

# Implementing a Works Management System

1. Operations and maintenance
2. Workflow process
3. Planning
4. Scheduling
5. Analysis of performance
6. Critical success factors

# Routine maintenance

The day-to-day operational activities to keep the asset operating

*All actions necessary for retaining an asset as near as practicable to its original condition but excluding rehabilitation or renewal*

# INSTITUTIONAL FRAMEWORK

## ASSET OWNER

Stakeholder interface and corporate direction, **why** things need to be done



## ASSET MANAGER

**What** needs to be done, **where** and **when**



## SERVICE PROVIDER

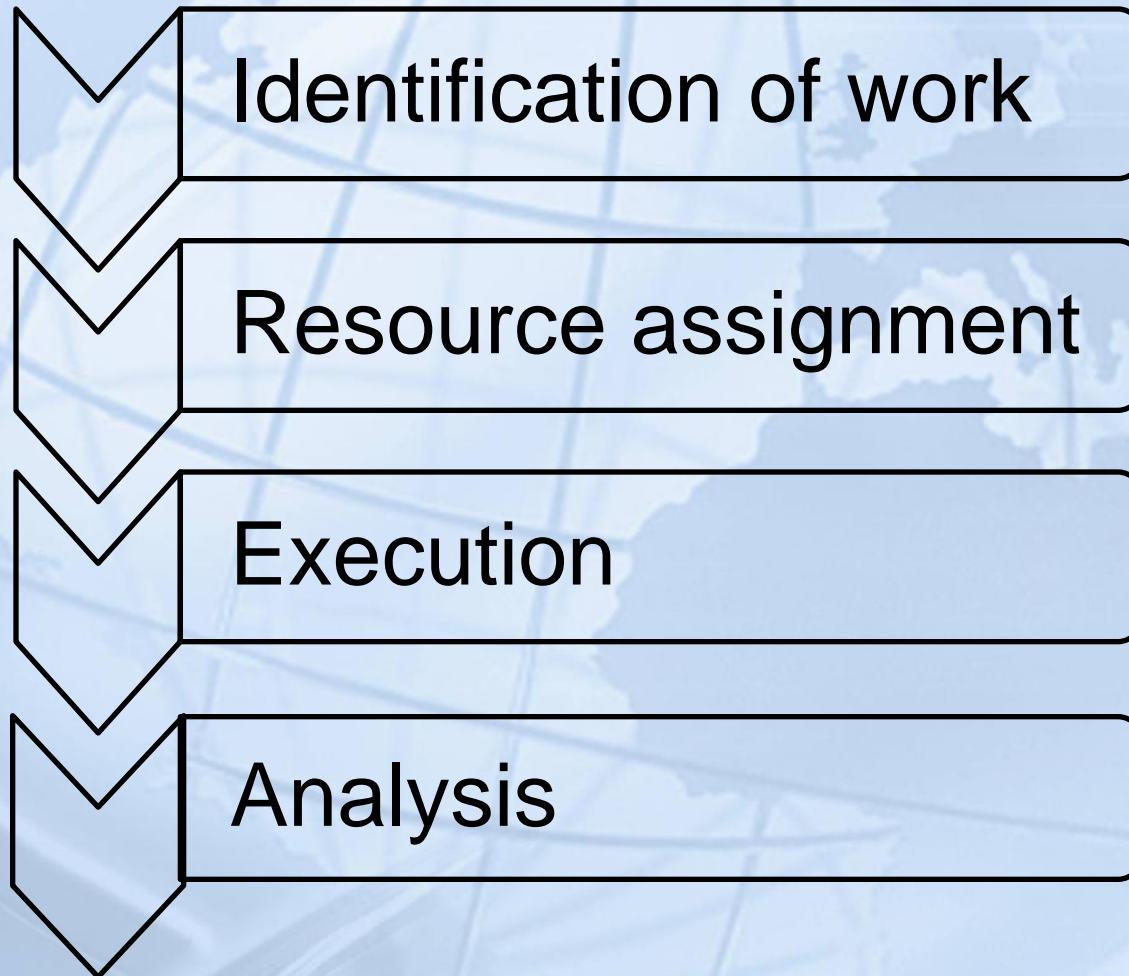
Delivery resource, **how** it gets done



# Appropriate measures for operational effectiveness

FUNCTIONAL AREA	DELIVERY MECHANISM	EXTENT	COVERAGE
Freeways, main arterials, CBDs and focal points to suburbs	Facilities management through the Priority Routes initiative	800 km	10%
CBDs and residential areas	Combination of in-house and external resources	5360km	65%
Rural and developing suburbia	Community-based contractors	2000 km (includes 1400 km gravel)	25%

# Workflow process

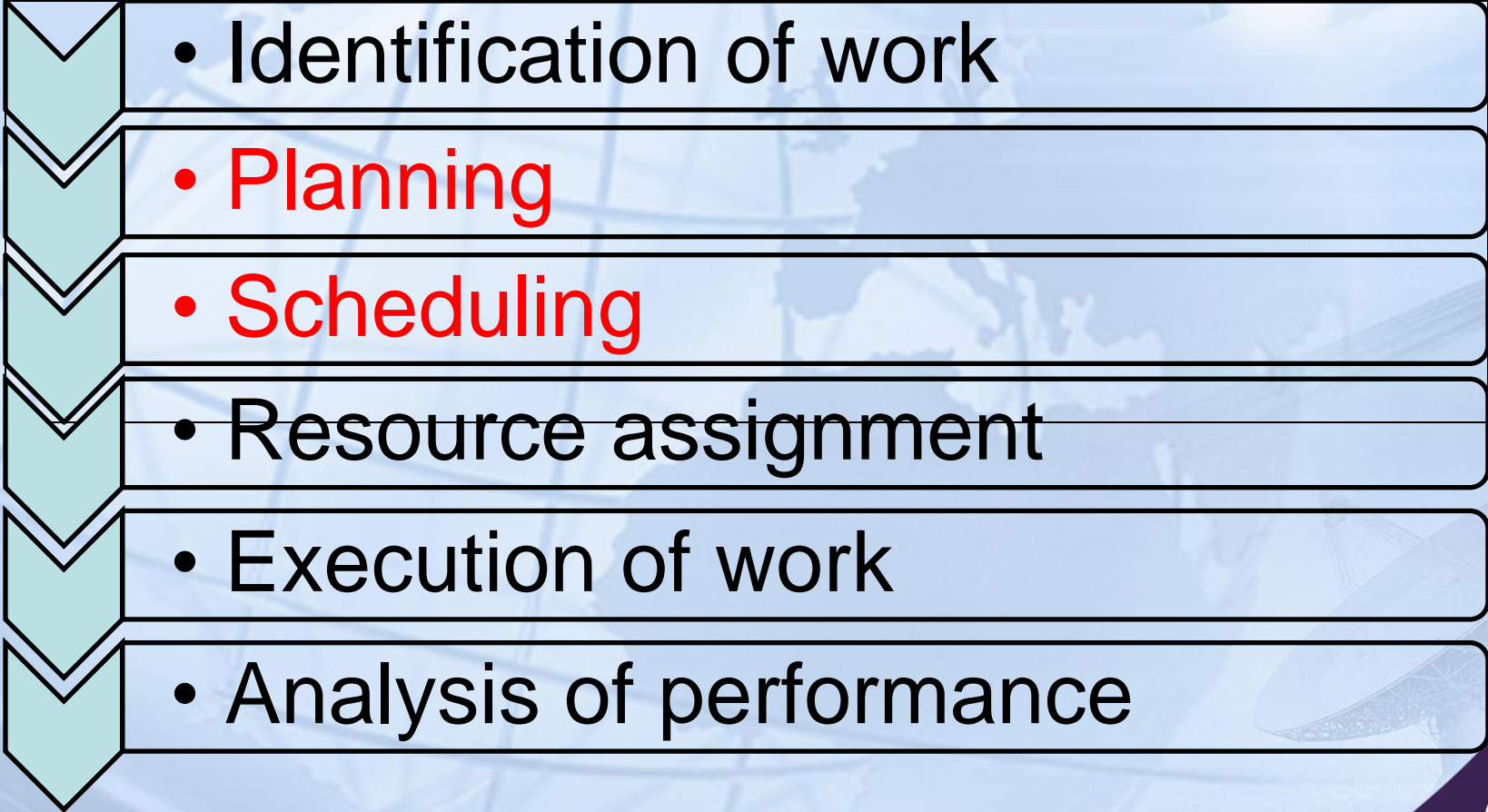


# Problem identification

- Everything is not always as reported
- Shortage of resources
- Delays in obtaining information relative to the job
- No proper prioritisation of work
- Poor communication between all roleplayers
  
- Inaccurate exception, management reports
- Delays in the receipt of critical information
- Feedback on progress to public and others not comprehensive enough



# Work flow process

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- Identification of work
  - **Planning**
  - **Scheduling**
  - Resource assignment
  - Execution of work
  - Analysis of performance

# Planning ...what needs to be done

Inspection and  
Verification  
process

- Work type
- Measurement

Work  
management  
software

- Plant and equipment
- Skills
- Materials

Work  
management  
software

- Time for completion
- Works order



Act. Code / Work Type	Activity	Description of Activity	SMV/ Man	Team Size	Unit	SMV / Team	Team Daily Output
AWB	Asphalt Reinstate Road (CPM) - B Category (160mm)	As per excavation and asphalt	49	4	m²	12	33
AWC	Asphalt Reinstate Road (CPM) - C Category (80mm)	As per excavation and asphalt	32	4	m²	8	50
AWD	Asphalt Reinstate Road (CPM) - D Category (50mm)	As per excavation and asphalt	24	4	m²	6	67
AWE	Asphalt Reinstate Road (CPM) - E Category (25mm)	As per excavation and asphalt	16	4	m²	4	100
ARA	Asphalt Reinstate Road - A Category (240mm)	Full reinstatement Cat A	96	4	m²	24	17
ARB	Asphalt Reinstate Road - B Category (160mm)	Full reinstatement Cat B	83	4	m²	21	19
AHB	Excavate, Lay crusher and asphalt - for industrial driveway	Construct industrial driveway Cat B	83	4	m²	21	19
ARC	Asphalt Reinstate Road - C Category (80mm)	Full reinstatement Cat C	66	4	m²	17	24
AHC	Excavate, Lay crusher and asphalt - for commercial driveway	Construct commercial driveway Cat C	66	4	m²	17	24
ARD	Asphalt Reinstate Road - D Category (50mm)	Full reinstatement Cat D	59	4	m²	15	27
AHD	Excavate, Lay crusher and asphalt - for residential driveways	Construct residential driveway Cat D	59	4	m²	15	27
ARE	Asphalt Reinstate Road - E Category (25mm)	Full reinstatement Cat E	41	4	m²	10	39
ARF	Asphalt Reinstate Road (Full Cost)	Full Cost			m²		
AMB	Asphalt Repair Road (Asphalt only) B Category	Repair B Cat Asphalt only	49	4	m²	12	33
AMC	Asphalt Repair Road (Asphalt only) C Category	Repair C Cat Asphalt only	32	4	m²	8	50
AMD	Asphalt Repair Road (Asphalt only) D Category	Repair D Cat Asphalt only	24	4	m²	6	67
AME	Asphalt Repair Road (Asphalt only) E Category	Repair E Cat Asphalt only	16	4	m²	4	100
ACA	Asphalt Repair Road (Crusher & Asphalt) A Category		96	4	m²	24	17
ACB	Asphalt Repair Road (Crusher & Asphalt) B Category		83	4	m²	21	19
ACC	Asphalt Repair Road (Crusher & Asphalt) C Category		66	4	m²	17	24
ACD	Asphalt Repair Road (Crusher & Asphalt) D Category		59	4	m²	15	27
ACE	Asphalt Repair Road (Crusher & Asphalt) E Category		41	4	m²	10	39

Act. Code / Work Type	Activity	SMV/ Man	Team Size	Unit	SMV / Team	Team Daily Output	Equip. Req.	Materials Required	Mat. UOM	Mat. Qty
CD1	Concrete Reinstate Driveway (Industrial) - 225mm Hand Mix	314	3m²		105	4	8 Ton Truck with Crane	Cement	ea	3.5
							Generator/Breaker	Ready Blend	m3	0.21
								River / Concrete Sand	m3	0.02
CD2	Concrete Reinstate Driveway (Industrial) 225mm - Machine mix	226	3m²		75	5	8 Ton Truck with Crane	Cement	ea	3.5
							Generator/Breaker	Ready Blend	m3	0.21
								River / Concrete Sand	m3	0.02
CD3	Concrete Reinstate Driveway (Commercial) -150mm G2 & 100mm Concrete)	207	3m²		69	6	8 Ton Truck with Crane	Crusher Run	tm	0.21
							Generator/Breaker	Cement	ea	1.68
								Ready Blend	m3	0.08
								River / Concrete Sand	m3	0.02
CD4	Concrete Reinstate Driveway (Residential) -100mm Concrete)	160	3m²		53	8	8 Ton Truck with Crane	Cement	ea	1.68
							Generator/Breaker	Ready Blend	m3	0.08
								River / Concrete Sand	m3	0.02

# Scheduling ...when best to do it

- Data receipt and capture
- Verification of size and scope of work
- Determining delivery mechanism
- Scheduling of all routine work
- Updating the status of work
- Escalating non-performance
- Providing feedback on progress
- Rescheduling work as necessary



# Resource assignment.....who best to do it

- Work dispatched to depots day prior to implementation
- Sufficient work for 1 day only
- Resources monitored more accurately and timeously

# Work implementation.... how best to do it

- Performance monitored continuously
- Jobs closed off on system when completed

# Analysis of performance

<b>Frequency</b>	<b>Resource</b>	<b>Report</b>
<b>Daily</b>	In-house teams	Number and type of active and non-active teams/depot/region/department
<b>Daily</b>	In-house teams	Volume of scheduled work not completed at the end of work day
<b>Daily</b>	In-house teams	Completed jobs as a percentage of the total number of jobs scheduled
<b>Daily/ weekly/monthly</b>	In-house teams	Number of active teams not provided with 100% work
<b>Daily/ weekly/monthly</b>	In-house teams	Number of teams allocated work outside of their depot regions
<b>Daily/monthly/ annually</b>	All	Number of jobs/work type completed in specified response time
<b>Weekly</b>	Driver Clerk	Number of jobs allocated for inspection purposes indicating when same was done i.e. same day, day 2, day3 etc
<b>Weekly</b>	Contractor	Number of jobs/work type not completed within specified response time
<b>Weekly</b>	Roads Inspector	Number of jobs/work type entered on the system/day/region

Problem identification	Solution	Major outcomes
Everything is not always as reported	Mobility solution	<ul style="list-style-type: none"> <li>• A single integrated system supported by latest technology</li> <li>• A fully supportive and informed workforce</li> <li>• Optimum use of resources</li> <li>• Improved productivity</li> <li>• Real time reliable information</li> <li>• Strengthened mechanisms for monitoring performance</li> </ul>
Shortage of resources	Resource assignment	
Delays in obtaining information relative to the job including feedback to the public	Single system for work management integrated to other systems	
No proper prioritisation of work	Work scheduling	
Poor communication between all roleplayers	Improved communication and information systems	
Inaccurate exception, management reports	Management reports	



# Some critical success factors.....

- Start from the bottom up
- Review your current process thoroughly
- Data collection systems and processes in place
- Location of assets
- Know capabilities and expertise of your mobile workforce
- Don't start unless you intend finishing

Thank you