

# Replacement Analysis Techniques

Fleet Management Training  
Fleet Con 2025

Phil Raffel  
Presenting

[praffel@flagshipfleet.com](mailto:praffel@flagshipfleet.com)  
602-954-9099



**Flagship Fleet Management**

*We lead the way...*

# Learning Objectives

- Understanding the importance of Fleet Replacement and how to best sell replacement in the organization.
- Understanding replacement techniques.
- Getting the data needed for Replacement Analysis.



**Flagship Fleet Management**

*We lead the way...*

# Selling replacement to the organization

\$\$\$\$\$

- A properly funded replacement fund is big money.
- Your organization needs to know you can competently manage the fund.
- Need a solid plan that communicates well to the organization. People need to understand it.



**Flagship Fleet Management**

*We lead the way...*

# Selling replacement to the organization



- Have a replacement plan and mission statement.
- ***Need to determine equipment end of life.***
- Define future budget requirements based on end of life.
- This is what is needed to sell and defend replacement to leadership.



**Flagship Fleet Management**

*We lead the way...*

# Understanding of the importance of Fleet Replacement

**A proper Replacement program means the Fleet is being managed.**

Why we need to replace aging equipment:

- Safety
- Costly repairs
- Downtime
- Additional Maintenance Requirements
- Inefficiency
- Poor origination image



**Flagship Fleet Management**

*We lead the way...*

# Defending your replacement fund

- When you have a replacement fund it is a target.
- Every budget meeting you should be ready to discuss the replacement plan and why the fund exists.
- We need to replace equipment on time or it will impact the level of service Fleet can provide.
- If cuts are required there needs to be a discussion on changes to level of service.



**Flagship Fleet Management**

*We lead the way...*

# Options for reorganizing / limiting Fleet services

- Re-assign under utilized equipment
- Explore motor pool options
- Explore options for operating with less equipment.



***Flagship Fleet Management***

*We lead the way...*

# Replacement Analysis Techniques

- Diminishing Point of Returns
- Yearly Cost Comparison
- Point Scoring



***Flagship Fleet Management***

*We lead the way...*



# Replacement Analysis

## Life Months

Original Cost: \$40,000

Capital Improvements: \$10,000

Total Value: \$50,000

In Service: 9/2021

**Life Months: 60**

Yearly Inflation factor: 4%

Replacement Month: 9/2026

Required Replacement \$: \$60,000

Monthly Replacement Cost: \$1,000

*Auction (5-10% of OC): \$5,000*

*Monthly \$920*



***One of the main goals of replacement analysis is setting life months.***

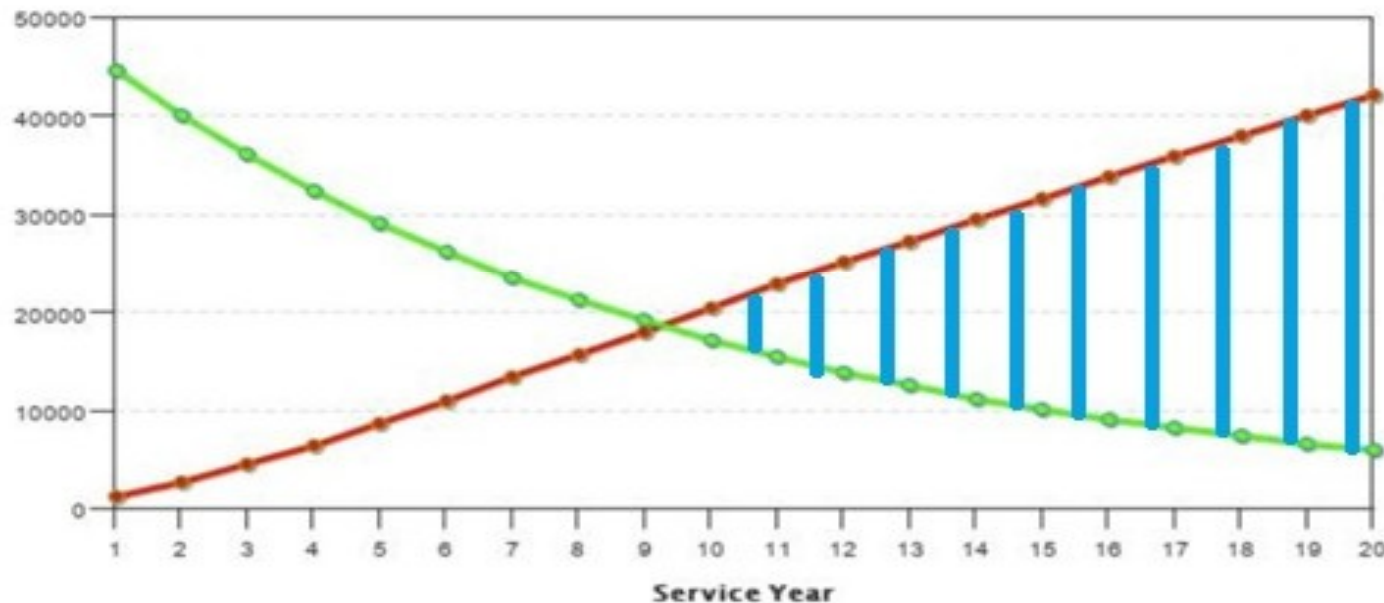


**Flagship Fleet Management**

*We lead the way...*

# Diminishing Point of Returns

When the overall value of equipment meets the accumulative maintenance cost.



Equipment Value, Green

Equipment Maintenance, Red

Lost Opportunity, Blue



**Flagship Fleet Management**

*We lead the way...*

# Diminishing Point of Returns

Service Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EQ Labor Hours Cumulative	3	5	14	17	21	28	33	38	43	47	52
EQ Work Order Total Cumulative	192	435	2,127	2,427	2,802	4,641	5,414	6,188	6,961	7,735	8,508
CLASS Work Order Total Cumulative/Average	1,416	2,848	4,518	6,150	7,966	9,924	11,857	13,756	15,682	17,635	19,457
EQ Valuation	31,053	27,947	25,153	22,637	20,374	18,336	16,503	14,852	13,367	12,030	10,827
EQ Usage	240	11,524	9,635	10,800	9,767	16,422	14,465	-	-	-	-
CLASS Average Valuation	28,571	25,714	23,142	20,828	18,745	16,871	15,184	13,665	12,299	11,069	9,962
Maintenance less resale value	-	-	-	-	-	-	-	91	3,383	6,566	9,495
MLRV x #Equip in Class	-	-	-	-	-	-	-	44,613	1,654,457	3,210,619	4,643,013

Determine value based on market depreciation, we use a default 17% yearly declining balance.

Need good maintenance data for at least three years, with-in the class of equipment

Lost opportunity shows what we lose buy not replacing. Multiplied by number in an equipment class this becomes real money.



# Yearly Cost Comparison

## Cost Per Mile

Service Year	Miles/Hours	Shop Hours	Shop Labor	Shop Parts	Sublet	Maint. Total	Maint. CPM
1	14,465	7.6	\$936.54	\$902.40	-	\$1,838.94	\$0.13
2	16,422	3.6	\$374.40	-	-	\$374.40	\$0.02
3	9,767	2.8	\$300.74	-	-	\$300.74	\$0.03
4	10,800	9.2	\$877.68	\$713.72	\$100.00	\$1,691.40	\$0.16

Maintenance ÷ usage (miles, km, or hours) =  
Cost per unit.



# Point Scoring

- Ranks equipment worst to best for replacement.
- **Factors:** Age, Usage, Severity of Service, Reliability, Life Repair Cost.
- Higher scores = higher replacement priority.

Age Point	Usage Point	Life Repair Point	Point Total
11	31	5	47
23	7	4	33
20	8	5	33
12	13	7	32
17	9	6	32
23	5	4	32
19	8	5	32
22	5	5	32
17	9	6	32
23	5	3	31



**Flagship Fleet Management**

*We lead the way...*

# Scoring Factors

**Age** Points are based on the time period from the in-service date, one point per year

**Usage** Points are based on the current meter divided by 10,000.

**Severity of Service.** Additional points are assigned based class/department equipment unit is assigned too. Police & Forest Service get more points.

**Reliability** compares repair cost in the third year of service with the last full year of service. The third year repair cost is divided by the last full service year. This ration is the point setting for the equipment.

## **Life repair cost.**

1 point if equipment life repair cost is between 0-20% of original cost.

2 points if equipment life repair cost is between 20-40% of original cost.

3 points if equipment life repair cost is between 40-60% of original cost.

4 points if equipment life repair cost is between 60-80% of original cost.

5 points if equipment life repair cost is between 80-100% of original cost.

6 points if equipment life repair cost is over 100% of original cost.



**Flagship Fleet Management**

*We lead the way...*

# Data Requirements

- Identify available and realistic data sources.
- Define data for calculations (consistent and reliable).
- Sustainable data is essential for ongoing replacement planning.



***Flagship Fleet Management***

*We lead the way...*

# Ending Summary

- Replacement is the tip of the spear in Fleet Management.
- Proper replacement planning ensures proactive fleet management.
- Goal: safe, efficient, and cost-effective fleet operations.

More to discuss:  
Flagship Fleet Management  
Booth 406  
Phil Raffel  
praffel@flagshipfleet.com  
602-741-6350



**Flagship Fleet Management**

*We lead the way...*