



# 1939, 9<sup>th</sup> MAIN, 27<sup>th</sup> CROSS, BANASHANKARI 2<sup>nd</sup>  
Stage, BENGALURU - 560070  
Phone: 6364928222  
E-Mail : [ccsbng@gmail.com](mailto:ccsbng@gmail.com)  
Website: [ccsbng.org](http://ccsbng.org)

18<sup>th</sup> June 2026

To,  
**Shri Akhilesh Kumar Trivedi**  
Advisor (Networks, Spectrum and Licensing)  
TRAI

Sir,

**Subject:- Consultation Paper on the Regulatory Framework for Vehicle-to-Everything (V2X) Communication**

We are a registered CAG of TRAI for the state of Karnataka.

We are pleased to attach our **counter comments** on a few of the submissions made by other stakeholders on the above consultation paper.

Thanking you,  
Yours Sincerely

GOPAL RATNAM V  
Secretary  
Consumer Care Society

**Counter Comments on  
Consultation Paper on  
the Regulatory Framework for  
Vehicle-to-Everything (V2X) Communication**

We have perused the comments made by different stakeholders and wish to respond to some of them. We have mentioned the name of the stakeholder and their ideas or comments which we have extracted or summarised based on our understanding. Their ideas and comments are shown in italics. Then we have offered our views in bold.

.....

**1.Sri. Sumit Chouhan  
Trojanhuntindia**

*The submission provides detailed requirements for secure boot, hardware security modules, authenticated firmware updates, tamper detection, misbehaviour reporting, remote attestation and certificate revocation.*

**We fully agree with the need of detailed requirements as for the consumers this means Reduced risk of hacked vehicles, Reduced risk of fake road warnings and Higher trust in safety alerts, leading to better road safety. Social welfare is enhanced with reduced fatalities and injuries.**

*Another point made in his submissions is to recognize that the Indian traffic differs significantly from Europe and North America with weak lane discipline, mixed traffic, dense two-wheeler population and high pedestrian presence. He warns that imported algorithms may generate false alert.*

**This is highly relevant because Indian consumers need a system designed for Indian conditions rather than a systems designed based on the situations prevailing in other jurisdiction. This leads to better outcomes for all users of road, including the vulnerable road users.**

*The proposal recommends pseudonym certificates, rotation mechanisms and identity-unlinkability safeguards.*

**As Consumers benefits from these measures with better privacy protection, we strongly endorse them. Our understanding is that it would be Difficult to track a vehicle continuously and there is higher level of protection from surveillance.**

.....

**2. Ericsson**

*"The answers provided here leverage the existing cellular networks for infrastructure interactions (V2N2X). Telecom operators in the country already possess the spectrum resources, network infrastructure, operational expertise, and service management capabilities required to support C-V2X deployments.*

*Such an approach minimizes investments and can give an immediate effect since modern vehicles are connected to the cellular network by default."*

**While we do agree that this suggestion leads to faster deployment, easier implementation and lower public expenditure, it assumes that all important V2X functions can be delivered by existing cellular network. The Consultation paper mentions and experts opinion is that many safety-critical applications are specially designed around direct communications. With our stress on the safety-critical benefits of V2X, this suggestion does not meet the consumer requirements and should not be accepted.**

*"V2N2I reuses existing cellular network access control. No new authorization step is required on the V2N2I leg beyond network access and usual application-layer security and policy controls."*

**Our opinion is that Road safety systems are not ordinary telecom services and have issues that are unique and highly critical in nature. Hence a separate regulatory framework is needed that incorporate these issues of Safety Certification, Message Integrity, Liability and higher levels of Consumer Protection.**

*"The 5,9 GHz direct short-range communication paradigm (C-V2X) demands massive upfront investments in dedicated roadside units and in vehicle onboard equipment."*

*"It requires near-universal penetration and coverage to generate meaningful societal benefit, faces 15+ year rollout timelines to critical mass, and creates intractable complexity in security, trust, and interoperability."*

**CCS appreciates the concerns that are expressed and agree that they have validity, as Network effects matter and they take time to kick in, so early deployments would have limited effects.**

**Such concerns are the reasons that CCS advocates targeted deployments at dangerous intersections, School Zones and dark zones on highways. These deployments could demonstrate the safety benefits before universal adoption.**

**Further, internationally countries like Germany, China and United States are actively deploying direct V2X.**

*"Mobile network V2N2X is ramping up ... with the possibility to even use smartphones as an additional device participating in the V2X eco-system, with the prospect of providing increased safety also to vulnerable road users (VRUs) carrying just ordinary smartphones".*

**This suggestion which focuses on the Vulnerable road users is worth considering, since most of the attention has been on the Vehicles. With India having a highly mixed traffic, smart-phone participation could protect pedestrians and cyclists. However there are constraints of Smartphone ownership especially among the poor and due the patchy network, the reliability in emergencies.**

**CCS feels that the solution needs a trail and hence recommends that pilot projects be undertaken with participation of private entities.**

*"Interoperability at the service level using harmonized ITS message standards, independent from radio technologies."*

**CCS concur with this recommendation as consumers are more concerned with the outcomes of systems rather than the technology on which the systems are based. Consumer care whether the warnings are delivered correctly and timely, and whether LTE-V2X or NR-V2X carried them. We feel that TRAI should consider this recommendation.**

.....

**3. Bosch**

*Bosch supports in their submission Direct V2X for safety and Cellular V2N for scalability*

**This hybrid approach is likely the most practical for India and CCS wholeheartedly support it.**

*"In safety-related V2X systems, merely ensuring packet-level protocol compliance may not be sufficient, as surrounding vehicles and infrastructure rely on the semantic accuracy of transmitted information for cooperative awareness and decision-making."*

**Bosch raises an issue that other stakeholders have ignored. Even standards-compliant messages can be wrong or stale, creating safety risks. This is highly relevant for consumers because bad information can be more dangerous than no information. CCS urge TRAI to ensure that the "Semantic Accuracy" issue is addressed in its regulations.**

.....

**4. Vodafone Idea (VIL)**

*Only existing telecom access service providers should be allowed to provide V2X/V2I services. No separate authorization should exist.*

**This position of VIL effectively creates a telecom operator monopoly over V2X infrastructure. This would potentially exclude other stakeholders.**

**Road safety infrastructure should not become a telecom-exclusive domain. Hence, we advocate Multi-stakeholder participation, Open access frameworks and as a consequence competition among solution providers. We suggest that TRAI should avoid creating a regulatory structure where only telecom operators can deploy critical road-safety infrastructure.**

*V2X is fundamentally dependent on 4G/5G networks and should therefore be treated as an access service.*

**This ignores the fundamental purpose of direct V2X. Many critical safety applications work without cellular coverage. These include Collision warning, emergency braking alerts, blind-spot warnings and intersection collision avoidance.**

**Consumer safety should not depend entirely on network availability.**

*Spectrum should be assigned only to TSPs and managed by them.*

**This gives operators substantial gatekeeping power over deployment priorities, interoperability and innovation. Consumers benefit when infrastructure ownership and service innovation are not concentrated in a small number of entities.**

**Spectrum governance should be neutral and open. So TRAI should examine shared-access models, infrastructure-neutral frameworks and road-authority-led deployments.**

*No rollout obligations should be imposed. Deployment should remain demand-driven.*

**Without rollout obligations deployment may remain limited to profitable corridors, rural areas may be neglected and the highly critical regions prone to accidents may receive lower priority.**

**Road safety benefits should not depend solely on commercial incentives and hence CCS suggests that this proposal be rejected.**

.....

**5. Sri. Abhinav Vashisht**

*“1. Direct Cost to Vehicle Owners  
The Consultation Paper’s analysis of financial aspects in **\*\*Chapter IV\*\*** (Pages 107-134) fails to quantify the inevitable pass-through costs to consumers”.*

**We agree with his view that the consultation paper does not provide any detail on the cost impact V2X intervention would have the different groups of road users especially the vehicle owners. This needs further study along with the other cost implications for other road users too.**

*“**\*\*Therefore, I recommend that the Authority advise the government NOT to proceed with mandatory V2X deployment\*\*** and instead focus on cost-effective, privacy-preserving road safety measures that respect fundamental constitutional rights.”*

**Sri. Abhinav Vashisht also suggests that V2X deployment should not be made mandatory. We endorse this idea in that the other cost effective interventation should**

**be mandated across the country to reduce accidents and fatalities. The V2X deployment should be subject of Pilot Studies in India. So V2X should be**

- 1. Employed in selected locations where the other interventions are not that effective or the fatalities are high.**
- 2. That such deployments be analysed for the cost-benefits and then only the deployment rolled out on a much bigger scale.**

**This would be a valid policy test for deciding on V2X deployment on a larger scale.**

.....

**As a consumer organisation our Core Recommendations to TRAI are**

- 1. Adopt hybrid direct-V2X + network-V2X model, not a telecom-only model.**
- 2. Reject exclusive TSP control over V2X deployment.**
- 3. Mandate strong privacy protections (pseudonym certificates, anti-tracking safeguards).**
- 4. Require interoperability standards and certification.**
- 5. Impose deployment obligations on accident-prone corridors.**
- 6. Protect vulnerable road users as a primary design objective.**
- 7. Link fee exemptions to measurable public-safety outcomes.**
- 8. Enable participation of road authorities, OEMs, ITS providers, and startups.**
- 9. Mandate independent safety testing in Indian traffic conditions.**
- 10. Create a consumer rights framework covering privacy, liability, transparency, and grievance redressal.**

.....

GOPAL RATNAM V  
Secretary  
Consumer Care Society