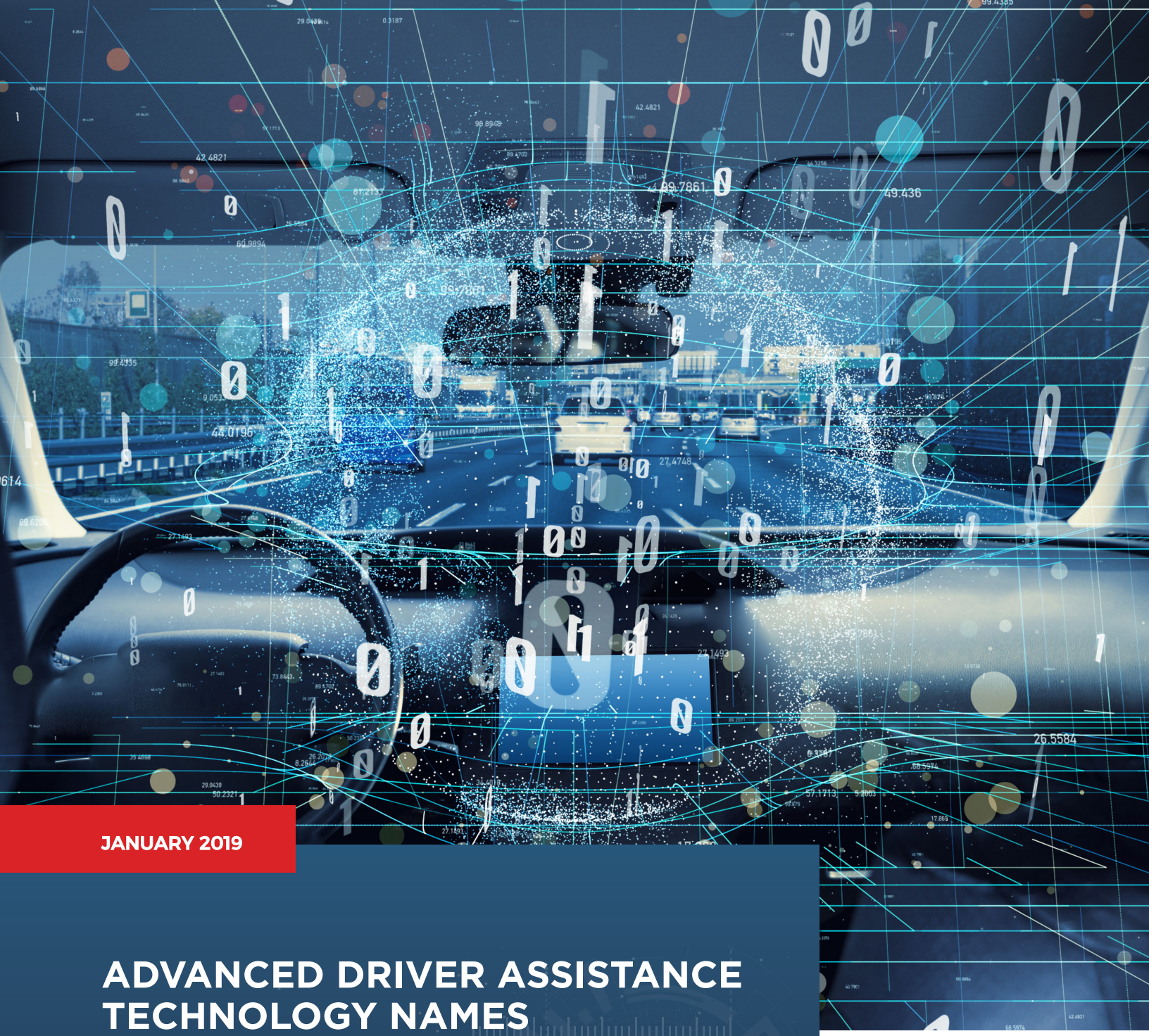

JANUARY 2019

ADVANCED DRIVER ASSISTANCE TECHNOLOGY NAMES

AAA's recommendation for common naming of advanced safety systems

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Abstract

Advanced Driver Assistance Systems have become increasingly prevalent on new vehicles. In fact, at least one ADAS feature is available on 92.7% of new vehicles available in the U.S. as of May 2018.[1] Not only are these advanced driver assistance systems within financial reach of many new car consumers (about $1,950 for the average ADAS bundle[2]), they also have the potential to avoid or mitigate the severity of a crash. However, the terminology used to describe them varies widely and often seems to prioritize marketing over clarity. The lack of standardized names for automotive systems adds confusion for motorists when researching and using advanced safety systems.

The intent of this paper is to create a dialog with the automotive industry, safety organizations and legislators about the need for common naming for advanced driver assistance systems. Within this report, AAA is proposing a set of standardized technology names for use in describing advanced safety systems. AAA acknowledges that this is a dynamic environment, and that further input from stakeholders and consumer research will further refine this recommendation.

To date, automakers have devised their own branded technology names which, for example, has resulted in twenty unique names for adaptive cruise control and nineteen different names for lane keeping assistance (section 3.2) alone. A selection of these names is shown in Figure 1. Further complicating the issue, regulatory bodies and automotive standards organizations such as NHTSA and SAE have used multiple unique names such as collision imminent braking[3] and forward collision mitigation systems[4] to describe automatic emergency braking (section 3.1).

ADAS Feature	Selection of Marketed Names
Adaptive Cruise Control	Adaptive Cruise Control , Smart Cruise Control, Intelligent Cruise Control, Adaptive Cruise Control with Queue Assist, Dynamic radar cruise control, Distronic Plus, Traffic-Aware Cruise Control
Lane Keeping Assistance	Active Steering Assist, Audi Active Lane Assist, Intelligent Lane Intervention, Lane Departure Alert with Steering Assist, Lane Keep Assist, LaneSense Lane Departure Warning Plus
Blind Spot Warning	Active Blind Spot Assist, Audi Side Assist, Blind Spot Information System, Blind Spot Intervention, Lane Change Alert with Side Blind Zone Alert, Lane Change Assistant (Side Assist), Smart Blind Spot Detection
Surround View Camera	Surround View System, 360º View Monitor, Intelligent Around View Monitor, Multi-terrain Monitor, Bird's Eye View Camera, Surround Vision, Top View Camera System,Wide Front View & Side Monitor

Figure 1: Sample of Names Advertised for Various ADAS Features

[1] Based on ADAS fitment data published from the research firm SBD Automotive www.sbdautomotive.com
[2] Multiple advanced driver assistance systems are often bundled into an optional technology package that allow motorist to choose if they want to pay for the added functionality.
[3] https://www.nhtsa.gov/research-data/crash-avoidance/active-braking-technologies
[4] https://www.sae.org/publications/technical-papers/content/2011-01-2259/

It is important for consumers to be knowledgeable about new vehicle technologies since misunderstanding of ADAS systems could lead to their misuse. To promote clear communication and consumer education, this report concludes that there is a need for standardized terms and definitions for ADAS features, and proposes such a list for consideration shown within the tables below.

Automated Driving Tasks	Definition
Adaptive Cruise Control	Controls acceleration and/or braking to maintain a prescribed distance between it and a vehicle in front. May be able to come to a stop and continue.
Lane Keeping Assistance	Controls steering to maintain vehicle within driving lane. May prevent vehicle from departing lane or continually center vehicle.
Dynamic Driving Assistance	Controls vehicle acceleration, braking, and steering. SAE standard definition of L2 Autonomous systems outlines this functionality.

Figure 2: Proposed Standard ADAS Terms - Automated Driving Tasks

Collision Alerts	Definition
Forward Collision Warning	Detects impending collision while traveling forward and alerts driver.
Lane Departure Warning	Monitors vehicle's position within driving lane and alerts driver as the vehicle approaches or crosses lane markers.
Blind Spot Warning	Detects vehicles to rear in adjacent lanes while driving and alerts driver to their presence.
Rear Cross Traffic Warning	Detects vehicles approaching from side and rear of vehicles while traveling in reverse and alerts driver.
Parking Obstruction Warning	Detects obstructions in close proximity to vehicle during parking maneuvers.
Pedestrian Detection	Detects pedestrians in front of vehicle and alerts driver to their presence.

Figure 3: Proposed Standard ADAS Terms – Collision Alerts

Collision Mitigation	Definition
Forward Automatic Emergency Braking	Detects potential collisions while traveling forward and automatically applies brakes to avoid or lessen the severity of impact.
Reverse Automatic Emergency Braking	Detects potential collision while traveling in reverse and automatically applies brakes to avoid or lessen the severity of impact.
Automatic Emergency Steering	Detects potential collision and automatically controls steering to avoid or lessen the severity of impact.

Figure 4: Proposed Standard ADAS Terms - Collision Mitigation

Parking Assistance	Definition
Semi-automated Parking Assistance	Controls steering during parking. Driver responsible for acceleration, braking, and gear position. May be capable of parallel and/or perpendicular parking.
Fully-automated Parking Assistance	Controls acceleration, braking, steering, and shifting during parking. May be capable of parallel and / or perpendicular parking.
Remote Parking	System parks vehicle without driver being physically present inside the vehicle. Automatically controls acceleration, braking, steering, and shifting.
Trailer Assistance	System that assists driver during backing maneuvers with a trailer attached.
Surround View Camera	Uses cameras located around vehicle to present view of surroundings.

Figure 5: Proposed Standard ADAS Terms - Parking Assistance

Misc. Driving Aids	Definition
Automatic High Beams	Deactivates or orients headlamp beams automatically based on lighting, surroundings, and traffic.
Night Vision	A system that aids driver vision at night by projecting enhanced images on instrument cluster or heads-up display.
Driver Monitoring	Monitors driver condition by various means to detect drowsiness or lack of attention.

Figure 6: Proposed Standard ADAS Terms – Misc. Driving Aids

Contents

1 Introduction

While some systems have been available since the 1990s, Advanced Driver Assistance Systems (ADAS) are now a rapidly growing technology in the automotive space. As these technologies become more prevalent, it becomes increasingly important for consumers to be informed about the systems on their vehicle and their functionality. However, the wide variety of names marketed by manufacturers, and the lack of consensus by industry regulatory groups, make it difficult for consumers to discern what features a vehicle has and how they actually work.

This report will use data[5] illustrating the growing prevalence of ADAS technology in new vehicles and a discussion of the terminology currently used by regulatory organizations and manufacturers to establish the need for standardization of terms and definitions for ADAS features. Furthermore, it will propose a list of terms and definitions for ADAS features to be considered for standardization.

2 Availability & Pricing of ADAS Technology

The importance of ADAS features in the modern automotive landscape can be demonstrated by examining just how common they have become. Below are charts that show the availability of certain features based on vehicle category. Percentages shown are based on individual new vehicle models (not trim specific) as of May 2018. Seen in these plots, common ADAS features such as Adaptive Cruise Control, Blind Spot Warning, and Automatic Emergency Braking are now available in at least 80% of vehicles in each of the Midsize, Large, and SUV vehicle segments. Lane Keeping Assistance is available in at least 60% of vehicles within 7 of 10 vehicle segments.

These features are becoming standard equipment on many vehicles. For example, Automatic Emergency Braking is standard on 30.6% of all models, Lane Keeping Assistance on 13.9%, and Adaptive Cruise Control on 11.8%. Additionally, twenty automakers have even pledged to make Automatic Emergency Braking standard on virtually all models by 2022, suggesting increasing prevalence of the technologies in the future.[6]

[5] Data source: SBD Automotive "USA ADAS Tracker"
[6] https://www.nhtsa.gov/press-releases/nhtsa-iihs-announcement-aeb

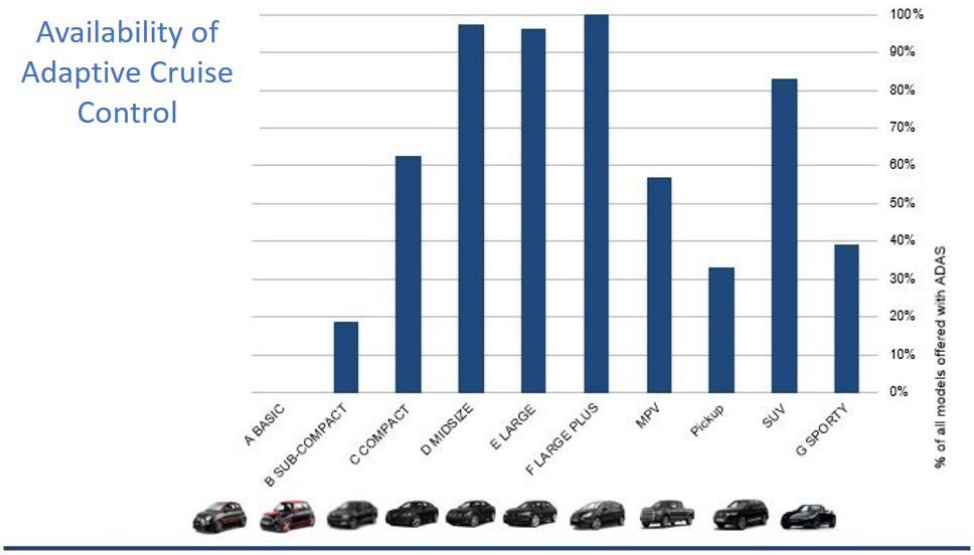

Figure 7: Availability of Adaptive Cruise Control in vehicle segments. (Image: SBD Automotive)

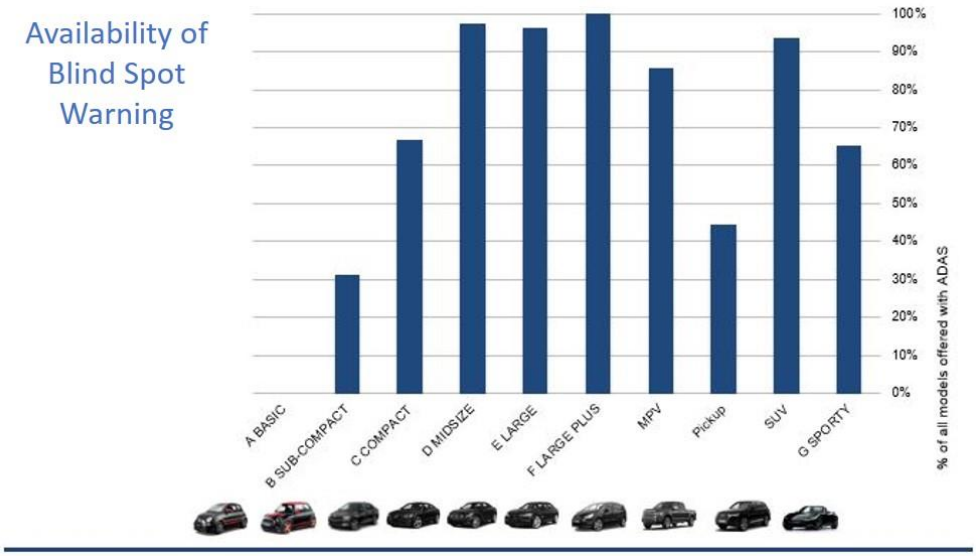

Figure 8: Availability of Blind Spot Warning in vehicle segments. (Image: SBD Automotive)

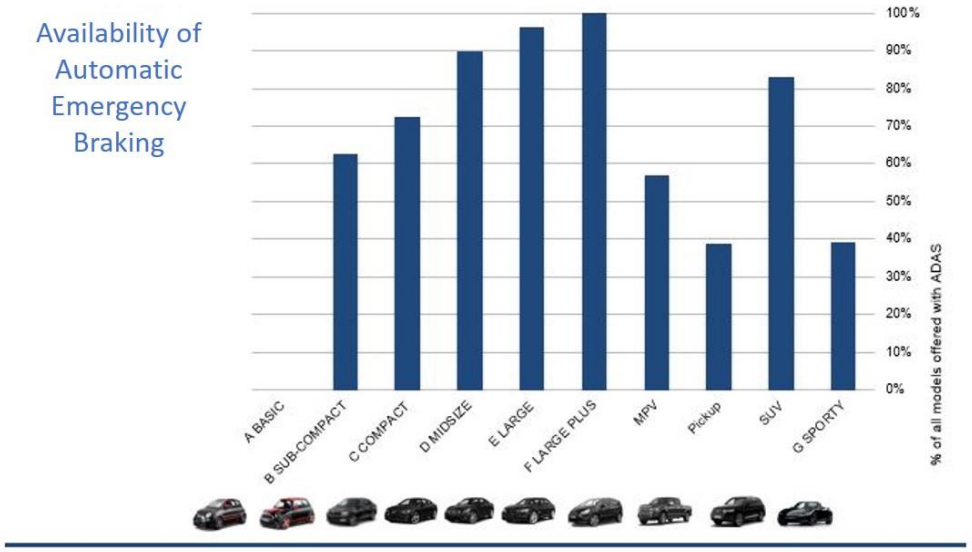

Figure 9: Availability of Automatic Emergency Braking in vehicle segments. (Image: SBD Automotive)

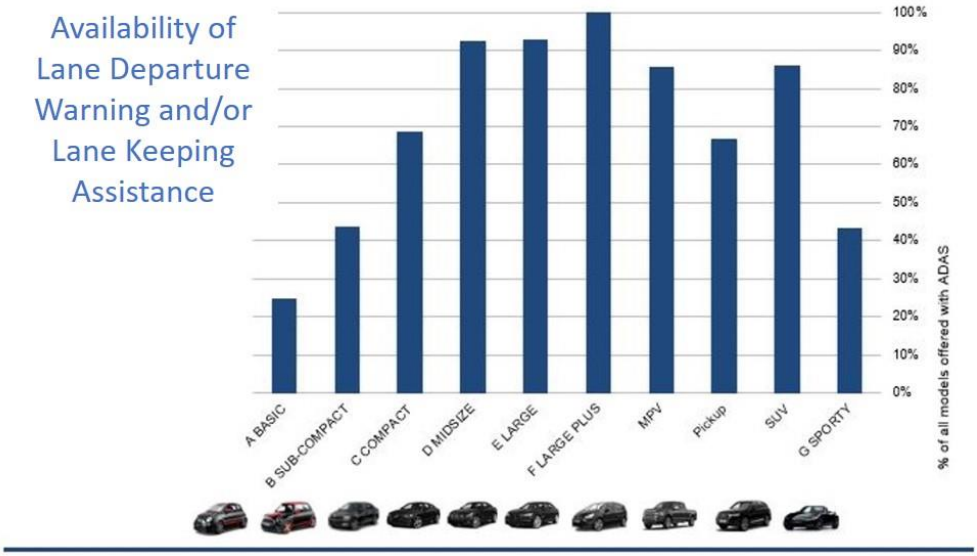

Figure 10: Availability of Lane Departure Warning and/or Lane Keeping Assistance in vehicle segments. (Image: SBD Automotive)

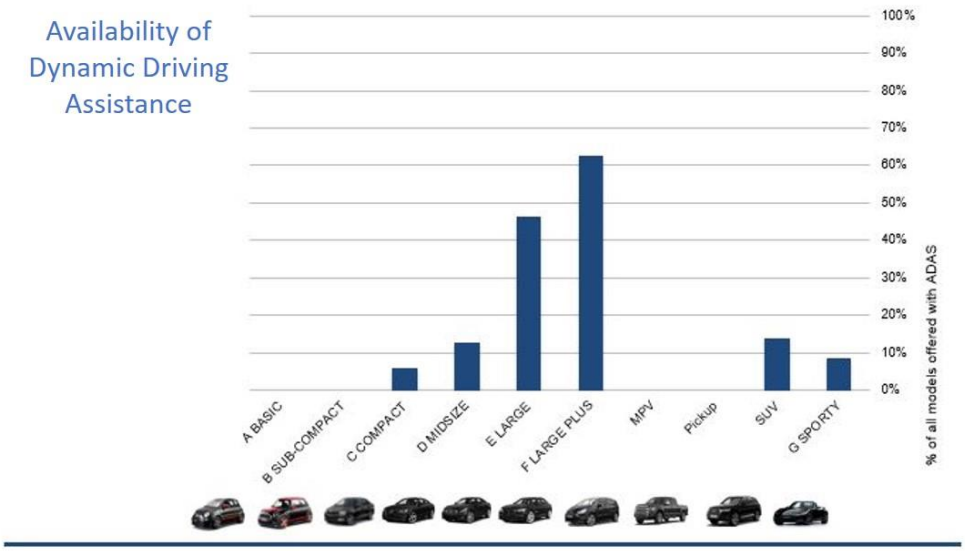

Figure 11: Availability of Dynamic Driving Assistance in vehicle segments. (Image: SBD Automotive)

In addition to being widely available, the costs of driver assistance features are relatively affordable. For example, the average price of Adaptive Cruise Control is $1174 as a stand-alone feature and $2283 in an ADAS bundle. The cost of an ADAS bundle[7] is around $1,950 on average according to SBD data. The average new vehicle cost for December 2017, as reported by Kelley Blue Book[8], was $36,113. This makes the cost of an ADAS bundle approximately 5.4% of the total cost of the vehicle. For further illustration, provided below are charts describing the costs of some common ADAS features.

[7] Multiple advanced driver assistance systems are often bundled into an optional technology package that allow motorists to choose if they want to pay for the added functionality.

[8] https://mediaroom.kbb.com/2018-01-03-Average-New-Car-Prices-Set-Record-High-Up-Nearly-2-Percent-In-December-2017-According-To-Kelley-Blue-Book

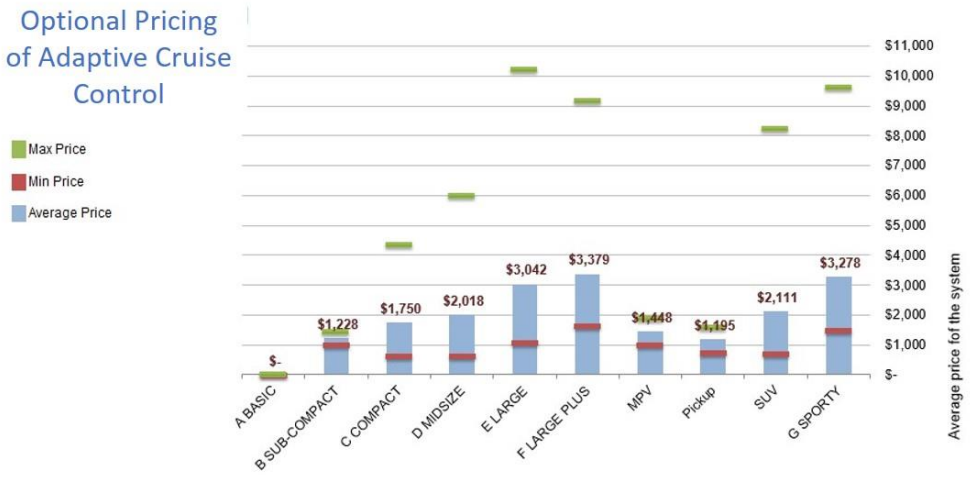

Figure 12: Optional Pricing of Adaptive Cruise Control (Image: SBD Automotive)

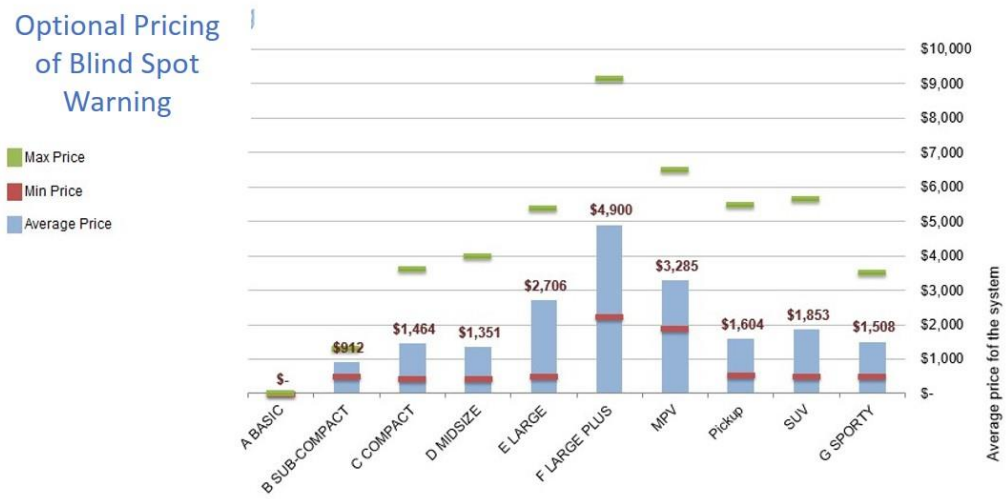

Figure 13: Optional Pricing of Blind Spot Warning (Image: SBD Automotive)

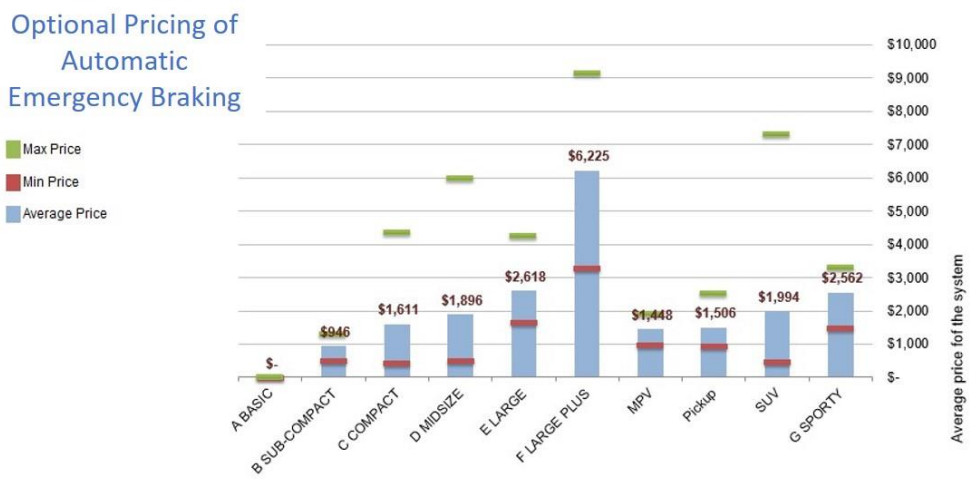

Figure 14: Optional Pricing of Automatic Emergency Braking (Image: SBD Automotive)

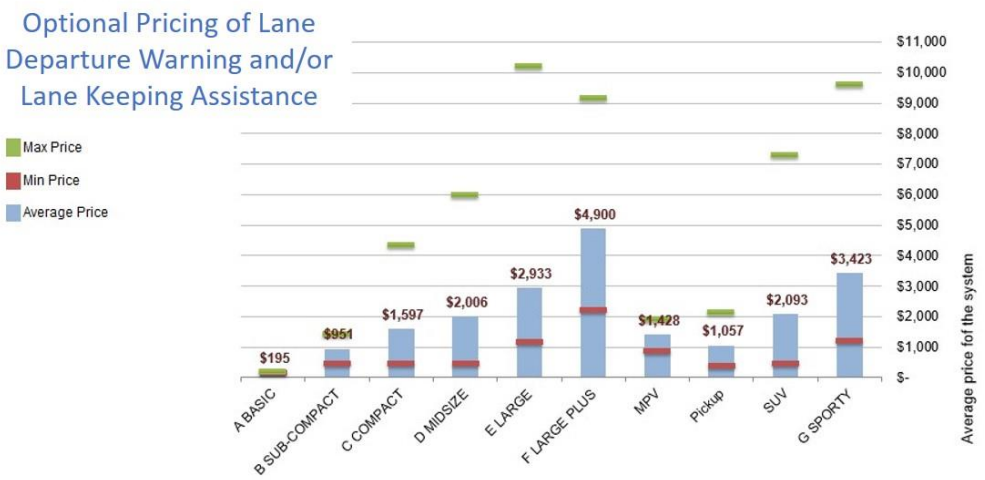

Figure 15: Optional Pricing of Lane Departure Warning and/or Lane Keeping Assistance (Image: SBD Automotive)

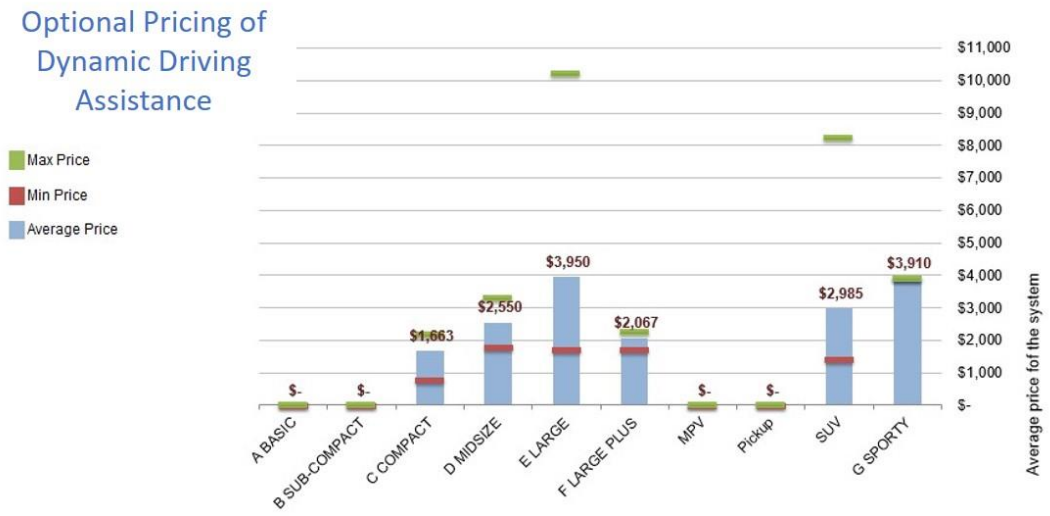

Figure 16: Optional Pricing of Dynamic Driving Assistance (Image: SBD Automotive)

ADAS features are becoming commonplace on the modern automobile and more affordable. In fact, at least one ADAS feature is available in 267 out of 288 (92.7%) of new vehicle models available in the U.S. as of May 2018. Whether they are considering a new vehicle purchase, or just sharing the road with the vehicles equipped with these features, drivers are going to be affected by ADAS technologies. Therefore, it is important for them to be well informed regarding the presence of these systems and their general function.

3 Terminology Review

3.1 Regulatory Terminology

The automotive industry is developing new vehicles, electric powertrains, autonomous technologies and advanced safety systems at an unprecedented rate. Unfortunately, industry regulations and technical standards are often not using consistent naming conventions. For example, the National Highway Traffic Safety Administration (NHTSA), Insurance Institute for Highway Safety (IIHS), Society of Automotive Engineers (SAE International) and other regulatory and research organizations have all used different technology names to describe systems with the same underlying technology.

NHTSA has used at least three different technology names such as Automatic Emergency Braking (AEB)[9], Dynamic Brake System (DBS) and Collision Imminent Braking (CIB)[10] to describe *Automatic Emergency Braking*. Thatcham Research refers to this same technology as Autonomous Emergency

[9] https://www.nhtsa.gov/press-releases/nhtsa-iihs-announcement-aeb
[10] https://www.nhtsa.gov/crash-avoidance/advanced-technologies#advanced-technologies-active-braking

Braking (AEB)[11] or simply Collision Intervention (CI). SAE has also used many technology names such as Forward Collision Warning and Mitigation (FCWM)[12], Autonomous Braking (AB)[13], Collision Avoidance System (CAS)[14] and Automatic Emergency Braking (AEB)[15] to describe this same automotive technology. These examples highlight the inconsistencies that exist today and the need to have common technology names for advanced automotive safety systems.

3.2 Manufacturer Terminology

An integral part of this research project was to document and identify manufacturer terminology for advanced driver assistance systems and determine the number of unique names for each technology category. This information illuminates the excessive variety of terms consumers encounter when shopping for ADAS technologies. Below is a table of the number of unique names for a selection of features. Note that this data represents 34 brands sold in the United States. A complete list of names marketed for ADAS features can be found in Appendix A.

ADAS Feature	Unique Names
Adaptive Cruise Control	20
Lane Keeping Assistance	19
Blind Spot Warning	19
Rear Cross Traffic Assistance	14
Automatic High Beams	18
Semi-Automated Parking Assist	12

Figure 17: Number of Unique Names Marketed for a Selection of ADAS Features

To further illustrate the inconsistent and potentially misleading or confusing names used to market ADAS features, below is a selection of features, along with examples of names by which they are marketed. Many of these names do not well represent the function of the feature they are intended to advertise. A more comprehensive list can be found in Appendix A.

[11] https://www.thatcham.org/what-we-do/car-safety/aeb/
[12] https://www.sae.org/standards/content/j3029_201510/
[13] https://www.sae.org/publications/technical-papers/content/2016-01-1453/
[14] https://www.sae.org/publications/technical-papers/content/2015-01-1406/
[15] https://www.sae.org/standards/content/j3087_201710/

ADAS Feature	Selection of Marketed Names
Adaptive Cruise Control	Adaptive Cruise Control , Smart Cruise Control, Intelligent Cruise Control, Adaptive Cruise Control with Queue Assist, Dynamic radar cruise control, Distronic Plus, Traffic-Aware Cruise Control
Lane Keeping Assistance	Active Steering Assist, Audi Active Lane Assist, Intelligent Lane Intervention, Lane Departure Alert with Steering Assist, Lane Keep Assist, LaneSense Lane Departure Warning Plus
Blind Spot Warning	Active Blind Spot Assist, Audi Side Assist, Blind Spot Information System, Blind Spot Intervention, Lane Change Alert with Side Blind Zone Alert, Lane Change Assistant (Side Assist), Smart Blind Spot Detection
Surround View Camera	Surround View System, 360° View Monitor, Intelligent Around View Monitor, Multi-terrain Monitor, Bird's Eye View Camera, Surround Vision, Top View Camera System,Wide Front View & Side Monitor

Figure 18: Selection of Marketed Names for ADAS Features

Also notable are the ADAS packages offered by manufacturers. These "suites" include multiple safety features, but are advertised under a single name. The table below shows the ADAS packages marketed by manufacturers. It includes the package names and the number of individual features included. The names chosen for marketing provide little insight into what features they actually contain.

Brand	ADAS Suite Name	# of features inc.
Acura	AcuraWatch	8
Ford	Safe and Smart Package	7
Honda	HondaSensing	4
Lexus	Lexus Safety System+	5
Mazda	i-ACTIVESENSE	6
Mercedes-Benz	Intelligent Drive	7
Nissan	Inelligent Safety Shield	8
Tesla	Enhanced Autopilot	4
Toyota	Safety Sense	7

Figure 19: Examples of Manufacturer Marketed ADAS "Suite" Names & Included Features

4 Summary & Recommendation

Due to the inconsistencies discussed in section 3, AAA recommends a standardization of basic terminology for Advanced Driver Assistance Systems. This will benefit communication throughout the automotive industry and provide clarity to consumers about modern safety features. Automakers may choose to continue to utilize their own system and package names, but are encouraged to include the common naming for advanced safety systems on the window sticker, owner's manual, and other

collateral materials so consumers can more clearly understand what technology is present on the vehicle.

4.1 Proposed Terminology

Below is a proposed list of common naming for advanced safety systems to be considered for standardization purposes. They are listed by feature category, including Automated Driving Tasks, Collision Alerts, Collision Mitigation, Parking Assistance, and Visual Driving Aids. In this new and rapidly growing segment of vehicle technology, many similar features use different methods, sensors, and equipment. Therefore, the proposed terminology is intended to be simple, specific, and based on system functionality.

Automated Driving Tasks	Definition
Adaptive Cruise Control	Controls acceleration and/or braking to maintain a prescribed distance between it and a vehicle in front. May be able to come to a stop and continue.
Lane Keeping Assistance	Controls steering to maintain vehicle within driving lane. May prevent vehicle from departing lane or continually center vehicle.
Dynamic Driving Assistance	Controls vehicle acceleration, braking, and steering. SAE standard definition of L2 Autonomous systems outlines this functionality.

Figure 20: Proposed Standard ADAS Terms - Automated Driving Tasks

Collision Alerts	Definition
Forward Collision Warning	Detects impending collision while traveling forward and alerts driver.
Lane Departure Warning	Monitors vehicle's position within driving lane and alerts driver as the vehicle approaches or crosses lane markers.
Blind Spot Warning	Detects vehicles to rear in adjacent lanes while driving and alerts driver to their presence.
Rear Cross Traffic Warning	Detects vehicles approaching from side and rear of vehicles while traveling in reverse and alerts driver.
Parking Obstruction Warning	Detects obstructions in close proximity to vehicle during parking maneuvers.
Pedestrian Detection	Detects pedestrians in front of vehicle and alerts driver to their presence.

Figure 21: Proposed Standard ADAS Terms – Collision Alerts

Collision Mitigation	Definition
Forward Automatic Emergency Braking	Detects potential collisions while traveling forward and automatically applies brakes to avoid or lessen the severity of impact.
Reverse Automatic Emergency Braking	Detects potential collision while traveling in reverse and automatically applies brakes to avoid or lessen the severity of impact.
Automatic Emergency Steering	Detects potential collision and automatically controls steering to avoid or lessen the severity of impact.

Figure 22: Proposed Standard ADAS Terms - Collision Mitigation

Parking Assistance	Definition
Semi-automated Parking Assistance	Controls steering during parking. Driver responsible for acceleration, braking, and gear position. May be capable of parallel and/or perpendicular parking.
Fully-automated Parking Assistance	Controls acceleration, braking, steering, and shifting during parking. May be capable of parallel and / or perpendicular parking.
Remote Parking	System parks vehicle without driver being physically present inside the vehicle. Automatically controls acceleration, braking, steering, and shifting.
Trailer Assistance	System that assists driver during backing maneuvers with a trailer attached.
Surround View Camera	Uses cameras located around vehicle to present view of surroundings.

Figure 23: Proposed Standard ADAS Terms - Parking Assistance

Misc. Driving Aids	Definition
Automatic High Beams	Deactivates or orients headlamp beams automatically based on lighting, surroundings, and traffic.
Night Vision	A system that aids driver vision at night by projecting enhanced images on instrument cluster or heads-up display.
Driver Monitoring	Monitors driver condition by various means to detect drowsiness or lack of attention.

Figure 24: Proposed Standard ADAS Terms – Misc. Driving Aids

Appendix A

Lists of Individual Names Marketed for ADAS Features

(OEM Names Removed)

Adaptive Cruise Control (ACC)	Dynamic Driving Assistance (DDA)	Forward Collision Warning (FCW)
Adaptive Cruise Control	Active Lane Change Assist	Collision Prevention Assist
Adaptive Cruise Control w/ low-speed follow	Adaptive Cruise Control with Steering Assist	Collision Warning with Brake Support
Adaptive Cruise Control with Queue Assist	Autosteer	Forward Collision Alert
Adaptive Cruise Control with Stop	Distronic Plus with Steering Assist	Forward Collision Warning
Adaptive Cruise Control with Stop & Go	*OEM 3* codrive	Forward Collision Warning with Brake Support
Advanced Smart Cruise Control (ASCC)	*OEM 4* InnoDrive	Forward Collision Warning with Mitigation
All-speed dynamic cruise control	Pilot Assist	*OEM 4* Active Safe
Camera-based cruise control	Propilot	Proximity Warning Function
Distance Assist	Super Cruise	
Distance Pilot	Traffic Jam Assist	
Distronic		
DistronicActive		
Distronic Plus		
Dynamic radar cruise control		
High-speed dynamic radar cruise control		
Intelligent Cruise Control (ICC)		
OEM 1 Adaptive Cruise Control with Stop & Go		
OEM 2 Radar Cruise Control		
Smart Cruise Control (stop/start)		
Traffic-Aware Cruise Control		
20	**10**	**8**

Collision Mitigation (CM)
Active Brake Assist
Approach control warning with city light braking function
Automatic emergency braking
Automatic Emergency Braking with Pedestrian Detection
BAS Plus with Cross-Traffic Assist
City Collision Mitigation
City Safety
Collision Avoidance Assist
Collision Mitigation Braking System
Collision Prevention Assist Plus
Collision Warning w/ Full Auto Brake & Pedestrian and Cyclist Detection
Emergency Braking
Evasive Steering Assist
Forward Automatic Braking
Forward Collision Avoidance Assist w/ Pedestrian Detection
Forward Collision Mitigation
Forward Collision Warning & Autonomous Emergency Braking w/ Pedestrian Detection (Front Assist)
Forward Collision Warning with Active Braking
Forward Collision Warning with Brake Support
Forward Collision Warning with Mitigation Operation
Forward Collision-avoidance Assist
Forward Collision-Avoidance Assist with Pedestrian Detection
Forward Emergency Braking
Front Pedestrian Braking
Full Speed Forward Collision Warning Plus
Intelligent Brake Assist
Low Speed Forward Automatic Braking
OEM 1 Pre Sense City
OEM 1 Pre Sense Front
OEM 4 Active Safe
Pedestrian Protection
Person warning with Citylight braking function
Pre-Collision Assist
Pre-Collision Assist with Pedestrian Detection
Pre-collision braking system
Pre-collision system
Pre-Collision System with Pedestrian Detection
Pre-Safe Brake with Pedestrian Detection
Smart Brake Support
Smart City Brake Support
40

Night Vision & Pedestrian Detection (NV & PD)	Traffic Sign Recognition (TSR)	Lane Keeping Assistance (LKA)
Night View Assist PLUS	Active Speed Limit Assist	Active Lane Keeping Assist
Night Vision	Road sign assist	Active Steering Assist
Night Vision Assist	Road Sign Information	Intelligent Lane Intervention
Night vision assistant with pedestrian and large-animal detection	Speed Assist	Lane Assist
Night Vision with Pedestrian Detection	Speed Limit Indicator	Lane Departure Alert
	Speed Limit Info	Lane Departure Alert with Steering Assist
	Traffic Sign Assist	Lane Departure Prevention
	Traffic sign recognition	Lane Departure Warning
	Traffic Sign Recognition and Adaptive Speed Limiter	Lane Departure Warning System
		Lane Departure Warning with Lane Keep Assist
		Lane Departure Warning
		Lane Keep Assist
		Lane Keep Assist with Lane Departure Warning
		Lane Keeping Aid
		Lane Keeping Assist System
		Lane Keeping System
		Lane-keeping alert
		LaneSense Lane Departure Warning Plus
		OEM 1 Active Lane Assist
5	**9**	**19**

Blind Spot Warning (BSW)	Rear Cross Traffic Warning (RCTW)	Driver Monitoring (DM)
Active Blind Spot Assist	Backup Collision Intervention	Alertness Assist
Active Blind Spot Detection	Cross Traffic Alert	Alertness Assistant
Advanced Blind Spot Monitoring	Cross Traffic Warning	Attention Assist
Blind Spot Assist	Cross-Path Detection	Attentiveness Assist
Blind Spot Detection	Moving Object Detection	Driver Alert
Blind Spot Information	Rear cross path detection	Driver Alert Control
Blind Spot Information System	Rear Cross Traffic Alert	Driver Attention Alert
Blind Spot Intervention	Rear Cross Traffic Assist	Driver Attention Monitor
Blind Spot Monitor	Rear Cross Traffic Collision Warning	Driver Attention System
Blind Spot Monitoring	Rear Cross Traffic Monitor	Driver Attention Warning
Blind Spot Monitoring System	Rear cross-traffic braking	Driver Condition Monitor
Blind Spot Warning	Rear Traffic Alert	Intelligent Driver Alertness
Blind-Spot Collision Warning	Rear Traffic Monitor	Lane Sway Warning
Blind-Spot Detection	Reverse Automatic Braking	
Lane Change Alert with Side Blind Zone Alert	Reverse Traffic Detection	
Lane Change Assistant		
Lane Change Assistant (Side Assist)		
OEM 1 Side Assist		
Smart Blind Spot Detection		
19	**15**	**13**

Automatic High Beams (AHB)	Semi-Automated Parking Assist (SAPA)	Fully Automated Parking Assist (FAPA)
Active High Beam	Active Park Assist	Active Parking Assist
Adaptive Highbeam Assist	Automatic Parking Assist	Autopark
Auto High Beam	Enhanced Active Park Assist System	Parking Assistant Plus
Auto High Beam Assist	Intelligent Park Assist	
Auto High-Beam Headlights	Parallel and Perpendicular Park-Assist	
Automatic High Beam	Park Assist	
Automatic High Beam Assist	Park Assist Pilot	
Automatic High Beam Headlamp Control	Parking Assistant	
Automatic High Beams	Parking Pilot	
Automatic high-beam headlamps	Parking Steering Assistant (Park Assist)	
High Beam Assist	Parksense Active Park Assist System	
High Beam Control	ParkSense Frt Park-Assist & Rr Park-Assist w/Stop	
High-beam Assistant		
Intellibeam headlamps		
Intelligent high-beam headlamps		
Light Assist		
OEM 4 Dynamic Light System		
Plus - High Beam Assistant		
18	**12**	**3**

Remote Parking (RP)	Trailer Assistant (TA)	Surround View Camera (SVC)
Remote Control Parking	Advanced Tow Assist	360° Surround Camera
Summon	Pro Trailer Backup Assist	360-Degree Camera
		360-Degree Surround View Camera System
		360º Surround View Camera
		360º View Monitor
		Advanced Multi-view Monitor
		Bird's Eye View Camera
		Intelligent Around View Monitor
		Multi-terrain Monitor
		Multi-view camera
		Multi-view Camera System
		Overhead View Camera (Area View)
		Surround View
		Surround View Camera System
		Surround View Monitor
		Surround View System
		Surround View w/ 3D View
		Surround Vision
		Top View Camera System
		Wide Front View & Side Monitor
2	**2**	**20**