large Government Organisation like the PWD is a major CHANGE initiative which needs to be managed effectively.

Change management can best be done in a collaborative-consultative process with appropriate internal communications during the change management process which may extend to 5 years or more depending on resources committed by PWD.

The following five-phase change management process is proposed:

1. motivating change,
2. creating vision,
3. developing political support,
4. managing the transition and
5. sustaining momentum

1. Motivating Change

This phase includes creating a readiness for change in PWD organization and developing approaches to overcome resistance to change. Senior PWD staff must widely communicate the need for the change and how the change can be accomplished successfully. Senior staff must listen to the employees – people need to feel that the approach to change will include their strong input and ongoing involvement.

It is essential that the PWD appoint, in the first instance, one of their most Senior Officers to spearhead the change process. That Officer must be motivated and totally committed to the proposed organisational changes. He must also assemble a team of like-minded staff to assist him in this process.

2. Creating Vision

The PWD must set out a clear vision that describes what the change effort is striving to accomplish. It is critically important that people believe that the vision is relevant and realistic. Often the vision is described in terms of overall outcomes (or changes) to be achieved including associated goals and objectives to achieve the outcomes. Sometimes, an overall purpose, or mission, is associated with the effort to achieve the vision, as well.

3. Developing and Sustaining Political Support

In this situation the word Politics means both GoUP Politics and also organisational politics. Politics in organizations is about power. Power is important among members of an organization when striving for the resources and influence necessary to successfully carry out their jobs. Matters of power and politics are critically important to recognize and manage during organizational change activities. Change often means shifts in power across management levels, functions and groups. To be successful, the change effort must recruit the support of all key power players, for example, senior management, subject matter experts and others who are recognized as having strong expertise and integrity.
4. **Managing Transition**

This phase occurs when an organization works to make the actual transition from the current state to the future state. In consultations, this phase usually is called implementation of the action plans.

The plans can include a wide variety of “interventions,” or activities designed to make a change in the organization, for example, creating and/or modifying major structures and processes in the organization. These changes might require on-going coaching, training and enforcement of new policies and procedures. In addition, means of effective change management must continue, including strong, clear, ongoing communication about the need for the change, status of the change, and solicitation of organization members’ continuing input to the change effort.

Ideally, the various actions are integrated into one overall Change Management Plan that includes specific objectives, or milestones, that must be accomplished by various deadlines, along with responsibilities for achieving each objective.

5. **Sustaining Momentum**

Often, the most difficult phase in managing change is this phase when leaders work to sustain the momentum of the implementation and adjustment of plans. Change efforts can encounter a wide variety of obstacles, for example, strong resistance from members of the organization, sudden departure of a key leader in the organization, or a dramatic change in Government policy. Strong, visible, ongoing support from top leadership is critically important to show overall credibility and accountabilities in the change effort.

Those participating in the change effort often require ongoing support, often in the form of provision of resources, along with training and coaching. The role of support cannot be minimized – despite its importance during organizational change. Employee performance management systems play a critical role in this phase of organizational change, including setting goals, sharing feedback about accomplishment of goals, rewarding behaviours that successfully achieve goals and accomplish change, and addressing performance issues.

### 17.1 MOTIVATING CHANGE

The question ‘Why change the organisation structure of the PWD?” is one which readily springs to mind. The structure has remained un-changed for some 70 years, so why change it now? After all it must have stood the test of time. Everyone in the PWD understands the systems and the way it functions, so just leave as it is. The PWD will be here long after any Consultant has left. In any case when changes are made there are problems. Failures in organisation change are more common that successes (see Section on Reasons for Organisational Failures). The problems facing the PWD are complex and organisational change may not result in a significant improvement.

As an indication of the motivation for change the following are some of the comments and feelings generated within the PWD when it was proposed that the PWD Manual of Orders should be revised and brought up to date. The looks and comments of Senior Staff suggested that the
TA Consultants were out of their tiny minds. “Do you realise the processes that one would have to go through?” “Does the TA Consultant not realise that it is Government that changes these things and not the PWD”. “It is far too onerous a task which is why it has never been undertaken”. In any event the impression given was that it would be unlikely to enhance the career prospects of those involved in the process. Thus the annual repair and maintenance costs of a bicycle should not normally exceed Rs. 8 [Vol. I Cl. 167 (d)] and that the scale for the carriage of records and tents in the plains for a Chief Engineer is fixed at 12 bullocks or 12 camels [Vol. I Cl. 169 (a)]

Yet against this background there is an undercurrent of unrest. Engineers in the field are aware that the system is clogged up and cannot effectively cope with current work loads. As the number of PWD staff declines, as a direct result of zero recruitment for the last ten years or more, so there are fewer staff to get the work done. The system is creaking and groaning and in danger of collapse. Most officers in the PWD are aware of this, so why the reticence for change?

The problem with any change is that it generally means having to move outside one’s ‘comfort zone’. Researchers have found that this is certainly true of frogs. Some frogs were placed in a glass tank complete with a pool and stones to enable the frogs to climb out of the pool if they so desired. The frogs were given a few days to adapt to their new environment, then slowly the temperature of the water was raised from room temperature to 100°C. Even though the frogs were able to climb out of the water none of them did so with the result that they all died. They seemed much happier in their environment and had no wish to change. Remaining within one’s comfort zone is not always the best choice.

The real desire and determination for change must spring from within the PWD itself. Unless there is a considerable strength and conviction from senior managers that change must come about do not start the process.

Can the PWD bring about pressure for change? Can they build up such motivation for change that they can convince the GoUP that it is the only feasible way forward. This pressure must be a united pressure. It is not the time for some to sit on the side lines and say, “Change is good for you but not for us”. The end result of that attitude will be certain failure to bring about any change. What is needed is for senior staff to take a firm stand and say to the GoUP that the only way forward, the only way they can achieve their ‘Vision Statement’, the only way to improve the overall condition of the road network, the only way they can satisfy stakeholders, the only way they can make effective use of the funds provided by GoUP, is to re-organise. And by so doing to incorporate into the PWD the new Cells that were agreed upon as a result of the TCS Study in 2002 and re-confirmed by the Project Steering Committee in 2007.

One of the first requirements is for the PWD to create a team responsible for spearheading the change process. Of prime importance is the head of this team, or Project Champion. This person must be a leader totally committed to change who will stop at nothing to achieve the revised organisation structure. The appointment must be seen as long-term. He must be seen by the GoUP and the PWD as a person of integrity, well respected, and with the power and influence to get things done. Those serving on the team with him must share a similar conviction, cover a wide range of skills in PWD and also be appointed long-term.
When it comes down to motivation the pressure will be on the Chief Engineers, Superintending Engineers and Executive Engineers in particular. They will be responsible for the implementation of the changes as well as ensuring that the work of the PWD is undertaken even during the times of change. Their own roles within the organisation will change and at the same time they will be encouraging others to accept the changes and for ‘business to be carried out as usual’.

It is vital that they enjoy frequent interaction with those leading the change processes so that they can share problems and in turn receive encouragement and further guidance on implementation. For their part, these senior managers will need to hold identical forms of meetings with their staff. Keeping staff informed of progress and constant reminders of the vision will help maintain interest and motivation. If staff are kept ‘in the dark’ they will rapidly lose whatever interest and motivation they first had for change.

### 17.2 CREATING VISION

Vision Statements have become the norm in both the public and private sector. The same principals are at stake when it comes to change management. This vision will be different from the PWD’s Vision Statement since it will relate only to change management and re-organisation of the PWD. None-the-less it will play an important role in change management since it will enable PWD staff to focus on the issues in hand.

Visions, or slogans, are an important aspect of business life. One restaurant chain has the slogan ‘It only takes a second to sell a second’ pinned up in the staff canteen. Persuading a customer to order a second cup of tea or coffee is not an arduous task but it is a source of profit to the organisation. It has many attributes in that it is direct and easily remembered. Other organisations have similar visions pinned up in their company offices.

One way to motivate staff and to enable them to focus on the necessary issues is a vision. The Chief Executive of one British public sector organisation that was preparing for privatisation, and subsequent loss of jobs, came up with the slogan that the organisation was going to become a ‘lean, mean fighting machine’. What he neglected to add was that in the process many of the staff would lose their jobs, while he himself remained sheltered in his ‘ivory tower’. He certainly did not live the vision and never met those who were at the forefront of the change. This is not an example to follow but one to studiously avoid.

The PWD vision must be one that encourages, explains, and helps staff understand the change process. One of the first tasks of the Project Champion and his team will be to meet with all PWD staff and explain to them the reasons for the proposed changes. If people appreciate why things need to be changed, and this must include what is wrong with the present system, they are less likely to erect obstacles to the change process.

The vision may be the result of many meetings with PWD staff to listen to them, maybe for them to come up with some new ideas as to ways of working, and for their views to be taken into account. The end result will be a vision shared by the PWD and relevant to the PWD. As time goes by the vision may be adjusted to indicate a new thrust based on previous successful achievements.
The sole objective of the vision is to encourage and enable the PWD to work together towards a common goal or goals. Charles Handy, one of the UK’s leading management experts, sets out the following requirements for a vision:

1. A vision has to be different. A vision has to ‘re-frame’ the known scene, to re-conceptualise the obvious, connect the previously unconnected, dream a dream.

2. The vision must make sense to others. It should be seen as a challenge, but capable of achievement. This is where knowing the organisation’s life cycle stage (emergence, growth, maturity, decline, decay) is important and knowing what it is ready for. Transformational change is most needed in the emergence, late maturity and decline phases. [The PWD could be described as being in the decline phase].

3. It must be understandable and capable of sticking in people’s minds.

4. The leader [Project Champion] must exemplify the vision by his own behaviour and evident commitment

5. The leader must remember that if the vision is to be implemented it must be one that is shared.

A clear definition of shared purpose is required. The vision should be communicated in vivid concrete terms that everyone can understand. Enabling PWD staff to see what is desired and how the change will impact upon others, in particular the stakeholders, is important.

Change will bring about opposition, that is for sure. Some, local Politicians in particular, will see their authority being eroded. No longer will they be able to influence the Executive Engineer to undertake new construction works, since these will be handled in the Zone and be in accordance with the Road Network Master Plan and strategic plans drawn up based on GoUP policy frameworks. The vision must take into account, and counteract, the negative impacts as well as emphasising the positive impacts.

17.3 DEVELOPING POLITICAL SUPPORT

Political support does not just imply support of the GoUP but also the support of those informal groups that exist in all organisations. All organisations are political entities. Within all organisations small informal groups will have become established each with their own political agenda. Although it is not often acknowledged or discussed openly, politics are largely endemic to every business, and the PWD will not be an exception. PQ is a short-hand version meaning ‘political intelligence’.

PQ is about working with integrity towards the common good of the organisation, rather than for personal gain. It is not about the abuse of personal power. People who posses PQ recognise the power bases and sources of influence that they, and others possess, in order to gain buy-in to change. They know when to do this and the best methods for gaining acceptance to change.
There will always be those who are not willing to buy-in to change. Symptoms of negative politics at work include behaviours that demonstrate resistance to change such as:

- Open opposition to change as well as that which takes place not in the ‘open’
- Blocking proposals through arguments and counter arguments
- Blaming others
- Agreeing to support the changes but then failing to act
- Lack of cooperation, or obvious disinterest

However positive politics can create:

- A shared understanding and a common purpose
- Acknowledgement of the difficulties of change
- Disagreement and concerns aired openly and discussed with the intention of finding a way forward
- Feedback so that progress can be determined to add impetus to the change programme

Some staff may have genuine concerns as they realise that the nature of the work which they had been doing will change. A typical example is that where computerisation will be used, as is envisaged for financial management. New forms will be required and whole process will be computer based. Under these circumstances some of the PWD Administrative staff will express concern over the need to learn computing and the fear that they will not be able to perform.

Under these circumstances if these fears are not addressed negative politics will take over and the opposition to change will increase. It is imperative that the administrative staff are not ignored and that where re-training is required they will be supported and encouraged. It is envisaged that many of the basic administrative tasks will change in nature as computers are introduced. Word processing will eliminate many of the existing tasks undertaken by the administrative staff and maybe reduce or eliminate the need for a number of posts. After all this Report has been ‘typed’ by the author and no Secretary of any form has been employed. The only additional work undertaken has been formatting.

Not surprisingly the administrative staff may feel that they will be the victims of any change and it is therefore important to ensure that their voice is heard and represented on the Change Management team. The force of ‘underground’ politics and their negative impacts should not be underestimated. These restraining forces against change can take the form:

- Keeping the status quo
- Fear of loss of power
- Fear of redundancy
- Fear of the unknown
- Lack of knowledge transfer
The above are key concern areas and every effort should be made in the communication process to honestly address these issues. It has been claimed that reducing a negative impact is generally more effective that increasing the positive impacts.

The word ‘Politics’ is normally associated, and synonymous, with ‘Power’. During change there will inevitably a shift in the power base. It has been observed\(^2\) that power politics reach their highest pitch during the transition state, which is the subject of the following section. This state is defined as the period after the change programme has commenced when people know that old structures, procedures, and behaviours are no longer appropriate, but before they know what is appropriate and are confident and competent in their new roles.

Any transition stage involves three specific characteristics: instability, uncertainty, and stress.

- **Instability** arises because people do not know what jobs, authority, and roles they will have in the future. They will be expected to move from a stable and known past to an unclear and unknown future.

- **Uncertainty** arises because no-one has the answers to their questions concerning their place in the new organisation.

- **Stress** is the inevitable result of instability and uncertainty – for both the Change Management Team and the entire PWD staff.

Nadler\(^1\) states that the above characteristics lead to three problems that must be resolved and managed: power, anxiety, control. He goes on to state, “Every organisation is a political system. Every organisation has its identifiable groups, cliques, and coalitions, each of which holds fast to its own values and beliefs.” These groups may or may not be a formal part of the organisation but relationships have developed over a period of time. Any change will upset this balance bringing about its own power struggle. Nadler goes on to suggest ways in which these issues can be managed during the transition state and these are given in the following Section.

**17.4 MANAGING TRANSITION**

As detailed in Section 9: Implementation Plan it is proposed that the during the transition phase change takes place first of all in the Zones and then, secondly, in PWD Headquarters.

Each stage of each phase needs to be carefully planned and progress monitored against what was planned and adjusted accordingly. During phase one it is proposed that the new Cells, Training, Quality Management, and Environmental and Social Development, are established in the Zones, Circles and Divisions as appropriate. The whole process could well take 2 years or more. The Cells that have been established in Headquarters will need to cooperate and to ensure that the necessary processes and systems are in place so that the Cells in the Zones will be able to function effectively. These processes and systems will be subject to constant review to ensure that they are working well. Where necessary they should be revised or modified and the modified version tested in the second Zone.

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\(^2\) Champions of Change by David Nadler, published by San Francisco: Jossey-Bass 1985)
Once the processes and systems have been tried and tested they can be replicated in other Zones. Part of this process will be for the Zones where the Cells are to be established next to visit a Zone where they have been established. Thus they will be able to see for themselves what is involved so that the process of establishment and implementation can take place smoothly and effectively.

Two of these new Cells, Training and Quality Management, are not new and are part and parcel of the work of PWD who will be familiar with what is required. The real change will be with respect to the processes and systems. These will be changed as will the style of management required to head and work in the Cells.

As the new Cells are established in the Zones, Circles, and Divisions, the change management team will not only be monitoring the implementation process but also their performance. At the same time this same team will need to focus on the second phase of the transition, which will be the changes to the PWD organisation structure and the impact upon Headquarters and way in which it will function in the future.

This will require a carefully prepared strategy and plan which must include training and necessary recruitment of specialist staff. This work will also consider the most senior posts in the PWD, which are the Director General, Deputy Director General, and the Engineers-in-Chief. Whilst at the same time suitably qualified and experienced staff will be required to work in the Policy and Planning Cell, the Road Safety cell, and in the HRD and Training Cell. Training was perceived to be the more straightforward function of the HRD and Training Cell which is why it was dealt with separately and the function established in the Zones during the first phase.

17.5 SUSTAINING MOMENTUM

It is one thing to start a project, and change management can be considered in that light, but sustaining a project over a number of months, or even years, is entirely different. To begin with the Change Management Team will be, or should be, enthusiastic about what the change will bring about. However as difficulties arise, and opposition grows, enthusiasm can give way to despair and depression.

Handling the transition means dealing with people. It means meeting with the PWD staff at all levels, administrative and technical. It is anticipated that the major problems will arise when dealing with the administrative staff. The technical staff are far more likely to understand the reasons for the change and will therefore be more cooperative, but it is the administrative staff who will carry the brunt of the change.

There is no point in changing the organisation structure without changing the systems and processes. This includes not only the communication and reporting systems but the processes by which these systems are carried out. In some Indian States, such as Gujarat, the PWD has instituted a system where all internal communications that were once transmitted on paper are now transmitted using computers. This means a major revision to the way in which the PWD works. New processes will need to be designed and tested to match with the new organisation structure.
The change will affect the way in which they work, it will affect how they do things, and it will affect their accountability. Many of these changes will inevitably come about as the PWD adopts computers as the norm as opposed to the exception in their offices – and this is at all levels from Engineer-in-Chief (or Director General in the proposed structure) down to cost clerks and store keepers. Records will become computerised, costs will become computerised, the financial reporting system will become computerised, letters and internal memos will become computerised, and so the list goes on.

What will be needed is a vision of the future processes and systems so that PWD staff can be made aware of the likely changes and the influence they will have on their current jobs. It may mean that some jobs will disappear but others will take their place, but the skills required will be different. Not surprisingly staff will be concerned – especially those who consider themselves to be too old to learn new systems (computers) and ways of working.

At all stages PWD staff will need to be kept up to date with the proposed changes and how they will fit into the new organisation. Every effort must be made to reassure staff and to provide training so that they have the necessary skills to meet the new challenges. This training is a vital part of transition management and sustaining momentum. But the training must be carried out in parallel and slightly ahead of the introductions of the new systems. Sadly one forgets much more quickly that one learns. Training in the use and application of computers is useless unless those trained have the opportunity to apply their new skills. Only too frequently computer training is given and staff wait several months before a computer is given to them in their office.

The converse is also true where senior managers are provided with computers but are too proud, or too busy (which from experience is the same thing as too proud!) to attend training courses. The computers sit on their desks as status symbols but they are unable to perform some of the simplest functions such as sending or receiving e-mails yet alone access the internet!!

Training is a vital aspect of sustaining momentum. However it is not the only way. Its advantage is that it is tangible and measurable. Staff know how many have been trained and to what level, but there is more to sustaining momentum than running training courses.

It is during the transition period that the following types of questions may arise in the minds of the Change Management Team:

- What are the people implications?
- Why are we getting bogged down?
- How can we keep things going?
- Is it all worth the effort?

This is the time when the Project Champion needs to show his leadership skills. In one comic opera by Gilbert and Sullivan there was a character called the Duke of Plazatorio. He was a very senior army officer who ‘led’ his troops into battle while stationing himself at the rear. The reason for taking up this position was that when the battle did not go well he could lead the retreat! The Project Champion must not be one who displays Duke of Plazatorio characteristics.
18. WHY CHANGE EFFORTS FAIL

Before embarking on a change process within the PWD there is a need to give a warning: “change efforts are more likely to fail than to succeed”. At least that is the history.3

Although this piece of research was carried out more than 10 years ago it does raise some significant issues which are highlighted in the following sub-Sections.

18.1 ESTABLISHING A SENSE OF URGENCY

A public sector body, such as the PWD, is very different from one operating in the private sector. It is not subject to competition and the vagaries of a competitive market which can dictate the need for change in the private sector. It is in every sense of the word a monopoly. There are no competitors and hence the need for change has to arise from within.

Change has to be driven from within with an even greater sense of determination and urgency than found in the private sector. If the PWD, and that means everyone from the top level of management (Engineer-in-Chief and Principal Secretary) down to Junior Engineer level do not have a sense of urgency then do not start the process. Better to leave things as they are than to try to change when there is no sense of urgency. It has been suggested that at least 75% of senior management (Chief Engineers and above) must be committed with sense of urgency to push through the changes.

And there is every reason for a sense of urgency. The current system is unable to cope with the demands placed on it by GoUP and by the road users. The demand for effective and efficient use of funds to provide a road network that meets the demands placed on it by the commercial sector are immense, and getting greater every year. The annual deterioration of the road network cannot be arrested by the current practices and procedures. It demands a radical change which can only be brought about by changes in management systems and procedures. Are these demands sufficient to create a sense of urgency?

18.2 FORMING A POWERFUL GUIDING COALITION

Change Management must be driven from within. A Consultant can help, but unless the driving forces come from within do not start the change management process.

Every successful change management operation has been led by a powerful internal team. That team consists of senior management (Engineer-in-Chief) and others who are absolutely committed to change. It is not simply a case of senior management being given a place in the team, but they must be FULL TIME – not part time. Change management is a major Project and must be accorded full time resources. There is no place for part-timers or for those who lack total commitment. This coalition must work together as a Change Management Team. It may even be necessary to consider team building exercises to encourage team work and trust.

The guiding coalition must be powerful, powerful enough to counter opposition. And there will be opposition. Most people do not like change. In the re-organisation structure some will see the erosion of their power base and will do everything in their power to halt the process. Others will make life difficult because they perceive that their way of life may change since new management processes and systems will bring about accountability and transparency. The guiding coalition must be capable and sufficiently powerful to defeat all counter-arguments and if necessary force through the changes.

In an organisation the size of the PWD this guiding coalition could consist of some 50 people. It will operate outside the normal hierarchy. This can be difficult but if the existing hierarchy was working well there probably would be no need for change. Can the PWD raise such a powerful coalition?

18.3 CREATING A VISION

There is a need to create a vision on which to focus the change effort, and to develop strategies to achieve that vision. This vision is different from the PWD Vision Statement. It is a vision that embraces the change management and gives direction to those engaged in the process, whether they are members of the guiding coalition or other officers in the PWD. It is a picture of the future, one which can easily be communicated to, and understood, by others.

The vision may take several months to hone and define, but without it the change effort can lack direction. One danger is that plans, directives, and programmes can be prepared and implemented yet lack the necessary direction which such a vision can give.

According to John Kotter\(^1\) “A vision says something that clarifies the direction in which an organisation needs to move.” He goes on to state that “Without a sound vision, the re-engineering project in the accounting department, the new performance appraisal from the human resource department, the quality programme……will not add up in a meaningful way.” Part of the reorganisation process will be to implement these three aspects, and more, into the PWD. Can the PWD create a meaningful vision statement?

18.4 COMMUNICATING THE VISION

Every means possible must be employed to communicate the vision to all employees within the PWD and this includes technical and administrative staff. One of the tasks of the guiding coalition is to live out the vision, leading by example. The guiding coalition must work and act in harmony with the vision so as to emphasise its importance. In communication it can be said that ‘actions speak louder than words’.

The communication process is vital if real change is going to take place. A one-off circular or meeting will do little more than create unrest amongst staff. The communication process must be on-going. Senior staff must take time to meet with all employees. They will need to spend time explaining why change is necessary, what the reorganisation sets out to achieve, and how the change will be implemented. It will mean answering questions and preaching the same message over and over again, until all the PWD staff have got the message.
Unless the greater majority of the PWD staff understand and are themselves committed to the change the whole process will be a failure. This is not the time to spread the word amongst a few senior officers. It is the time to spread the word amongst all PWD staff. It will involve weeks of travel to all Divisions, not once, but several times. Communication of the vision should use all possible means and methods. It may be necessary to move outside the normal communication channels and open up new and different ones. The guiding coalition need to meet with all levels of PWD staff. They will not achieve the vision unless it is clearly and accurately explained in the greatest detail to all. Their aim is to achieve the vision but this will only be possible once the greater majority of PWD staff have come over to their way of thinking. Will it be possible for senior PWD staff to spend time visiting the Divisions and spend time answering questions?

18.5 COMMUNICATING THE VISION

This involves getting rid of obstacles to change: changing systems or structures that seriously undermine the vision: encouraging risk taking and non-traditional ideas, activities, and actions. PWD staff are encouraged to come up with new ideas and to develop new systems. All this is the result of successful communication. PWD staff, once they understand and are committed to the change will inevitably come up with new approaches. These must be evaluated and the better ones developed to determine their worth and place in the new organisation, systems and procedures.

Some of biggest obstacles are senior managers who simply pay ‘lip service’ to the vision but who deep down are fearful. This fear may be based on assumed loss of power, or possible inability to perform well within the new structure, or what they consider to be adverse changes to their current way of working with the advent of new systems and procedures. When a senior manager refuses to change the probability is that those around him, and those who report to him, will not change. They will simply counter all attempts to change and slowly drain the PWD of the energy and commitment to change.

Such obstacles must be met head on. They cannot be allowed to remain and fester creating major problems for the future, or even high-jacking all efforts to change. Is the PWD in a position to spot and, more importantly, to deal with those who create such obstacles?

18.6 PLANNING FOR AND CREATING SHORT-TERM WINS

The active word is ‘planning’. It is essential that the guiding coalition plan for short-term wins. They do not happen by chance but must be planned and worked for. Change is a long-term process and it is important that the PWD do not lose their vision nor their motivation: this applies very much to the guiding coalition.

It is important that the PWD also recognise and praise those who have been involved in the process. This is not the opportunity for the guiding coalition to congratulate themselves on their brilliance but for them to acknowledge the efforts made by others. Without these efforts, the change process would come to nought. Under the current regime the PWD does not promote staff based on efforts and results. However under the envisaged change processes staff promotions will be merit based. Thus it should be possible, and highly desirable, to promote staff
who have made efforts to bring about the desired changes. This will act as a motivator for others so that process does not lose momentum.

Short-term gains are morale boosters. These are necessary for encouragement and act as confidence boosters as well as increasing the credibility of the guiding coalition. Commitment to go for short-term wins helps to keep up the pressure and urgency level. Short-term wins can be used to critically analyse strategy and can help to clarify, and maybe modify, the vision.

18.7 CONSOLIDATING IMPROVEMENTS AND PRODUCING STILL MORE CHANGE

If necessary use the gains in credibility to change those areas which do not fit within the vision. Reward staff who have and who will continue to implement the vision.

Consolidation of improvements will bring their own success as others, who may have been sceptical at first, begin to see the advantages to be gained from the new structure and associated systems and procedures. The effect is that they too will now share the enthusiasm for change thus reinvigorating the whole process.

18.8 INSTITUTIONALISING NEW APPROACHES

The new structure will bring about its own culture, its procedures, and systems. An organisation is a living thing and as time goes by it may be necessary to make adjustments. But these should not be made lightly nor without considering the effect that even a small change may have on the structure and its way of working.

The new organisation will develop a new way of doing things that are different from the old way. Every effort must be made not to slip back into the old way of doing things. Staff must be encouraged to adopt the new systems and procedures that are compatible with the new organisation.

What is also important is to create a new culture for staff development. Able and competent staff must be picked out and given the training necessary for them to hold the most senior positions within the PWD. A Portuguese proverb states that ‘fish decay from the head’. It is the most senior level of management who determine the future of the PWD.

The most senior managers must be picked early and trained so that they are equipped to hold those posts which will determine the future and direction of the PWD. They must be highway or structural engineers with a thorough knowledge and appreciation of the tasks facing the PWD. But above all else they must be skilled in all aspects of management and able to negotiate with GoUP to prepare policy frameworks and strategic plans that will give a purpose and direction to those engaged in the Zones, which are destined to become the operational units of the PWD.
18.9 CONCLUSION

In the book “Managing Organisational Change” the authors list the following four preconditions for effective change:

1. Pressure for Change: absence will cause projects to remain at the bottom of the In-tray. Without pressure for change everyone will perceive change to be of little consequence and relatively unimportant compared with the other activities they have to deal with.

2. A clear shared Vision: absence will cause false starts that fizzle out. A clear vision will set out the objectives for change but if these are missing or confused people will not understand or appreciate the need for change.

3. Capacity for Change: absence will cause anxiety and frustration. People must be given the ‘tools to get the job done’. Resources must be allocated and made available otherwise their lack will cause leaders to become frustrated as their attempts to change are unable to come to fruition.

4. First Steps that Lead Action: absence will cause haphazard efforts and false starts. Planning is vital so that the first steps are taken in the right direction. A Chinese proverb states that in order to walk a 1,000 kms it is necessary to take the first step. But that first step must be in the right direction and one that will bring success, however small, so that those responsible for leading the change will receive recognition and credibility.

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19. THE WAY FORWARD

The proposed forum with the Road Stakeholders in expected to highlight their dissatisfaction of the current condition of the road network. For the stakeholders it means higher transport costs, leading to reduced profits, leading to reduced investment, leading to slow economic growth, etc. Good roads are the backbone of economic development and improved living standards: for example they result in the ability of farmers to take their produce to the markets, children having access to schools, and families having access to health clinics.

The resulting focus will be on the way in which the PWD can improve the standard of service currently provided. Additional funding from GoUP is not likely be the basic problem. The problem is the convoluted mechanism that must be gone through before any funds are spent on road construction or maintenance.

This should provide the impetus for change but the reasons for change must be made clear. The PWD can be regarded as a system, such as that shown in Figure No. 13.

Figure No. 13: The ‘Systems’ View of Organisation

It is possible to set objectives for change at each of the levels shown in Figure No. 1 as follows:

1. Inputs: this could cover the type of people recruited into the PWD. At present recruitment covers Highway and Structural Engineers. In future the range of staff recruited should be extended to include Transport Planners, Transport Economists, Accountants, Financial Managers, Policy (Governance) Specialists, Strategic Planners, and Human Resource and Training Specialists.
2. Processes: this would cover the way in which was done. For example making the Zones autonomous operational units, with PWD Headquarters adopting a regulatory and monitoring role. Creating a split in the PWD so that Core Roads and Village Roads were managed by separate Zones under separate Engineers-in-Chief in PWD HQ.

3. Outputs: this would include the way in which work was undertaken in the PWD. For example road maintenance of Core Roads would be based on RMMS and that for Village Roads on a more simplified approach, but all maintenance would be ‘needs based’. Construction and maintenance works for Core Roads would be out-sourced while that for Village Roads would generally be carried out in-house.

4. Outcomes: Decline in overall condition of the road network arrested. Road developments in accord with Road Network Master Plan. Improved financial control and transparency: PWD budgets presented to GoUP able to withstand close scrutiny.

As the deliberations that take place the PWD ‘Vision Statement’ should never be forgotten. It is a reminder as to the purpose of the PWD and what is expected from it. In any planned change effort it is worth thinking about what effect the change will have on the above outputs and outcomes. The organisation structure, communications, and decision making processes are all ways to achieve the Vision Statement.

Change objectives should be determined using the SMART criteria:

Specific
Measurable
Achievable or Agreed
Relevant
Time-based or Time-limited

The organisation structure may not be the best place to start. In the case of the PWD much time and effort has been expended on preparing the various organisation structure options given in the October 2007 version of Report No. 11. The structure is by far the most tangible point at which to start, but for each and every option time must be spent considering the flow of information, the management, decision making, and reporting systems and processes to be adopted.

Reports Nos. 16 and 28 both relate to financial management and each includes a diagram showing the flow of forms recommended for use in the PWD. This system should be adopted for all information flow to ensure that the proposed structure is capable of handling the revised communication, information flow, and decision making systems and processes.

The change process covers the transition from the existing state to the desired future state. This is what change management is about. A senior Roads Department Officer in Pakistan went to great length to explain what he called his ‘2030 Vision’. This was what he believed Pakistan should be like in some 25 years time. When asked how he planned to get from the current to the future state he was unable to reply. A similar story is told of a traveller in Ireland who stopped to ask the way to a town. From one of the local people he received the unhelpful reply, “If I was going there I would not start from here!”. 
20. IMPLEMENTATION PLAN

It is proposed that implementation of change or transition is carried out in at least two phases. It is based on the premise that the Cells in PWD Headquarters are resourced and fully operational. The first phase could be the introduction of the some of the newly created Cells in the Zones. The second Phase would be the actual reorganisation of the PWD starting with Headquarters. In view of the many problems facing the PWD it is considered that this would be the best approach, but it is totally dependent upon the determination, commitment, and motivation of the most senior managers in the PWD, and that must include the Minister and the GoUP.

20.1 PHASE 1 – NEWLY CREATED CELLS IN THE ZONES

The newly created Cells, established under Phase 1, would be:

A. Training
B. Quality Management
C. Environmental and Social Development

These Cells would first be implemented in a Pilot Zone and then implemented in a second Zone. This would provide the opportunity to test the systems and procedures prepared by the appropriate Cell in PWD HQ, to review and possibly revise same and implement in a second Zone where once again it would be subject to review and revision before being implemented in all the other Zones. The following activities, for example, would need to be implemented with respect to Training for one Zone:

1. Establish Systems and Procedures / Prepare Training Plans: The Training Cell in PWD Headquarters will be responsible for setting up the systems and procedures to be adopted in all the Zones with respect to training. They will also establish basic training programmes for the staff in the Training Cells in the Zones. This work will include budgets: their availability and allocation.

2. Establish Staff in First Zone: This is the time allocated for the Zone to establish a fully resourced Training Cell. Fully resourced means just that. Fully resourced so that it can operate effectively with full-time and committed members of staff.

3. Implement Training Plans in Zone and Train Staff: The Training Cell will implement the training required for staff appointed to the new Cells. In the first instance this be training for staff appointed to the Training Cell, but thereafter it will be for staff appointed to the Quality Management Cell and Environmental and Social Development Cell.

4. Monitor, Evaluate, Modify: The training programmes must be carefully monitored and evaluated to ensure that they meet the prescribed objectives. If not, they will need to be modified or other training providers engaged. The systems and procedures set up by PWD HQ also need to be monitored, evaluated and, if found necessary, modified.
5. **Implement modified version in Second Zone and Train Staff:** When the training Cell has been established in the Second Zone, the modified version of the Training Plans should be implemented as detailed in 3 above.

6. **Monitor, Evaluate, Modify:** Same process as in 4 above.

7. **Implement modification No. 2 in Third Zone:** Same process as in 5 above.

Once established and fully resourced the staff in the Cells need to be trained so that they can perform effectively. However once their basic training has been completed it may well be necessary for them to take additional specialised courses to provide them with in-depth knowledge.

The process is shown in Figure No. 2: Programme for Implementation of Training, Quality Management, and Environmental and Social Development Cells in PWD Headquarters and Zones.

### 20.2 PHASE 2 – REORGANISATION OF THE PWD

As the new Cells (Training, Quality Management, and Environmental and Social Development) are established in the Zones, and this process could take 2 years or more, the need will arise for the PWD to seriously consider their organisation structure. This is the real transformation stage from the current structure of the PWD to the one chosen as the preferred option, management structure, and way of working.

During this lead time of 2 years the PWD should be preparing for the reorganisation process. The change process, or transition management, must be planned, well planned, and all PWD staff kept fully informed. The basic objective of this Report is to raise awareness amongst senior PWD staff of their vital role in this process.

Establishing and implementing the three Cells proposed in Phase 1 is a minor part of the re-organisation process. The PWD HQ will have prepared the regulations to be followed by the three Cells in all the Zones. But in the re-organisation process the power and responsibility to perform must be given to the Zones.

With respect to Procurement, for example, PWD HQ will have established the systems and procedures to be followed in the Zones but the Zones must be empowered to implement these systems and procedures when the Cells are established in the Zones. This situation will be replicated for all the other Cells. The re-organisation process must include the delegation of power and authority to the Zones so that they can truly become the Operational Units of the PWD.
Figure No. 14: Programme for Implementation of Training, Quality Management, and Environmental and Social Development Cells in PWD Headquarters and Zones

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</tbody>
</table>

Full time activity with assistance from TA Consultant
On-Going activity once staff have been trained
21. CONCLUSION

Sadly there is little evidence that the PWD is yet ready for, or committed to, change. At present it is simply considered to be an interesting concept. By September 2008 none of the three Cells shown in Figure No. 2 were operational in PWD Headquarters and nothing has been implemented in the Zones. All Cells lack staff hence nothing has been, nor can be, implemented.

The Cells in Headquarters and in the Zones must be fully resourced, and that means fully staffed, staff trained, and fully equipped in terms of office accommodation, computers, etc. The PWD is a key player in the economic prosperity of the State and must be recognised as such. If their Vision Statement is to have any meaning, other than looking good on paper, then the necessary resources must be made available. Any lack of resolve in this area is an open statement that, “There is no commitment from GoUP or Senior Managers for change in the PWD”.

If this is the case stop the process now and forget all about change and reorganisation. The PWD is not yet prepared, or ready, for the hard work and commitment associated with change management. It is a long-term process with no quick fixes. The whole process could take at least three years, probably five, and quite likely ten years. It will require absolute single-mindedness, courage, and determination to see it through. It will require a ‘Change Management Champion' to guide, lead, motivate, and communicate with those involved.

It will require the Change Management Champion to be in post for at least 3 years, and this is one of the current problems. Senior PWD staff are rarely in place for more than a year, and a few months is the norm. This IDS Project will have been led by at least three Chief Engineers during the period April 2006 to September 2008. For any change management programme this form of leadership would be a disaster. Senior management cannot abrogate their responsibility in this matter by handing it over to an external Consultant.

Does the GoUP, the Minister, and the PWD have the resolve to implement the wide ranging changes that reorganisation will bring about? Will the necessary resources be made available?
22. FOCUS GROUP AND PROJECT STEERING COMMITTEE

22.1 FOCUS GROUPS

Because of the nature of this Report, much of the initial work was undertaken with the help and support of the IDS Cell. Once the basic proposals regarding the possible organisation structures had been determined these proposals were discussed in detail at Workshops held with the senior officers in Varanasi Zone and Lucknow Zone.

Preliminary discussions were also held with Sri. Krishna Kumar Mittal, Engineer-in-Chief and Head of Department, who was also the original Chairman of Focus Group B. As proposals regarding the organisation restructuring became firmer a second visit was made to Varanasi Zone where a series of Workshops were held with the Chief Engineer and staff in the Zone Headquarters. An additional Workshop was held with one of the Superintending Engineers and the staff in the Circle offices.

Both the Team Leader and the HR Specialist, with support from the IDS Cell and other Team members were present on these visits and subsequent discussions. These discussions were an invaluable part of the preparations of this Report and thanks are due to all the PWD staff for their help, interest, and critical comments.

Once the Report had been completed a visit was made to Bareilly Zone where a series of Workshops were held during which the content of this Report was presented. The ensuing discussions did much to confirm the approach taken and the suitability of the possible organisation structures embodied in the Report.

22.2 MINUTES OF THE PROJECT STEERING COMMITTEE (PSC) MEETING NO. 7

Thursday, March 13, 2008, 3.30 PM

Report No. 11: Report for implementing progressive PWD Restructuring and staffing re-alignment, including ongoing internal staff communications on all major aspects.

- TA Consultants briefed the PSC about the first part of the report, submitted in April 2007 and already presented, which included various concepts and case studies.
- The TA Consultants presented various options for the organisation setup for PWD at HQ, Zone, Circle and the Division level.
- The PSC opined that if UPSHA is given the responsibility of all the Core Roads for construction and maintenance via PPP, the presented option to divide the PWD organisation based on the function of Core and Non Core will have to be reviewed again. The TA Consultants replied that only State Highways were likely to be handed over to UPSHA to start with, but the rest of the Core Roads would still be with PWD.
Report No. 39 relates to UPSHA and its present status. As things stand at present UPSHA is in no position to accept responsibility for any of the Core Road Network. The problem has been further compounded by Government administrative procedures which effectively mean that UPSHA has to report to the Infrastructure Development Department.

If UPSHA is to be the agency for establishing and implementing PPP/PSP then it must be given the powers, freedom, and resources to act.

- The TA Consultants presented the man power requirements based on option 3 (out of the three options given) for the PWD reorganisation setup.
  
  This has been done and the figures for Option 3 have been included in Section 16.3 of the main Report.

- The PSC suggested that the computation of sanctioned posts should be mentioned for all the cadres and at all PWD offices.

- The PSC asked that since the State Government is thinking of handing over all the village roads to the Panchayati Raj Department; does the TA Consultant still suggest to divide the organisation based on Core and Non Core Road functions? The TA Consultants replied that answer to this will be replied as an addendum to this report.

It has been proposed that the Panchayati Raj Department takes over those village roads which are not classified as 'Through Roads'. The definition of a 'Through Road' is a road which connects two or more villages and which has a length of at least 5 kms. The total length of such roads is unknown but anticipated to be in the order of 40,000 to 50,000 kms. Thus even if the village roads which are not classified as 'Through Roads' were to be handed over to the Panchayati Raj Department the PWD would still be responsible for some 40,000 to 50,000 kms of village roads. Hence the suggestion to split Core and Non Core roads stands.

- The PSC opined that the option suggested by the TA Consultant is very traditional in nature that does not take into account the role of UPSHA and PPP. If the TA Consultants feels out-sourcing is an option for maintaining and constructing the Core Roads, the staff requirement thus worked out will be much less. The TA Consultants replied that the new staff recruited could be a part of UPSHA to carryout new responsibilities. Further, the TA Consultants expressed that they would review the above aspect and submit suggestions as an addendum to this report.

Without a doubt the staffing requirements of the PWD are dependent upon whether activities are to be carried out in-house or out-sourced. These issues need to be considered as part of the overall decision as to what activities should be out-sourced and the economic gain of doing determined. This work is outside the scope of this Report.
The PSC opined that the options suggested by the TA Consultants is a pyramidal structure at HQ level as is existing now with change in title only. They feared that the suggested structure will never going to work where the Director General will continue to perform same functions as the ENC is performing today. To this the TA Consultants replied that a vast change in the function and job responsibility has been proposed for each of the posts with emphasis on planning and management function. A clear instruction for each job responsibility will ensure easing of pressure on a single person.

The major functions of the proposed new posts in the PWD are given in Section 8 of the main Report. The current major concern is that demands from the GoUP on the PWD senior staff would appear to be such that little, if anything, is done in the way of policy formulation and planning. These are two vital areas that affect the entire role played by the PWD as Managers of the Road Asset. That is why the post of Director General was introduced so as to enable the senior officers to mange the PWD. It should not be forgotten that the budget for 2008/09 is some US$2,000,000,000.

The TA Consultants presented an outline of the modified structure of NHAI. The PSC reacted to this by citing examples of the legal and the land acquisition cells which are not functioning properly. The TA Consultants replied that the proposed modification has not been implemented yet. The real effect can only be judged after the recommendations become reality.

The PSC expressed that the qualification (such as MBA) can not be defined for the top management as this was not a part of the prequalification for that post as per approved government guidelines. But this can be included for new recruits as necessary. If the PWD is to function effectively and efficiently it will be necessary to engage professional staff other than those who hold an engineering degree. For example the HR and Training Department should be run by suitably HR professionals, the same is true for Financial Management and the IT / Data Management Department.

The PSC suggested that it is required to strengthen Chief Engineers at HQ and empower them to approve the estimates instead of current practice to send for approval to the Government. They should also be given responsibility to manage cash flows and finance. The Zones should have a strong monitoring system for their budget and expenditures.

**Organisation Structures of International Road Agencies**

The TA Consultant agreed to provide copies of the organisation structures of the Highways Agency in the UK and of the MTO in Canada: these are given in Annexures 4 and 5.

One of the objectives of the Senior Managers Study Tour was to enable the delegates to visit these organisations and to discuss with them many of the topics raised at the Project Steering Committee.
23. PRESENTATION TO PROJECT STEERING COMMITTEE
Report No. 11 : Report for implementing progressive PWD Restructuring and staffing re-alignment, including ongoing internal staff communications on all major aspects

PWD Vision Statement:

“Creation and Maintenance of an Available, Accessible, and Affordable Road Network in Uttar Pradesh which is Safe, Encroachment Free and Eco-friendly for Everyone at All Times”
Institutional Development Study (June 2002) by Tata Consulting Engineers (TCE) listed the following Cells to be established in the PWD:

1. HRD and Training
2. Environmental and Social Development
3. Quality Management
4. Projects Policy and Planning
5. IT Management and Planning
6. Road Safety Planning and Engineering
7. PSP / PPP Development Cell
This is the second Phase of Report No. 11.

Phase 1: (April 2007) basic introduction to re-structuring of PWD with possible organisation structures

Phase 2: (October 2007) more detailed organisation Structures and staffing re-alignment

The work has been based on meetings and discussions with the IDS Cell and Lucknow and Varanasi Zones.
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- Steps to Arriving at Re-structuring
- Proposed Organisation Structure
- Staffing for Re-structured PWD
- Implementation of Re-structuring
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- Steps to Arriving at Re-structuring
- Proposed Organisation Structure
- Staffing for Re-structured PWD
- Implementation of Re-structuring
Figure 1: Existing Organisation Structure of PWD, Uttar Pradesh
Table 3: UP PWD Zones, Circles and Divisions

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<td>7</td>
<td>60</td>
<td>273</td>
<td>25</td>
</tr>
</tbody>
</table>
Table 4: UP PWD Staff Strength (Sanctioned and In-position) - September 2007

<table>
<thead>
<tr>
<th>Designation / Position</th>
<th>Total Number of officers</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sanctioned Posts</td>
<td>In-position</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>General</td>
<td>Deputation</td>
<td>General</td>
<td>Deputation</td>
</tr>
<tr>
<td>Engineer-in-Chief (ENC)</td>
<td></td>
<td>3</td>
<td>Nil</td>
<td>2</td>
<td>Nil</td>
</tr>
<tr>
<td>Chief Engineer (CE) Civil – Level I</td>
<td></td>
<td>3</td>
<td>Nil</td>
<td>2</td>
<td>Nil</td>
</tr>
<tr>
<td>Chief Engineer (CE) Civil – Level II</td>
<td></td>
<td>29</td>
<td>7 (out of 29)</td>
<td>18</td>
<td>4 (out of 18)</td>
</tr>
<tr>
<td>Chief Engineer (CE) Electrical/Mechanical</td>
<td></td>
<td>1</td>
<td>Nil</td>
<td>-</td>
<td>Nil</td>
</tr>
<tr>
<td>Superintending Engineer (SE) Civil</td>
<td></td>
<td>85</td>
<td>14 (out of 85)</td>
<td>73</td>
<td>12 (out of 73)</td>
</tr>
<tr>
<td>Superintending Engineer (SE) Electrical/Mechanical</td>
<td></td>
<td>4</td>
<td>Nil</td>
<td>4</td>
<td>Nil</td>
</tr>
<tr>
<td>Executive Engineer (EE) Civil</td>
<td></td>
<td>366</td>
<td>40 (out of 366)</td>
<td>349</td>
<td>18 (out of 349)</td>
</tr>
<tr>
<td>Executive Engineer (EE) Electrical/Mechanical</td>
<td></td>
<td>28</td>
<td>1 (out of 28)</td>
<td>27</td>
<td>Nil</td>
</tr>
<tr>
<td>Assistant Engineer (AE) Civil</td>
<td></td>
<td>1225</td>
<td>Nil</td>
<td>676</td>
<td>14 (out of 676)</td>
</tr>
<tr>
<td>Assistant Engineer (AE) Electrical/Mechanical</td>
<td></td>
<td>124</td>
<td>Nil</td>
<td>113</td>
<td>16 (out of 113)</td>
</tr>
<tr>
<td>Junior Engineer (JE) Civil</td>
<td></td>
<td>4176</td>
<td>Nil</td>
<td>3087</td>
<td>Nil</td>
</tr>
<tr>
<td>Junior Engineer (JE) Electrical/Mechanical</td>
<td></td>
<td>322+385</td>
<td>Nil</td>
<td>267+289</td>
<td>Nil</td>
</tr>
<tr>
<td>Junior Engineer (JE) T</td>
<td></td>
<td>467</td>
<td>Nil</td>
<td>325</td>
<td>Nil</td>
</tr>
<tr>
<td>Draftsman</td>
<td></td>
<td>319</td>
<td>Nil</td>
<td>344</td>
<td>Nil</td>
</tr>
<tr>
<td>Tracer</td>
<td></td>
<td>208</td>
<td>Nil</td>
<td>61</td>
<td>Nil</td>
</tr>
</tbody>
</table>
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- Steps to Arriving at Re-structuring
- Proposed Organisation Structure
- Staffing for Re-structured PWD
- Implementation of Re-structuring
Inadequacies of Current Organisation Structure

1. Outdated Organisation Structure

Changes and additions made over the years but not integrated with the result that original clarity has been lost

Result is diffused responsibilities at various positions and overlapping functions between tiers.

Procedures Manuals are out of date – Financial Handbook over 70 year old
Inadequacies of Current Organisation Structure (continued)

2. Executive Engineers are Overloaded

| 1. Engineering Works - concept, feasibility, planning, design, estimating | 9. Legal aspects |
| 3. Contracts | 11. Court Cases |
| 4. Procurement | 12. Welfare |
| 5. Construction and Supervision duties | 13. Social obligations |
| 6. Quality Control and Testing | 14. Meeting with District Authorities, Public Representatives, etc |
| 7. Payments to contractors (disbursement) | 15. Management and operation of his own Division |
| 8. Financial Accounting | |
| | |
Inadequacies of Current Organisation Structure (Continued)

3. Key Organisational Deficiencies

- Strategic Planning
- Monitoring and Financial Control
- Management Information Systems
- HRD and Training
- Road Maintenance Management Systems and budgeting process for maintenance works
- Environmental and Social Management
- Road Safety
- Procurement
- Regulations
- Quality Assurance
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- Steps to Arriving at Re-structuring
- Proposed Organisation Structure
- Staffing for Re-structured PWD
- Implementation of Re-structuring
Key Components of Organisation Structure

- Interaction Between State and PWD
- Policy and Planning
- Operations – Core Roads
- Operations – Non-Core Roads
- Administration
- Quality Audit, Design Standards, etc
- Management Information Systems

Review of Related Organisation Structures
Review of related Organisations

- Govt. Organisations providing services in the Civil Engineering domain
- Matching the large geographical spread of UPPWD and serving large population and managing large budgets.
- Large employee base of Engineering personnel like UPPWD.
- Organisations where Restructuring / Reforms have been taken up
Review of related Organisations (continued)

Central Public Works Department (CPWD)

Indian Railways

National Highways Authority of India (NHAI)

PWD Organisations in other States: Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh etc.

Private Sector Corporates
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- **Steps to Arriving at Re-structuring**
- Proposed Organisation Structure
- Staffing for Re-structured PWD
- Implementation of Re-structuring
Table 6: Steps in Evolving PWD Organisation Structure

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determine functions of prime importance to the PWD and form its core business.</td>
</tr>
<tr>
<td>2</td>
<td>Put those functions into logical groups</td>
</tr>
<tr>
<td>3</td>
<td>Review the groupings and determine any logical split to break them down into manageable groups</td>
</tr>
<tr>
<td>4</td>
<td>The desire was to create autonomous Zones with the authority to act and take decisions. Thus leaving PWD Headquarter free to act as a regulatory body, to liaise with GoUP, to set policy and strategic plans for the PWD, and to determine annual budgets</td>
</tr>
<tr>
<td>5</td>
<td>Consider the core business of PWD, and determine if the groupings derived during Step 3 can be considered as Strategic Business Units</td>
</tr>
</tbody>
</table>
### Table 6: Steps in Evolving PWD Organisation Structure (continued)

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Review the SBU’s to determine possible annual turnover. In terms of annual turnover, are the SBU’s viable?</td>
</tr>
<tr>
<td>7</td>
<td>What other functions were necessary to enable the SBU’s to operate effectively and efficiently? What functions were vital to the SBU’s and what functions, if any, should cease or be curtailed?</td>
</tr>
<tr>
<td>8</td>
<td>Determine support functions necessary to enable the SBU's to operate effectively and efficiently.</td>
</tr>
<tr>
<td>9</td>
<td>Consider the Top Management structure of PWD and of the function groupings</td>
</tr>
<tr>
<td>10</td>
<td>Draw organisation structure starting with PWD Headquarters, and working down to Zones, Circles, and Divisions.</td>
</tr>
<tr>
<td>11</td>
<td>Critically appraise same and revise accordingly</td>
</tr>
</tbody>
</table>
Management of the PWD

- Receives some 20% of the State Budget
- Responsible for some 50,000 kms of Core Roads
- Responsible for some 120,000 kms of Non-Core Roads
- Responsible for over 6,000 bridges plus other Structures
Management of the PWD

- Top level of Management needs to be strengthened
- Improved interaction between GoUP and PWD
- Senior Managers must be freed to provide opportunity to set strategic plans and effectively manage operations, and be in post for minimum of 2, and preferably 3, years
- Financial control strengthened at all levels – PWD HQ, Zones and Circles
- PWD HQ to act as monitoring and regulatory body
Top Management Structure of the PWD

- PWD to be headed by a Director General Works assisted by an Additional Director General Works

- Engineer-in-Chiefs reporting to Director General Works oversee the work of the Strategic Business Units (SBUs) with appropriate grouping of functions necessary to enable the SBU's to function effectively.

- Chief Engineers would be the heads of SBUs reporting to an Engineer-in-Chief. The reporting process must not remove the authority and motivation of the Chief Engineers, but rather, one of setting broad guidelines, regulations, and gathering data to pass on to the GoUP.
Core Business of PWD

The core business of the PWD is related to the construction and maintenance of roads and bridges. Based on this approach, this work was considered from at least two angles:

- Separation of Construction from Maintenance work
- Separation of the road network into Core Roads and Non-core Roads as defined in Report No. 3
Core Business of PWD

Discussions with PWD Engineers established that separation of Construction work from Maintenance work would create major problems. Separation of Core Roads and Non-core Roads appeared feasible and was favoured.

- Management of the core roads would require a different process from that required for non-core roads.
- Core roads would use a road maintenance management system (RMMS). Both construction and maintenance works of Core Roads could be outsourced.
- Non-core road network would require a simple maintenance management system with much of the construction and maintenance works undertaken by gang labour.
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- Steps to Arriving at Re-structuring
- *Proposed Organisation Structure*
- Staffing for Re-structured PWD
- Implementation of Re-structuring
Possible Organisation Structure Headquarters – Option 1

These Officers are based in the Zones and not in HQ
Comments on Option 1 - Management

All upgrading and maintenance works, along with the construction of link roads associated with the State budget, are to be headed by an Engineer-in-Chief 'Roads'.

Similarly, that for structures was to be headed by an Engineer-in-Chief 'Structures'.

The post of a third Engineer-in-Chief 'Aided Projects' was proposed to head up those activities associated with Projects that were not funded by GoUP:

- Projects which are funded by World Bank and other donor agencies,
- National Highways Maintenance works (budget is provided by NHAI)
- PMGSY Roads which are funded by Government of India.
Comments on Option 1 – Management (continued)

A fourth post of **Engineer in Chief 'Works Support'** was proposed to head up activities which could best be described as supporting the core business activities:

- HRM / HRD and Training
- Legal aspects
- Complaints
- Public Relations
- Right to Information
Comments on Option 1 – Management (continued)

A fifth post of Engineer-in-Chief 'Other Works' was proposed to head up those activities which are a necessity for the smooth functioning of the PWD but which are not part of the core business:

- Finance
- Procurement
- Technical Audit
- Quality Control
- Road Safety and Traffic management
- Environmental and Social Development Unit
- Research and Development
- Public Private Participation / Public Sector Participation
- Electrical and Mechanical
Comments on Option 1 – Management (continued)

Post of a sixth Engineer-in-Chief 'Buildings' was proposed to head up the PWD functions associated with buildings including functioning of Architects wing.
Comments on Option 1 – Functions, etc.

Discussions with respect to Option 1 indicated that improvements could be made.

**Engineer-in-Chief Roads:** Functional split between core and non-core roads at Division level. At Circle, Zone, and HQ levels the SE, CE and the E-in-C responsible for both core and non-core roads.

**Engineer-in-Chief Structures:** This post was considered to be unwarranted since the volume of work was insufficient. Functions associated with the post were moved to ‘Other Works’ Wing.

**Engineer-in-Chief Technology Development:** This was considered to be a better title than ‘Other Woks’.
Comments on Option 1 – Functions, etc. (continued)

**Finance:** This function was considered to be closely related to the functions given to the Additional Director General Works and was subsequently moved.

**Electrical and Mechanical:** This was moved to the Engineer-in-Chief Roads since it was involved with the provision of plant and equipment for construction and maintenance operations.

**Procurement:** This function was renamed Contracts and Specification since this was considered to be more appropriate to the required functions. It remained under ‘Technology Development’ formerly ‘Other Works’.

**Quality Control:** This was more appropriately renamed ‘Quality Management’
Comments on Option 1 – Functions, etc. (continued)

**Technical Audit:** This was moved and placed under the Engineer-in-Chief Roads, although not indicated as such.

**Research and Development:** This was renamed Road Design, Research and Consultancy.

**PPP / PSP:** This Unit was removed since its functions are the same as those for the UPSHA.

*These comments were incorporated into Option 2*
Possible Organisation Structure Headquarters – Option 2

- **Director General (Works)**
  - **Finance (Accounts and Budgeting)**
  - **CE (Policy and Planning)**
  - **CE (IT/ MIS)**
  - **SE (GIS/ RMMS)**
  - **Additional Director General (Works)**
  - **Chief Account Officer (Old Pension)**
  - **Senior Account Officer (90% G.P.F.)**
  - **Finance Controller**
  - **Budgeting Officer (Establishment)**
  - **CE Legal**
  - **CE (PMGSY)**
  - **CE (HRD and Training)**
  - **CE (Projects Policy and Planning)**
  - **CE (Quality Management)**
  - **CE (Contracts and Specifications)**
  - **CE (Public Relations and Right to Information)**
  - **CE (Complaints)**

**New Units / Cells to be established in PWD**
1. HRD and Training
2. Projects Policy and Planning
3. IT Management and Planning
4. Quality Management
5. Environmental and Social Development
6. Road Safety Planning and Engineering

* CE UPIDS will continue till the implementation of IDS Project*
ZONES: OPERATIONAL STRATEGIC BUSINESS UNITS (SBUs)

Reasons:

1) Population of the State: 180,000,000
   Average per Zone: 15,000,000

2) Funding: 8,000 crore IRS = US$2,000,000,000 per year
   Average per Zone: 650 crore IRS = US$ 165,000,000
   Split roughly 60% for Core Roads (390 crore IRS) and 40% for Non-Core Roads (260 crore IRS)
SPLIT BETWEEN CORE ROADS AND NON CORE ROADS

Additional Factors justifying the split

1. Management processes

Maintenance of the Core Road Network will be based on condition surveys and a Road Maintenance Management System and annual budgets prepared based on maintenance priorities.

Management of the Non-Core Road Network will be based on a much simpler and less data hungry maintenance management system.
SPLIT BETWEEN CORE ROADS AND NON CORE ROADS

Additional Factors justifying the split – (continued)

2. **Operations and Contracts**

Construction and Maintenance operations on the Core Road Network will be increasingly out-sourced, gradually moving to performance based maintenance contracts.

Over a period of time more heavily trafficked roads of the Core Road Network moving to Private Sector funding and tolling under UPSHA.

Construction and Maintenance of Non-Core Road Network will be carried out either by gang labour or by small contractors and with using PWD’s plant and equipment.

3. **Training Requirements for PWD Staff**

Will have some difference for the two categories of Roads.
Possible Organisation Structure Headquarters – Option 3

New Units / Cells to be established in PWD

1. HRD and Training
2. Projects Policy and Planning
3. IT Management and Planning
4. Quality Management
5. Environmental and Social Development
6. Road Safety Planning and Engineering

* CE UPSRP IDS will continue till the implementation of IDS Project
Major Functions of PWD Headquarters

1. **Director General Works**, Head of PWD
   - Background: Highway Engineer BUT trained in Management, Financial Management, Policy and Planning, and Negotiation (especially with Government)
   - Functions: Negotiation and Inter-action with GoUP
   - Setting Policy Framework for PWD
   - Strategic Planning

2. **Additional Director General Works**, Deputy HoD
   - Background: Highway Engineer BUT trained in Management, Financial Management, Policy and Planning, and MIS/IT/GIS/RMMS
   - Functions: Responsible for Policy and Planning Cell, MIS/IT/GIS/RMMS, Accounts and Budgeting Cell, Road Network Master Plan
Senior Posts in PWD Headquarters (continued)

3. **Engineer-in-Chief**, Core Roads
   
   Background: Highway Engineer BUT trained in Management, Financial Management, Policy and Planning, and MIS/IT/GIS/RMMS
   
   Functions: Monitor operation of the Zones, Set Policy and Strategic Plans, Preparation of Estimates and Budgets, Allocation of Sanctioned Budget

4. **Engineer-in-Chief**, Non-Core Roads
   
   Background: as above
   
   Functions: as above
Senior Posts in PWD Headquarters (continued)

5. **Engineer-in-Chief**, Administration

   Background: Highway Engineer BUT trained in Management, Financial Management, Human Resource Management, Public Relations, Legal Matters

   Functions: Head of HRD and Training Cell, Legal Cell, and Complaints, Public Relations, and Right to Information
Senior Posts in PWD Headquarters (continued)

6. **Engineer-in-Chief**, Technology Development  
   Background: Highway or Structural Engineer BUT trained in Quality Management, Road Safety, Contracts, Environmental and Social Development

   Functions: Head of Structures Cell, Road Design, Road Safety, Contracts, Quality Management, and Environmental and Social Development
Possible Organisation of PWD Zone – Option 2

Zones will become the empowered operating units with full autonomy and freedom to act within the policy framed by PWD HQ.

Each of the twelve Zones will be managed by a Chief Engineer who will have a strong Highway Engineering background but trained in management, including project management and financial management. This training will have been undertaken through courses run by the PWD HR Unit.

It is proposed that the post of Finance Manager be created in each Zone. The ultimate objective is that each Zone will act as an autonomous operational business unit. As such it will need a Finance Manager to provide the financial data upon which management decisions can be based.
Possible Organisation Structure Zone – Option 2
Possible Organisation of PWD Zone – Option 2

Disadvantages:

Core Roads and Non-Core Roads are managed by the same PWD Staff even though different technical skills will be required.

Consider the ‘Turnover’ of each Zone for Core Roads and Non-Core Roads.

*Option 3 has been assumed to be the best Option. The organisation structures at Zone, Circle and Division have been based on this premise*
Possible Organisation of PWD Zone – Option 3

It will mean an increase in the number of Zones from the current 15 (12 PWD Zones and 3 PMGSY Zones) to 24; 12 Core Road Zones and 12 Non-core Road Zones.

It is also anticipated that the total length of Non-core Roads will increase dramatically as 'orphan roads' are brought under the management of the PWD. This could mean an increase of some 145,000 kms of roads compared with the 80,000 kms currently managed by the PWD. It is vital that the PWD has the management structure to undertake the increased volume of work.

If the road network is to be managed so that the goals set out in the Vision Statement are to be achieved, the PWD management structure must be strengthened and officers suitably trained.
Possible Organisation Structure Zone– Option 3A ‘CORE ROADS’

- Chief Engineer Zone
  - CORE ROADS
  - Additional Chief Engineer Project Management
  - SE Quality Audit

- Finance Manager
  - SE / EE

- Project Preparation
  - EE

- Policy and Planning Unit
  - PPU / EE

- Engineering
  - EE

- RMMS / GIS
  - EE

- Roads
  - SE - Circle
    - Division
      - EE
      - EE

- Roads
  - SE - Circle
    - Division
      - EE

- Administration (HRD)
  - SE
    - HRD
      - EE
    - Legal
    - Complaints
    - Public Relations
    - Right to Information

- Technical
  - SE
    - Structures & Roads
      - Buildings
        - Contracts & Spec
          - Managed
        - Quality
          - Management
        - Road Safety
          - Traffic Management
        - Environmental
          - Social
          - EE

These Officers are based in the Circle/Division and not in Zone Offices.

Initially all functions will be conducted by an EE.
Possible Organisation Structure Zone– Option 3B ‘NON-CORE ROADS’
Possible Organisation Structure Circle – Option 2

Each Zone is split into two to four Circles with a Superintending Engineer as head of each Circle. A possible re-organisation structure for a Circle is given in ‘Circle’ - Option 2.

This has been based on the assumption that Core Roads and Non-core Roads will be managed by the same Circle, and corresponds to the possible organisation structure given for a Zone as shown in ‘Zone’ - Option 2.
Possible Organisation Structure Circle – Option 2

1. Executive Engineer Project Management
   - Assistant Finance Manager
   - MIS, RMMS and GIS AE
   - Project Planning and Preparation AE

2. Superintending Engineer Circle
   - Core Road (CR) EE
   - Non Core Road (NCR) EE

3. Electrical and Mechanical EE

4. Technical EE
   - Structures and Roads Buildings AE
   - Quality Management AE
   - Road Safety, Environmental & Social AE

These Officers are based in Divisions and not in Circle Offices.
Possible Organisation Structure Circle – Options 3A and 3B

For reasons previously stated, but particularly with respect to the average annual value of work for which each Zone is responsible, a better arrangement is for the Core Roads and Non-core Roads to be split not only at Zone level but at Circle and Division level as well.

The possible organisation structures at Circle Level are shown in ‘Circle - Options 3A and 3B.’
Possible Organisation Structure Circle – Option 3A ‘CORE ROADS’

Superintending Engineer Circle
Core Roads

Executive Engineer
Project Management

Assistant Finance Manager

MIS, RMMS, and GIS
AE

Project Planning and Preparation
AE

EE
Quality Audit

Division
Core Roads (CR)
EE

These Officers are based in Divisions and not in Circle Offices

Technical
EE

Structures and Roads
Buildings
AE

Quality Management
AE

Road Safety, Environmental & Social
AE
Possible Organisation Structure Circle – Option 3B ‘NON-CORE ROADS’

Superintending Engineer Circle
Non Core Roads

Executive Engineer
Project Management

Assistant Finance Manager
MIS, RMMS and GIS AE
Project Planning and Preparation AE

EE Quality Audit

Division Non Core Roads (NCR) EE

Division Non Core Roads (NCR) EE

Division Non Core Roads (NCR) EE

Division Non Core Roads (NCR) EE

These Officers are based in Divisions and not in Circle Offices

Technical EE

Structures and Roads Buildings AE
Quality Management AE
Road Safety, Environmental & Social AE
Possible Organisation Structure: Division

Each Division will be headed by an Executive Engineer supported by Assistant Engineers and Junior Engineers as appropriate.

As previously stated the main task of the Divisions is award of contract, implementation, supervision, and acceptance of all works including routine and periodic maintenance, new construction and upgrading. The latter term includes pavement strengthening and widening.

The Divisions will assist the Circle in the preparation of feasibility studies for new works. They will also undertake, or supervise, condition and other surveys.

Possible organisation structures at Division Level are shown in ‘Division’ - Options 2, 3A, and 3B.
Possible Organisation Structure Division – Option 2
Possible Organisation Structure Division Level – Option 3A

CORE ROADS

Executive Engineer

- Divisional Accounts Officer (DAO)

- Assistant Engineer
  - Junior Engineer
  - Junior Engineer
  - Junior Engineer

- Assistant Engineer
  - Junior Engineer
  - Junior Engineer
  - Junior Engineer

- Assistant Engineer
  - Junior Engineer
  - Junior Engineer
  - Junior Engineer
Possible Organisation Structure Division Level – Option 3B

NON-CORE ROADS

Executive Engineer

Divisional Accounts Officer (DAO)

Assistant Engineer

Assistant Engineer

Assistant Engineer

Assistant Engineer

Assistant Engineer Electrical and Mechanical

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer

Junior Engineer
Structure of Report:

- Present Functions and Organisation Structure
- Inadequacies of Present Structure of PWD
- Key Components of Organisation Structure
- Steps to Arriving at Re-structuring
- Proposed Organisation Structure
- **Staffing for Re-structured PWD**
- Implementation of Re-structuring
Staffing for the Re-structured PWD

All calculations are based on the premise that Core Roads and Non-Core Roads are split at PWD Headquarters level right down through Zone, Circle, and Division levels.
Table 9 A: Computation of Manpower Needs - Restructured, PWD : Option 3: Split of Core Roads and Non-Core Roads

<table>
<thead>
<tr>
<th>Post</th>
<th>Required</th>
<th>Existing Sanction</th>
<th>Surplus + Deficit -</th>
<th>Present Sept 07</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE and above</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DG (Works)</td>
<td>1</td>
<td>-</td>
<td>(-) 1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ADG (Works)</td>
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<td>-</td>
<td>(-) 1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E-in-C</td>
<td>5</td>
<td>3</td>
<td>(-) 2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CE (Civil)</td>
<td>45</td>
<td>32</td>
<td>(-) 13</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(including 7 deputation)</td>
<td>(including 7 deputation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (CE &amp; above)</td>
<td>52</td>
<td>35</td>
<td>(-) 17</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>CE (E &amp; M)</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>No change</td>
</tr>
</tbody>
</table>
Table 9A: Computation of Manpower Needs - Restructured, PWD: Option 3: Split of Core Roads and Non-Core Roads

<table>
<thead>
<tr>
<th>Post</th>
<th>Required</th>
<th>Existing Sanction</th>
<th>Surplus + Deficit</th>
<th>Present Sept 07</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE (Civil)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HQ SE positions</td>
<td>27</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zonal HQs: 24 @ 3 SEs per zone</td>
<td>72</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PWD Circles: CR and NCR</td>
<td>56</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>WB Circles: Circles: 9 (7 + 2)</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NH Circles: 4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Building Circles</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Deputations (as per existing sanction)</td>
<td>14</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Posts SE (Civil)</strong></td>
<td>183</td>
<td>85</td>
<td>(-) 98</td>
<td>-</td>
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</tr>
<tr>
<td><em>(including 14 deputation)</em></td>
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<tr>
<td><em>(including 14 deputation)</em></td>
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</tbody>
</table>
Table 9 A: Computation of Manpower Needs - Restructured, PWD : Option 3: Split of Core Roads and Non-Core Roads

<table>
<thead>
<tr>
<th>Post</th>
<th>Required</th>
<th>Existing Sanction</th>
<th>Surplus + Deficit</th>
<th>Present Sept 07</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EE (Civil)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWD Divisions</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6 Divisions per circle :</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>56 × 6 = 336</td>
<td>336</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>WB Divisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 + 2</td>
<td>18</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NH Divisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 + 2</td>
<td>17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Building Division</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HQ Positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zonal Head Quarters @ 8 EE per Zonal HQ</td>
<td>192</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>24 × 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle HQ @ 1 EE per Circle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Deputation Posts (current sanction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total EE (Civil)</strong></td>
<td>709</td>
<td>366</td>
<td>(-) 343</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9 A: Computation of Manpower Needs - Restructured, PWD : Option 3: Split of Core Roads and Non-Core Roads

<table>
<thead>
<tr>
<th>Post</th>
<th>Required</th>
<th>Existing Sanction</th>
<th>Surplus + Deficit</th>
<th>Present Sept 07</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE (Civil)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Divisions (336+16+15+3=370) 4 @ 4 AEs per Division</td>
<td>1480</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HQ Positions</td>
<td>57</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zonal HQ @ AEs per EE)</td>
<td>336</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle HQ @ 4 per circle HQ</td>
<td>224</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Divisions: 3 x 4</td>
<td>12</td>
<td>-</td>
<td>(-) 322</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total AE (Civil)</strong></td>
<td><strong>2109</strong></td>
<td><strong>1225</strong></td>
<td><strong>(-) 874</strong></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
## Table 9 A: Computation of Manpower Needs - Restructured, PWD : Option 3: Split of Core Roads and Non-Core Roads

<table>
<thead>
<tr>
<th>Post</th>
<th>Required</th>
<th>Existing Sanction</th>
<th>Surplus + Deficit -</th>
<th>Present Sept 07</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JE (Civil)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Divisions @ 370 × 16 JEs per Division</td>
<td>5920</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HQ &amp; Miscellaneous</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total JE (Civil)</strong></td>
<td>5970</td>
<td>4176</td>
<td>(-) 1794</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>JE (Technical)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Divisions</td>
<td>370</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Circles</td>
<td>56 × 2</td>
<td>112</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zonal HQ</td>
<td>27 × 2</td>
<td>54</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Miscellaneous in HQ</td>
<td></td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total JE (Technical)</strong></td>
<td>566</td>
<td>467</td>
<td>(-) 99</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### Table 9 A: Computation of Manpower Needs - Restructured, PWD : Option 3: Split of Core Roads and Non-Core Roads

<table>
<thead>
<tr>
<th>Cadre</th>
<th>Duty Posts: Restructured PWD Option 3 (including deputations)</th>
<th>Cadre Strength Duty Posts + 20% Training &amp; L Reserve</th>
<th>Existing Sanction</th>
<th>Additional Sanction Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE &amp; Above</td>
<td>52</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SE (Civil)</td>
<td>183</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EE (Civil)</td>
<td>709</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Class I</strong></td>
<td><strong>944</strong></td>
<td><strong>1132</strong></td>
<td><strong>486</strong></td>
<td><strong>646</strong></td>
</tr>
<tr>
<td>AE (Civil) Class II</td>
<td>2109</td>
<td>2530</td>
<td>1225</td>
<td>1305</td>
</tr>
<tr>
<td><strong>Total Graduate Engineer Cadre (Class I + Class II)</strong></td>
<td><strong>3053</strong></td>
<td><strong>3662</strong></td>
<td><strong>1711</strong></td>
<td><strong>1951</strong></td>
</tr>
<tr>
<td>JE (Civil)</td>
<td>5970</td>
<td>7164</td>
<td>4176</td>
<td>1794</td>
</tr>
<tr>
<td>JE (Technical)</td>
<td>566</td>
<td>679</td>
<td>467</td>
<td>99</td>
</tr>
<tr>
<td>Restructured PWD Positions: Option 3 : Split of Core and Non-Core Roads</td>
<td>Existing PWD Positions: Existing Sanction</td>
<td>Remarks/ Readjustment from Existing Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DG Works</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADG Works</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-N-C Core roads</td>
<td>E-N-C Development and HOD</td>
<td>E-N-C Development and HOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-N-C Non-Core Roads</td>
<td>E-N-C (Rural Roads)</td>
<td>E-N-C (Rural Roads)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-N-C Admin/HRD</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-N-C Technology Development</td>
<td>E-N-C (Design and Planning)</td>
<td>E-N-C (Design and Planning)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restructured PWD Positions: Option 3 : Split of Core and Non-Core Roads</td>
<td>Existing PWD Positions: Existing Sanction</td>
<td>Remarks/ Readjustment from Existing Structure</td>
<td></td>
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<tr>
<td>---------------------------------------------------------------</td>
<td>-----------------------------------------</td>
<td>------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE (P&amp; P)</td>
<td>CE HQ- I</td>
<td>CE HQ- I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE (IT &amp; MIS)</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE (Finance)</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE (HRM,HRD &amp; Training)</td>
<td>CE HQ-II also</td>
<td>CE HQ-II</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Currently CE HQ II looks after most of Establishment (Merge Establishments: SE (E) E1, E2, E3, BDD 12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE Legal</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(merge SE Court Cases &amp; Legal officers )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE Complaints, PR &amp; RTI</td>
<td>CE (Complaints)</td>
<td>CE (Complaints)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE Structures, Design/ Standards &amp; Buildings</td>
<td>CE Buildings</td>
<td>CE Buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restructured PWD Positions: Option 3 : Split of Core and Non-Core Roads</td>
<td>Existing PWD Positions: Existing Sanction</td>
<td>Remarks/Readjustment from Existing Structure</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CE- Road Design, Research &amp; Consultancy Including Road Safety &amp; Traffic Management Cell</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE- Contracts &amp; specifications</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE-Quality Management</td>
<td>Technical Audit Cell</td>
<td>Technical Audit Cell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE - Environment &amp; Social</td>
<td>-</td>
<td>New</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE -IDS (Ty position)</td>
<td>Currently part-time by CE (NH)</td>
<td>New (Temporary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staffing Readjustments: CE's and above Posts</td>
<td></td>
<td></td>
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<tr>
<td>--------------------------------------------</td>
<td></td>
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<tr>
<td><strong>Restructured PWD Positions: Option 3: Split of Core and Non-Core Roads</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Existing PWD Positions: Existing Sanction</strong></td>
<td><strong>Remarks/ Readjustment from Existing Structure</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Field Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CE- NH</strong></td>
<td><strong>CE (NH), IDS &amp; Computerisation</strong></td>
<td><strong>CE –NH</strong> Full time CEs for IT &amp; MIS and IDS in new structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CE- World Bank</strong></td>
<td><strong>CE- World Bank</strong></td>
<td><strong>CE (World Bank)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12 Core Road Zones</strong></td>
<td><strong>12 PWD Zones</strong></td>
<td><strong>12 PWD Zones</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12 Non-Core Road Zones</strong></td>
<td><strong>3 PMGSY Zones</strong></td>
<td><strong>3 PMGSY Zones</strong> <strong>9 New Zones (NCR) to be created</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional Positions for Restructured PWD**

**Option 3:** DG, ADG, 1 ENC and 17 additional CE’s
NHAI Restructuring Example

Union Cabinet approved major restructuring of NHAI in July 2007.

Increase of Full Time Members for Functional Oversight (similar to ADG & E-N-Cs in UP PWD) from 5 to 6.

Additional Full time member for PSP.

26 posts of CGM’s (equivalent to CE) added to existing 13 CGM posts.

The Top Management posts TRIPLED.
NHAI Restructuring Example…

- 15 additional CGM posts are for Project Implementation and Corridor Management to cater for increased volume of works.

- 11 additional CGM posts to strengthen specialist functions
  - Finance (2 positions)
  - Pre Qualifications
  - SR&D
  - Administration & HR
  - IT
  - Land Acquisition
  - Legal
  - Safety
  - Financial Analyst (CGM level)
  - Contract Management Specialist (CGM level)
NHAI Restructuring Example…

• The Chairman NHAI to have minimum 3 years’ tenure which is extendable to 5 years.

• Age can be relaxed up to 62 years, if required, for three-year tenure.
Implications for PWD

Increase in UP PWD’s work volume by over 400% - 500% during last 4 - 5 years. PWD is responsible for over 20% of the State Budget.

Work Volume of PWD during 2007- 08 was Rs. 8000 Crores. It is set to increase further in coming years.

Effective implementation of Works will be possible only with additional Zones, Circles and Divisions

Adequate no. of competent and committed staff at all posts essential for efficient implementation of Works.
NHAI Restructuring Example...

New CE positions for functional leadership roles are essential to strengthen the specialist functions. They will operationalise the newly created Cells.

<table>
<thead>
<tr>
<th>PWD Cells</th>
<th>NHAI Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRD and Training</td>
<td>CGM HR &amp; Administration</td>
</tr>
<tr>
<td>Environmental and Social</td>
<td>GM Environment (pre-existing)</td>
</tr>
<tr>
<td>Quality Management</td>
<td>CGM (PSQ) (pre-existing)</td>
</tr>
<tr>
<td>Policy and Planning</td>
<td>Financial Analyst</td>
</tr>
<tr>
<td>IT Management and Planning</td>
<td>CGM - IT</td>
</tr>
<tr>
<td>Road Safety</td>
<td>CGM - Safety</td>
</tr>
<tr>
<td>PSP / PPP Development Cell</td>
<td>CGM (BOT) (pre-existing)</td>
</tr>
</tbody>
</table>
Restructuring PWD is a major CHANGE initiative which needs to be managed effectively.

The following five-phase Change Management process is proposed:

1) Motivating Change - this phase includes: creating readiness for change in PWD developing ways to overcome resistance to change Senior PWD staff preaching the need for change and how it can be successfully accomplished Senior PWD staff must listen to employees.
2) **Creating Vision**

PWD must set out a relevant and realistic vision of what change effort is to accomplish.

3) **Developing and Sustaining Support**

Politics in organisations is about power. Change often means a shift in power across management levels, functions, and groups.

4) **Managing Transition**

This is ‘implementation’ of the action plan that should include integrated objectives and milestones.

This may require on-going coaching, training, and enforcement of new policies and procedures.

5) **Sustaining Momentum**

Change efforts can encounter strong opposition. Leadership is critically important at this stage.
1. Motivating Change

- Why change the organisation structure of the PWD?
- Failures in organisational change are more common than successes
- Change is onerous – probably why PWD Manual of Orders has not been totally revised and brought up to date.
- Senior PWD staff are aware that the system is clogged up and cannot effectively cope with current work loads - not helped by zero recruitment over the last 10 years.
- Change generally means moving outside one’s ‘comfort zone’.
- Desire and determination for change must spring from within the PWD itself.
1. Motivating Change (continued)

• Can PWD bring about pressure for change?
• Can PWD convince the GoUP that change is the only feasible way forward?
• Pressure must be united and not: “Change is good for you but not for us”
• PWD needs to create a team responsible for spearheading the change process headed by Project Champion
• Project Champion: totally committed, stop at nothing to achieve change. Long-term appointment. Person of integrity, well respected, power and influence to get things done
• Frequent interaction between team and senior PWD officers. PWD staff must be kept informed through face to face meetings
2. Creating Vision

- Vision to enable PWD staff to focus on important issues
- Objective is to encourage, explain, and help staff understand the change process: it must counteract negative impacts
- Requirements of a Vision are:
  1. A vision has to ‘re-frame’ the known scene, to re-conceptualise the obvious, connect the previously unconnected
  2. The vision must make sense to others. It should be seen as a challenge, but capable of achievement.
  3. It must be understandable and capable of sticking in people’s minds.
  4. Project Champion must exemplify the vision by his own behaviour and evident commitment (Walk the Talk)
  5. The Project Champion must remember that if the vision is to be implemented it must be one that is shared.
3. Developing Political Support

• Not just support of the GoUP but also support of informal groups that exist in all organisations – politics means ‘power’

• Symptoms of negative politics include:
  1. Overt and covert opposition to change
  2. Blocking proposals through arguments and counter-arguments
  3. Blaming others
  4. Agreeing to support the changes but then failing to act
  5. Lack of co-operation, obvious dis-interest

• Positive Politics can create:
  1. Shared understanding and common purpose
  2. Acknowledgement of the difficulties of change
  3. Disagreement and concerns discussed openly to find way forward
  4. Feedback to determine progress and add impetus to change programme
3. Developing Political Support (continued)

• Some staff may have genuine fears and concerns as they realise the implications of change. These must be addressed or ‘negative politics’ will take over in the form of:
   1. Keeping the status quo
   2. Fear of loss of power
   3. Fear of redundancy
   4. Fear of the unknown
   5. Lack of knowledge transfer

• Power politics reach their highest pitch during the ‘Transition Stage’ which involves three specific characteristics:
   1. Instability – move from stable past to unknown future
   2. Uncertainty – no answers to questions from staff concerning their place in new organisation
4. Managing Transition

- Proposed that change first takes place in the Zones and then PWD Headquarters with each stage carefully planned.
- New Cells (Training, Quality Management, and Environmental and Social Development) established in Zones, Circles, and Divisions as appropriate. This could take 2 years or more.
- Start in one Zone. Once the new processes and systems have been tried and tested they can be replicated in other Zones.
- The change process to be closely monitored by the Change Management Team including the performance on Zones, Circles, and Divisions.
- Once the change process in the Zones is successfully underway commence change process in PWD Headquarters.
- The entire change management process could take 5 years or more.
5. Sustaining Momentum

• It is one thing to start a project, and change management is a project, and another thing to see it through to completion

• Initial enthusiasm can give way to depression as difficulties and problems arise – such as dealing with people

• Changing the organisation structure means changing the systems and processes. This includes not only the communication and reporting systems but the processes by which these systems are carried out.

• This will change the way in which PWD staff do things. These changes may have a greater impact on the administrative staff than on the technical staff.

• PWD staff must be kept aware of the influence of these changes on their current jobs.
5. Sustaining Momentum (continued)

• Every effort must be made to reassure staff and provide training so that they are equipped to meet the new challenges.

• Training is a vital aspect but it is only one way of sustaining momentum.

• During the transition period the following question may arise:
  1. What are the people implications?
  2. Why are we getting bogged down?
  3. How can we keep things going?
  4. Is it all worth the effort?

• This is the time for the Project Champion to show his leadership skills.
Why Change Efforts Fail – and what to do to combat failure

Establishing a Sense of Urgency

A public sector body is not subject to the pressures of the private sector where competition can dictate the need for change. With the PWD the desire and sense of urgency for change must come from within. 75% of Senior Management must be committed with that sense of urgency – otherwise forget about change.

Forming a Powerful Guiding Coalition

Every successful change management operation has been led by a powerful internal team. That team must consist of full time Senior Staff (Engineer-in-Chief) and others – not additional charges.

The Coalition must work together as a team: it may even be necessary to consider team building exercises
Why Change Efforts Fail – and what to do to combat failure (cont.)

Creating a Vision

“A vision says something that clarifies the direction in which an organisation needs to move. Without a sound vision, the re-engineering project in the accounting department, the new performance appraisal from the HRD, the quality programme ……. will not add up in a meaningful way.” (John Kotter HBR: March/April 1995)

Communicating the Vision

Every means possible must be employed to communicate the vision to both technical and administrative staff. This communication process must be on-going. Senior staff must take time to meet with all employees and spend time explaining why change is necessary, what the reorganisation sets out to achieve, and how the change will be implemented.
Why Change Efforts Fail – and what to do to combat failure (cont.)

Removing Obstacles to Change
Some of the biggest obstacles are senior managers who simply pay ‘lip service’ to the vision but who deep down are fearful. When a senior manager refuses to change the probability is that those around him, and those who report to him, will not change. They will simply counter all attempts to change and slowly drain the PWD of the energy and commitment to change.

Planning for, and Creating, Short Term Wins
The guiding coalition must plan for short-term wins. They do not happen by chance but must be planned and worked for. Short-term gains act as confidence boosters as well as increasing the credibility of the guiding coalition.
Why Change Efforts Fail – and what to do to combat failure (cont.)

Consolidating Improvements and Planning for Still More Change

Consolidation of improvements will bring their own success as others see the advantages to be gained from the new structure and associated systems and procedures. They will now share the enthusiasm for change thus reinvigorating the whole process.

Institutionalising New Approaches

The new organisation will develop new ways of doing things. Every effort must be made not to slip back into the old way of doing things. Staff must be encouraged to adopt the new systems and procedures. Able and competent staff must be picked out and given the training necessary for them to hold the most senior positions since they will determine the future of the PWD.
Why Change Efforts Fail – and what to do to combat failure (cont.)

Conclusion

In their book “Managing Organisational Change” the authors, Paul Tarplett and Laurie McMahon, list the following four preconditions for effective change:

1. Pressure for Change: its absence will cause projects to remain at the bottom of the ‘In Tray’.
2. A Clear Shared Vision: its absence will cause false starts to fizzle out
3. Capacity for Change: its absence will cause anxiety and frustration
4. Fist Steps that Lead to Action: its absence will cause haphazard efforts and false starts
The Way Forward

Good roads are the backbone of economic development and improved living standards: for example they result in the ability of:

- farmers to take their produce to the markets,
- children having access to schools, and
- families having access to health clinics.

The PWD needs to focus on the way in which it can improve the standard of service currently provided. Additional funding from GoUP is not likely be the basic problem. The problem lies much deeper.
The Way Forward

The ‘systems’ view of an organisation is shown below.

The ‘Systems’ View of Organisation
The Way Forward

1. **INPUTS** – type of people recruited. Future recruitment extended to include Transport Planners, Transport Economists, Accountants, Financial Managers, Policy (Governance) Specialists, Strategic Planners, and Human Resource and Training Specialists.

2. **PROCESSES** - making the Zones autonomous operational units, with PWD Headquarters adopting a regulatory and monitoring role. Core Roads and Village Roads managed by separate Zones under separate Engineers-in-Chief in PWD HQ.

3. **OUTPUTS** - the way in which work was undertaken in the PWD. In-house or contract out (out-sourced).

4. **OUTCOMES** - overall improvement in the condition of the road network. Road developments in accord with Road Network Master Plan. Improved financial control and transparency. PWD budgets presented to GoUP able to withstand close scrutiny.
Implementation Plan

Phase I – Newly created Cells in the Zones

The newly created Cells, established under Phase I would be:
1. Training
2. Quality Management
3. Environmental and Social Development

These Cells would first be implemented in a Pilot Zone. The following activities relate to implementation of Training Cell in Zone:
- Establish Systems and Procedures / Prepare Training Plans
- Establish Staff in First Zone
- Implement Training Plans in Zone and Train Staff
- Monitor, Evaluate, Modify
- Implement modified version in Second Zone and Train Staff
- Monitor, Evaluate, Modify
- Implement modification No. 2 in Third Zone
Implementation Plan

Phase 2 – Reorganisation of the PWD

Establishing and implementing the three Cells proposed in Phase 1 is a minor part of the re-organisation process but it could take 2 years or more.

During this lead time of 2 years the PWD should be preparing for the reorganisation process. This change process must be well planned and all PWD staff kept fully informed.

The PWD HQ will have prepared the regulations to be followed by the three Cells in all the Zones. But in the re-organisation process the power and responsibility to perform must be given to the Zones.

With respect to Procurement, for example, PWD HQ will have established the systems and procedures to be followed in the Zones but the Zones must be empowered to implement these systems and procedures when the Cells are established in the Zones.
ANNEXURE - 1

DISCUSSIONS WITH UPPWD

Meeting with Chief Engineer and IDS Cell 24th April 2007

At this meeting discussions took place to review the existing organisation structure. One of the specific intentions was to overcome the current weaknesses and barriers to the effective and efficient operation of the PWD at all levels of the organisation.


Discussions were held with officers of Lucknow Zone in May and August 2007, whereby several options of the PWD structure were discussed. These options were presented to the officers in Varanasi Zone, where officers from the rank of Chief Engineer to Assistant Engineers were present. During the discussions held with the Varanasi Zone and Mirzapur Circle, the crucial points that came out from the meetings were:

Organisational Structure and Staffing

- Four options of the PWD HQ structure were presented.
- Director General (DG) should be the head of PWD directly reporting to the Minister through Principal Secretary.
- Director General (DG) should be selected from within PWD, on the basis of merit and ability rather than pure seniority. The DG should have preferably at least 3 years of tenure.
- The HQ structure should be similar to that of CPWD with posts of Additional/Deputy Directors General (ADG/DDG). ICAR also has a similar structure.
- Engineer-in-Chief Bridges (Structures) will not be a feasible, but may be suitable for future.
- Core Roads/Non-Core roads classification is workable. These two classifications should be maintained separately.
- Split into core and non-core at Division level is ok but combined at the circle and Zone level.
- Separate Divisions for WB and NH exist at present independent of the Zonal structure. WB and NH have their vertical structures right up to HQ level under the control of CE (World Bank) and CE (NH) respectively.
- Out of the total 70 districts in the state, roads under PMGSY are being constructed by PWD in 35 districts and that by RES in the remaining 35 districts. Till June 07, PMGSY dedicated divisions were under the zonal CEs but now these divisions (total 55 in number) and circles (8 in number) are under 3 PMGSY Chief Engineers looking after the works of Eastern zone with HQ at Allahabad (having 3 circles in Allahabad, Varanasi and
Gorakhpur), Central Zone in HQ at Lucknow (having 2 circles at Lucknow and Kanpur) and Western Zone with HQ at Meerut (having 3 circles at Meerut, Agra and Bareilly)

- Electrical and Mechanical wing of the Department plays a very crucial role and its role in future should be enhanced.
- Possible staffing numbers were also suggested by the officers of the Varanasi Zone and Mirzapur Circle.

**Delegated Powers to the Zones**

- New tendering process introduced recently is non–functional. No new tender issue has been successful since the last 2/3 months. A case in point is the Government’s order to complete the Ambedkar Gram Vikas Yojana within 2 months. As per the new tender policy each bidder is required to submit a character certificate from the DM for each tender submission. However no bids are received as not a single character certificate has been issued by the District Magistrates to date.
- Further, now it is required that all tender notifications are to be issued by the Director of Information at Lucknow. The process is very time taking and at times the tender notices are sent back to divisions / circles after 15 days for minor corrections.

**Organisational and HR Issues**

- Poor promotional avenues for JE’s even after 35 years of work. Most of them are retiring from their original post i.e. as JE’s.
- An Assistant Engineer is likely to be promoted to EE after around 25 years of service. Lately this time period has climbed to 28 years. Regular promotions are not effected.
- Regular recruitment on year to year basis is not being done.
- There is no system of recognising or rewarding performance. Performance is not a criteria for promotion. A suggestion was put forth that the appraisal system should be more like private organisations with promotions based on merit.
- The bureaucracy/local administration and political interference in the working of PWD has increased to a very high level. Technical professionals have very little say in the Developmental work of the Districts. They have become more of order takers.
- When Zonal CE’s posts were created about 25 years back, they were given appropriate financial and administrative powers. Gradually, most of the powers are now concentrated at the HQ.
- Maintenance work of roads is generally not taken up as per techno-economic criteria. Mostly the works of strengthening and widening of roads are taken up as decided by the politicians / minister.
Quality of works suffers due to increased workload at the Division Level. 3 years back an EE was executing works of Rs 5 to 10 crores. Now it is Rs. 30 Crores+, even going up to 100 crores. Earlier an EE had 4-6 AE’s under him. Now at the best, there are just 2 AE’s per Division. Further a lot of time of the Divisional EE is spent in attending meetings at different levels and dealing with complaints.

The manpower crunch is a result of retirements and while there has been practically no fresh recruitments during last 10-12 years. Regular recruitments are necessary to have a mix of experience and fresh talent.

No Training/development programme for officers. Talent is not nurtured.

Gradual erosion of Status and salary levels of the Engineers have taken place over the years. There is a severe dilution in working level relationships of Engineers with other officers.

There are widespread disparities of the career growth among different Engineering cadres within the State Govt. For example, many Corporations/Local Development Agencies have created their own cadre of Engineers and provided for accelerated career growth. Engineers of PWD, which is the oldest Engineering Department in the State, have severely lagged behind their counterparts in matters of promotions and career progression.

Established processes are compromised. All engineers starting from the CE to AE have to attend several meetings (meetings called by District Magistrate, local politicians and CRT), thereby they are unable to go to site for inspection, and hence progress of field is only mentioned by the engineers in a meeting and not on paper. Good rules were prevailing in PWD but now execution is poor. Two examples were cited:

- EE’s are not maintaining a Road Inspection Register / Bridge and Culverts Register.
- Age old practice of SE’s inspecting the Divisions once a year has been given a go bye over the last 4-5 years. The reasons cited for this is that SE’s are too busy in other works. EE’s spent about 70% of time in attending different meetings at the level of District administration.
ANNEXURE - 2

Current Functions and Organisation Structure of PWD

1. Comments on Organisation Structure Relating to Specific Sections in PWD HQ

Planning and Budgeting

The HQ at Lucknow coordinates and performs the planning, budgeting and resource allocation activities of the PWD. It also provides information and progress reports to the GoUP and interacts with other stakeholders on matters related to UP Road Network and State Government Buildings. The distribution of responsibilities among the Chief Engineers is across functions and appears to be primarily based on the rationale of work load.

Legal

There are 22 sanctioned posts for Law Officers, only 7 of which are classified as working. Of these 7 Law Officers, 3 are based in PWD Headquarters. Two of these 3 are under the CE HQ II and deal with cases related to establishment and contempt against the Engineer-in-Chief, etc; the third officer is attached to CE Central Zone, Lucknow, and partially performs the duties similar to the other two. The law officers file the affidavit in contempt cases.

Of the remaining 4 Law Officers, one is attached to CE Faizabad and Gorakhpur Zone where his task is to guide and scrutinize the narrative prepared at the level of Division / Circle offices in terms of legal provisions. The second Officer is based at Azamgarh and deals with cases in the Azamgarh and Varanasi Zone. The third Officer is based at Meerut, dealing with the cases of Meerut and Moradabad Zone. The Law Officer based in Central Zone, Lucknow also looks after the cases pertaining to World Bank, National Highways, PMGSY and Electrical / Mechanical at the Headquarters level.

In Vad section (Court Cases) there are 3 Superintending Engineer's under CE HQ II dealing with court cases at Lucknow. Their responsibility is to coordinate and monitor the disposal of the court cases falling under different Zones and send copies of notices and the plaint etc to the respective Zones. The first SE deals with cases involving Class I officers, the second SE deals with cases for JE’s and other technical staff, whilst the third SE deals with AE’s and Class IV staff including that of the gangmen. Presently one SE is working.

Technical

At present, the jurisdiction of the circle offices mostly coincides with that of the District, barring a few districts. The Circle offices provide technical expertise, guidance and approvals of various types to the Divisional office; which is the basic unit for implementation and the Executive Engineer has the prime responsibility of execution of 'works', contracting, procurement, project management, administration and payments. In addition, to this the Divisional office also interacts with the local administration for resource procurement and progress reporting on works financed through GoUP apart from that through local administration under various schemes.
The organization structure is similar to that in other States. It is based on the need for effective geographic coverage of the entire State, to execute the works in coordination with the local administration. There are predefined norms (effectively these are targets to be achieved) for the average annual workload (defined in terms of value), which each division should manage. Presently it is Rs. 12 crores per Division. This norm was used in past to create additional Divisions based on the annual value of works assigned to a Division. There is one primary Division in every district known as the Provincial Division. However an organisation structure this based on value of works is unsustainable as the value of works to be executed by PWD is on the rise. If the norm of Rs. 12 crores is to be maintained, the number of Divisions required to manage the works would be more than double of the present number of Divisions. For example, at the present budget level the average value of works to be executed by a Division is close to Rs. 30 crores. Even the recently created 55 PMGSY Divisions are required to execute a work of average 30 crores. The norm of Rs. 30 crores annual work for new construction work now appears to be the norm, while for a Division which has the charge of considerable part of routine and periodic maintenance work, the work value that can be managed should be less.

2. **Detailed Functions of Specific Sections in PWD Headquarters**

**Planning Division**

This Division based in PWD headquarters maintains an inventory of all roads (NH, SH, MDR, ODR and VR), district-wise for the State. The data recorded with respect to roads include:

- Classification (NH, SH, MDR, ODR, VR);
- Length;
- Width, i.e. Less than single-lane, single-lane, intermediate-lane, two-lane and multiple-lane;
- Surface type, and (for NH) pavement thickness and other characteristics; and
- New construction, widening or renewal works performed during the previous years.

Summary inventory reports for bridges and drainage structures indicate:

- Classification and name of road;
- Location (km);
- Name of river, nala or drain, if any;
- Type (minor or major bridge, culvert, causeway);
- Loading for which designed (for major structures);
- Width;
- Number of spans, span length and total length;
- Type of foundation, sub-structure, superstructure and bearings;
- Condition of foundation, sub -structure, superstructure, bearings, expansion joints, protection works and approach slab etc).
The Planning Division also maintains the following information:

- Information about villages and their connectivity to the road network. The records of all the villages existing in UP, their district, total population and SC/ST population, their status of connectivity to road -whether already connected, to be connected under any scheme which is sanctioned, or the making of proposals for the non-sanctioned future actions are kept.
- Information related to CM’s/PWD Minister’s speeches, press conferences, declarations related to PWD and laying of foundation etc.
- Proposals for up-gradation of roads.
- Information about proposals and progress upto its sanction. In addition, after the completion of work, records of completed roads are maintained.
- It also maintains information about roads constructed by other departments.

Legal Section

The legal Section at PWD headquarter deals with establishment related court cases against the Government and the office of the Engineer-in-Chief. Some cases also pertain to contempt of court filed by PWD officers and employees against the Engineer-in-Chief or senior level Government officers. Most of these cases relate to issues handled by various establishment sections such as those pertaining to fixation of seniority, promotions, regulations, increments, time-scale promotions, gratuity etc. A few court cases also relate to the reservation policy of the government. This section handles the litigations related to office of the Engineer-in-Chief or the Government as the party.

Approximately, not less than 7,500 court cases are contested by PWD across various courts and administrative tribunals. Discussions with the SE (in charge Court Cases) revealed that a large proportion of these cases relate to daily wages and gang labour. About 400 of them pertain to contempt of court proceedings. Discussions also revealed that the department has to deal with some 250 -300 new court cases every three months. A large number of these cases are those that could not be resolved within the organisation through their grievance redressal mechanism.

SE (Legal) supported by 3 AEs manages the section and reports to Chief Engineer (HQ II). This section gets legal assistance and expert advice from legal experts (law officers) who are on PWD’s permanent rolls. In addition to this, for the High Court Cases, the services of Standing Counsels are also available after the reference made by the Government. Mostly this section deals with High Court and State Administrative Tribunal cases. However, some times certain cases even relate to the Supreme Court.
Technical Audit Cell

When this Cell, established to audit the works in UPPWD, was set up in 1959 it was headed by an Executive Engineer of the Central Public Works Department (Shri A.K. Das). However in the 60's the structure of the Audit Cell was changed so that a Cell consisting of Engineers from UPPWD would audit works in the Irrigation Department while a Cell consisting of Engineers from the Irrigation Department would audit the works in the PWD.

The role of this Cell will change with the Advent of the Quality Management Cell to be established by the PWD as part of this Project.

3. Functions of the Divisions - Reports

As part of their duties the Divisions are required to submit a series of Reports to the Circles and other Departments. A list of such Reports, and the Departments to which they are submitted is given in Table No. 3.

The Quarterly Reports indicate, for each contract, the amount sanctioned, the financial and physical progress up to the end of the previous fiscal year (but not the previous year's targets), the financial and physical targets for the current year, and the quarterly targets and achievements for the current year. In these reports important contract information, such as contract start and scheduled completion dates, and estimates of projected time and cost overruns etc are often missing.

The monthly physical and financial progress reports at Division level comprise of about 60 pages. On an average there are 3 to 7 Divisions per Circle. Thus the SE at Circle level receives about 300 pages of data every month. These reports are then compiled and sent to the CE (Zone). A Zone has 10 to 15 Divisions on an average. Thus the CE (Zone) receives about 800 pages of data every month.

There is limited consolidation of Reports as these are forwarded up the levels of hierarchy within PWD. They are frequently delayed with the result that the information contained in them is out of date. The general opinion within the PWD is that some of the reported data is not reliable and the reporting system needs to be reviewed and revised.

As well as the above listed Reports, the following Registers maintained by the EE at the Divisional Level:

- Register of Benchmarks
- Register of Bridges and Culverts
- Road Register (Form D to I)
- Stock Account Register (Form 7 to 12)

These registers are updated manually on a yearly basis.
### Table 1: Representative List of Reports for Division Office

<table>
<thead>
<tr>
<th>Report</th>
<th>Prepared by</th>
<th>Submitted to</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of Estimates</td>
<td>J.E and AE under guidance of EE</td>
<td>Circle Office</td>
<td>• Decision making and onward transmission</td>
</tr>
<tr>
<td>Proposal of road renewals</td>
<td>A.E under guidance of EE for identified kms</td>
<td>-do-</td>
<td>• Decision making and onward transmission</td>
</tr>
<tr>
<td>Proposals for special repairs</td>
<td>A.E under guidance of EE</td>
<td>-do-</td>
<td>• Decision making and onward transmission</td>
</tr>
<tr>
<td>Monthly Progress Report</td>
<td>J.E. (T) under guidance of EE</td>
<td>-do-</td>
<td>• Information and onward submission to ENC through CE and Control</td>
</tr>
<tr>
<td>Proposals for special repairs</td>
<td>A.E under guidance of EE</td>
<td>-do-</td>
<td>• Decision making</td>
</tr>
<tr>
<td>Project Completion Report</td>
<td>A.E under guidance of EE</td>
<td>SE</td>
<td>• Information</td>
</tr>
<tr>
<td>Village Connectivity Report</td>
<td>J.E (T) under guidance of EE</td>
<td>-do-</td>
<td>• Information</td>
</tr>
<tr>
<td>Road Inspection Register</td>
<td>EE</td>
<td>S.E.</td>
<td>• Information</td>
</tr>
<tr>
<td>Monthly Account</td>
<td>Senior Clerk under Supervision of D.A.O.</td>
<td>A.G.U.P. Allahabad through EE</td>
<td>• By the fixed date for checking of expenditure with respect to allocation of funds</td>
</tr>
<tr>
<td>Variation Statement</td>
<td>Senior Clerk under Supervision of D.A.O.</td>
<td>A.G.U.P. Allahabad through EE</td>
<td>• Information and checking for expenditure control (Quarterly)</td>
</tr>
<tr>
<td>Toll Collection Report</td>
<td>Clerk and DAO</td>
<td>S.E. through EE</td>
<td>• Information and onward submission to CE and ENC</td>
</tr>
<tr>
<td>Master Plan of Roads</td>
<td>J.E. (T) under the guidance of EE</td>
<td>S.E.</td>
<td>• Information and onward submission to CE and ENC</td>
</tr>
<tr>
<td>Closing of stock form-12</td>
<td>Senior Clerk under the supervision of DAO</td>
<td>S.E. through EE</td>
<td>• Half Yearly Closing and report is sent to CE and ENC</td>
</tr>
<tr>
<td>Closing of T&amp;P Form-i5</td>
<td>Senior Clerk under the supervision of DAO</td>
<td>S.E. through EE</td>
<td>• Annual Closing and report is sent to CE and ENC</td>
</tr>
<tr>
<td>C.C.L. Inputs</td>
<td>Cashier and DAO</td>
<td>Treasury officer through EE</td>
<td>• Information and report is sent to CE and ENC</td>
</tr>
<tr>
<td>Register of Bridges and culvert</td>
<td>J.E.(T) under guidance of EE</td>
<td>S.E/C.E/ENC</td>
<td>• Information and also for sanction of needful rehabilitation work</td>
</tr>
<tr>
<td>Reimbursement claim (NABARD, SODIC and SRP works)</td>
<td>Senior Clerks and DAO under guidance of EE</td>
<td>NABARD under information to S.E/C.E/ENC</td>
<td>• Reimbursement</td>
</tr>
<tr>
<td>Legislative Assembly Questions</td>
<td>EE</td>
<td>ENC through SE and CE</td>
<td>• For onward submissions to Government on top priority basis</td>
</tr>
</tbody>
</table>

*Source: Division office, PWD*
ANNEXURE - 3

Study of the structure of similar large Engineering Organizations – CPWD and the Railways

1. Central Public Works Department (CPWD)

CPWD is the principal agency of the Government of India, under the MINISTRY OF URBAN DEVELOPMENT, for creation and maintenance of all Central Government assets excluding those belonging to Railways, Defence, Communication, Atomic Energy, Airports (National and International), Department of Posts and All India Radio.

CPWD was founded in July 1854 CPWD is a multi disciplinary engineering organization offering integrated construction management services from concept to completion and post construction maintenance management. CPWD also performs many regulatory functions for the Government of India.

The CPWD has an organisational setup tailor-made to meet its objectives. The Department is headed by the Director General Works, who is also the technical advisor to the Government of India.

At the apex level is the Central Office or the Directorate located in Nirman Bhawan, New Delhi. There are seven Regions, each headed by an Additional Director General Works functioning as mini directorates. The Director General Works is assisted by two Additional Director General Works ADG (Strategy and Planning), (also looks after the New Delhi Region): looks after all administrative functions and issues related to the growth and future policies of the department. ADG(Technology Development), (also looks after the Delhi Region) is incharge of development and implementation of technical policies, innovations in working etc. The DGW is also assisted by an ADG(Architecture) for all architectural matters. The CPWD is also executing and coordinating works of border fencing along the international borders. These are under the charge of ADG (Border). Besides above, there are four Regions looking after works in the North, West, East and South. Each of these regions is headed by an ADG (Works). Works for the State of Delhi are carried out by Delhi PWD. The PWD Delhi is headed by an E-in-C. All engineering posts are encadred in CPWD and the department provides administrative and technical support, including handling quality assurance and vigilance functions.

Each Region has a number of Zones, headed by Chief Engineers, for executing projects.

The department has a decentralized system of working, which provides for better & easily accessible service as the units are placed close to work centers. Jurisdiction of the department is divided into seven regular Regions. Autonomy, in most areas, has been given to the Regional Units headed by Additional Director General Works (ADGs).

At the HQ the Director General (Works) is assisted by the Additional Director General Works for effective control of works and in administrative matters. For all purposes the Regions work as mini-directorates.
The jurisdiction of various regions is as below:

1.1 **New Delhi Region headed by ADG (Strategy and Planning)**

(Headquarter – Delhi)

ADG (Strategy and Planning) is in-charge of works under New Delhi Region. There are three regular zones under the NDR and two project teams for the parliamentary Library Project. Out of three regular zones two zones are headed by CEs (Civil) and one by a CE (E). Chief Architect (NDR) provides the architectural support to the zones under this Region. In addition to the works, there are two Chief Engineers and a Director of Administration for looking after Head quarter functions relating to Vigilance and Personnel matters reporting to ADG(S&P).

1.2 **Delhi Region headed by ADG (Technology Development)**

(Head Quarter – Delhi)

The ADG (Technology Development) heads the Delhi Region. There are two Civil zones and one Electrical zone in the Region. In addition there are three Chief Engineers looking after the Head Quarter functions relating to Design, Contract, Standards, Quality Control functions and Consultancy Services.

1.3 **ADG (Northern Region)**

(Head Quarter – Delhi)

ADG (NR) is responsible for the works under Northern Region. There are four CEs (Civil), one CE (E) and one Chief Architect in this Unit. Zones are located at New Delhi, Chandigarh, Lucknow and Jaipur for looking after the works in the States of UP, UP, Haryana, Himachal Pradesh, Rajasthan, U.T. of Chandigarh, Uttaranchal, J&K and in National Capital Region of Delhi.

1.4 **ADG (WR)**

(Head Quarter – Mumbai)

ADG (WR) is responsible for works under Western Region. Jurisdiction of the region covers the states of Maharashtra, Madhya Pradesh, Chattisgarh, Goa, Gujarat, and Union Territory of Dadra and Nagar Haveli. There are three CEs (Civil), one CE (E) and one Chief Architect under this unit.

1.5 **ADG (ER)**

(Head Quarter - Kolkatta)

ADG (ER) is responsible for works under Eastern Region. Jurisdiction of the Region covers the states of West Bengal, Bihar, Jharkhand, Sikkim, Orissa and all the North Eastern States. There are three CEs (Civil), one CE (Electrical) and one Chief Architect in this Unit.
1.6 **ADG (SR)**

(Head Quarter – Chennai)

ADG (SR) is in-charge of works in **Southern Region** in the States of Tamil Nadu, Andhra Pradesh, Karnataka, Kerala and Union Territory of Pondichery, Andaman Nicobar and Lakshdeep Islands. There are three CEs (Civil) and one CE (Electrical) in this unit.

1.7 **Engineer-in-Chief (Delhi-PWD)**

(Head Quarter – Delhi)

The public works of **National Capital Territory of Delhi** are handled by four zones of Delhi PWD under the Engineer-in-Chief, PWD. The E-in-C (PWD) reports to Govt. of NCT Delhi for all day-to-day functions. All the engineering posts of Delhi PWD are encadered in CPWD. Recruitment, training, placement, vigilance and quality assurance functions are carried out by CPWD units.

1.8 **ADG (Border)**

(Head Quarter – Delhi)

There is one post of Additional Director General Works for coordinating the activities of various organisations involved, i.e. CPWD, Assam PWD and Border Roads Organisation, in construction of Border Fencing, Roads and Lighting Systems along Indo-Bangladesh and Indo-Pak Borders. Five CPWD Zones, 3 civil and two electrical, are directly engaged in these works.

1.9 **ADG (Arch.)**

(Head Quarter – Delhi)

The ADG (Arch.) exercises technical control on all the four Chief Architects. He is also advisor to Ministry of UA&E on matters of Architectural Planning within the country and for Indian Embassies in other countries.

1.10 **ADG (Training)**

(Head Quarter – Ghaziabad)

There is one post of ADG (Training), which looks after the training needs of the workers and officers in the department and carries out the important task of Human Resource Development. CPWD has a **full-fledged Training Institute located at Ghaziabad, apart from Regional Training Centres at Delhi, Mumbai, Chennai and Calcutta.**
HEAD QUARTER SET UP

Figure 1 : CPWD Organisation Structure : Head Quarters
REGIONAL SET UP

Figure 2: CPWD Organisation Structure: Regional Head Quarters

A Region looks after several States. For example, the Eastern Region is responsible for West Bengal, Orissa, Bihar, Jharkhand, Sikkim and seven sister states of North Eastern part of India. A Region has a number of Zones (headed by Chief Engineers) and under each zone, Circles and Divisions as necessary, very much similar to UPPWD’s structure. For example, the Eastern Region consists of 3 Civil Zones, 1 Electrical Zone and 1 Chief Architect Zone. Eastern Zone-I has 4 Circles and 11 Divisions under it.

The Organisation Chart of the CPWD HQrs and of one Region (Eastern Region) is given in the Figure 1 and Figure 2.
2. Indian Railways

**Figure 3 : Organisation Structure of Indian Railways**

The apex management organisation is the Railway Board, also called the Ministry of Railways. The board is headed by the Chairman who reports to the Minister of Railways. The board has five other members in addition to the Chairman.

The General Managers of the zonal railways and the production units report to the board.

**Functional branches**

There are 10 separate cadres to provide the specialized services required for running the Indian Railways. These are:

1. **IRSE**: Indian Railway Service of (Civil) Engineers
2. **IRSEE**: Indian Railway Service of Electrical Engineers
3. **IRSME**: Indian Railway Service of Mechanical Engineers
4. **IRSSE**: Indian Railway Service of Signal Engineers
An organisation chart of Indian Railways at the Ministry or Railway Board level is shown in Figure 4, at the Zonal level in Figure 5 and Divisional level in Figure 6.

**Indian Railway Service of Engineers**

The Indian Railway Service of Engineers (IRSE) is a cadre of the Government of India. The officers of this service are responsible for managing the Civil Engineering Organisation of Indian Railways. There are about 1,500 Engineers in IRSE.

**Role and Function**

The Civil Engineering department of Indian Railways is managed by Engineers of IRSE who are responsible for maintenance of all fixed assets of Indian Railways, i.e. track, bridges, buildings, roads, water supply, etc. These fixed assets are 45% total assets of Indian Railway.

**Recruitment**

The recruitment to the cadre is done through the Indian Engineering Service exam. An aspirant should be a Civil Engineering graduate from any recognized university of India. The UPSC is responsible for recruiting middle and top-level bureaucrats for the Government of India.

The selection exam is conducted by the Union Public Service Commission (UPSC) of India. Recruitment to the Service is done on the basis of an all India examination “Engineering Services” conducted by UPSC every year in August. The number of intakes varies from year to year: presently, intake is about 20 to 25 probationers per year.

After Recruitment, the probationer is given two years’ intensive training in various Railways establishments under the guidance of Indian Railway Institute of Civil Engineers Pune.

A young probationer is posted as Assistant Divisional Engineer after two years of training and can rise up to Chairman Railway Board, a post equivalent to the principal secretary to Govt. of India. In normal course, all the officers rise up to minimum level of Additional General Manager rank in railways which is in the higher administrative grade (HOD). This is a far cry from the situation in UPPWD where an Engineer rarely attains such a position.
Figure 4: Indian Railways Organizational Structure

Minister of Railways

MOS for Railways

Railway Board

Chairman Railway Board

Member **
Engineering

Member **
Electrical

Member **
Staff

Member **
Mechanical

Member **
Traffic

Member **
Finance

Director General
Railway Health
Service

Director General
Railway Police
Force

Secretary

General Managers
16 Zonal Railways

General Managers
6 Production Units

General Managers
5 Other Units
Director General
RDSO & Rly. Staff College

9 Public Sector
Undertakings

* Ex-officio Principal Secretary to the Govt. of India

** Ex-officio Secretary to the Govt. of India
Figure 5: Indian Railways Zonal Organisation

- General Manager
  - Addl. General Manager
  - Chief Administrative Officer
  - Principal Chief Engineer
  - Chief Electrical Engineer
  - Chief Mechanical Engineer
  - Chief Signal and Telecom Engineer
  - Controller of Stores
  - Chief Operations Manager
  - Chief Commercial Manager
  - Financial Advisor and Chief Accounts Officer
  - Chief Personnel Officer
  - Chief Public Relations Officer
  - Chief Medical Director
  - Chief Safety Officer
  - Chief Security Commissioner
  - Senior Deputy General Manager and Chief Vigilance Officer
  - Chief Law Officer
  - Chief Rajbhasha Adhikari
  - DRM * 1
  - DRM 2
  - DRM 3
  - DRM 4
  - DRM 5

* DRM = Divisional Railway Manager
Figure 6: Indian Railways Divisional Organisation

Divisional Railway Manager

- Addl. Divisional Railway Manager
  - Senior Divisional Engineer
  - Senior Electrical Engineer
  - Senior Mechanical Engineer
  - Senior Divisional Signal and Telecom Engineer
  - Divisional Controller of Stores
    - Senior Divisional Operations Manager
    - Senior Divisional Commercial Manager
  - Senior Accounts Officer
    - Senior Divisional Financial Manager
    - Senior Medical Superintendent
    - Senior Safety Commissioner
  - Senior Divisional Security Officer
    - Senior Personnel Officer
    - Senior Rajbhasha Adhikari
ANNEXURE - 4

HIGHWAYS AGENCY, UK

The Highways Agency is an executive agency of the Department for Transport, working to support delivery of the outcomes sought by the Secretary of State for Transport, in accordance with his priorities, in respect of the stewardship and operation of the motorway and trunk road network in England (the "strategic road network").

The network comprises various types of road from motorways to single carriageway roads. It provides a vital service to commerce, industry and the lives of individuals and communities.

Up to date details of the Highways Agency's size, location and resources are set out annually in the Agency's business plan.

The organisation structure of the Highways Agency, UK is as follows:
Roles and Responsibilities

A. Responsibilities

The Highways Agency, on behalf of the Secretary of State, is responsible for:

- operation and stewardship of the strategic road network, including day to day and whole-life maintenance;
- managing traffic, tackling congestion, providing information to road users and improving safety and journey reliability on the strategic road network;
- delivering a programme agreed with the Secretary of State for additions and enhancements to the strategic road network;
- acquiring, managing and disposing of land and property and paying compensation in relation to schemes on the strategic road network;
- supporting the delivery of the Government's objectives in relation to sustainable development and exercising the Secretary of State's policy in respect of informing and influencing the pattern of new development through the planning system, and responding to specific development proposals, in respect of the potential impact on the capability of the strategic road network;
- identifying, responding to the Secretary of State's proposals for, and delivering trials or wider application of, approaches new to the UK for the efficient discharge of its responsibilities and achievement of the Government's objectives;
- informing and influencing the development of the Secretary of State's policies for the strategic road network, including identifying and advising on the case and options for:
  - additions and enhancements to that network including the provision of advice to regional partners,
  - changes and improvements to the operation of the network, and
  - the transfer of sections of the network to other highway authorities;
- promoting efficiency and effectiveness in the procurement and delivery of public services through engagement with other organisations whose business involves interfaces with the strategic road network, including other highway authorities, Government Offices, and local and regional planning bodies;
- providing professional highways engineering advice to and on behalf of the Secretary of State, and promoting best practice by the sharing and promulgation of best highway management practice to other highway authorities;
- developing, publishing, reviewing and maintaining engineering and other standards in concert with the office of the Scottish Executive, the Welsh Assembly Government and the Department of the Environment in Northern Ireland, or any successor bodies;
- carrying out a programme of research and development aimed at supporting delivery of the aims and objectives of the Agency, in consultation with the Department's research programme managers to ensure programmes complement each other; and
- representing the Government's interests on relevant international technical committees where appropriate and recognising export opportunities for the UK.
The following responsibilities have been retained by the Secretary of State:

(i) overall Government policy on roads in England;
(ii) the addition of roads to, or the removal of roads from, the strategic road network;
(iii) decisions on schemes (The cost threshold for these schemes is set by the Secretary of State and is currently £5m) and the approval of scheme briefs, for additional capacity or other major enhancements to the strategic road network;
(iv) decisions following public inquiries into orders relating to the strategic road network;
(v) policy on road user charging;
(vi) policy on the development of the use of private finance for roads; and
(vii) the methodology to be used in the appraisal of improvements to the strategic road network.

Department-wide Services

• The Agency will have access to legal and other common services provided by the Department. These will be supported by service level agreements where appropriate.
• The Agency will collaborate with the Department to facilitate organisational change in so far as it affects the Agency.
• The Agency will collaborate with other executive agencies of the Department in the planning and delivery of services.

B. Roles

The Secretary of State

The Secretary of State is responsible for the policy framework within which the Agency operates. Specifically, he is responsible for:

• setting the aim and objectives of the Agency;
• with the approval of the Prime Minister, appointing the Chief Executive of the Agency;
• setting key performance indicators and targets for the Agency;
• approving the Agency’s Corporate and Business Plans;
• determining the level of resources to be made available to the Agency, including the broad split between the main programmes;
• determining which individual major road schemes will be included in the programme and approving scheme briefs; and
• approving revisions to the Framework Document and clearing these with Treasury ministers.
Permanent Secretary

The Permanent Secretary is the Department's Principal Accounting Officer and the principal adviser to the Secretary of State on matters affecting the Department as a whole, including questions of allocation of resources, expenditure and finance. The Permanent Secretary is responsible for the management of the whole Department and is accountable to Parliament for its effectiveness and efficiency.

The Permanent Secretary will advise the Secretary of State on the appointment and performance of the Chief Executive.

The Permanent Secretary will both challenge the performance of the Chief Executive and support and facilitate his work in meeting his objectives and key targets (In fulfilling this role, the Permanent Secretary is supported by the Director, Roads Performance and Strategy and by the staff of the Roads Performance Division, who will liaise with the Agency on the development and production of relevant documents and information, taking the role of departmental "sponsor" of the Agency.). In particular he will:

- quality assure the Agency's corporate and business plans prior to their submission to the Secretary of State for approval, and hold the Chief Executive accountable for the performance of the Agency against its targets;
- ensure that the relationship between the Agency and the Department works effectively and efficiently by ensuring that the Agency is consulted about all matters, including policy proposals, having a bearing on it, and that the Chief Executive and staff have appropriate access to Ministers to facilitate the efficient conduct of business; and
- ensure the establishment of such further arrangements as are needed to support this Framework Document.

Highways Agency Chief Executive

- The Chief Executive is responsible for the day to day management of the Agency and is accountable to the Secretary of State and the Department's Principal Accounting Officer for its performance and the effective and efficient delivery and discharge of the services and responsibilities assigned to it. The Chief Executive is also responsible for ensuring compliance with Government policies and procedures.
- The Chief Executive is a member of the Department's board and, as such, shares corporate responsibility for the overall management of the Department.
- The Chief Executive is appointed Accounting Officer for the Agency by the Permanent Secretary with responsibility for the resources voted by Parliament for the Department and allocated to the Agency by the Secretary of State. As detailed in his letter of appointment as Agency Accounting Officer, the Chief Executive is responsible for ensuring that the requirements of Government Accounting and the Resource Accounting Manual are met and that proper procedures are followed for securing the regularity and propriety of the public funds voted by Parliament and allocated to the Agency by the Secretary of State, and for achieving value for money.
• The Chief Executive may be invited to appear before the Public Accounts Committee to account for the discharge of responsibilities falling to the Chief Executive under the terms of this Framework Document.

• The Chief Executive will normally be asked to represent the Secretary of State and answer for the Secretary of State at hearings of Parliamentary Committees when operational matters concerning the Agency are discussed.

• The Chief Executive is responsible for observing any general guidance issued by the Treasury and Cabinet Office and implementing recommendations of the Public Accounts Committee or other Parliamentary Select Committees if they are accepted by the Government.

• The Chief Executive is responsible for ensuring that effective procedures for handling complaints about the Agency are established and published and for replying to complaints personally if they cannot be satisfactorily resolved by other means. The Agency is subject to the jurisdiction of the Parliamentary Commissioner for Administration and the Permanent Secretary, as the Principal Officer of the Department, will delegate to the Chief Executive responsibility for replying on any matters concerning the Agency.

• The Chief Executive is responsible for ensuring that the Agency provides all such support in terms of advice on correspondence and briefing as Ministers may require.

Aims and Objectives

Aim: The aim of the Highways Agency is: "safe roads, reliable journeys, informed travellers".

Objectives: The key objectives of the Agency and associated targets are set out annually in its business plan.

The prime objective as set out in the 2005-06 business plan is to deliver a high quality service to our customers by:

• Reducing congestion and improving reliability
• Improving road safety
• Respecting the environment
• Seeking and responding to feedback from our customers.

The Agency's enabling objectives are to:

• Ensure more effective delivery through better working relationships
• Implement best practice and innovative solutions to improve service now and in the future
• Be a good employer
• Be an efficient Agency with effective business processes and resource management systems.
The Agency's key performance indicators and targets are set out annually in the business plan and include the Agency's contribution to the delivery of the Department's targets, particularly in relation to:

- Congestion
- Safety
- Air quality

**The Planning and Performance Framework**

The Agency's key planning documents are its corporate and business plans.

The Agency will submit a corporate plan setting out its overall direction and an agreed planning framework for a period of at least three years to support delivery of the outcomes sought by the Secretary of State. Its content will be agreed between the Agency and the Permanent Secretary before being submitted to the Secretary of State for approval.

Each year the Agency will submit a business plan to a timetable agreed with the Permanent Secretary. The Permanent Secretary will advise the Secretary of State on the plan, particularly on the degree of ambition and efficiency reflected by the proposed targets and their consistency with available funds. The business plan will focus on the forthcoming financial year, and will also indicate provisional plans for the ensuing years, consistent with the Government's Spending Review process. It will include:

- the Agency's objectives and agreed performance indicators and targets, showing how they contribute to delivery of the Department's objectives;
- the Agency's strategy to meet its performance targets;
- the programmes and resource requirements for each main area of activity, explaining how those activities link to the meeting of objectives and targets;
- a statement of risk management and mitigation;
- the Agency's enabling objectives and values, including plans to improve the efficiency and effectiveness with which it discharges its responsibilities;
- information on the trends and assumptions on which the plan is based.

**Performance monitoring and reporting**

The Chief Executive is responsible for reporting to the Department in-year as follows:

**Routine**

- regular reporting to the Roads Minister, in a form approved by the Minister;
- regular reporting to the Department's board on progress and risks, in the form agreed by the board in its role supporting the Permanent Secretary; and
- such other regular reporting as may be decided by the Department's board.
**By exception**

Reporting to the Permanent Secretary:

- any issue that raises significant reputational risks for the Agency or the Department, including anything which is novel or potentially contentious, on a "no surprises" basis.
- issues relating to financial control, as detailed in Section 5 below.

The Agency will report its outturn performance against its business plan targets in its Annual Report and Accounts.

The Chief Executive is responsible for ensuring that the Department's policies and practices for the appraisal and approval of investments are followed.

The Chief Executive is responsible for ensuring that an appropriate and active risk management framework is in place within the Agency:

- providing leadership on risk management, including setting a "no surprises" culture; and
- escalating to the Department's board or Executive Committee, at an early stage, those risks identified with a potential corporate impact to the Department.

**Resource allocation**

The Secretary of State will determine the level of resources to be made available to the Agency.

The Secretary of State may make adjustments to the Agency's programmes and budgets as appropriate in accordance with any significant changes or developments in his priorities.

**Financial Arrangements**

**Financial Regime**

The Agency is subject to public expenditure controls, including Supply Estimates and the Government public expenditure planning arrangements in force. Its expenditure forms part of the Departmental Expenditure Limit (DEL) and administration cost limit. Decisions on allocations to the Agency rest with the Secretary of State on advice from the Principal Accounting Officer. The Chief Executive is responsible for Agency expenditure. The Chief Executive must ensure that the requirements of Government Accounting and the Resource Accounting Manual are met and that any recommendations of the Public Accounts Committee, other Parliamentary Select Committees or other Parliamentary authority accepted by Government are put into effect.

**Annual Report and Accounts**

The Chief Executive will prepare and publish each year an Annual Report and Accounts in accordance with the guidance and accounting policy set out by the Cabinet Office and Treasury. That report will be agreed with the Permanent Secretary, prior to Ministerial clearance.
The report and accounts will set out the Agency's performance related to the objectives, forecasts and targets published in that year's business plan. The accounts will be audited by the Comptroller and Auditor General, and will be published and laid before both Houses of Parliament.

The Chief Executive is responsible for ensuring that the Agency's management information and accounting systems allow for detailed and effective control over its use of resources. The accounting system will permit verification of the accounts by the Comptroller and Auditor General and the Agency will maintain the necessary interfaces with the Department's financial and accounting systems.

Financial delegations

The Permanent Secretary will issue annual financial allocations to the Agency, covering the forthcoming year and future years consistent with spending reviews, before the start of each financial year, which will include details of the freedoms and flexibilities available to the Chief Executive to redeploy resources between programmes. Budgeting and financial control regimes will be agreed for the same period.

All losses and special payments are subject to separate limits set by the Treasury. These include losses due to fraud, and extra-contractual, ex-gratia and compensation payments. A full list of definitions can be found in Chapter 18 of Government Accounting. The delegated authorities for the Highways Agency in respect of losses and special payments are the subject of detailed agreements between the Department and the Treasury and will be reviewed as appropriate.

The Principal Accounting Officer has the ultimate responsibility for ensuring that the Department and the Agency have in place effective financial management systems and procedures, and that the operation of those systems and procedures is consistent with the requirements of regularity, propriety and the economic and efficient conduct of business, including the sharing of information on commitments and changes to budgets. The Chief Executive will provide annual assurance to the Principal Accounting Officer as required by Treasury.

Contractual Delegations

The Chief Executive will establish appropriate policies and practices for the Agency's purchasing arrangements, in accordance with Departmental and Treasury guidelines, and will ensure that instructions are promulgated to all staff. The Chief Executive has unlimited delegated authority for competitive procurement and authority for single tender action limited only by the Treasury's overall delegation to Departments. The Chief Executive may authorise contractual sub-delegations to staff within the Agency.

The Management of Risks, including provisions, contingent liabilities and insurance

The Agency's financial risks, including public and employer liability, are carried in line with Government policy on insurance. The Chief Executive will keep the Permanent Secretary informed of the level of risks in the Agency and the consequence for the Agency's provisions and contingent liabilities, including where possible an assessment of their values.
Audit Arrangements

The Chief Executive will maintain an internal audit function for the Agency and direct its work. The Chief Executive will be supported by an Audit Committee established as a committee of the Agency's board in accordance with Government Accounting and Cabinet Office and Treasury guidance. The Audit Committee will be chaired by a non-executive member of the Agency's board and will approve the internal audit programme and consider the issues arising from the auditors' work.

Internal Audit

The Chief Executive will establish and maintain arrangements for internal audit in accordance with the objectives, standards, scope and practices set out in Treasury guidance and manuals and operate within the Department's Group Audit Assurance framework.

The Department's Group Head of Internal Audit will attend the Agency's Audit Committee meetings.

The Department's Internal Audit will not undertake audit work within the Agency unless specifically requested to do so by the Chief Executive or exceptionally by the Principal Accounting Officer after consultation with the Chief Executive.

The Department's Internal Audit will carry out periodic checks to confirm that the internal audit arrangements established in the Agency meet the required standard and will report on these as appropriate to the Chief Executive and to the Principal Accounting Officer.

The Department's Internal Audit will agree any other reporting requirements with the Chief Executive and the Principal Accounting Officer.

External Audit

The Comptroller and Auditor General will:

- audit the Agency's expenditure and receipts;
- examine their regularity and propriety; and
- lay the accounts before Parliament.

In addition, the Comptroller and Auditor General will have access to the books and records of the Agency in order to follow up any concerns over matters of regularity and propriety and to carry out examinations into economy, efficiency and effectiveness with which the Agency has used its resources in discharging its functions.

Scheme Appraisal

The Agency will provide the Department with such information as it requires for the audit of scheme appraisals or the evaluation of pilot projects.
Personnel Arrangements

- Staff of the Agency are employees in the service of the Crown, working for the Agency as part of the Department. Staff are employed on the terms and conditions of service that apply within the Agency. Staff are covered by the provisions of the Principal Civil Service Pension Scheme, unless they opt not to be so.

- The Chief Executive is appointed by the Secretary of State, under the code of practice for ministerial appointments to public bodies. The Chief Executive is a civil servant and subject to the Civil Service Code. The appointment may be renewed.

- The Secretary of State has responsibility for the pay and grading arrangements of Agency staff outside of the Senior Civil Service. The Chief Executive exercises that responsibility on the Secretary of State's behalf in accordance with Government public sector pay policy and within any limits set by the Secretary of State. The Agency conducts its own pay negotiations with its recognised trade unions.

- The Permanent Secretary has responsibility for the personnel management of the Agency's Senior Civil Servants within the broad framework set out by the Cabinet Office. In exercising that responsibility the Permanent Secretary consults the Chief Executive and may delegate certain responsibilities to the Chief Executive by agreement, including the management of internal transfers within the Senior Civil Service.

- The Chief Executive is responsible for the personnel management of all Agency staff, other than those within the Senior Civil Service, and except for those matters where responsibility remains with the Cabinet Office.

- The Chief Executive is responsible for the recruitment of Agency staff, except for those grades specified in the Civil Service Order in Council 1991, for which any recruitment will be through the Civil Service Commissioners. Recruitment and promotion are on merit. Agency staff will be eligible for promotion and lateral transfer to posts elsewhere in the Department and vice versa.

- The Chief Executive is responsible for employee relations within the Agency, including the equal and fair treatment of all its staff and of all applicants for employment. The Agency will continue to attach importance to consultation with staff and their recognised trade union representatives; to the need to make full use of the skills and talents of staff; and to provide staff with opportunities to contribute to decisions affecting their jobs and careers. Consultative arrangements with recognised trade unions are maintained through the Whitley system.

- The Agency is committed to ensuring the equal and fair treatment of all its staff and of all applicants for employment. In addition, the Chief Executive is responsible for ensuring that the Agency's equal opportunities and diversity policies are actively promoted and meet statutory and departmental requirements.

- The Chief Executive is responsible for the effective security of Agency staff, and for the security of the organisation's intellectual and physical assets. In exercising this responsibility the Chief Executive acts within a framework agreed with the Department. The Chief Executive is also responsible for the health, safety and welfare of Agency staff and for meeting statutory and departmental requirements.
ANNEXURE - 5

MINISTRY OF TRANSPORTATION ONTARIO

As part of this Project three Workshops were arranged for the PWD that were led by a former senior officer from the Ministry of Transportation Ontario. Full details regarding those Workshops are given in a separate Report titled 'Visit and Workshop by Mr. Ravi Girdhar' April 2008.
A copy of the MTO organisation chart is given below.