
DEVELOPING AND USING EQUIPMENT UTILIZATION STANDARDS

WESTERN STATES HIGHWAY EQUIPMENT MANAGERS ASSOCIATION
SAN DIEGO, CA



PRESENTATION OVERVIEW

- Covering three (3) areas:
 1. Developing and implementing fleet KPIs
 2. Utilization as a KPI
 - Passenger fleet
 - Non-passenger fleet
 3. Best Practices and Examples

IMPLEMENTING “KEY PERFORMANCE INDICATORS” (KPI)

- “KPIs” are performance measures
 - Used to establish performance goals and measure progress
- Once identified, KPIs need to be:
 - Consistently collected and reported
 - Communicated throughout organization
 - Incorporated into Agency objectives by top management
- Reporting may need to include peer ‘groupings’
 - Insure ‘apples and apples’ comparisons
 - Ensure that comparative performance reporting is fair

IMPLEMENTING “KEY PERFORMANCE INDICATORS” (KPI) (CONTINUED)

- To be effective, users need information and the ability to influence KPI results
- Including field users in KPI development process can increase buy-in and ownership

UTILIZATION AS A FLEET KPI

- Utilization is a common fleet KPI
 - Miles
 - Engine hours
 - Trips
 - Actual hours used (billed to project)
- Data is objective and measurable
- The more equipment is used, the easier it is to economically justify

UTILIZATION – PASSENGER FLEET

- Most states have some form of public policies related to the owned passenger vehicle fleet
 - Annual utilization reviews
 - Personal vehicle assignment
 - Vehicle take-home policies
 - Agency motor pools
- Practices vary by state as do the range of vehicles covered by these policies

UTILIZATION – PASSENGER FLEET (CONTINUED)

- Minimum usage typically based on POV usage necessary to make state ownership less costly
 - IRS rate often used
 - Breakeven miles increase with vehicle purchase price and operating costs
 - Compact vehicle – 9-10K typical annual use breakeven
 - Full-size car or pick-up – 12-15K annual miles

UTILIZATION – PASSENGER FLEET (CONTINUED)

- Exemptions to passenger fleet utilization standards typically involve some justification process
- Need to consider POV reimbursement and other shared transportation options against ownership
 - Pool cars/vehicles
 - Transit
 - Uber

MISSION-DRIVEN FLEET – DOT OPERATIONS

- DOT choice of what highway activities to self-perform determines its equipment needs
 - Needs vary between urban and rural
 - Elevation and geography also impact
- Self-performed activities tend to change over time
 - Need to understand cost of internally-produced activities
 - Need to understand contractor costs and availability
- Activity frequency and volume influences these decisions but so do contractor availability and cost

MISSION DRIVEN FLEET- MEETING EQUIPMENT NEEDS

- Equipment can be owned, leased, rented, borrowed or even contracted with an operator
- Choice depends the following factors:
 - Usage (frequency and duration)
 - Internal equipment costs versus commercial sourcing alternatives
 - Relative availability, cost and logistics of commercial options

MISSION FLEET – IMPLEMENTING UTILIZATION STANDARDS

- Review annual class usage patterns based on statistical analysis
 - Mathematical average
 - Average usage excluding outlier values
 - Exclude highest/lowest 10% of data
 - Exclude data values exceeding 1-2 standard deviations from mean
 - Median
 - Usage distribution by quartiles

MISSION FLEET – IMPLEMENTING UTILIZATION STANDARDS (CONTINUED)

- Review class usage patterns
 - Do data patterns suggest collection or reporting issues?
 - Are usage patterns consistent within and between districts?
 - Are peer groupings needed or appropriate?
- Determine next steps
 - Review and address any potential issues/concerns
 - Create a proposed approach to implementing program
 - Maintain management support for implementation
 - Review and adjust program as needed

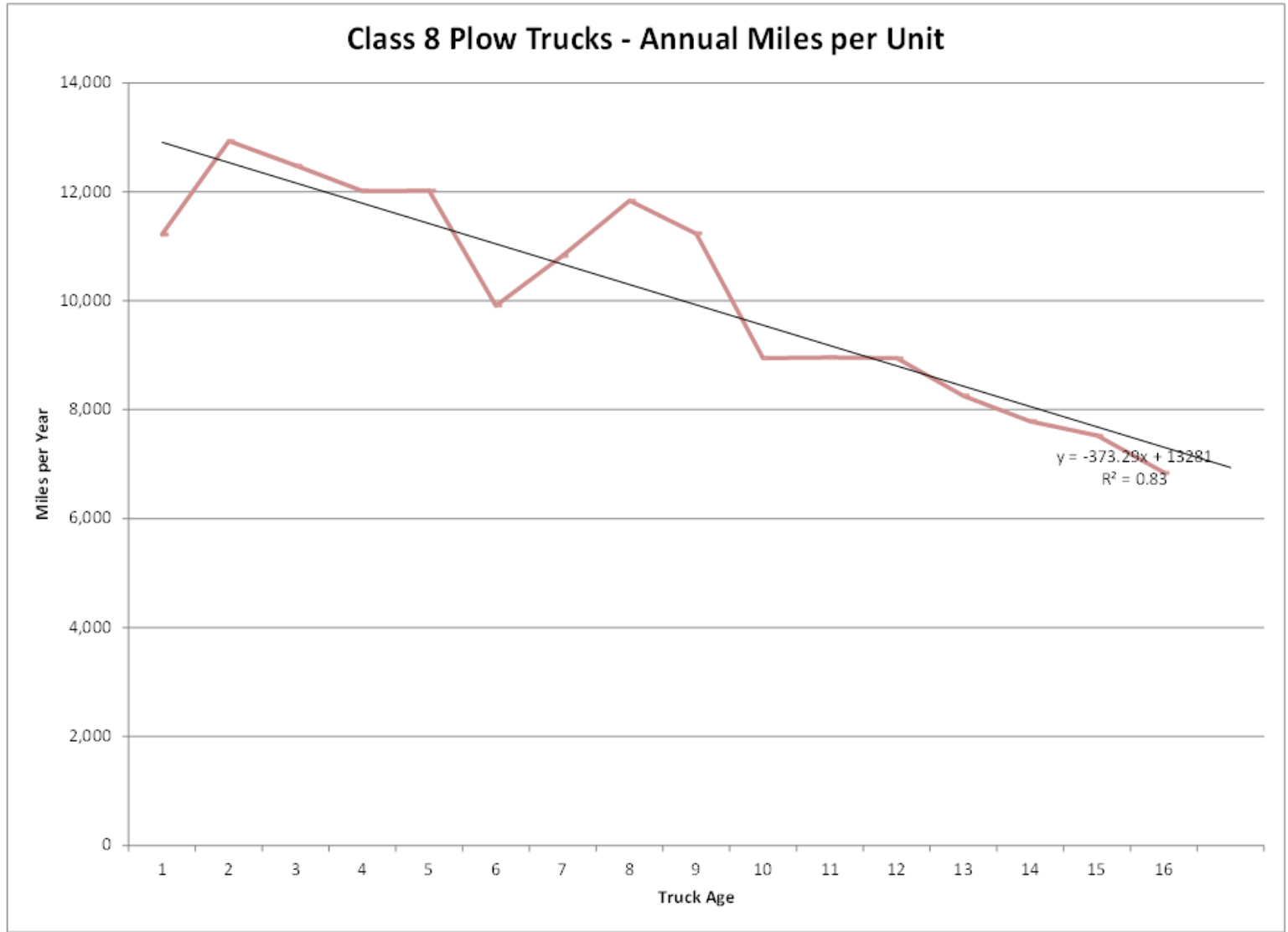
IMPLEMENTING UTILIZATION STANDARDS – BEST PRACTICE

- Fleet and Operating Units should collaborate in developing these standards
- Use team approach, with regular reporting and meetings
 - Monthly reporting suggested but not less than quarterly
 - Ideally, incorporate in Agency and managerial KPIs
- Create and maintain ‘market basket’ of rental contracts to support equipment decision-making
- Executive champion highly desirable

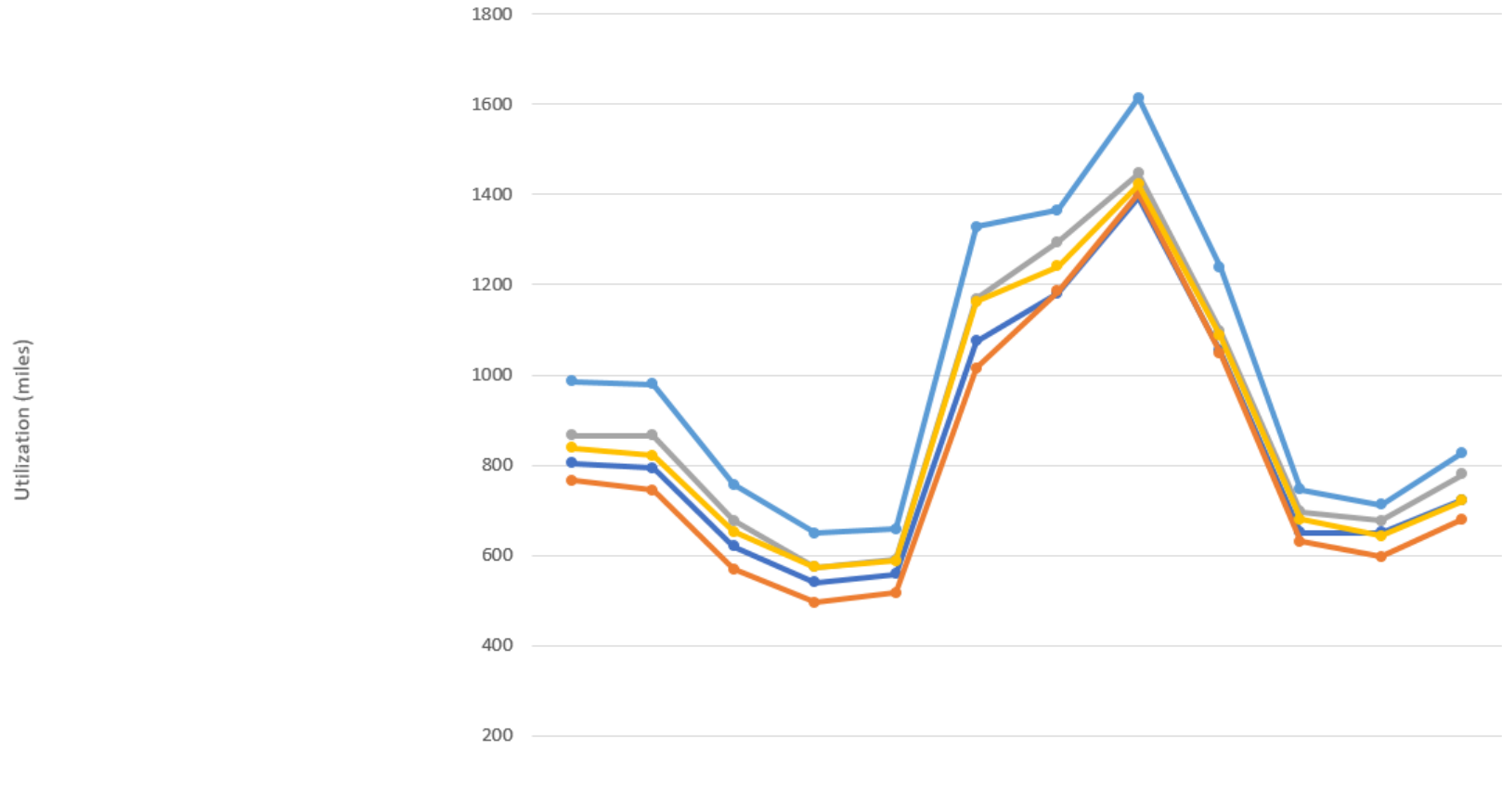
CASE STUDY – SEASONAL EQUIPMENT UTILIZATION

- Missouri DOT sought to determine how/if it could create utilization standards for seasonal equipment
 - Contracted to create a model to perform the statistical analysis using multiple approaches
 - Applied the model to five (5) years of month-to-month utilization data from six (6) seasonal equipment classes plus its Class 8 plow trucks (sample charts enclosed)
 - Project is still ongoing

Class 8 Plow Trucks - Annual Miles per Unit

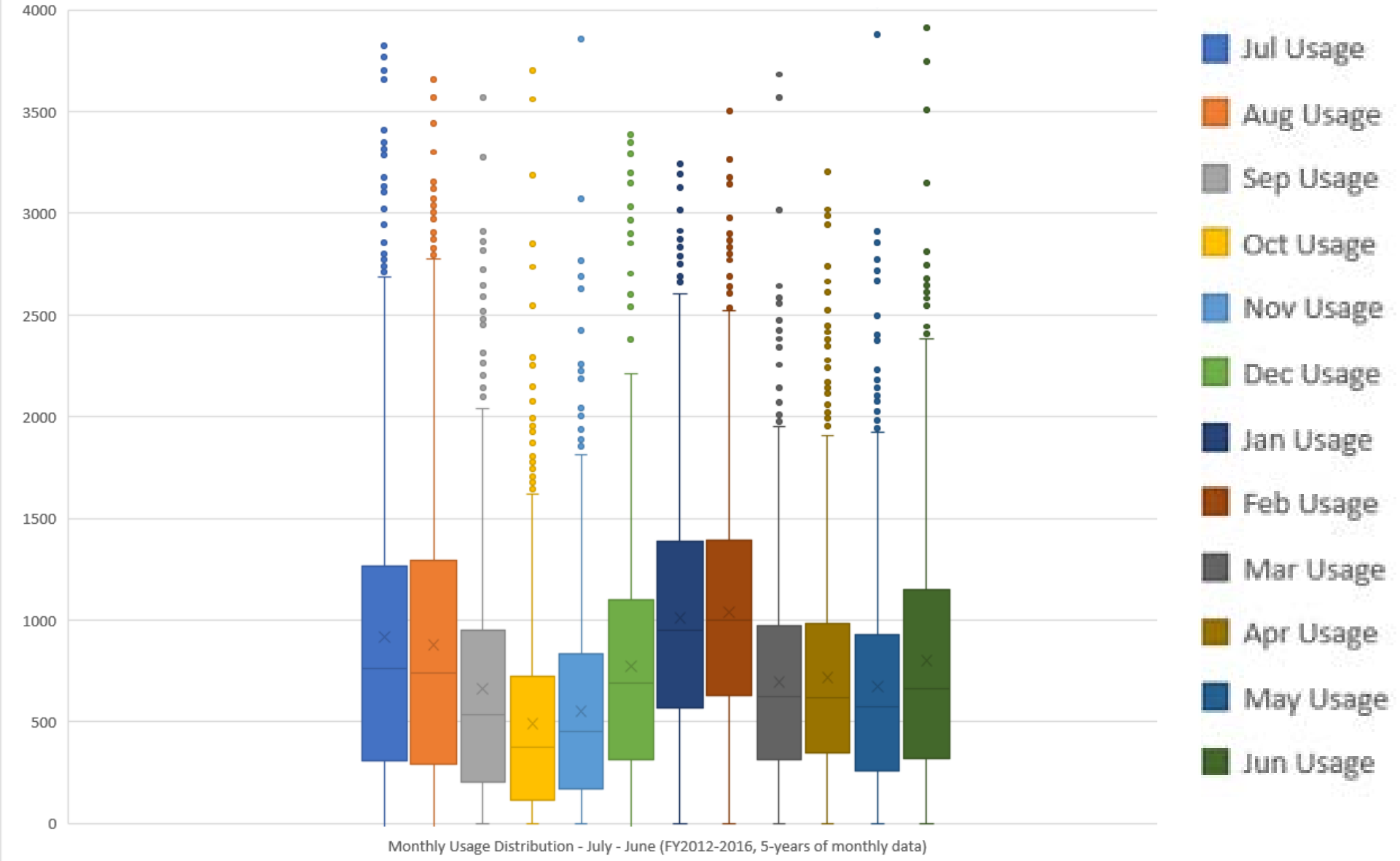


Class 8 Plow Trucks - Summary Stats

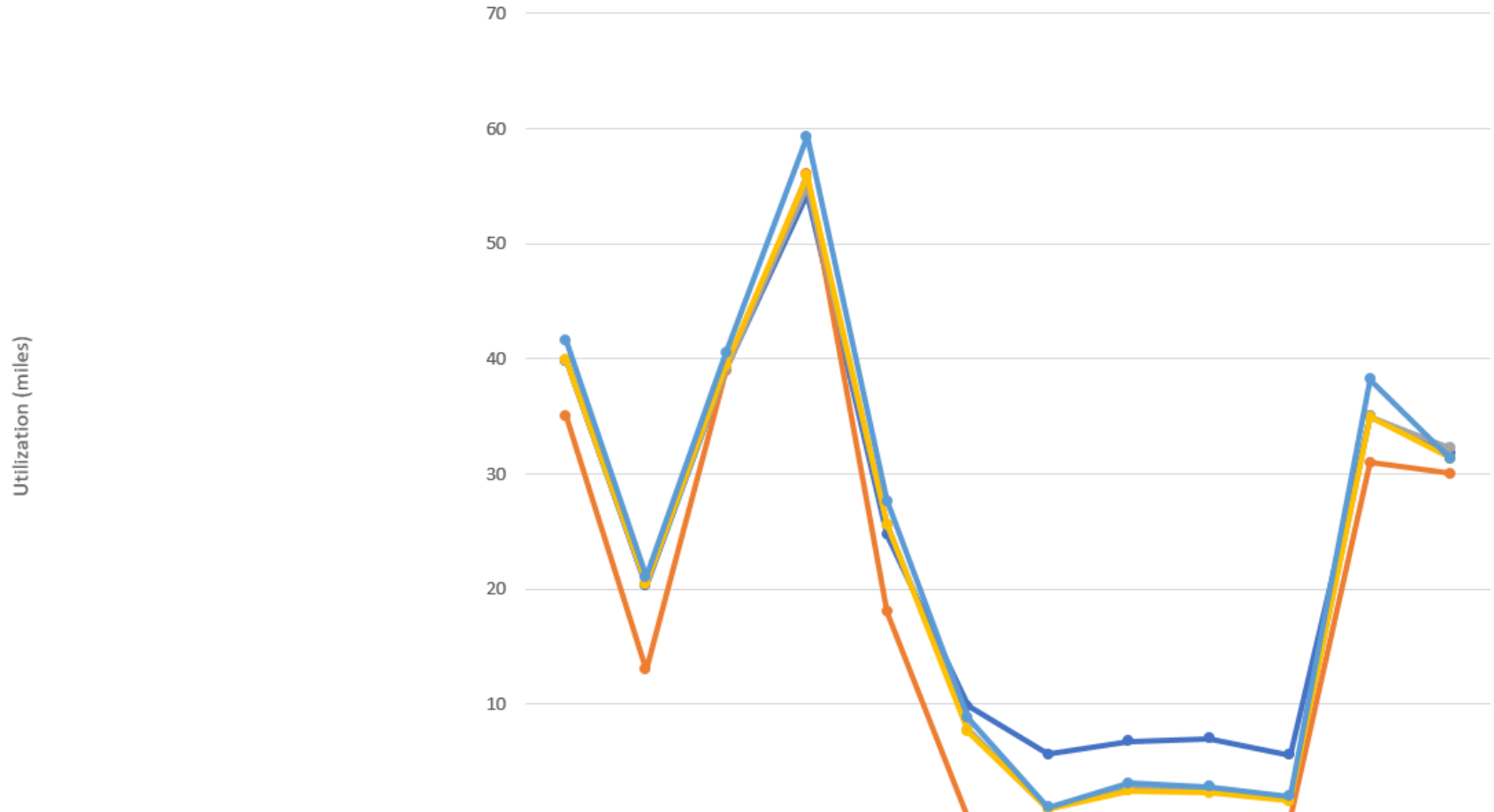


	Jul Usage	Aug Usage	Sep Usage	Oct Usage	Nov Usage	Dec Usage	Jan Usage	Feb Usage	Mar Usage	Apr Usage	May Usage	Jun Usage
—●— Average (excl std dev upper/lower)	804	794	620	540	559	1075	1180	1394	1053	651	650	723
—●— Median	765	744	569	495	517.5	1015	1185	1404	1048	630	597	679
—●— Average (excl quartile upper/lower)	866.1	865.9	676.0	572.9	590.3	1169.0	1295.3	1447.2	1097.1	697.1	677.2	779.2
—●— Average (excl <2 yr age, quartile upper/lower)	838.0	820.4	652.6	573.3	587.7	1162.6	1240.6	1421.5	1087.4	679.0	642.5	720.9
—●— Average (excl <2 and >10 yr age, quartile upper/lower)	985.7	978.7	755.8	648.8	657.9	1327.7	1365.0	1614.5	1239.6	746.3	711.5	827.9

Class 8 Plow Trucks - Data Distribution



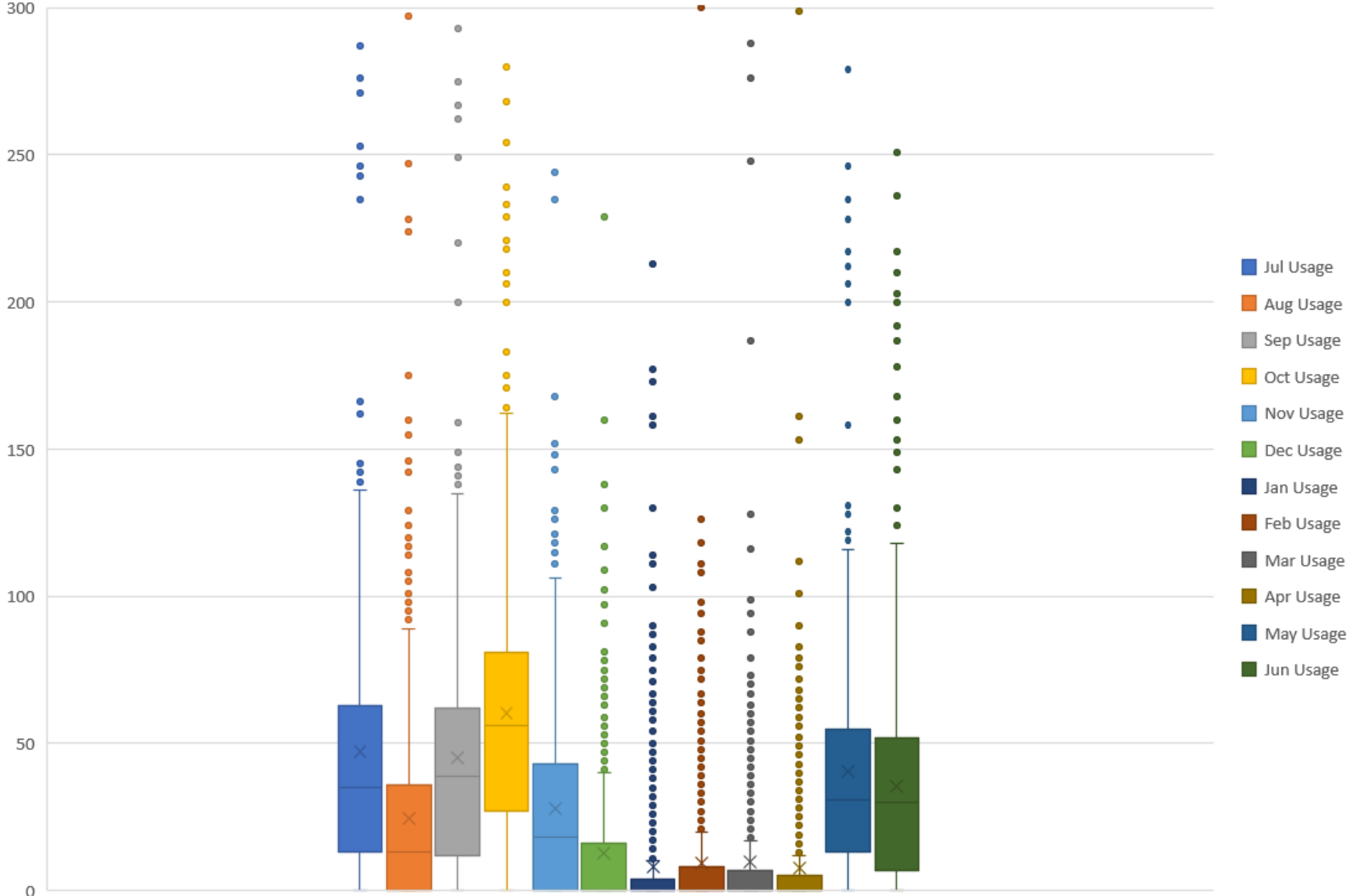
Tractors - Summary Stats



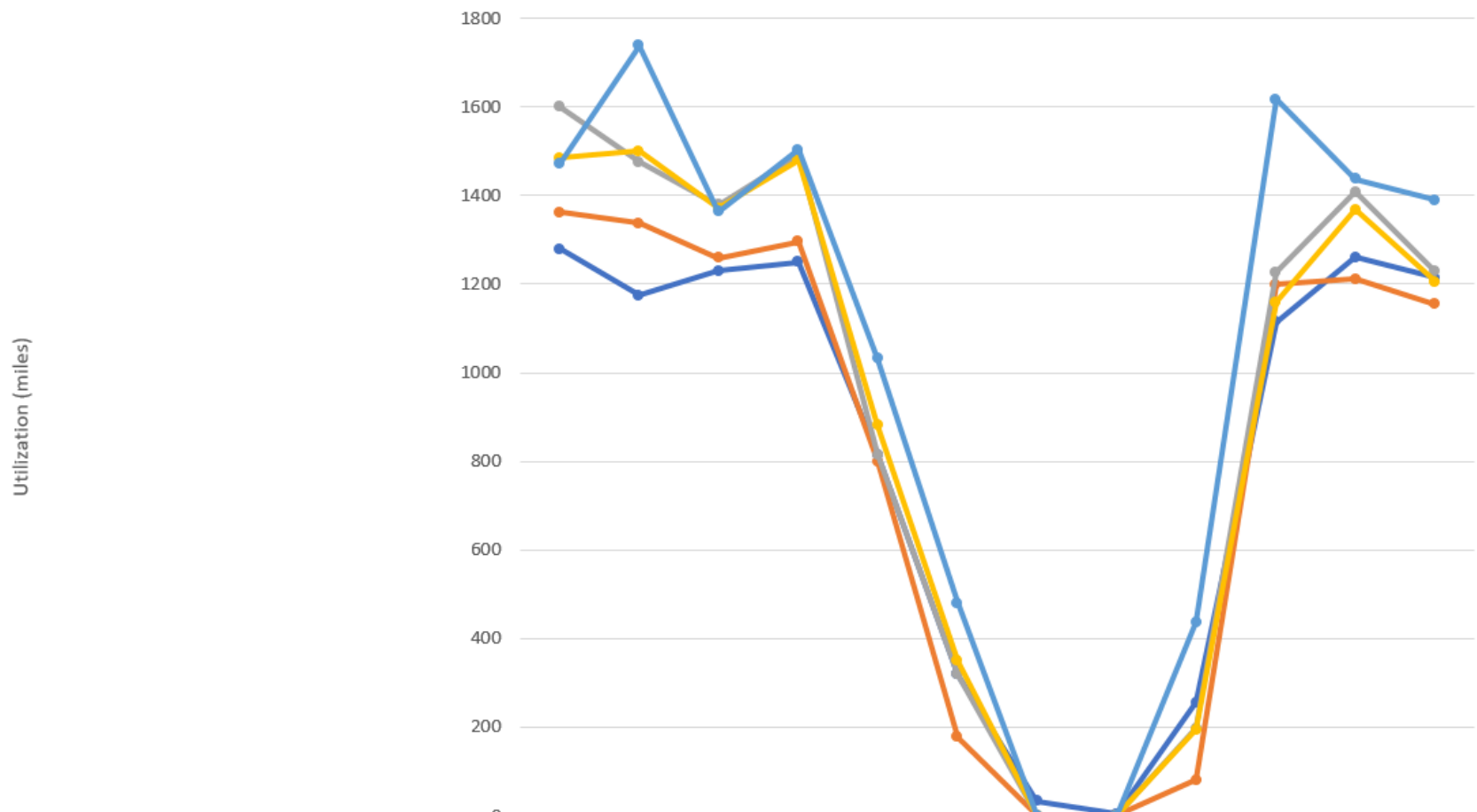
	Jul Usage	Aug Usage	Sep Usage	Oct Usage	Nov Usage	Dec Usage	Jan Usage	Feb Usage	Mar Usage	Apr Usage	May Usage	Jun Usage
● Average (excl > c and < d std deviations)	40	20	39	54	25	10	6	7	7	6	35	32
● Median	35	13	39	56	18	0	0	0	0	0	31	30
● Average (excl quartile upper/lower)	40	20	39	55	26	8	1	3	2	2	35	32
● Average (excl < g yrs age, quartile upper/lower)	40	20	39	56	26	8	1	2	2	2	35	31
● Average (excl < g and > h yr age, quartile upper/lower)	42	21	41	59	28	9	1	3	3	2	38	31



Tractors - Data Distribution



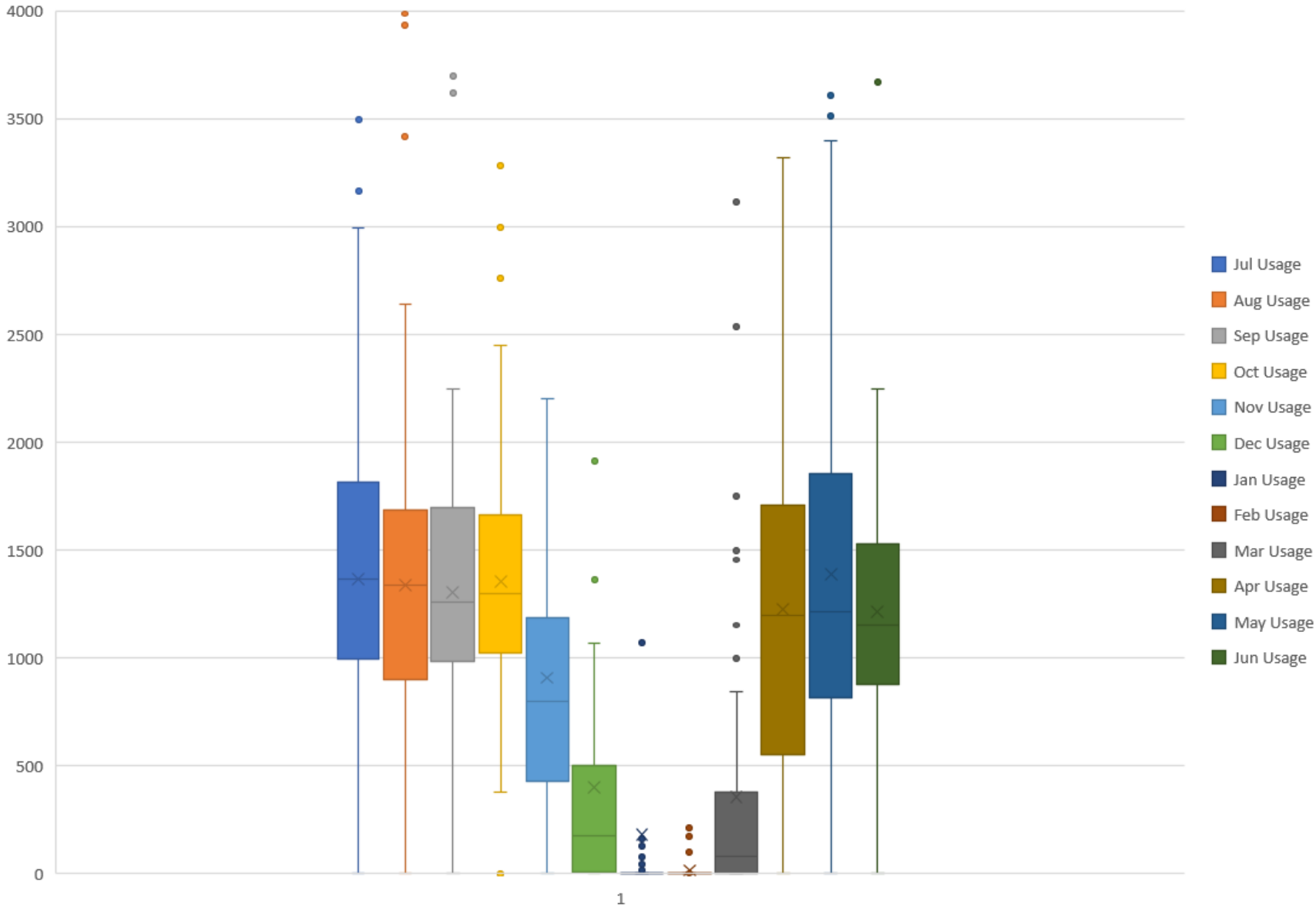
Line Stripers - Summary Stats



	Jul Usage	Aug Usage	Sep Usage	Oct Usage	Nov Usage	Dec Usage	Jan Usage	Feb Usage	Mar Usage	Apr Usage	May Usage	Jun Usage
● Average (excl > c and < d std deviations)	1279	1174	1231	1250	815	318	33	3	255	1115	1260	1214
● Median	1363	1337	1260	1296	799	177	0	0	81	1200	1212	1154
● Average (excl quartile upper/lower)	1600	1476	1380	1492	815	318	0	0	197	1226	1408	1228
● Average (excl < g yrs age, quartile upper/lower)	1486	1500	1371	1480	880	349	0	0	195	1159	1368	1205
● Average (excl < g and > h yr age, quartile upper/lower)	1472	1738	1364	1503	1031	480	0	0	437	1618	1438	1389



Line Stripers - Data Distribution



QUESTIONS AND CONTACT INFO

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