



**ROAD PAVEMENTS  
FORUM**

16 MAY 2023

# **FEEDBACK – 3<sup>RD</sup> ROAD MAINTENANCE FORUM 13<sup>TH</sup> APRIL 2023**

**PJ HENDRICKS - SABITA**

# PROGRAMME

320 REGISTERED DELEGATES

APPROX. 220 ONLINE

18 PANELISTS

09H00 – 12H00

• I N T E R N A T I O N A L •  
*Road Maintenance Day*



**Social Media : #IRMD2023**



# PROGRAMME

## 3<sup>rd</sup> RM Forum Programme:

*Welcome, background & objectives*

### Systems (Phil Hendricks):

Joburg Pothole Patrol Initiative - *Ayanda Ntshingila - JRA*  
Road Maintenance and the environmental impact - *Hilton Scholtz - City of Cape Town*  
Proforma Maintenance Contracts - *Naashif Mowzer - SANRAL*  
Fixing potholes, through CSI - *Charl van Schalkwyk - Raubex*

### Materials (John Onraet)

Latest Developments in cold mix asphalt - *Colin Brooks - AECI Much Asphalt*

### Training (Rudolf Murray)

Challenges Experienced with Road Maintenance Training - *Gawie Burger - Tjeka Training & Ken Falkenberg - ACS*  
Maintenance issues in tertiary curricula - *Ashaadia Kamalie & Patrick Neal - CPUT*  
RRM Qualification and the QCTO - *Abeeda Holdstock*

### Quality Testing (Wim Hofsink):

Status of public sector laboratories - *Barry Pearce*  
Status of the laboratories housed at Engineering 4.0, with special reference to the SANRAL National Reference Laboratory  
*Abdul Esakjee*  
Status of the CSIR Research Laboratory - *Dr Noluthando Mayedwa*

### Resolutions and thanks

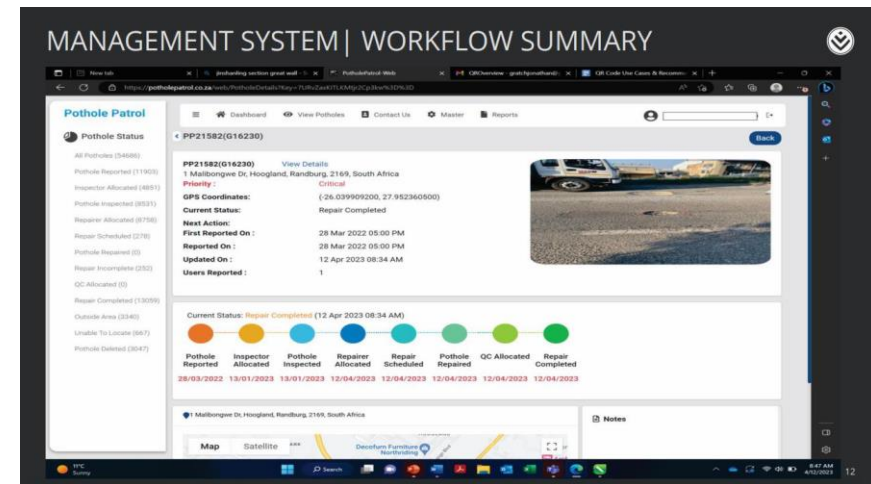
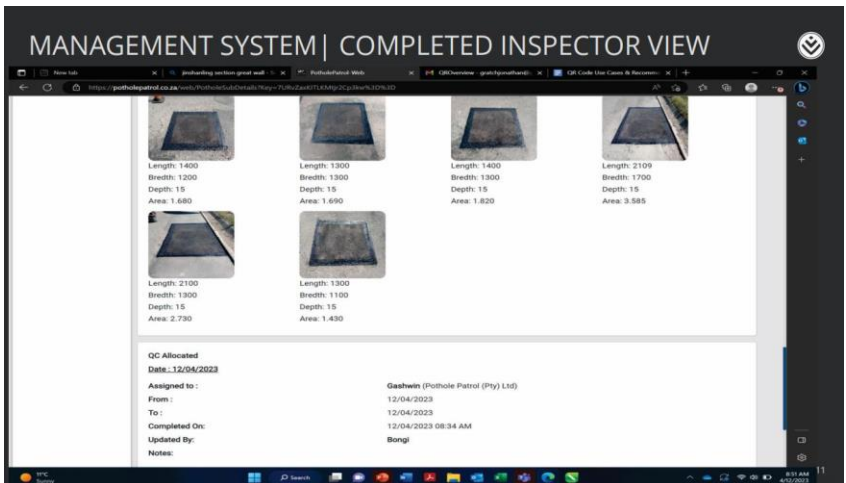
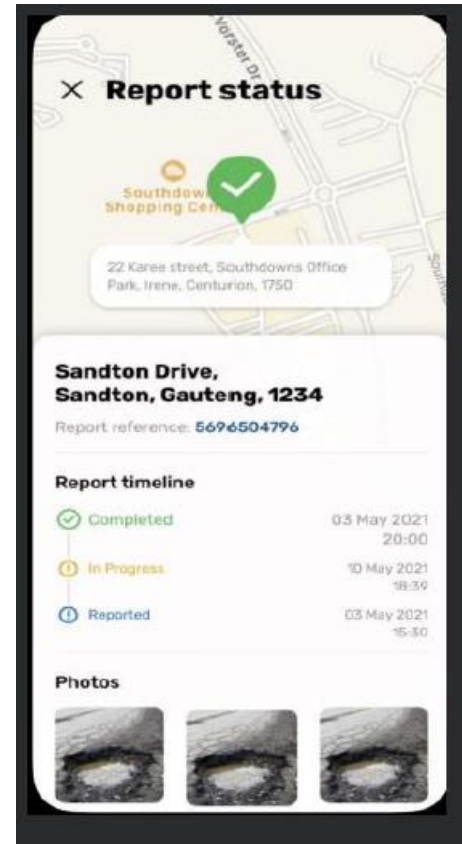
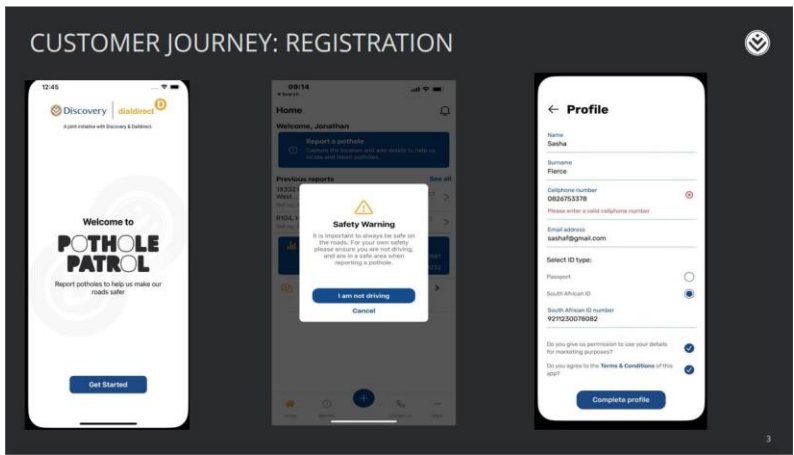
# SYSTEMS



**Share some public/private sector initiatives wrt Road Maintenance**

# SYSTEMS – Joburg Pothole Patrol Initiative

Ayanda Ntshingila - JRA



# SYSTEMS – Joburg Pothole Patrol Initiative

Ayanda Ntshingila - JRA

## PROGRESS REPORT

+150 000 Potholes Repaired

40 Jobs created for the youth

Pothole Patrol saves over **R18 million** per month for drivers in JHB

**26%** less pothole incidents in JHB compared to last year

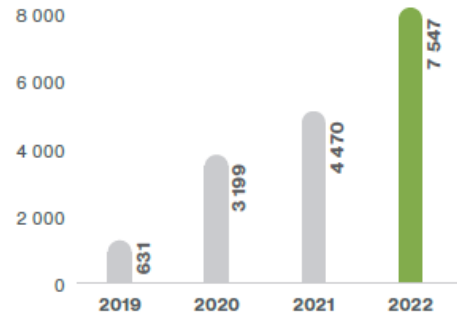
Rest of Gauteng has seen a **45%** increase in pothole incidents



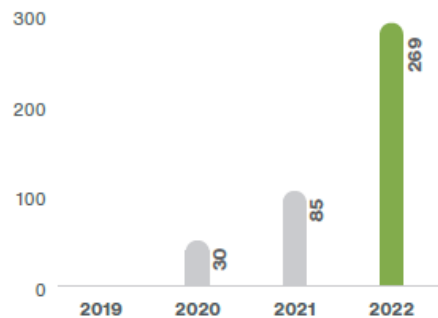
# SYSTEMS – Fixing Potholes Through CSI

Charl van Schalkwyk - Raubex

Potholes fixed



Storm water drains installed




**Motus**  
Road Solutions

The escalating road maintenance crisis in South Africa means many of us drive on treacherous roads. Inexpensive, poorly-maintained roads are a direct cause of road accidents, resulting in serious injuries and deaths.

**Let's Patch Mzansi**

Introducing **Let's Patch Mzansi**

Are you up for a side hustle... or even

Did you know - there are teams that fix up to 40 potholes per day!

See below the qualifying criteria:

- Register on our online application using your phone.
- Select your geographic area (preferred potholes "hotspot" areas).
- So-called "buddy" to your nearest Motus-activated vehicle you coordinate the pothole repairs.
- Work will be done on a weekly, pre-arranged schedule at least 4x a week. Example: 100 potholes according to the registration.

Let's Patch Mzansi brings corporate South Africa, road users and unemployed people together in a civil society ecosystem through our "match-a-patch" model in order to improve the pothole crisis in SA.



Do you want to join our Patch Mzansi pilot project?

Are you, or somebody you know interested? Please provide us with your name, cell number & e-mail address below.

Let's work together to create a pothole free Mzansi!

# SYSTEMS – Road Maintenance and the Environmental Impact

Hilton Scholtz - CoCT

• I N T E R N A T I O N A L •  
*Road Maintenance Day*



Social Media : #IRMD2023



Adaptation Strategies

- a) Re think
- b) Reduce
- c) Re Use
- d) Re Purpose

**Using different lenses:**  
Environmental degradation

**CO2 Emissions**

**Economic environment**

**Social Development**

Every kg of CO<sup>2</sup> invested in paving/road maintenance saves 36kg of CO<sup>2</sup> caused by vehicles driving on this road.



# SYSTEMS – Proforma Maintenance Contracts

Naashif Mowzer - SANRAL

## SANRAL Western Region’s Routine Road Maintenance (RRM)

- Importance of Project Liaison Committees and its representation
- Breakdown of the Contract
  - The Contract Must do all work Until subcontractors are appointed to a limit of 6 months after which penalties become applicable. **NO DOMESTIC SUBCONTRACTING ALLOWED**
- Subcontracting of targeted enterprises
  - Subcontracting is done through a SANRAL defined process
  - The Contractor must appoint a Targeted Group Development Coordinator



## Functionality Requirements Minimum score of 75

CIDB Package Category - As Advertised		5CE	6CE
Maximum Package Value		R10mil	R20mil
<b>Location of Business</b>			
Locality	Tenderer is based in the Local Municipality/Municipalities	60	
	Tenderer is based outside the Local Municipality/Municipalities, but in the District Municipality/Municipalities.	40	
	Tenderer is based outside the District Municipality/Municipalities, but in the Province/Provinces.	35	
	Tenderer is based outside the Province/Provinces, but in the RSA.	30	
<b>CIDB Grading Designation</b>			
CIDB Grading	Tenderer is registered as a CIDB 1.	0	0
	Tenderer is registered as a CIDB 2.	0	0
	Tenderer is registered as a CIDB 3.	0	0
	Tenderer is registered as a CIDB 4.	30 <sup>Δ</sup>	0
	Tenderer is registered as a CIDB 5.	35*	30 <sup>Δ</sup>
	Tenderer is registered as a CIDB 6.	30*	35*
Designated Groups (no max score)	Tenderer is at least 51% owned by black people who are youth.	5	
	Tenderer is at least 51% owned by black people who are women.	5	
	Tenderer is at least 51% owned by black people with disabilities.	5	
	Tenderer is at least 51% owned by black people who are military veterans.	5	

# MATERIALS – Latest Developments in Cold Mix Asphalt

Colin Brooks – AECI Much Asphalt

## Types of Cold laid asphalt

- ▶ Cold mixed cold laid asphalt
- ▶ Hot mixed cold laid asphalt
- ▶ Warm mixed cold laid asphalt
- ▶ Hot/warm mixed (re-heated) half warm laid asphalt?



## Cold Mixed Cold laid Asphalt

- ▶ All mixed at ambient temperature (no Heating required)
- ▶ Various aggregate grading options
- ▶ Emulsion as a base binder
  - ▶ Anionic Emulsion used for Dense graded cold mixes
  - ▶ Cationic premix grade used for open-graded cold mixes
  - ▶ Inverted Emulsions are also nonular

## Cold laid Asphalt - Requirements

- ▶ Must be workable at ambient temperature to allow for sufficient compaction
- ▶ As long as possible shelf life
- ▶ Must harden in place in the shortest space of time (should not deform)
  - ▶ Water/flux/volatiles should evaporate to allow asphalt to “harden”

# TRAINING – Challenges Experienced with RM Training

Gawie Burger/Ken Falkenberg - Tjeka/ACS



CURRENT TRAINING  
LANDSCAPE

- QCTO (Quality Council for Trades and Occupations establish in 2010 in terms of skills development act)
- All qualifications with a practical component will migrate to QCTO. Last date of enrolment with CETA is 30 June 2024

# TRAINING – Challenges Experienced with RM Training

Gawie Burger/Ken Falkenberg - Tjeka/ACS



CHALLENGES FACING  
THE INDUSTRY

- RFQs for RM training – no specification of duration, indicates accreditation
- No technical staff evaluating – allocate to lowest bidder even though submissions range 2 – 15 days



An industry body (like IOPSA for Plumbing) for Road related training to take responsibility for quality and standards in the industry



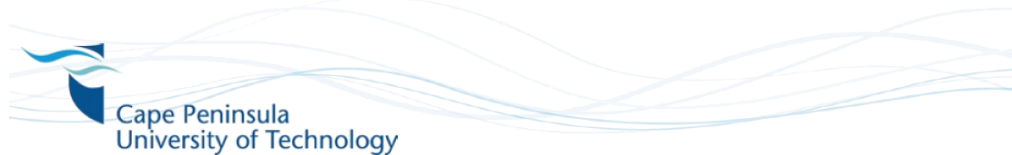
They must inform clients of the minimum standards required when RFQ's are advertised

# TRAINING – Maintenance Issues in Tertiary Curricula

Ashaadia Kamalie/ Patrick Neal - CPUT

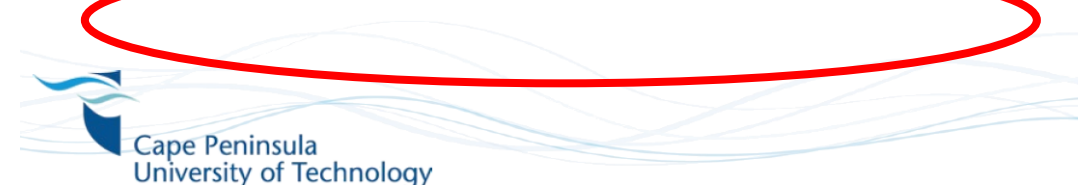
## Curriculum Content *Diploma in Civil Engineering*

- Transportation Engineering in Y2 (21 credits)
  - SABITA Manuals
  - Red Book
  - TRH 3,8,12; TG1,2; SAPEM Ch 4-10; UTG 4,7
  - LABORATORY PRACTICALS (*Marshal Designs For Low Volumes Roads*)
  - PROJECT WORK (*Asphalt design proposals are submitted based on lab results*)
  - Recurriculation To Introduce Surface Repair And Maintenance Technique



## Curriculum Content *Advanced Diploma in Civil Engineering*

- Geotechnical Engineering in Y4 (14 credits)
  - TRH 20; TG1,2; SAPEM Ch 4-10;
  - ROAD DESIGN (SAPEM CH 10 VS TRH4)
  - PROJECT WORK (*Road layer work design and links between tensile stress and fatigue*)
  - Asphalt surface design; micro-strain is introduced to monitor fatigue cracking
  - Newly Introduced For 2024 Is Gyrotory Compaction On Modified Asphalt



# TRAINING – RRM Qualification and the QCTO

Abeeda Holdstock - Abeeda and associates

## Background and Status to Occupational Certificate Routine Road Maintenance Manager ID: 101864 NQF Level 5, Credits 120



# TRAINING – RRM Qualification and the QCTO

Abeeda Holdstock - Abeeda and associates

## Curriculum Framework

### Knowledge Modules:

- 132301001-KM-01, Legal requirements, Accommodation of Traffic and Health and Safety, Level 5, 2 Credits.
- 132301001-KM-02, Environment, Energy Efficiency and Ethics, Level 4, 2 Credits.
- 132301001-KM-03, Construction Project Support, Level 4, 2 Credits.
- 132301001-KM-04, Industry Contexts, and Application, Level 4, 4 Credits.
- 132301001-KM-05, Communication Theory, Level 4, 2 Credits.
- 132301001-KM-06, Project Planning and Administration in RRM, Level 5, 4 Credits.
- 132301001-KM-07, Quality Control on RRM sites, Level 5, 4 Credits.
- 132301001-KM-08, Co-ordinate information for Road Incident Management System, Level 4, 4 Credits.

Total number of credits for Knowledge Modules: 24.

### Practical Skill Modules:

- 132301001-PM-01, Conduct inventory and condition assessment of all assets in the road reserve, Level 5, 8 Credits.
- 132301001-PM-02, Identify, quantify, prioritise and schedule the maintenance needs, Level 5, 6 Credits.
- 132301001-PM-03, Read and interpret relevant contract documentation, Level 5, 7 Credits.
- 132301001-PM-04, Manage RRM projects to meet time, budget and quality requirements, Level 5, 6 Credits.
- 132301001-PM-05, Manage payments certificates, Level 5, 5 Credits.
- 132301001-PM-06, Apply a site management system, Level 4, 4 Credits.
- 132301001-PM-07, Manage statutory control of the road reserve, Level 5, 4 Credits.
- 132301001-PM-08, Implement traffic accommodation measures during maintenance operations, Level 4, 4 Credits.

Total number of credits for Practical Skill Modules: 44.

### Work Experience Modules:

- 132301001-WM-01, Processes, and procedures for inventory and condition assessment on a section of surfaced or unsurfaced road and compilation of relevant reports, Level 5, 17 Credits.
- 132301001-WM-02, Processes, and procedures related to compliance with contract documentation, Level 5, 17 Credits.
- 132301001-WM-03, Processes, and procedures for managing and maintaining a section or sections of a surfaced or unsurfaced road, Level 5, 18 Credits.

Total number of credits for Work Experience Modules: 52.

Application for qualification review has been submitted by CETA and has formally been approved for development by QCTO

Parallel processes undertaken to get SARF accredited – several criteria need to be met for this process to be successful

Stakeholders to determine if the qualification still represent current skills needs or if content should be reviewed/adjusted

# QUALITY TESTING – Status of Public Sector Laboratories

Barry Pearce – Learning Matters etc



Evaluated 13 public sector laboratories across South Africa

- TMH1 vs SANS 3001 methods in use
- Accreditation SANS 17025 : 2018

## SANS 17025: 2018

### WCPG

- Accredited since 2008

### Gautrans

- Accredited up to 2013
- In the process of obtaining re-accreditation

### CSIR

- Accredited expired.
- In process to get reaccredited (coupled to Eng4.0 process)

### Eng 4.0 (UP, CSIR, SANRAL)

- In process of obtaining accreditation (2 yrs??)

### Pietermaritzburg

- Starting process for accreditation

### Eastern Cape

- Looking @ accreditation within 3 yrs for all 3 facilities
- SANRAL lab accredited since late 2019



# QUALITY TESTING – Status of Public Sector Laboratories

Barry Pearce – Learning Matters etc

State facilities should work together to standardize the process

☐ Cost savings ☐ QM ☐ Each facility still independent

Additional facilities up North?

Most public sector laboratories are used for quality control and surely accreditation critical especially if checking on quality of capex.

Without SANAS accreditation no standing against commercially accredited facilities especially in the event of a dispute.

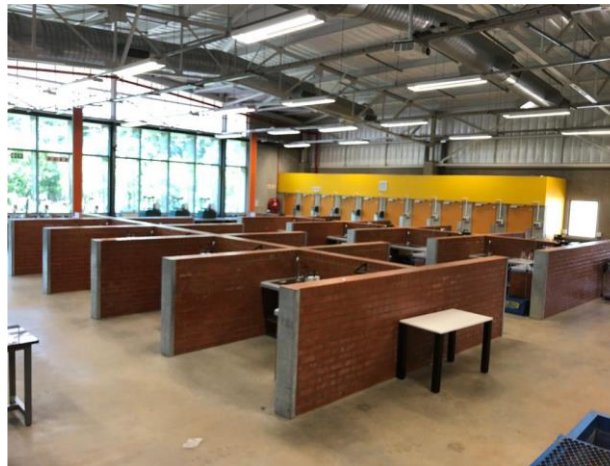
# QUALITY TESTING

Status of Laboratories Housed at Eng 4.0 – Abdul Esakjee

Status of the CSIR research Laboratory – Dr Noluthando Mayedwa



- Training & Certification Laboratory
- National Reference Laboratory
- Concrete Research Laboratory
- York Timbers: Wood Engineering Laboratory
- Accelerated Pavement Testing (APT) Track
- Active Traffic Lane



# QUALITY TESTING

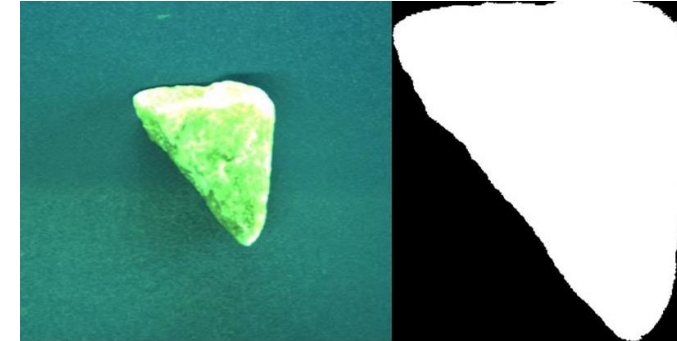
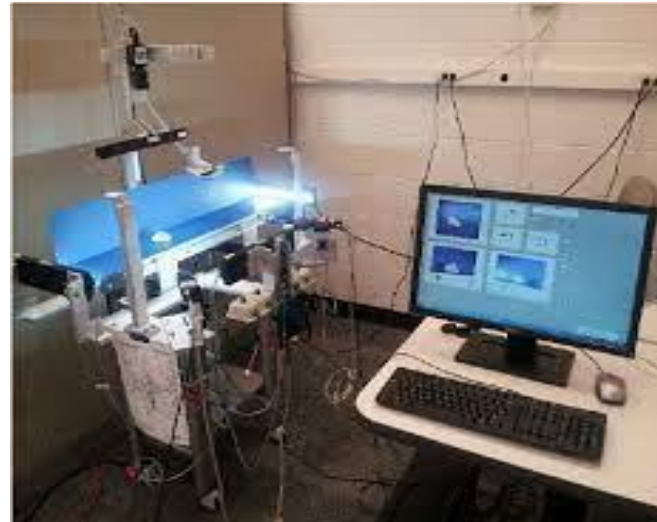
Status of Laboratories Housed at Eng 4.0 – Abdul Esakjee

Status of the CSIR research Laboratory – Dr Noluthando Mayedwa

## The Advanced Aggregate Image Analyzer

CSIR research group's two facilities:

- Advanced Material Testing Laboratories (AMTL)
  - Bituminous Binders Laboratory,
  - Asphalt and Dynamic Testing Laboratory and
  - Granular (soils, gravel and aggregates) and Cementitious
  - Materials Laboratory.
- Technology Innovation Centre (TIC).



Well equipped state of the art laboratories with highly competent multi disciplinary team.

# RESOLUTIONS

## RMF Resolution

- Between National Roads (Sanral), Provincial Roads Departments and Metro Roads, there are a plethora of Pro Forma Contract Documents – all very different in content. There may even be some authorities with no Pro Forma Contract Documents.
- **This RMF proposes the formation of a working group of experts, comprising of representatives from Road Authorities, Contractors, Consulting Engineers, and industry bodies such as some or all of the sponsors of the RMF, to create a standard document which can be used universally for road maintenance activities.**

## Training Resolution








- That SARF&SABITA engage with Gawie Burger from Tjeka Training and discuss the issues raised.
- SANRAL & SARF to continue to establish a QCTO RRM accredited Qualification with Abeeda & Associates

## Quality Testing

State testing labs to work together and share standard documents for ISO 17025 accreditation

# CONCLUSIONS – Objectives of the RMF

Providing a perspective of overarching **strategic issues** as it affects road maintenance.

- Promoting **best practice** - particularly training of emerging contractors. 
- Co-ordination and **linkage** with other groupings. 
- Establishment of **task groups** with specific national objectives. 
- Provision of **sufficient time** for participation/discussion/advice and for social interactions. 
- Dissemination of **new technologies**. 
- Provision of a forum for **acceptance of technological changes**. 
- Provision of a forum for interaction **between theory and practice** and for identification of **technology development needs**. 

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