



Data-Driven Fleet Staffing: Using MRU and VEU to Inform Leadership Decision

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Data-Driven Fleet Staffing: Using MRU and VEU to Inform Leadership Decisions

VEHICLE EQUIVALENTS (VEs)

Turning maintenance workload into defensible management decisions

Maintenance Repair Units (MRUs)

Vehicle Equivalent factors

Staffing and technician capacity

Facility and fleet-growth planning

Modern fleet-management applications



Why Fleet Managers Need Vehicle Equivalents

Vehicle count alone does not describe maintenance workload.

500 SUVs

500 Refuse
Trucks

500 Fire / Construction
Assets

Same number of assets ≠ same maintenance workload

MRUs measure maintenance effort.

VEs convert that effort into a common workload standard.



Step 1 — Calculate the MRU

Maintenance Repair Unit = average annual maintenance labor for a vehicle class

STEP 1

325.32 repair hours

Total repair hours for the small SUV class in 2025

STEP 2

$325.32 \div 34$

Divide by the 34 small SUVs in the class

STEP 3

= 9.57 hours

Average annual labor per small SUV

STEP 4

9.57 → 10 hours

Round to a practical MRU baseline

RESULT: Small SUV MRU = 10 labor hours per vehicle per year



When You Don't Have Enough Data: Use a Benchmark MRU

A comparable government fleet can give you a starting point — but your own data should eventually replace the benchmark.

HISTORICAL APPROACH

Historically, fleets have used MRU values from other agencies when they did not have enough maintenance data to calculate their own.

EXAMPLES OF BASE MRU HOURS

GSA
20 hrs

Los Angeles
16 hrs

Chicago
19 hrs

Dallas
17 hrs

Detroit
21 hrs

Denver
18 hrs

Atlanta
17 hrs

Charlotte, NC
16 hrs

Columbia, SC
15 hrs

Choose an agency
that looks like yours

Similar fleet mix • Similar mission
• Similar operating environment

Use a benchmark to get started — then build your own MRU from actual labor data.



Why Do MRUs Vary?

Different fleets generate different maintenance demands.

Fleet age

Replacement practices

Operating environment

Outsourcing

Vehicle technology

Technician productivity

Best practice: use your own fleet-management-system labor data whenever possible.



Step 2 — Choose a Baseline Vehicle

A VE gives every asset a common denominator.

Your Fleet

Diverse Assets



Baseline Class

Small SUV
= 1.0 VE

Select a class that is familiar to decision makers. In the source example, the small SUV is the baseline.

Think of this like finding a common denominator before adding fractions.



Step 3 — Convert MRUs into VE Factors

Formula: Vehicle Class MRU ÷ Baseline MRU = VE Factor

1	$10 \div 10 = 1.0$ VE factor	Small SUV / baseline
2	$13 \div 10 = 1.3$ VE factor	F250
3	$18 \div 10 = 1.8$ VE factor	Police SUV
4	$73 \div 10 = 7.3$ VE factor	Clam Truck
5	$158 \div 10 = 15.8$ VE factor	Refuse Truck

One refuse truck $\approx$ the maintenance effort of 16 (rounded) baseline vehicles.

Step 4 — Calculate Total Fleet VEs

Formula: Number of Assets $\times$ VE Factor = Total VEs

34 Small SUVs	$\times 1.0$	= 34 VEs
66 F250s	$\times 1.3$	= 85.8 VEs
220 Police SUVs	$\times 1.8$	= 396 VEs
12 Clam Trucks	$\times 7.3$	= 87.6 VEs

What is the total workload for this fleet?

$$34 + 85.8 + 396 + 87.6$$

= 603.4 VEHICLE EQUIVALENTS

This is the fleet's measurable maintenance workload.

Which Fleet Has Greater Workload?

A simple comparison shows why vehicle count can mislead.

34 Small SUVs

VS.

12 Clam Trucks

Using the example VE factors:

$$34 \times 1.0 = 34 \text{ VEs}$$

$$12 \times 7.3 = 87.6 \text{ VEs}$$

12 clam trucks represent substantially greater maintenance workload.



Step 5 — Calculate Technician Capacity

Paid hours are not the same as productive labor hours.

STEP 1

2,080 paid hours

Approximate annual paid hours

STEP 2

1,560 productive hours

After vacation, holidays, break/lunch, training, meetings, etc.

STEP 3

$1,560 \div 2,080 = 75\%$ (APWA)

Example productivity rate

STEP 4

$1,560 \div 10 = 156 \text{ VEs}$

Technician capacity using 10 hours per VE

RESULT: ≈ 156 Vehicle Equivalents of capacity per technician



Step 6 — Convert Workload into Staffing

Now combine fleet workload with technician capacity.

STEP 1	603.4 VEs	Total fleet workload
STEP 2	156 VEs / technician	Available capacity per technician
STEP 3	$603.4 \div 156 = 3.9$	Calculated technician requirement
STEP 4	$3.9 \rightarrow 4$	Likely staffing requirement

Use VEs as a defensible starting point — then test the result against PM compliance, backlog, customer expectations, emergency response, and outsourcing.



Step 7 — Use VEs for Future Planning

VEs can show when growth may create additional staffing or facility pressure.



$$678.4 \div 156 = 4.4 \text{ technicians}$$

This indicates future staffing and facility needs should be evaluated.



What Does Growth Mean for the Facility?

Use workload growth as an early planning signal.

PM throughput

Heavy equipment
service

Alternative-fuel
vehicles

EV infrastructure

Welding & fabrication

Parts storage

Future growth

The question shifts from “How many vehicles?” to “How much work must the facility support?”



Modern Applications of Vehicle Equivalents

Turn maintenance activity into management information.

Staffing

Budget requests

Facility planning

Fleet growth

Replacement
planning

Outsourcing

Accreditation

Performance

Combine VEs with:

Technician productivity • Asset utilization • Lifecycle costs • PM compliance • Availability •
Customer satisfaction

Discussion: What information would you use to justify an additional technician position?



Key Takeaway

Vehicle Equivalents turn maintenance activity into measurable workload data.

**MAINTENANCE
HOURS**

MRUs

VE FACTORS



MEASURABLE FLEET WORKLOAD



STAFFING • BUDGET • FACILITY • OPERATIONS