Life Cycle Costing

When you know better you do better

Maya Angelou

CAPITAL COSTS

VS. LIFE CYCLE COSTS

MANAGEMENT

O&M

Rehab

Repairs

COSTS OVER ENTIRE LIFE

Capital Cost

Impact on what you choose to do?

Life Cycle Cost

An Example

ADDITIONAL MAINTENANCE, REPAIR AND REHAB TO FORESTALL REPLACMENT

- Initial Cost = 100,000
- O&M per Year= 2,000
- Repair Costs = 30,000
- Rehab = 60,000
- Life of Asset = 30

30 YEAR HORIZON

TOTAL COST $250,000

DEFERRED MAINTENANCE; REPLACE MORE OFTEN

- Initial Cost = 90,000
- O&M Per Year= 500
- Repair Costs = 5,000
- Rehab = 0
- Life of Asset = 10

30 YEAR HORIZON

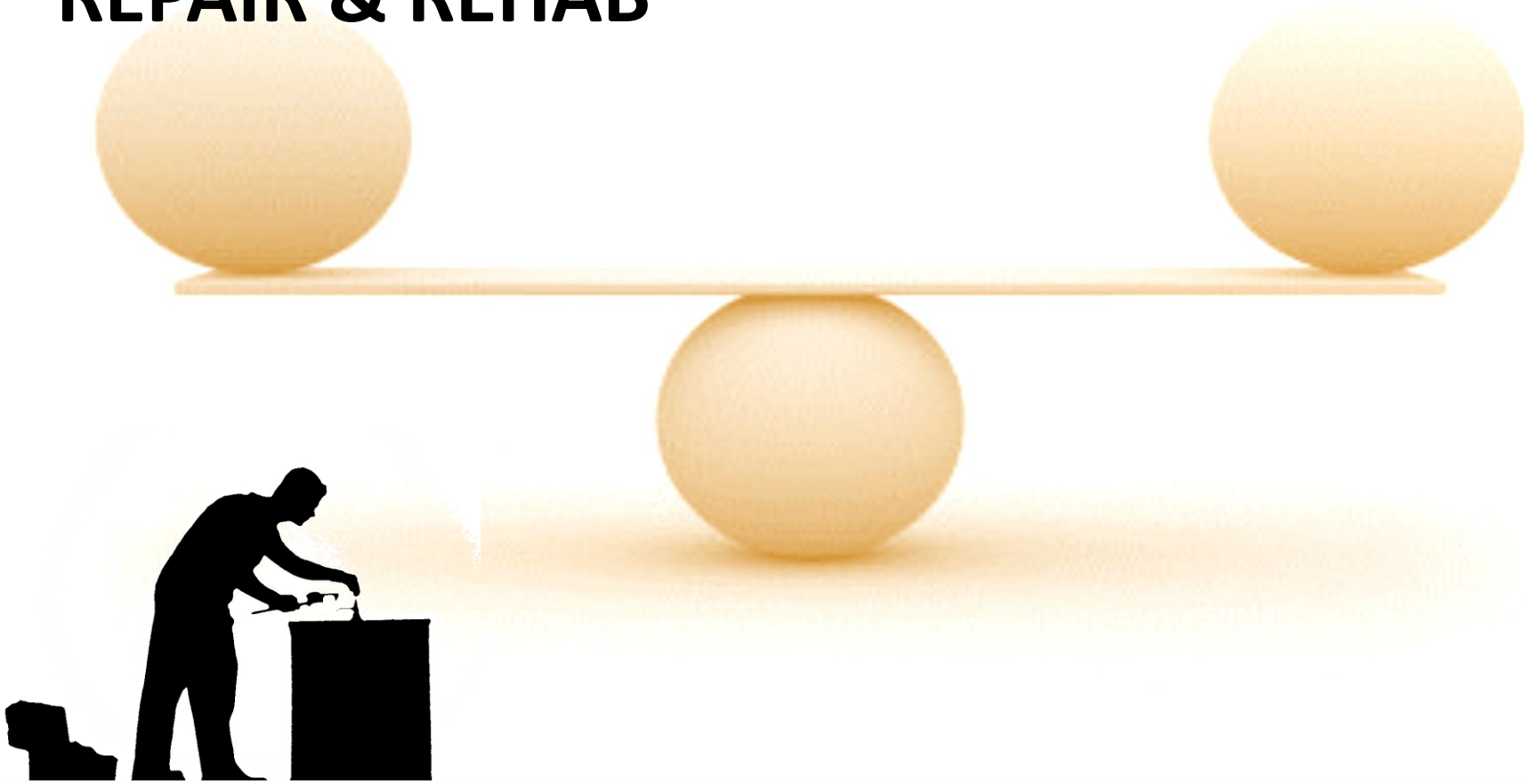
TOTAL COST $300,000

Life Cycle Costing is About Balance

O&M

REPLACEMENT

REPAIR & REHAB

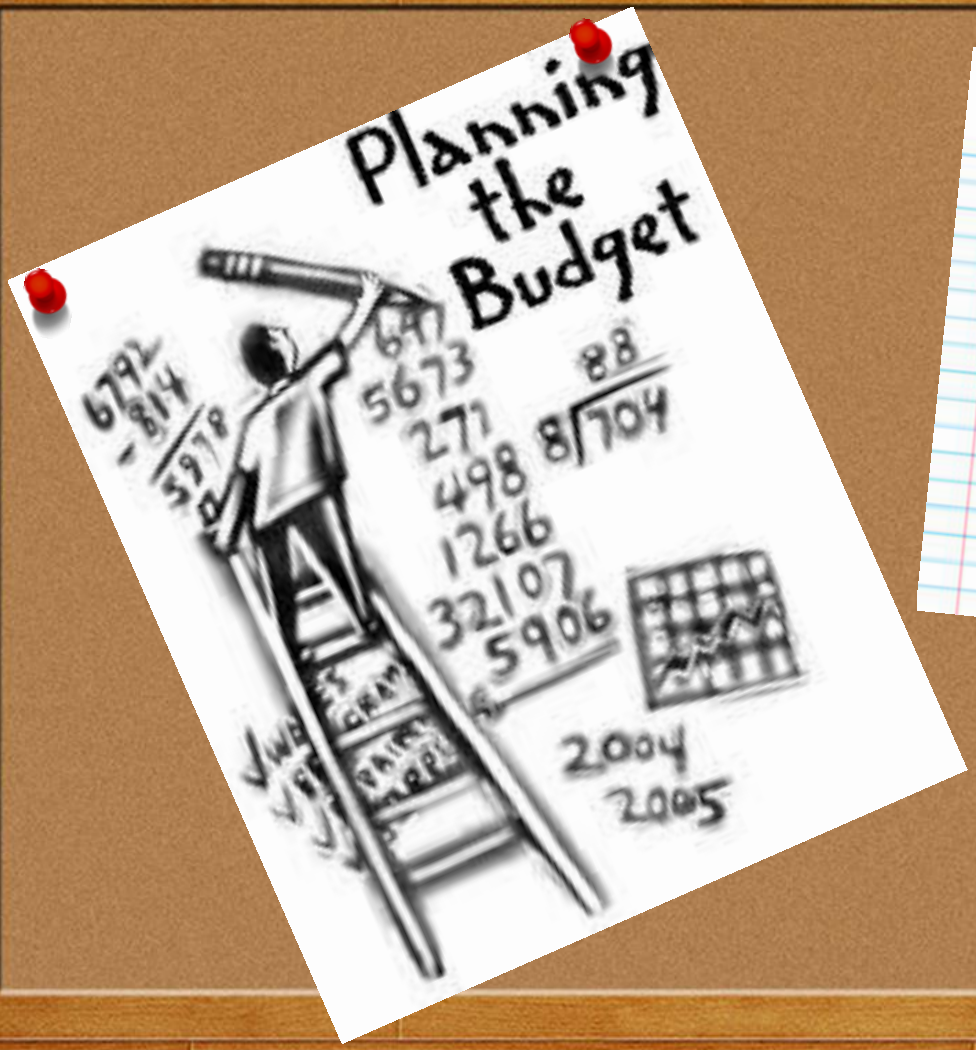


MAINTENANCE ACTIVITIES

ROUTINE

PREDICTIVE

PREVENTATIVE



The case for Maintenance

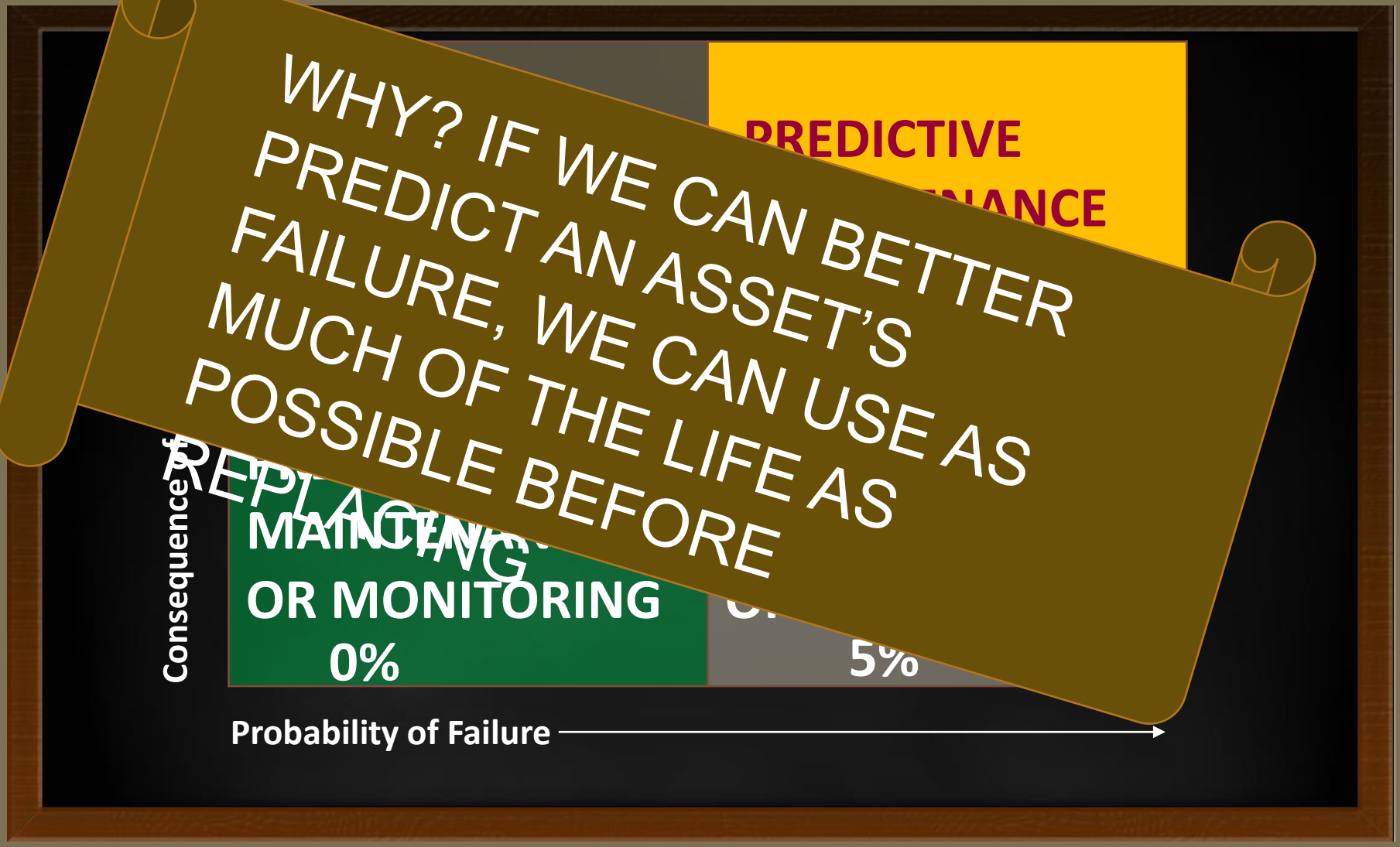
ROUTINE MAINTENANCE BASED ON CRITICALITY

WHY? IF WE PROPERLY MAINTAIN OUR ASSETS, THEY WILL LAST LONGER & WARRANTIES PRESERVED

PREVENTATIVE MAINTENANCE BASED ON CRITICALITY

WHY? IF WE PREVENT ASSET FAILURES, WE CAN GREATLY REDUCE THE CONSEQUENCES (FINANCIAL, ENVIRONMENTAL, SOCIAL)

PREDICTIVE MAINTENANCE OR MONITORING BASED ON CRITICALITY



WHY? IF WE CAN BETTER PREDICT AN ASSET'S FAILURE, WE CAN USE AS MUCH OF THE LIFE AS POSSIBLE BEFORE REPLACING

AM in Action: Preventative Maintenance

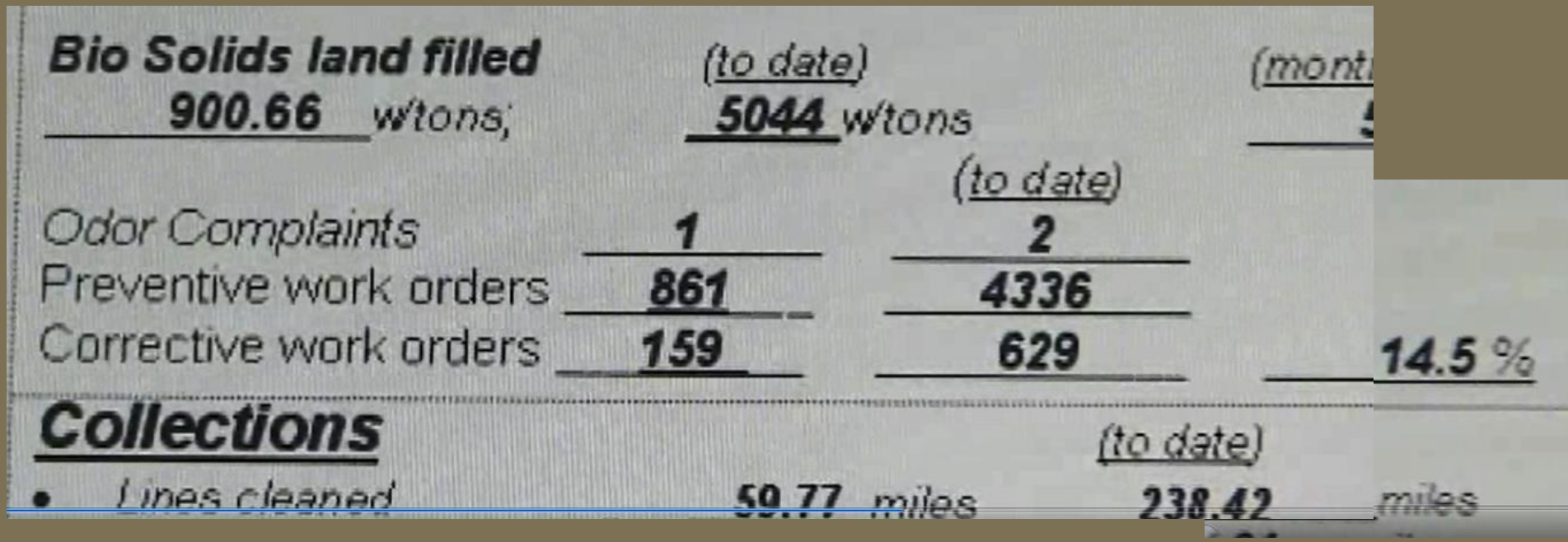
Jeff Jochim, Timber Creek Sewer Company

TRACKING O&M COSTS

Asset ID	Asset Category	Asset Type	Annual O&M Costs
RW1PHB	Raw Water	Pump	$4,523
RW2PHB	Raw Water	Pump	$6,955
RW1PHA	Raw Water	Pump	$3,760
RW2PHB	Raw Water	Pump	$4,145

SHIFT FROM REACTIVE TO PLANNED OPERATION

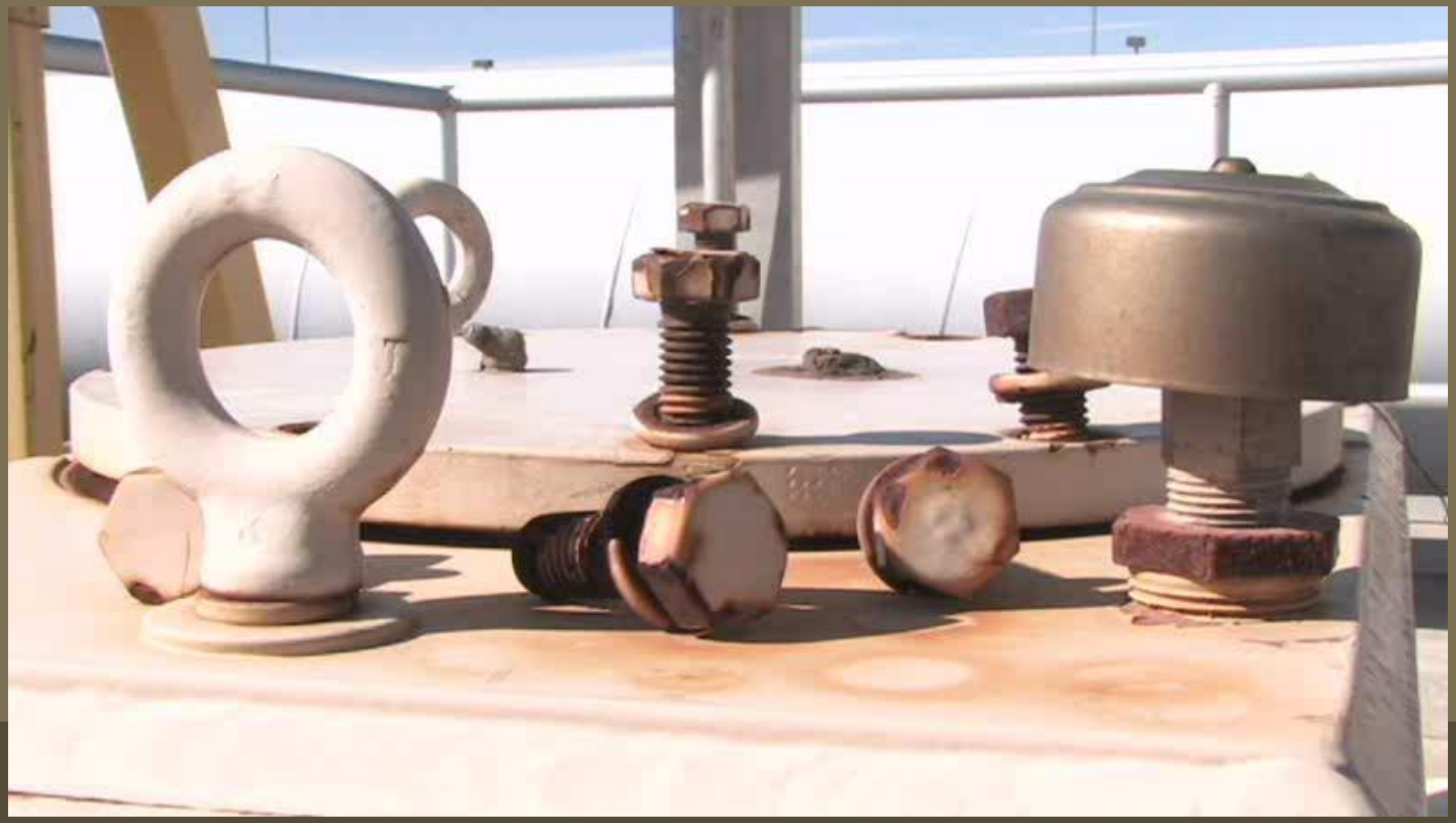
REACTIVE VS. PLANNED OPERATION: AN EXAMPLE



Bio Solids land filled		(to date)	(mont
900.66 wtons;		5044 wtons	
		(to date)	
Odor Complaints	1	2	
Preventive work orders	861	4336	
Corrective work orders	159	629	14.5 %
Collections		(to date)	
• Lines cleaned	59.77 miles	238.42	miles

JOHNSON COUNTY, KANSAS

AM IN ACTION: REACTIVE VS. PROACTIVE OPERATION



Mark Winslow and Jerry Morse, ABCWUA, NM

CAPITAL ACTIVITIES

HOW TO DECIDE WHEN TO REPAIR, REHABILITATE, REPLACE

BASED ON ECONOMICS

BASED ON RISK

BASED ON AVAILABLE TECHNOLOGY

AM in Action: Replacement Decisions

Kevin Campanella, Columbus, OH

CAPITAL PROJECTS

LOOK CAREFULLY AT HIGH DOLLAR PROJECTS

AM in Action: Capital Savings

Kevin Campanella, Columbus, OH

Questions