

THE NSSR ROAD SAFETY/SUPPORT PROGRAMME



Road Safety / Support is a mainline National Safety and Social Responsibility

MONTHLY
BULLETIN

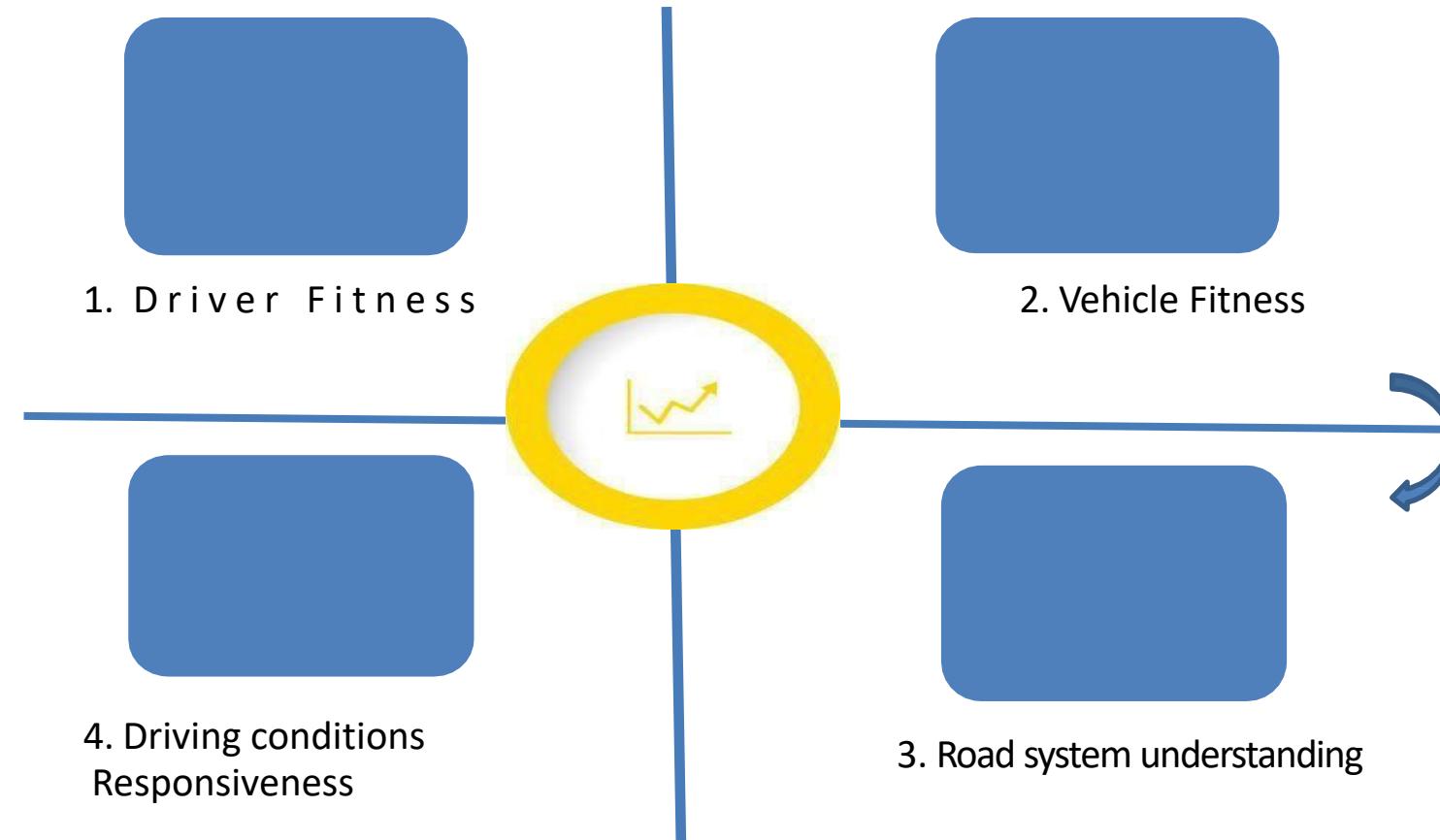
**DASHBOARDING ROAD SAFETY / SUPPORT
BY
VENKATRAM K S, AOEC 2026-2027**

February
2026

Dashboarding Road Safety/Support

- AOEC finds that safety while commuting on road, depends upon the automobile manufacturer's quality assurance, driver fitness, vehicle fitness, driving conditions dimensioning, and road system responsiveness, where driving conditions need us as commuters/road-system-infrastructure stakeholders to fine focus and design capability for improved road safety.

Driving conditions dimensioning
JOURNEY/TRIP
Route
Road Surface, Distance, Drive time, and Correlation for Responsiveness, Safety and Reliability



COMMUTING AND 5R(S)
Relate
Respond
Reduce Risk
Reciprocal Driving insights
TMS Resilience for route designed RADIUS and CIZ

CIZ : CRITICAL INTERACTION ZONE IN A JOURNEY/TRIP

Dashboarding Road Safety/Support

- AOEC finds that instrumentally, Dashboarding Road Safety / Support (DRSS) projects must
- define a TMS workflow for accentuating
- 1. Driver Fitness
- 2. Vehicle Fitness
- 3. Road system understanding
- 4. Alpha Assistance
- 5. 5R(s) SMART(ness) for a safer journey

CRITICAL
INTERACTION
DETERMINERS

ROAD SURFACE
COVERINGS,
LIGHT / SHADE
ISSUES,
CURVES,
MEANDERS,
INCLINES,
BOTTLENECKS,
CLOSE PROXIMITY
REGIONS

SMART(ness) :
SPECIFIC CRITICAL
INTERACTION FOR
MEETING NEED WITH
APPLICABLE INSIGHT
RESPONSE AND
TEMPERAMENT



CRITICAL
INTERACTIONS

EXPECTED LICENSE,
PROBABLE
INCIDENCE/HAZARD/
RISK/RULE
COMPLIANCE,
PRECISE DRIVING,
ENDURANCE
DRIVING,
INTERCEPTING
CURVES,
MANEUVERING
OPTIONS,
RESPONSE,
RAPID RESPONSE,
UNDERSTANDING
SERVICE ANYWHERE
ANYHOW
ASSISTANCE,
EMERGENCY
RESPONSE / SPECIFIC
NEEDS

Dashboarding Road Safety/Support

- DRSS SMART(ness) for a journey/trip and virtual POINT SLOPE INTERCEPTION can make it simpler to identify the tangible correlation between driving conditions dimensioning of a route/road system/road with a DRSS Workflow to help and improve safer commuting
- This DRSS Workflow plus NSSR RS programme teamwork can
- Record-or-review,
- Relate,
- Reduce risk,
- Reciprocate response and
- Design Resilience for any journey/trip and its dimensions like the
- road surface,
- distance,
- drive time,
- commute reliably factors, where there is universal or brand specific service centre-assessable part-lifetime mitigation, condition monitoring, traceable fault tolerance/preventive and corrective action, where this DRSS Workflow development can help a NSSR participant define/use a NSSR RS index for a journey/trip/TMS radius, where the index can be simply (1), (2), (3), (4) or combinations of them

The DSSR project recommends the use of different assistants to help commuters improve their experience

Dashboarding Road Safety/Support

- **(1) NRRS-I1:** where this workflow will need to address History of interaction & Foreseeable needs and 5R(s)
- **(2) NRRS- I2:** = this workflow will need to address Critical Interaction Zone needs and 5R(s)
- **(3) NRRS- I3:** this workflow will need to address Road/Route dynamics and 5R(s)
- **(4 NRRS- I4:** this workflow will need to address Advanced safetyneeds and 5R(s)
 - (like air quality, unregulated climate intolerance, temperature/humidity, road system or road or terrain safety, with more than an expected driving style for commuting with safety, reliability & timing and with more than programmed gear changes, or braking or drive distribution between the front and rear wheels as expected in 4WD modes)
 - The bulletin looks at the different assistants that can help a commuter's 5R(s). The editions that follow will delve into details of each of them to help a commuter/stakeholder ramp up scores in a dashboard

Dashboarding Road Safety/Support

- The DRSS Data Analysis Channel Building for an **automobile manufacturer's quality assurance, driver fitness, vehicle fitness, driving conditions dimensioning, and road system responsiveness** for deteriorating or changing driving conditions dimensioning of the needed SMART(ness for safer commuting will need to
- **1. Improve Sensitization and Awareness for Road Safety**
- **2. Develop issue/feedback/data channelization for safer commuting**
- **3. Provide handbooks/guides/planners for such planning/ incorporation**
- **4. Promote quality for road safety and infrastructure via NSSR guided methodologies like the training programmes/monthly bulletins & quizzes/dashboarding of experience or incidences**

DRSS Lifecycle and
NSSR RS Teamwork for
the DRSS Workflows

DRSS Data Analytics
and
Drive Performance
SMART(ness)

Accentuated
to enable
The Extra
Mile

Road safety and Accountability Dashboard for the Year 2026

- Certificate of Excellence YES / NO / NOT SATISFACTORY
- Traffic issues or incidences YES / NO / NOT SATISFACTORY
- Compliance with FMVSS standards YES / NO / NOT SATISFACTORY
- Onboarding of NSSR Road Safety objectives YES / NO / NOT SATISFACTORY
- Upgradability of NSSR Road Infrastructure objectives YES / NO / NOT SATISFACTORY
- Traffic Engineering Assets planning YES / NO / NOT SATISFACTORY
- Traffic Engineering Defects Liability YES / NO / NOT SATISFACTORY
- Improved on-road assistance YES / NO / NOT SATISFACTORY
- Cost of Quality /Cost of Poor-Quality Project Assistance YES / NO / NOT SATISFACTORY
- Complexity for Road Safety and Accountability YES / NO / NOT SATISFACTORY

Year:



**STRATEGIC
PLANNING**



**TACTICAL
PLANNING**

**OPERATIONAL
PLANNING**

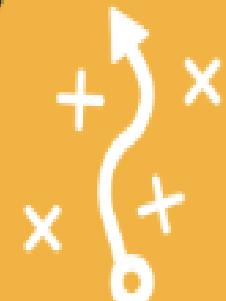


Road safety and Accountability Dashboard for the Year/Season 1

- Certificate of Excellence YES / NO / NOT SATISFACTORY
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- Onboarding of NSSR Road Safety objectives YES / NO / NOT SATISFACTORY
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STRATEGIC PLANNING



TACTICAL PLANNING



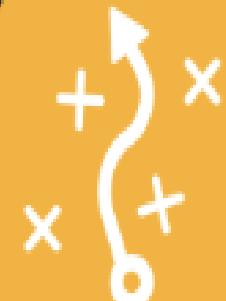
OPERATIONAL PLANNING

Road safety and Accountability Dashboard for the Year/Season 2

- Certificate of Excellence YES / NO / NOT SATISFACTORY
- Traffic issues or incidences YES / NO / NOT SATISFACTORY
- Compliance with FMVSS standards YES / NO / NOT SATISFACTORY
- Onboarding of NSSR Road Safety objectives YES / NO / NOT SATISFACTORY
- Upgradability of NSSR Road Infrastructure objectives YES / NO / NOT SATISFACTORY
- Traffic Engineering Assets planning YES / NO / NOT SATISFACTORY
- Traffic Engineering Defects Liability YES / NO / NOT SATISFACTORY
- Improved on-road assistance YES / NO / NOT SATISFACTORY
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- Complexity for Road Safety and Accountability YES / NO / NOT SATISFACTORY



STRATEGIC PLANNING



TACTICAL PLANNING



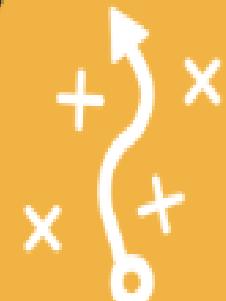
OPERATIONAL PLANNING

Road safety and Accountability Dashboard for the Year/Season 3

- Certificate of Excellence YES / NO / NOT SATISFACTORY
- Traffic issues or incidences YES / NO / NOT SATISFACTORY
- Compliance with FMVSS standards YES / NO / NOT SATISFACTORY
- Onboarding of NSSR Road Safety objectives YES / NO / NOT SATISFACTORY
- Upgradability of NSSR Road Infrastructure objectives YES / NO / NOT SATISFACTORY
- Traffic Engineering Assets planning YES / NO / NOT SATISFACTORY
- Traffic Engineering Defects Liability YES / NO / NOT SATISFACTORY
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STRATEGIC PLANNING



TACTICAL PLANNING



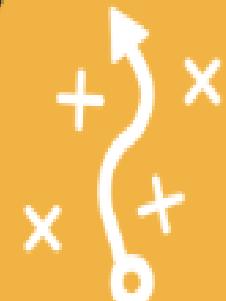
OPERATIONAL PLANNING

Road safety and Accountability Dashboard for the Year/Season 4

- Certificate of Excellence YES / NO / NOT SATISFACTORY
- Traffic issues or incidences YES / NO / NOT SATISFACTORY
- Compliance with FMVSS standards YES / NO / NOT SATISFACTORY
- Onboarding of NSSR Road Safety objectives YES / NO / NOT SATISFACTORY
- Upgradability of NSSR Road Infrastructure objectives YES / NO / NOT SATISFACTORY
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STRATEGIC PLANNING



TACTICAL PLANNING



OPERATIONAL PLANNING



Guidelines for Structural Body Work

Guidelines for STRUCTURAL BODY WORK

Being Anywhere at Any time needs you to be sensitized towards structural body work that is as relevant to the Brand, Model and Variant of the vehicle) . Most dealerships and service centres consider Accidental Body Work to be a mainstream issue, and allot specialists for the necessary work

Start by reviewing related principles for body work

- **Body build** to accommodate body shell assembling, body parts and pressings for front end, rear end, floor, sides etc
- **Strength** to withstand all types of forces like (weight of vehicle, driver, systems), (inertia, braking and side forces), (impact loads of reasonable magnitude)
- **Stiffness** to resist twisting on bad tracks and sagging in the middle
- **Space** (planned outline, adequacy for driver, improved power-to-weight ratio, costs for incorporation)
- **Minimum Air drag** during movement
- **Resistance to corrosion** (minimum moisture accumulation, material should be rust free and anti-corrosive)

Guidelines for STRUCTURAL BODY WORK

Continue by reviewing important principles for body work

- **Whether painting has been done in stages?** Multi-part rust proofing treatment, surface epoxy priming, under body coating. Complete body base coat with special adhesion qualities with interim rubbing, washing, cleaning of surfaces to be painted
- **Whether sealing has been done in stages after preparing clean and dry surfaces? For example Panel seams, floor plan to withstand stone pecking**
- **Whether there is Protection in normal driving or accident (specific to Vehicle dynamics – Higher shock loads?)**
- **Whether there is Protection in normal driving or accident (specific to Visibility – Eye position of driver, angle of visibility, spacing for seating, need for rearward visibility?)**
- **Whether there is Protection in accidents (specific to Effect of Collision – Front, Rear, sides, tilt, roll over)**
- **Whether there is Protection in driving or collisions (There should be no items coming loose)**
- **Whether there is Protection in accidents (specific to Hertomatic Flashers and beepers – ignition automatically turning off)**

Guidelines for STRUCTURAL BODY WORK

Continue by “material anti-quality” work estimation

- Whether the material used for body parts has been evaluated properly? Specific to reasons (such as ductility for fabrication, tension loading, minimum yield strength, density, elastic modulus, improved conductivity and weld-ability)
- Whether the material used for body pressings has been evaluated properly? Specific to reasons (such as heat treatment, formability, indentation resistance to complex twisting, fabric-ability, minimum yield strength, structural loading and failure strength, weld-ability, painting system requirements)
- Whether shatterproof glass material has been used where needed?
- Whether seat backs are in an upright position?
- Whether seat belts are functional? Are they non-retracting or automatically retractable depending upon ride experience? Whether the seat belt system works satisfactorily?
- Whether there is functional and right incorporation of head restraints?

Guidelines for STRUCTURAL BODY WORK

We continue by anti-quality work estimation for the vehicle's body

- [] Are there issues with the vehicle design that affect the stability and performance of the vehicle
- [] Are there on-road-ride stability, and performance issues
- [] Are there issues with the vehicle manufacturing or customization
 - [] Are there important body work quality issues
- [] Are there important body part quality issues
- [] Are there ICE to EV / Hybrid conversion issues
- [] Are there crash impact mitigation issues
- [] Are there issues with past Maintenance, Repair and Tuning
- [] Are there cost for ownership issues

Guidelines for STRUCTURAL BODY WORK

We review concerns with rules and regulations

- [] Are there RTO compliance issues
- [] Are there issues of violations or penalties being imposed
- [] Are there specific issue RTO or legal resolutions still ongoing
-

Guidelines for STRUCTURAL BODY WORK

Vehicle Inspection

Category	Ok	Not Ok	Remarks
(A) Exteriors (Physical and Paint Condition)			
Body panel condition			
Body panel paint condition			
Teflon or Ceramic coating condition			
Free of body scratches			
Free of body dents			
Water resistant covers			
Fuel tank condition			
Dashboard / Speedometer condition			
Headlights focus/condition			
Taillights condition			
Indicators condition			
Brake lights condition			
Clutch condition			
Horn condition			
Choke condition			
Self-start condition			
Mirrors condition			

Guidelines for STRUCTURAL BODY WORK

Vehicle Inspection

(B) Steering	Ok	Not Ok	Remarks
Vehicle does not drift to one side without prodding			
Vehicle is stable no shaking or vibrating			
No resistance in steering when turning			
No clicking or clanking when turning			
(C) Suspension			
Vehicle rests levelly			
When bouncing the tyres/wheels no creaking noises are heard			
All tyres/wheels respond the same on bouncing			
(D) Brakes			
Vehicle steers straight and does not pull to one side when applying brakes			
No grinding noises when applying brakes			
Wheels do not lock when applying anti-brake system (if applicable)			
Brakes functioning			

Guidelines for STRUCTURAL BODY WORK

Vehicle Inspection

(E) Tyres	Ok	Not Ok	Remarks
Tyres are of a reputable brand			
Tyres are of the same make			
Tyres are free of any cuts, bubbles or cracks			
Tyres are worn evenly (uneven wear can indicate alignment and suspension problems)			
Spare tyre condition good (if applicable)			
(F) Frame			
Chassis is neither bent nor cracked			
No body part is bent nor cracked			
No petrol/diesel/oil leaks			
No signs of metal crumbling			
Frame condition is good			

Guidelines for STRUCTURAL BODY WORK

Vehicle Inspection

(G) Interiors	Ok	Not Ok	Remarks
Seat unworn and free of cracks			
All gauges work			
No dashboard warning lights (remain illuminated)			
(H) Engine			
Mileage			
Vibration/Smooth running			
Free of oil or fluid leaks			
Free of odours when engine is running			
Exhaust pipe emissions are neither blue (indicates the engine burns oil) nor black (excessive oil consumption)			
Oil filler neck not coated with thick, black deposits			
Timing Belt condition			
Battery condition			
Battery terminals free of corrosion			
Battery Management System condition			

Guidelines for STRUCTURAL BODY WORK

Vehicle Inspection

	Ok	Not Ok	Remarks
(I) Manual or standard transmission			
Each gear shifts smoothly			
Clutch works smoothly			
Clutch cable condition			
Adjustment / Other Clutch issues			
(J) Automatic transmission			
Transmission fluid looks clean, not dirty nor gritty (indicating no internal transmission problem)			
Transmission neither slips or delays while driving			

Guidelines for STRUCTURAL BODY WORK

Stages that are common in any service done

- (1) Gathering and analysis of the vehicle sheet
- (2) Screening of details and completion of What-is-to-be-done analysis
- (3) Addition of any Design-out Maintenance, Preventive Maintenance and Corrective Maintenance
- (4) Decision making for any Seasonal Changeover in service operations
- (5) Estimation for work, labour, and materials
- (6) Inventory of Service Centre/Workshop assets, equipment, and systems for this brand/model/variant
- (7) Level of workmanship specific analysis and decision making / corrective action
- (8) Determination of Service Centre/Workshop capacity and Reservation
- (9) Detailing of Procurements and Job execution
- (10) Availability/Revision of brand/model/variant/service manuals, product/part/system references and documentation
- (11) Time, Motion, and Scale (TMS) findings for Service Design, Engagement, Scheduling, Operations, Training and Continual Education to improve cost of ownership, cost of service, cost of workmanship, quality assurance, and environment safety

Guidelines for STRUCTURAL BODY WORK

- **Design-out Maintenance (reviewed as a concept)**
- Design-out maintenance is a strategy that aims for improvement, and its focus is the improvement of the vehicle-system design to reduce the maintenance burden or even eliminating maintenance altogether for any health parametrization.
- Re-designing of improved ergonomics of the vehicle and its systems is another prerogative of design-out maintenance.
- Management of safety related to the vehicle's crashworthiness and crash mitigation is also another area of design-out maintenance.

Guidelines for STRUCTURAL BODY WORK

- **Planned Maintenance (reviewed as a concept)**
- **Advantages**
 1. Conceived by organizational support structure
 2. Easier planning of competencies
 3. Easier Service Centre/ Workshop Management
 4. Easier planning and scheduling of maintenance
 5. Easier mechanism of ordering spares
 6. Even distribution of costs
 7. Easier mechanism for conducting trainings and skills improvement

Guidelines for STRUCTURAL BODY WORK

- **Preventive Maintenance (reviewed as a concept)**
- **Advantages**
 1. Increased part/component/system operational life or availability
 2. Allows for pre-emptive corrective action
 3. Decreases part/component/system downtime
 4. Decrease in costs for parts, components, systems and labour
 5. Better product quality
 6. Improved vehicle and environmental safety
 7. Improved brand value
 8. Energy savings
 9. Estimated 8 to 12% cost savings over simple maintenance and repair
 10. Improved use of diagnostics
 11. Improved staff expertise and skills

Guidelines for STRUCTURAL BODY WORK

- **Corrective Maintenance (reviewed as a concept)**
- **Characteristics**
- 1. It is generally planned
- 2. Whether it is planned or unplanned, the maintenance activity takes place depending on the nature of the problem and the type of vehicle/model/variant
- 3. Work is taken up after the breakdown with some time tag
- 4. Breakdown maintenance should not include maintenance activities for loss of human life, unprecedented vehicle accidents. It applies when breakdown of a part/component/system in the vehicle does not affect the entire functioning of the vehicle, or is predictable and for expected failures

Guidelines for STRUCTURAL BODY WORK

- **Crash safety (reviewed as a concept)**
- **What are the three stages of a vehicle crash?**
- There are three stages that take place: the vehicle collision, human collision, and internal (crash model specific combined) collision.
- **What is crashworthiness of a vehicle?**
- Vehicle crashworthiness is the science of focusing on protecting occupants involved in frontal, side, rear and rollover accident events through the utilization of various safety systems and safety principles. It is mainly important for 4 wheelers but has requirements in the 2 wheeler segment also.
- **How is crashworthiness determined?**
- Crashworthiness is measured after the fact by looking at injury risk in real-world crashes. Often, regression or other statistical methods are used to account for the many other factors that can affect the outcome of a crash.
-

Guidelines for STRUCTURAL BODY WORK

- **Crash safety (reviewed as a concept)**
- **What are the failure modes in crashworthiness?**
- When the failure is involved, complex failure modes, such as fiber kinking, fiber breakage, matrix cracking, matrix buckling, and delamination, etc., always occur.
- **What is the goal of crashworthiness?**
- The goal of crashworthiness research is to reduce the risk of death or severe injury in the event of an accident by designing vehicles that can better protect their occupants.
- **What are the parameters of crashworthiness?**
- Parameters include energy absorption, mean crush force, specific energy absorption, and crush force efficiencies.
-

Guidelines for STRUCTURAL BODY WORK

- **Crash safety (reviewed as a concept)**
- **What are the different types of crash analysis?**
- There are different types of crash simulations like full frontal, side, rear, rollover at vehicle level and like Crash Management System (CMS), seating, chassis or frame-component crash at system level.
- **How do you calculate crash impact?**
- The impact to your body in a crash is called crash force. Crash force is equal to your body weight multiplied by the speed of the vehicle.
- **What is the crash severity prediction model?**
- Crash severity prediction models enable various agencies to predict the severity of a crash to gain insights into the factors that affect or are associated with crash severity.
-

Guidelines for STRUCTURAL BODY WORK

- 1.a Type of vehicle (Tick as applicable): **(2W/4W/EV/Hybrid)**
- 1.b Vehicle details:
- 2. Incident details:
 - Date: Time:
 - Summary:
- 2.a Reason (foremost):
 - [] Driver factors [] Vehicle system [] Other factors
- 2.b Summary:
-

Guidelines for STRUCTURAL BODY WORK

- **2.c Injury to:**
- Driver Co-passengers Others
- **2.d Nature of injury:**
- Death
- Grade of injury
- **Details:**
- Connected hazard
- **Details:**

Guidelines for STRUCTURAL BODY WORK

- 3. Nature of interest in **Crash Safety Assessment**
- [] Crash analysis [] Crash worthiness [] Crash protection
- **Details:**
-
- 4. Type of collision:
- [] Frontal [] Rear [] Side [] Rollover
- **Details:**

Guidelines for STRUCTURAL BODY WORK

- 5. Crash protection mechanism (details as part of the vehicle manual):
 - [] Front Crash Guard/Bumper [] Rear Crash Guard/Bumper [} Other Guards
 - [] Crash Management System (CMS) Accessories
 - [] Chassis/Frame/Vehicle Body
 - [] Vehicle Engine System
 - [] Wheels and Tyres (ABS, anti-skid proof, puncture proof)
 - [] Seating
 - [] Special Crash Management System (CMS) Accessories

Guidelines for STRUCTURAL BODY WORK

- **6. Helpful Crash Protection features (details as part of the vehicle manual):**
- [] Reliable crash worthiness mechanisms
- [] Safe mitigation of Crash impact / severity
- [] Effective (Design led) Crash Prediction Model
- [] Inadequate protection / crash worthiness

Guidelines for STRUCTURAL BODY WORK

- **7. Contributing Driver factors for incidence:**
- [] Vehicle malfunction
- [] Poor vehicle condition
- [] Human error
- [] Driver negligence
- [] Unfit to drive
- [] Over speeding
- [] Wrong side entry/driving

Guidelines for STRUCTURAL BODY WORK

- **7. Contributing Driver factors for incidence:**
- [] Poor road condition
- [] Poor road systems/infrastructure
- [] RTO / GoI Rule violations
- [] No proper seat belts
- [] No proper mirrors
- [] No proper lights
- [] No proper indicators
- [] No proper horn

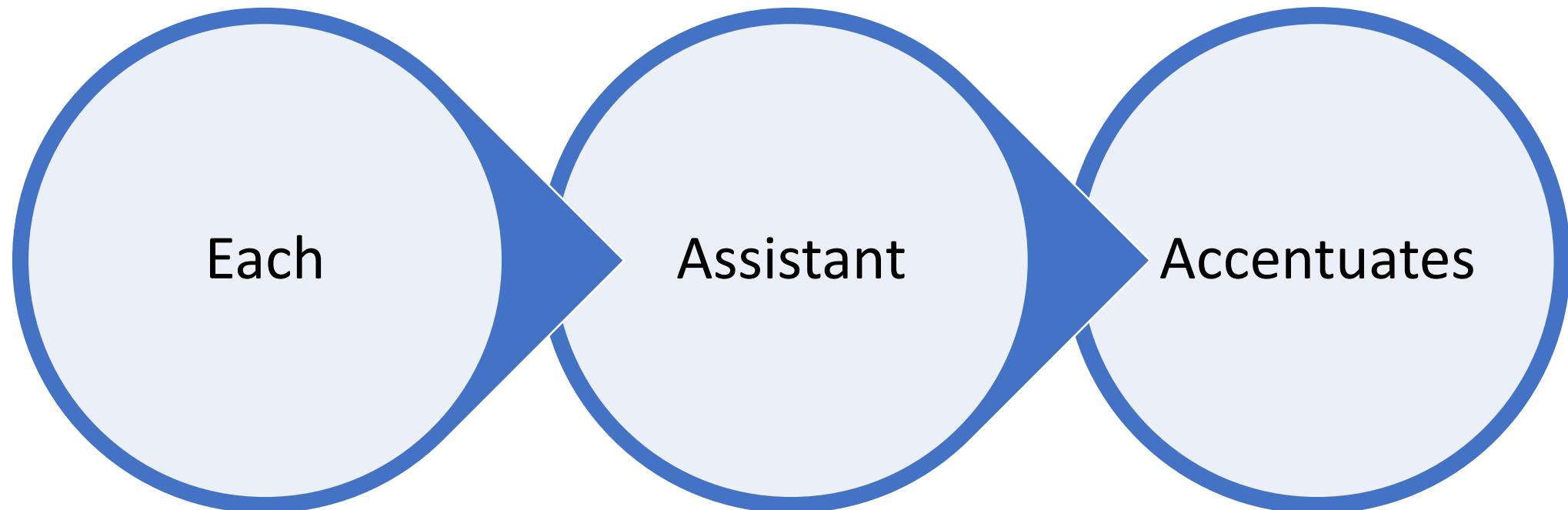
Guidelines for STRUCTURAL BODY WORK

- **8. Requirements for crash management / crash worthiness**
-
- **9. Manufacturer / Dealer network enabled Simulations to understand crash worthiness:**
-
- **10. Recommendations for crash management / crash worthiness**
-
- **11. Complaints/Grievances for crash management / crash worthiness**
-
- **12. Feedback for crash management / crash worthiness**
-
- **13. Comments:**

Guidelines for STRUCTURAL BODY WORK

- **To manage your vehicle and travel better, review concepts like**
- (1) An **online / organizational database** for customers to record/manage/track nature of work done on vehicle with details of parts replacement, electric systems/parts, ECM/ECU, Battery, Battery Management System etc where the warranty is covered all over India through authorized Service Centres
- (2) A **Helpline programme** where services of Road Side Assistance and Accidental repairs are provided with vehicle pickup from any location and drop off to the nearest Service Centre

DRSS Assistants – Vehicle Fitness



Quiz

DRSS
Assistants –
Vehicle
Fitness

