VEQ Update

Wesley Hitt, June 2019

Agenda

- Low profile Chock Tag Update
- R – Values and Sunset Language
- Tag Review Replacement of Grate Lock and 3” – 5” Spacing
- Impact Tests
- Multi – Level Anti – Theft device
- Vehicle First Point of Rest & End Door Wiring
- AAR Origin and Destination Quality Review TAG Recommendations
- Theft and Vandalism Inspection Data Update
- Hourglass Rail Car

Low Profile Chock TAG Update

Low Profile Chock Definition - Established

R Code valuation of Chocks- Developed

Appropriate Sunset Dates for Non Chocks to Higher R Value

Allowing any chock in any vehicle position requires clearancing to minimum forecasted 2023 value.

	Ground to Vehicle (inches)		Tire to Fender (inches)	
A		4.29		
D		5.00		
E		4.88		
H		4.72		
B				1.75
C				1.59
F				1.17
G				1.75

R – Values and Sunset Language

1. Top of engagement pin set at 1.75 above deck upper edge of hole in chock rail
2. Section taken 2" inboad of inner engagement face
3. Chock to tire space - 0.688 in
4. Ground clearance - 4.290 in
5. Vehicle to tire clearance – 1.170 in
6. Wheel diameter – 26.300 in
   (baseline 215/55R17)

Chock Groupings

Based on R-Values

Chock Type	R-Clearance (inches)	Group
Green	0.19	A
Co-poly	0.43	A
Wedge	0.44	A
Tri-lo	0.92	B
Lo-Pro Steel	0.96	B
Lo-Pro Polymer	1.69	B
Hybrid	2.65	C
TTM	5.65	C

R-Value Clearance Ranges (inches)		
Group	Min	Max
A	-	0.85
B	0.86	2.5
C	2.51	-

SEFCC chock replacement matrix for broken and missing chocks. Chocks are to be replaced by vin set with equivalent R clearance group chocks or better (refer to table numbers 2 and 3). As an example if a group C chock is missing or broken it can only be replaced by a group C chock. If a group B chock is missing or broken it can only be replaced by a group B or C chock. If a group A chock is missing or broken it can only be replaced by a group B or C chock.

2024 Chock Attrition Update

Chock Type	September 2017	May 2018	October 2018	April 2019
Holden Grate Lock	19	17	15	14
Zeftek (Sct) Co Poly	3,822	3,267	2,855	2,549
Trinity Poly Wedge	4,139	3,613	3,331	3,006
Trinity Steel Wedge	1,532	1,242	999	810
Zeftek Low Pro Co-Poly	2,282	2,281	2,173	2,098
Zeftek Low Pro Steel	194	194	194	194
Trinity Low Pro Poly	853	853	851	850
Zeftek Low Pro Stay-Put	223	222	210	172
Holland Low Pro VRS	241	241	241	219
Holden Low Pro Grip	212	212	212	193
Holland 3rd Rail	2,746	2,774	2,819	2,677
Zeftek Lo Pro Steel Hybrid	740	902	909	921
TTM	58	209	392	461
Chocks, All Others	627	595	516	507

Joint SEFCC/VEQ TAG

1. Develop Minimum Grate Chock Weight Holding Requirement.

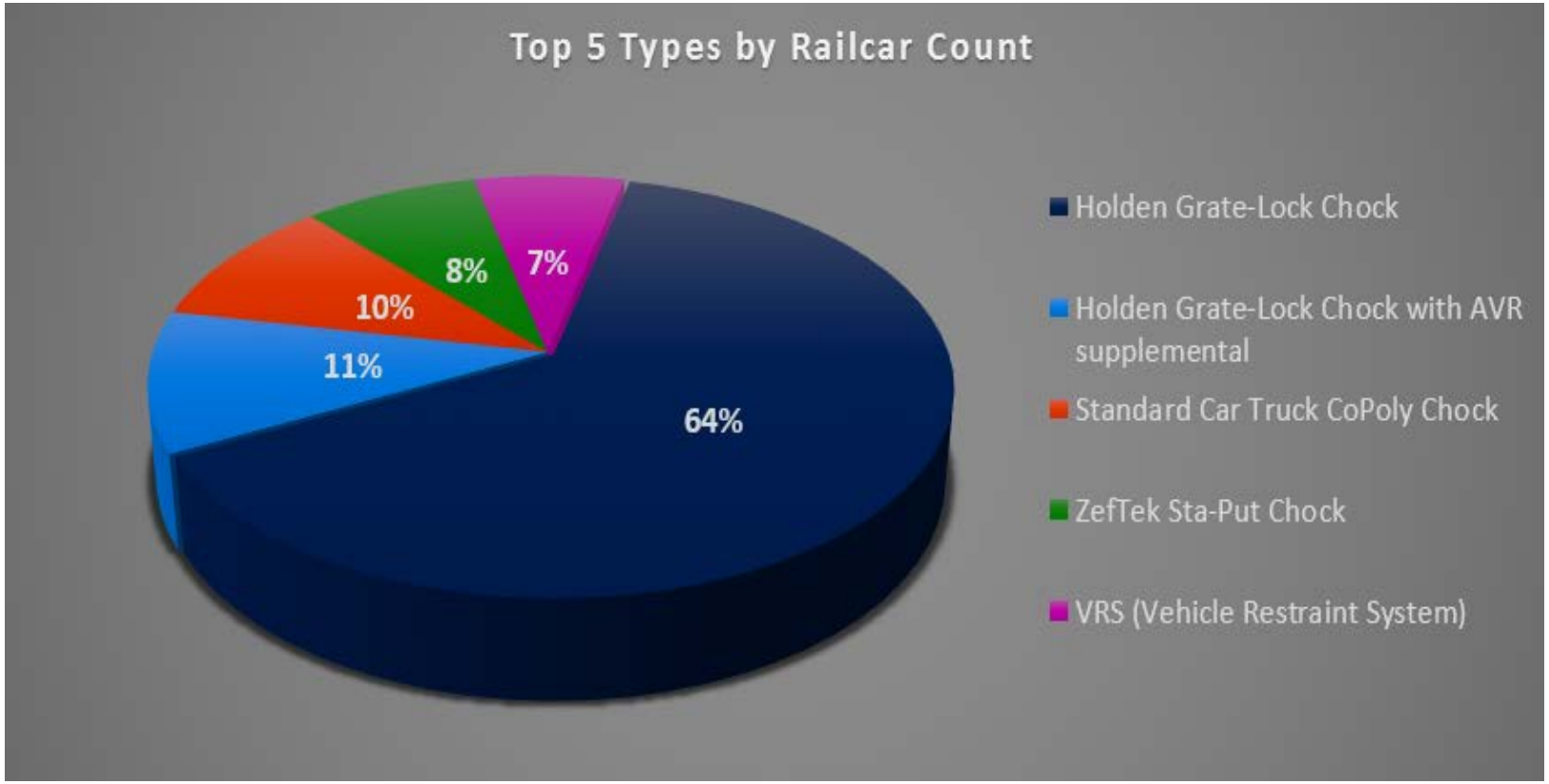
2. Using Past, Current and Projected Vehicle Curb Weights.

3. Develop Standardized Chock Storage Pans Required for Future Chock Designs.

Implement Tag Review Replacement of First Generation Grate Lock and combined with the 3” to 5” Spacing tag.

Chock Type	Vehicles	% of Total	% of Fleet	Normalized Jump Frequency	Rank
VRS (Vehicle Restraint System)	707	5.64%	1.876%	3.01	1
Holden Grate-Lock Chock	6,390	51.01%	25.669%	1.99	2
Standard Car Truck CoPoly Chock	1,009	8.05%	4.574%	1.76	3
Holden Grate-Lock Chock with AVR supplemental	1,093	8.73%	10.308%	0.85	4
ZefTek Sta-Put Chock	828	6.61%	8.887%	0.74	5
All Others	2,500	19.96%	48.685%	0.41	6
Grand Total	**12,527**	**100.00%**	**100.000%**	**1.00**	

Implement Tag Review Replacement of First Generation Grate Lock



Implement Tag Review Replacement of First Generation Grate Lock

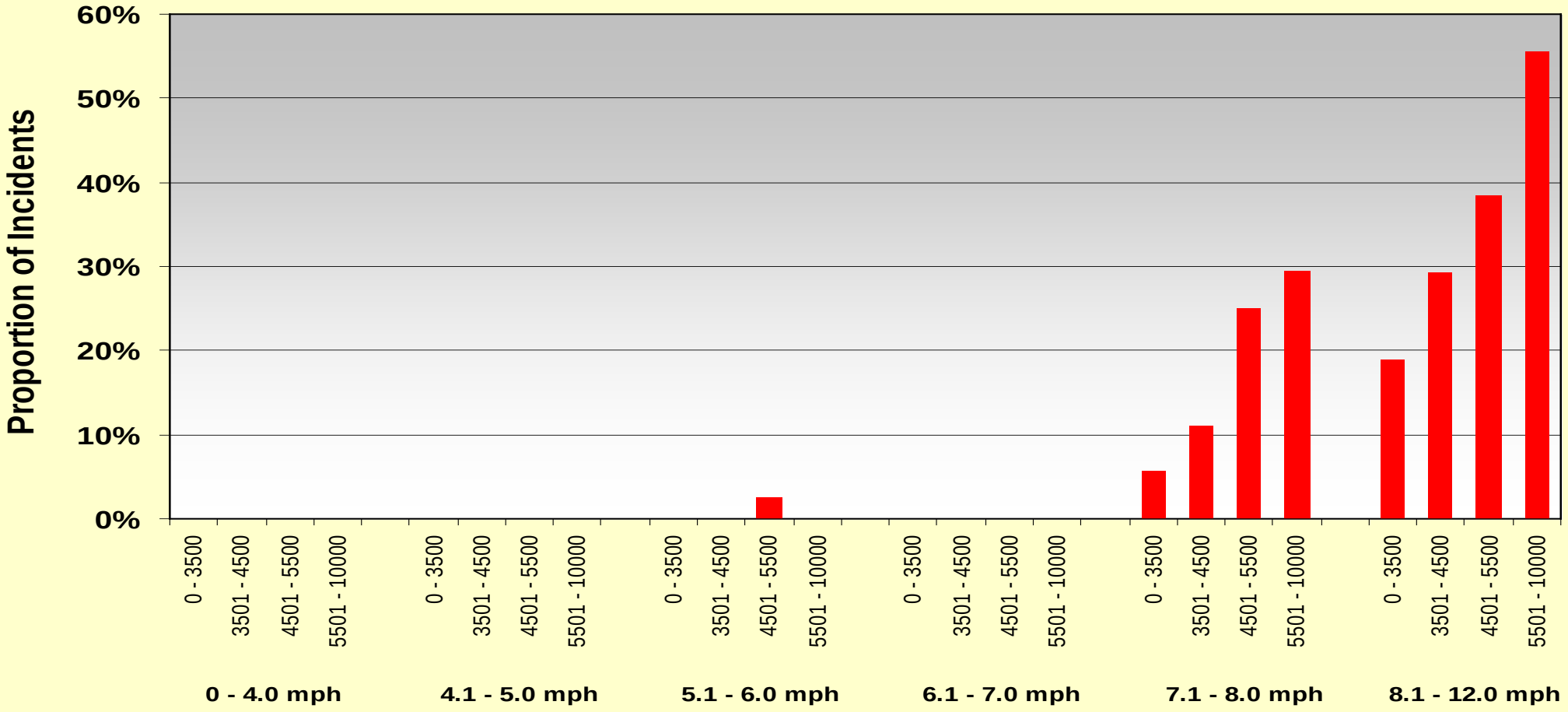
	1993 Models	2004 Models	2010 Models	2017 Models
1500/F-150	4225 lbs	4902 lbs	5177 lbs	**4979 lbs**
2500/F-250	4701 lbs	5972 lbs	6437 lbs	**6528 lbs**
3500/F-350	5473 lbs	6382 lbs	6881 lbs	**6927 lbs**

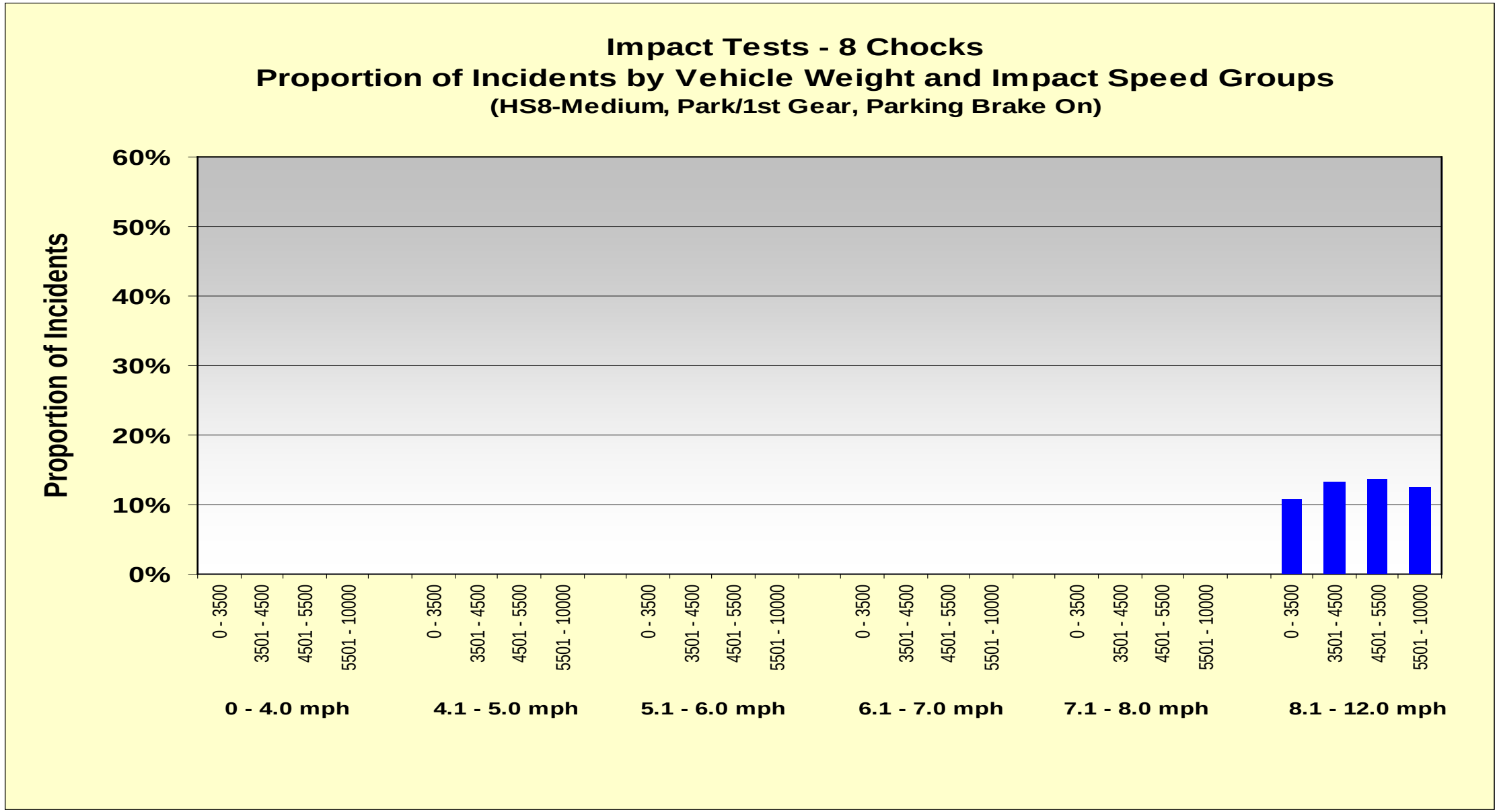
Average Vehicle Curb Weights

Average Vehicle Curb Weights

	1993 Models	2017 Models	Increase
1500/F-150	4225 lbs	4979 lbs	**18%**
2500/F-250	4701 lbs	6528 lbs	**39%**
3500/F-350	5473 lbs	6927 lbs	**27%**

Impact Tests - 4 Chocks
Proportion of Incidents by Vehicle Weight and Impact Speed Groups
(HA4-All, Park/1st Gear, Parking Brake On)

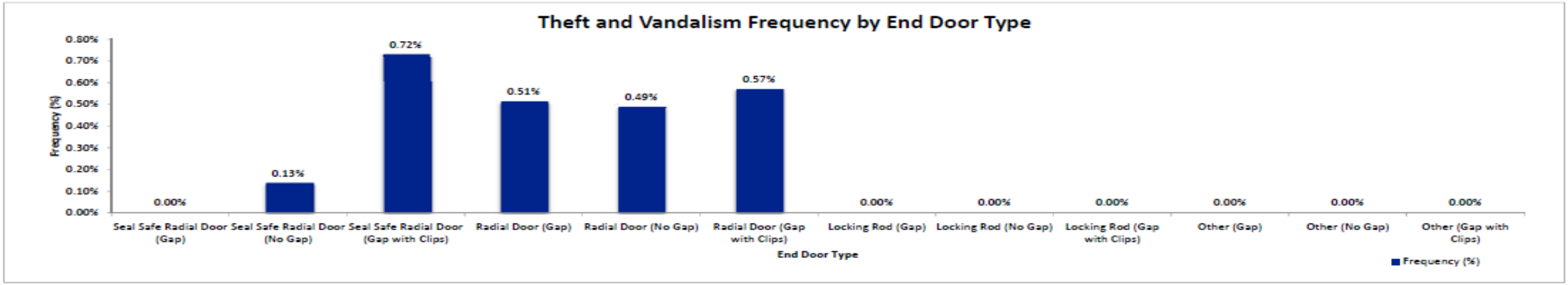



Impact Tests - 8 Chocks
Proportion of Incidents by Vehicle Weight and Impact Speed Groups
(HS8-Medium, Park/1st Gear, Parking Brake On)
Proportion of Incidents
60%
50%
40%
30%
20%
10%
0%
0 - 3500
3501 - 4500
4501 - 5500
5501 - 10000
0 - 4.0 mph
4.1 - 5.0 mph
5.1 - 6.0 mph
6.1 - 7.0 mph
7.1 - 8.0 mph
8.1 - 12.0 mph

Theft and Vandalism Frequency by End Door Type

Location: Laredo, Eagle Pass, El Paso

Time Period: January 20, 2014 to February 16, 2014



End Door Type	Number of Railcars	Frequency (%)
Seal Safe Radial Door (Gap)	255	3.11%
Seal Safe Radial Door (No Gap)	3,058	37.33%
Seal Safe Radial Door (Gap with Clips)	138	1.68%
Radial Door (Gap)	393	4.80%
Radial Door (No Gap)	1,235	15.08%
Radial Door (Gap with Clips)	2,467	30.12%
Locking Rod (Gap)	38	0.46%
Locking Rod (No Gap)	335	4.09%
Locking Rod (Gap with Clips)	72	0.88%
Other (Gap)	26	0.32%
Other (No Gap)	77	0.94%
Other (Gap with Clips)	97	1.18%
Total	**8,191**	**100.00%**

Manufacturer	Total Number of Vehicles
Chrysler	22,292
Ford	1,226
GM	36,569
Nissan	17,242
Volkswagen	912
Total	**78,241**

Railcar Type	Total Number of Railcars
Bi-Level	6,820
Tri-Level	1,371
Total	**8,191**

(Theft and Vandalism Frequency by End Door Type)

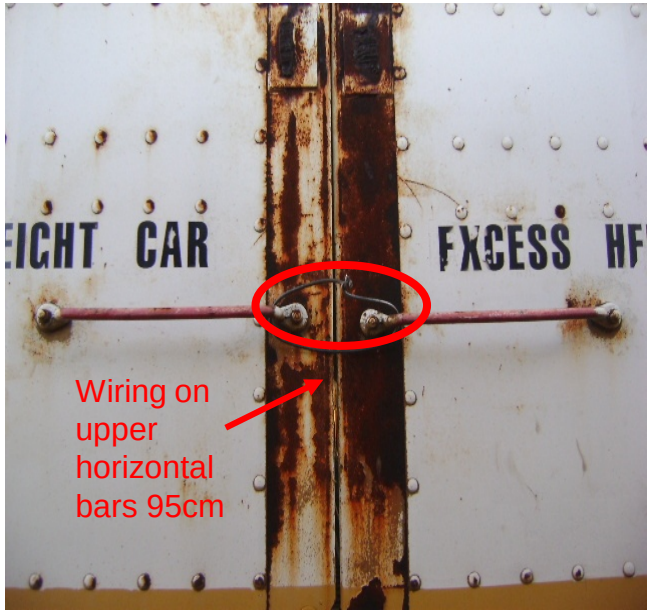
End Door Type	Number of Railcars	Frequency (%)
Seal Safe Radial Door (Gap)	0	0.00%
Seal Safe Radial Door (No Gap)	4	0.13%
Seal Safe Radial Door (Gap with Clips)	1	0.72%
Radial Door (Gap)	2	0.51%
Radial Door (No Gap)	6	0.49%
Radial Door (Gap with Clips)	14	0.57%
Locking Rod (Gap)	0	0.00%
Locking Rod (No Gap)	0	0.00%
Locking Rod (Gap with Clips)	0	0.00%
Other (Gap)	0	0.00%
Other (No Gap)	0	0.00%
Other (Gap with Clips)	0	0.00%
Total	**27**	**0.33%**

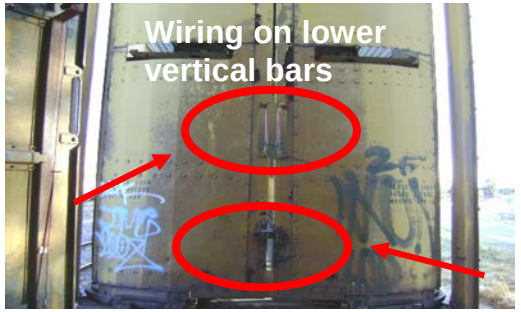
(Theft and Vandalism by Railcar Type)

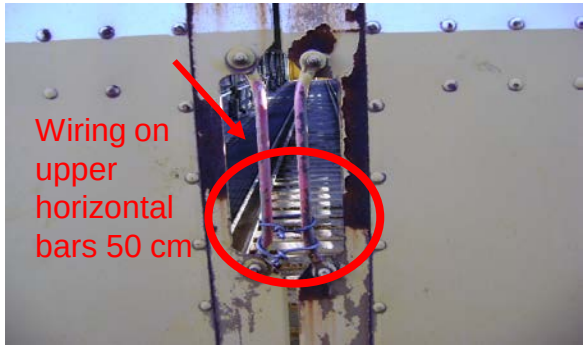
Railcar Type	Number of Railcars
Bi-Level	24
Tri-Level	3
Total	**27**

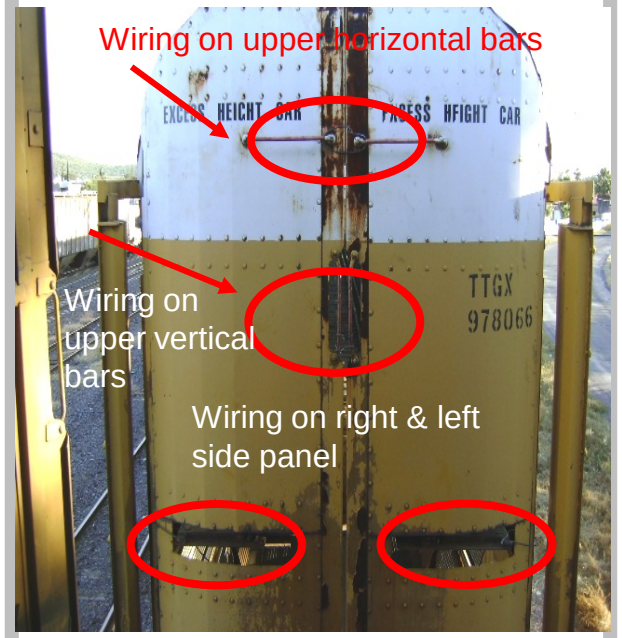
Multi – Level Anti – Theft Device (Lock Box) TAG Update

Security Door Protection





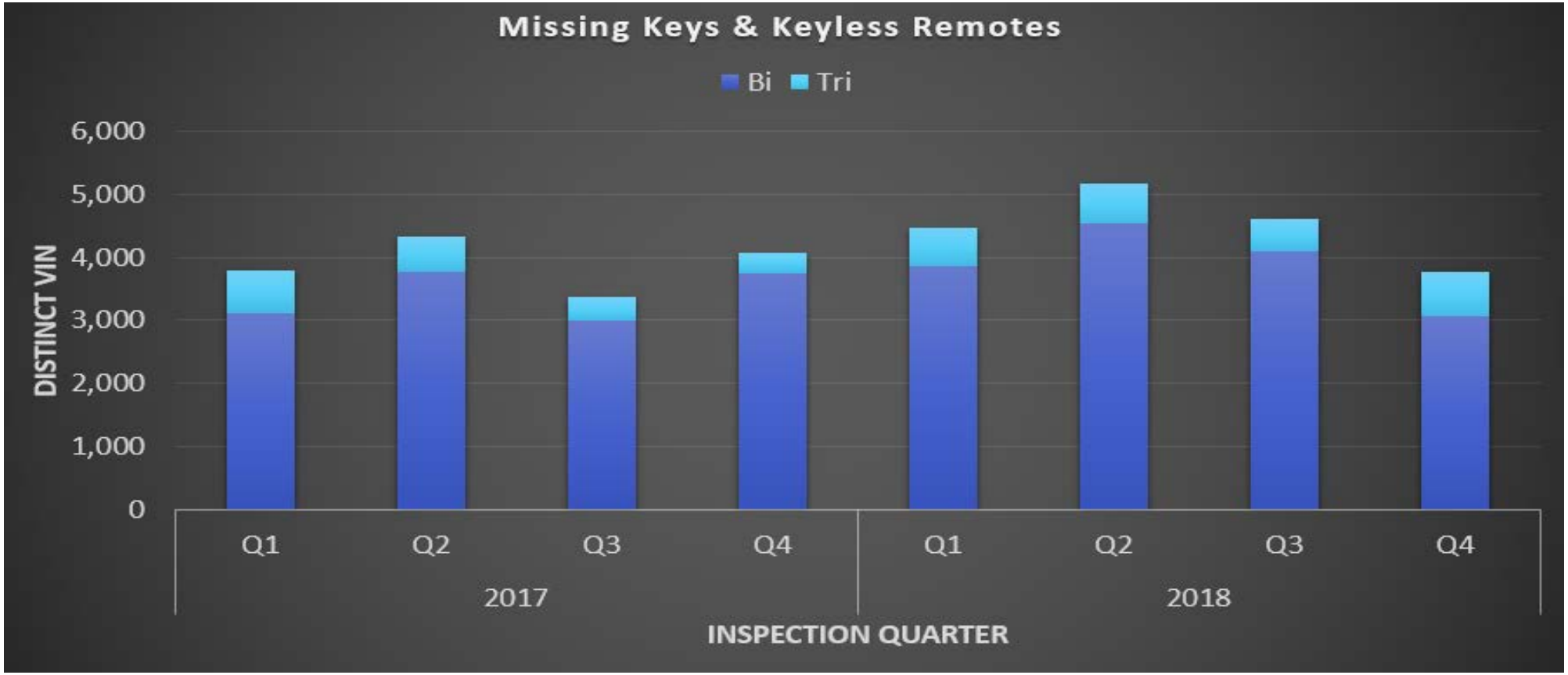




End Door Wiring – request RR to develop process that ensures wiring is removed under all conditions.

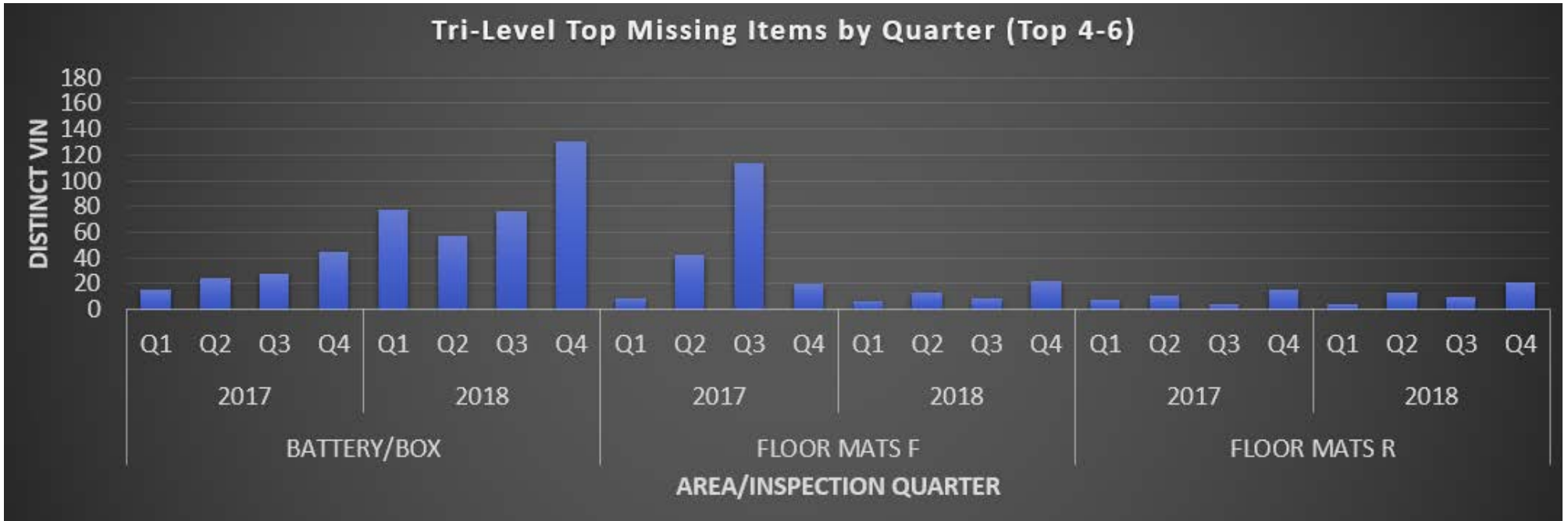
Business Logic

- Data is for 1/1/17 through 12/31/18
- Damage Type = 08 (Missing)
- Survey Type = 04* or 08* (Destination Inspections)
- Excludes Damage Are = 60 (Jump Chock)
- Volume is provided by TTX
- Damage VIN is a distinct count if VIN
- Railcar Type:
  - For Toyota VINs, railcar type is determined by the possessor
  - For All other OEMs, railcar type is determined based on the VIN model name:
    - Bi – Level: Trucks, Vans, SUVs
    - Tri – Level: Passenger Cars

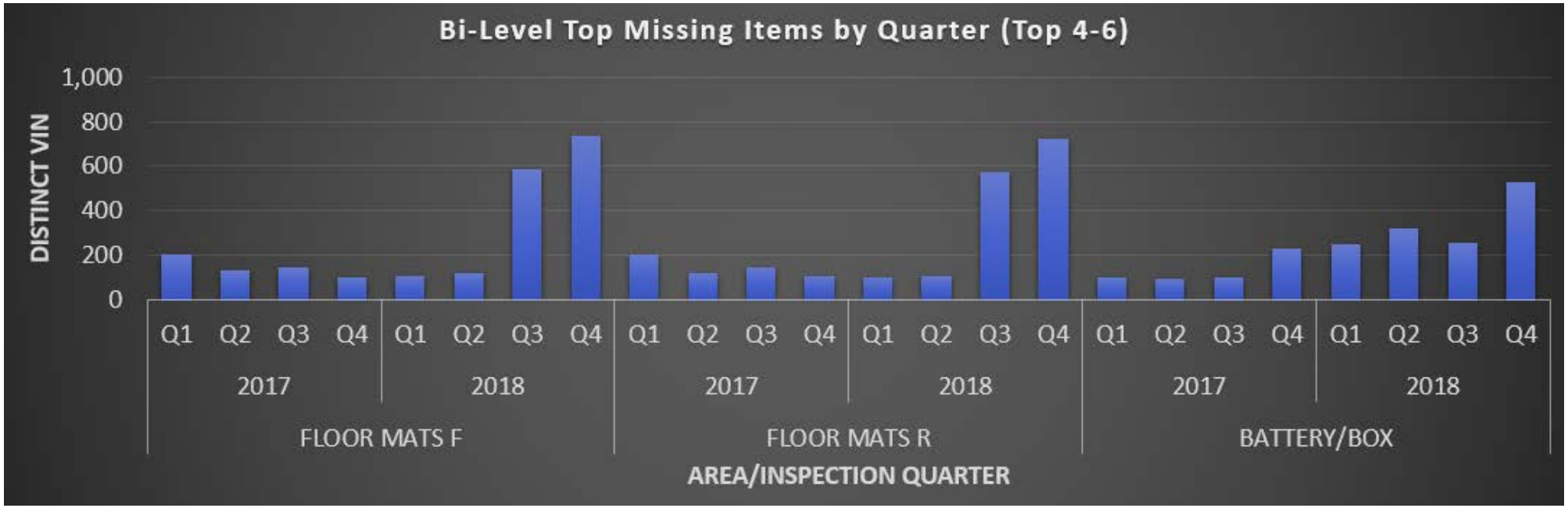


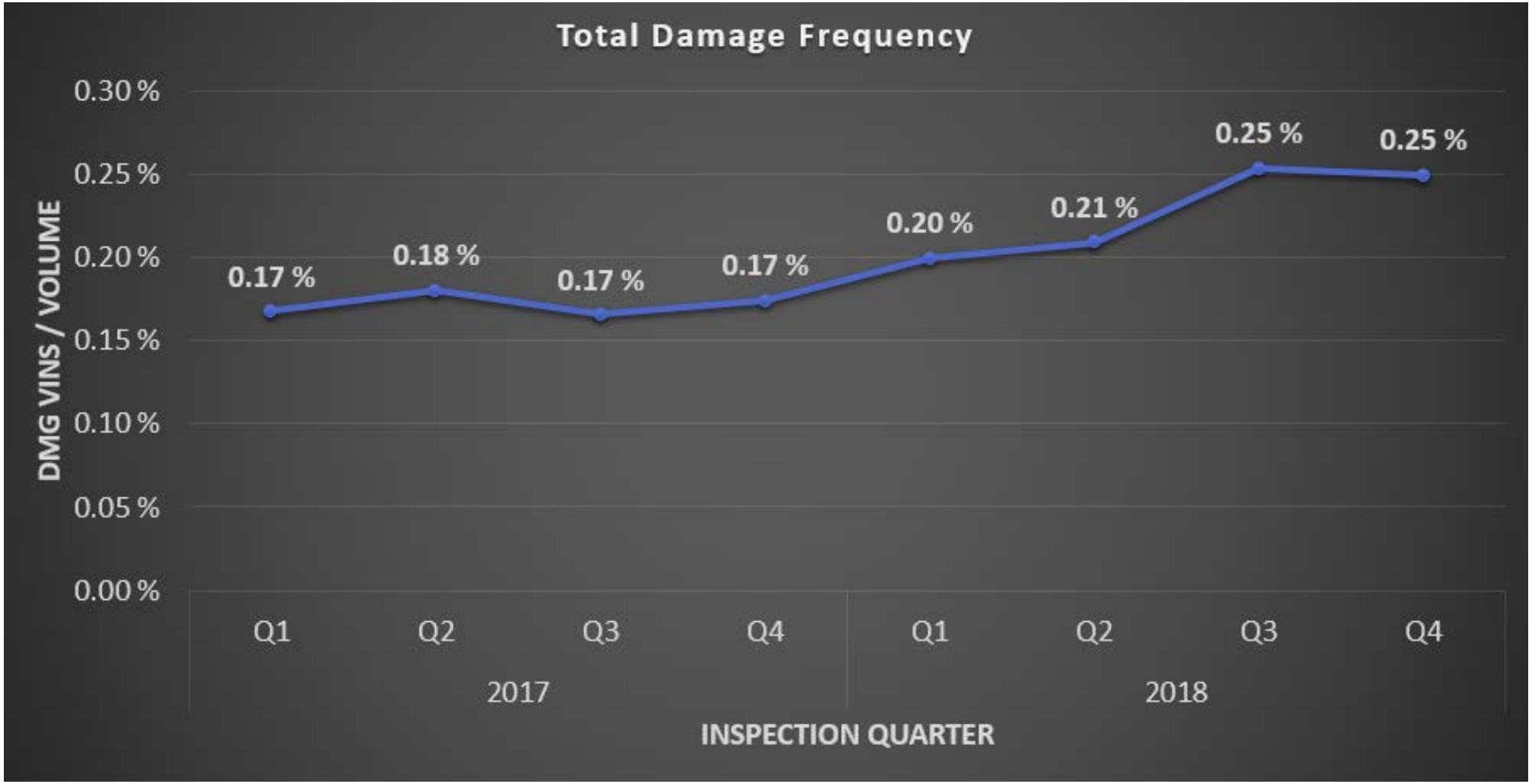
Theft and Vandalism Inspection Data Update

Tri-Level Top Missing Items by Quarter (Top 3)
DISTINCT VIN
600
500
400
300
200
100
0
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
2017 2018 2017 2018 2017 2018
KEYLESS REMOTE
KEYS
OTHER
AREA/INSPECTION QUARTER


Tri-Level Top Missing Items by Quarter (Top 4-6)
DISTINCT VIN
180
160
140
120
100
80
60
40
20
0
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
2017 2018 2017 2018 2017 2018
BATTERY/BOX
FLOOR MATS F
FLOOR MATS R
AREA/INSPECTION QUARTER

Bi-Level Top Missing Items by Quarter (Top 3)
DISTINCT VIN
3,000
2,500
2,000
1,500
1,000
500
0
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
2017 2018 2017 2018 2017 2018
KEYLESS REMOTE
KEYS
OTHER
AREA/INSPECTION QUARTER

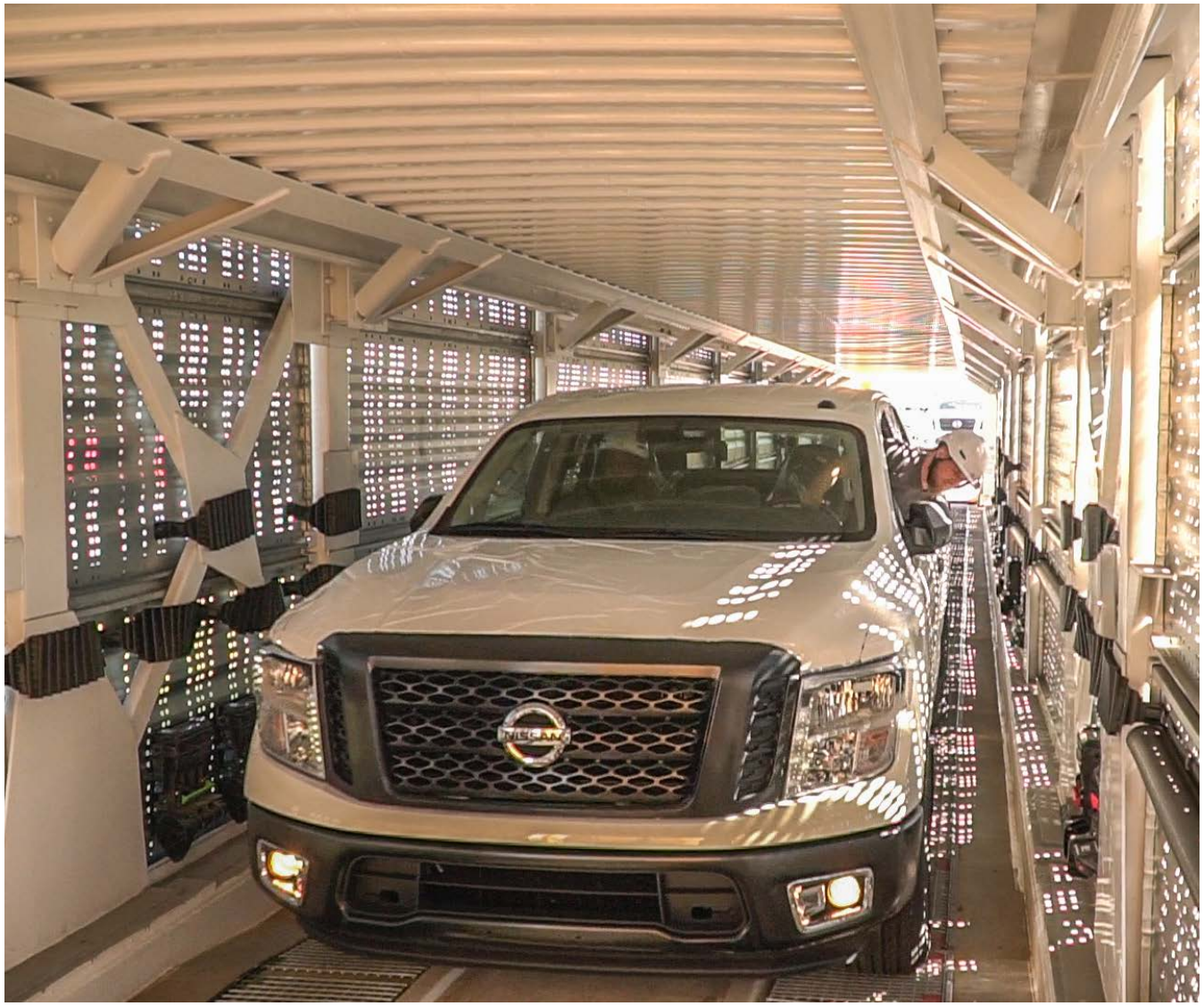

Bi-Level Top Missing Items by Quarter (Top 4-6)
DISTINCT VIN
1,000
800
600
400
200
0
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
2017 2018 2017 2018 2017 2018
FLOOR MATS F
FLOOR MATS R
BATTERY/BOX
AREA/INSPECTION QUARTER

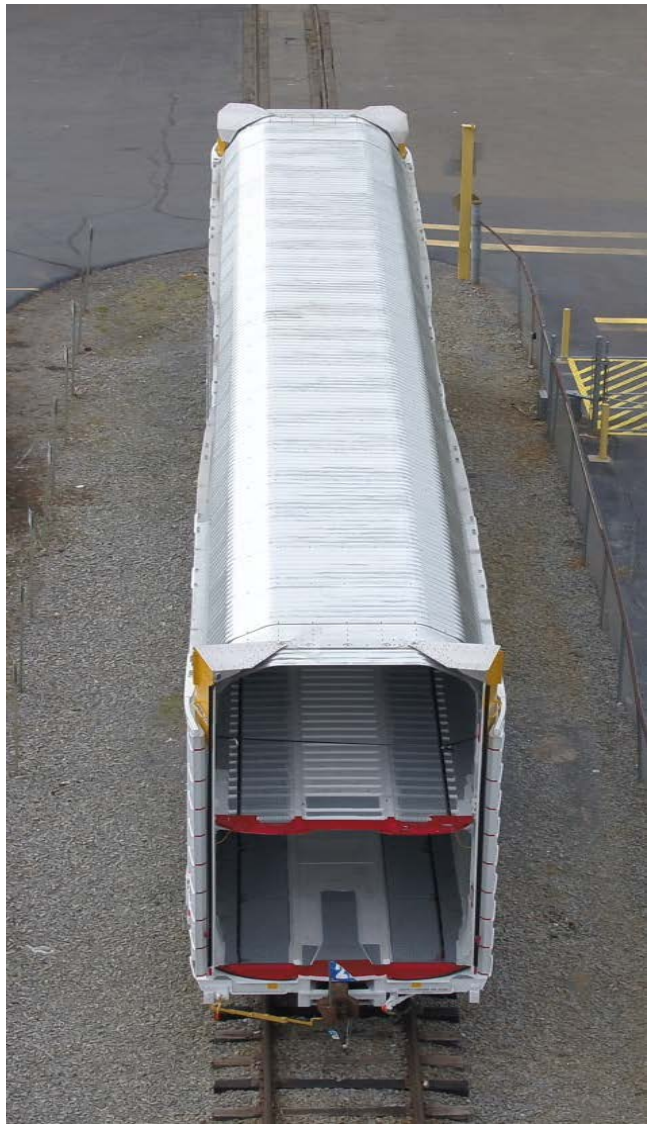


Total Damaged VINs: 51, 365
Total Volume: 25,754,061
Total Frequency: 0.20%

Year	Volume	Damaged VINs	Frequency
2017	12,990,064	22,312	0.17 %
2018	12,763,997	29,053	0.23 %
Grand Total	**25,754,061**	**51,365**	**0.20 %**

New Hourglass Railcar – Trinity Rail



New Hourglass Railcar – Trinity Rail

- Increased Interior Width Between The Side Posts
- Up To 9-1/4" Wider In The A1 And A5 Positions
- 5-5/16" Wider In The A2 and A4 Positions
- Loaders And Inspectors Can Pass Easily By Vehicles Reducing Or Eliminating Scratches, Dirty Hand Prints, And Climbing In And Out Of Boxes On DRWs
- Expected Reduced Door Damage From Chips As Doors Will Not Be Forced Into The Door Edge During Egress From Vehicle
- Additional Room To Apply Wheel Chocks And Vehicle Restraints