RIME & Reason
Prioritizing Maintenance Work

C. Paul Oberg
President & CEO
EPAC Software Technologies
www.epacst.com
PRIORITY SYSTEM

Why is a priority system necessary?

- Provides a means of evaluating activities and backlog
- Effective means of communicating importance
- Provides a decision-making tool
PRIORITY SYSTEM

Why is a priority system necessary?

- Organize needs in a hierarchical fashion based on an agreed upon set of criteria
- Eliminates “squeaky wheel”
- Helps optimize the use of resources
PRIORITY SYSTEM

To be an effective and lasting decision tool the Priority System must have the respect of:

- Maintenance customers
- Maintenance management
- Maintenance trades
PRIORITY SYSTEM

Should be based on quantifiable, comprehensive and understandable criteria:

- Facility/Equipment capacity utilization
- Profitability of facility/equipment
- Quality of “downstream” facility/equipment affected
- Incremental maintenance costs if work is deferred
PRIORITY SYSTEM

Should be based on quantifiable, comprehensive and understandable criteria:

- Quality costs if work is deferred
- Additional maintenance labor if work is deferred
- Potential safety hazard if work is deferred
PRIORITY SYSTEM

Upon closer examination, we can separate criteria into 2 generic classifications:

- Asset type
- Type of work
PRIORITY SYSTEM

Ranking Index for Maintenance Expenditures (RIME)

- Developed by Albert Ramond & Associates, Inc.
- Most widely used maintenance priority system
- Two factor priority system comprised of:
  Asset type
  Type of work
PRIORITY SYSTEM

Ranking Index for Maintenance Expenditures (RIME)

The Math: Asset Type x Type of Work Priority

The product of these 2 factors give an index of the relative importance of the maintenance work to both facility/production and maintenance management.
PRIORITY SYSTEM

Ranking Index for Maintenance Expenditures (RIME)

The process of establishing the relative importance of priority of a maintenance job is known as RIME.
PRIORITY SYSTEM

Who is best able to qualify these criteria?

Asset type?
- Maintenance users

Type of work?
- Maintenance management
<table>
<thead>
<tr>
<th>Rank</th>
<th>Asset Type</th>
<th>Description</th>
<th>Job Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Utilities</td>
<td>Major utilities equipment influencing more than one area. Includes electrical, water distribution systems</td>
<td>10</td>
<td>Life Safety Critical safety work where life or limb is in immediate danger.</td>
</tr>
<tr>
<td>9</td>
<td>Life Safety</td>
<td>Assets that affect the safety\well being of individuals. Includes generators, fire alarms, fire suppression systems</td>
<td>9</td>
<td>Failure Asset is not usable or inoperable</td>
</tr>
<tr>
<td>8</td>
<td>Key Asset</td>
<td>Assets which are central to the operations of the facility. Also referred to as “Lead” Assets</td>
<td>8</td>
<td>PM Inspections, lubrication and repairs known to prevent breakdowns/repairs</td>
</tr>
<tr>
<td>7</td>
<td>Secondary Asset</td>
<td>Assets that, while may central to the operations of the facility, would be an alternate for the Key Asset. Also referred to as “Lag” Assets</td>
<td>7</td>
<td>CM Corrective Maintenance performed to eliminate or reduce repetitive work</td>
</tr>
<tr>
<td>6</td>
<td>Customer Comfort</td>
<td>Assets that provide customer comfort. Includes HVAC, lighting, plumbing fixtures</td>
<td>6</td>
<td>Out of Service Necessary shutdown work (including deferred safety work) that can only be done during out of service time, but is not critical enough to require immediate shutdown</td>
</tr>
<tr>
<td>5</td>
<td>Facility Transportation</td>
<td>Assets that move people or materials from one location to another. Includes elevators, escalators, fork trucks</td>
<td>5</td>
<td>CC Customer Care\Service work</td>
</tr>
<tr>
<td>4</td>
<td>Mobile Transportation</td>
<td>Assets in this group would include fleet vehicles, trucks</td>
<td>4</td>
<td>House-keeping Other than routine janitorial work.</td>
</tr>
<tr>
<td>3</td>
<td>Bldgs &amp; Exterior Grounds</td>
<td>Those necessary to the operations of the facility. Includes outbuildings, parking facilities, exterior lighting.</td>
<td>3</td>
<td>Project Ongoing work to improve the quality or quantity of service, maintenance and asset availability</td>
</tr>
<tr>
<td>2</td>
<td>Landscape</td>
<td>Those not directly influencing facility operations</td>
<td>2</td>
<td>Routine Necessary work that is performed with some frequency; however may not affect the short term operations of the facility. Includes painting, daily tasks</td>
</tr>
<tr>
<td>1</td>
<td>Misc. Assets</td>
<td>Includes all necessary service facilities. Includes Electrical Rooms, Elevator Rooms, Mechanical Rooms, Storage Rooms, etc.</td>
<td>1</td>
<td>Misc All other tasks</td>
</tr>
</tbody>
</table>
PRIORITY SYSTEM

Responsibilities:

Facility Management must identify and classify

- Equipment
- Buildings
- Facilities
- Systems

Maintenance management must define and classify

- Type of work
MAINTENANCE ANALYSIS

Using RIME to evaluate maintenance trends

- Backlog trends
- Work completed trends
- Level of service
Spend the extra dollars to maintain your assets.

Remember ... you don’t have to brush all your teeth either ...

Only the teeth you want to keep.
MAINTENANCE ANALYSIS

Trend Analysis provides insight into:

➢ Are we putting the emphasis on the right jobs based on backlog and completed job history?

➢ Should our staffing be redistributed from Area 1 to Area 2 based on comparative backlog, size and importance?

➢ Are our preventive and corrective programs effective based on the trend of backlog importance?
MAINTENANCE ANALYSIS

Trend Analysis provides insight into:

➢ Are we doing more or less important work than previous?

➢ Should overtime/outside resources be adjusted based on size and importance of backlog?

➢ Should department “A” focus more on preventive and/or corrective maintenance based on importance of jobs requested and completed?
Work Order Distribution

By: # of Jobs

19

Number of Jobs per Job Type
For the period beginning 10/15/2001 and ending 10/15/2001

<table>
<thead>
<tr>
<th>Job Type Description</th>
<th>Job Count</th>
<th>Without Hours</th>
<th>With Hours</th>
<th>Manhours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>1</td>
<td>0.00</td>
<td>1.00</td>
<td>108.00</td>
<td>4.5 %</td>
</tr>
<tr>
<td>General Repair</td>
<td>19</td>
<td>2.00</td>
<td>17.00</td>
<td>4972.32</td>
<td>86.4 %</td>
</tr>
<tr>
<td>Repair Damage</td>
<td>2</td>
<td>0.00</td>
<td>2.00</td>
<td>468.00</td>
<td>9.1 %</td>
</tr>
</tbody>
</table>

Total Job Count: 22  2.00  20.00  5,548.32
# Average RIME Report for Open and Closed WO Report

*EPAC Software Technologies, Inc.*

For the period of 2/14/2002 thru 2/14/2002

<table>
<thead>
<tr>
<th>Total Actual Hrs for Closed Jobs</th>
<th>Total RIME Hrs for Closed Jobs</th>
<th>Average RIME for Closed Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td>200.00</td>
<td>80.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Actual Hrs for Open Jobs</th>
<th>Total RIME Hrs for Open Jobs</th>
<th>Average RIME for Open Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.25</td>
<td>75.00</td>
<td>60.00</td>
</tr>
</tbody>
</table>
MAINTENANCE ANALYSIS

Avg RIME: weighted avg based on trade hours

\[
RIME \times \text{Hours} = \text{RIME HOURS}
\]

JOB A: \(42 \times 24 = 1008\)

JOB B: \(54 \times 18 = 972\)

JOB C: \(90 \times 34 = 3060\)

JOB D: \(72 \times 18 = 1296\)

TOTALS: \(94 \times 6336\)

Avg RIME = \(\frac{\text{Total RIME Hours}}{\text{Total Hours}} = \frac{6336}{94} = 67.4\)
MAINTENANCE ANALYSIS

Current Level Trend Analysis

Level 1: Low Average RIME
0 to 40

Level 2: Moderate Average RIME
40 to 80

Level 3: High Average RIME
80 to 100
MAINTENANCE ANALYSIS

Current Level Trend Analysis

Average RIME

Time

0 20 40 60 80 100 120

2.5 4 5 6 6.5 7 8 9 10
MAINTENANCE ANALYSIS

Jobs Completed Average RIME

Level: HIGH
Slope: UP

Interpretation & Possible Action:
Dangerously high level of emergency and breakdown occurring. Increased maintenance manpower levels with emphasis on PM/CM during non-operative periods should be considered until the level has been reduced to moderate.
MAINTENANCE ANALYSIS

Jobs Completed Average RIME

Level: HIGH
Slope: FLAT or DOWN

Interpretation & Possible Action:
The level of emergency and failure work is too high. Continued emphasis on PM/CM and increased manpower levels should be considered.
MAINTENANCE ANALYSIS

Jobs Completed Average RIME

Level: MODERATE
Slope: UP

Interpretation & Possible Action:
The overall level indicated a satisfactory mix of work, while the upward slope indicates an increase in emergency or preventive maintenance jobs. This cannot be determined without specific data. Overtime should be used to control backlog hours.
MAINTENANCE ANALYSIS

Jobs Completed Average RIME

Level: MODERATE
Slope: FLAT

Interpretation & Possible Action:

Current mix of work is good. With the slope being flat, the only concern is the size of the backlog.
MAINTENANCE ANALYSIS

Jobs Completed Average RIME

Level: MODERATE
Slope: DOWN

Interpretation & Possible Action:
The current level indicates a good mix of work. However, the downward slope indicated less meaningful work is being requested and worked. This situation will lead to a potential manpower reduction position.
MAINTENANCE ANALYSIS

Jobs Completed Average RIME

Level: LOW
Slope: UP or FLAT

Interpretation & Possible Action:

The current level indicates an improper mix of low priority jobs being worked. This condition will exist for one or both of two reasons:

- Improper scheduling – check backlog level/slope
- Excessive manpower level – review for possible reduction
MAINTENANCE ANALYSIS

Long Range Trend Analysis

The jobs completed average RIME line should be higher than the backlog average RIME line.

The slope of the backlog line should be either flat or negative relative to the slope of the job completed line.

Meaning ...
MAINTENANCE ANALYSIS

Long Range Trend Analysis

...The higher priority work is being scheduled and completed first.

The jobs being added to the backlog are of equal or lower average RIME than jobs being completed.

Continuation of these conditions will lead to an operating position where maintenance requirements will be excessive.