VIL/AK/P&O/TRAI/2026/049
June 04, 2026

Advisor (Networks, Spectrum and Licensing)
Telecom Regulatory Authority of India,
4th, 5th, 6th & 7th Floor, Tower-F,
World Trade Centre, Nauroji Nagar,
New Delhi – 110029

Kind Attn: Shri Akhilesh Kumar Trivedi

Subject: Comments on the TRAI's Consultation Paper on "Consultation Paper on the Regulatory Framework for Vehicle-to-Everything (V2X) Communication" issued on 30.04.2026.

Dear Sir,

This is in reference to the TRAI's consultation Paper on "Consultation Paper on the Regulatory Framework for Vehicle-to-Everything (V2X) Communication" issued on 30.04.2026.

In this regard, kindly find enclosed herewith comments from Vodafone Idea Limited on the above-said consultation paper.

We hope our comments will merit the Authority's kind consideration please.

Thanking you,

Yours sincerely,

For **Vodafone Idea Limited**

AMBIKA KHURANA
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Ambika Khurana
Chief Regulatory and Corporate Affairs Officer

Enclosed: As stated above

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VIL Comments to the TRAI's Consultation Paper on "Regulatory Framework for Vehicle-to-Everything (V2X) Communication" dated 30.04.2026

At the outset, we are thankful to the Authority for giving us this opportunity to provide our comments to the TRAI's Consultation Paper on "Regulatory Framework for Vehicle-to-Everything (V2X) Communication" dated 30.04.2026.

In this regard, we would like to submit our comments as follows, for Authority's kind consideration.

PREFACE

1. IMPORTANCE OF VEHICLE TO INFRASTRUCTURE (V2I) & VEHICLE TO EVERYTHING (V2X) FOR INDIA

a. India has one of the world's largest and fastest growing road transportation ecosystems, with rising concerns around road accidents and fatalities, urban traffic congestion, fuel efficiency, emergency response delays, need for intelligent transport systems (ITS).

b. The V2X and V2I technologies can play a transformative role in India by enabling:

i. Real-time traffic coordination
ii. Safer highways and smart cities
iii. Connected mobility services
iv. Autonomous and assisted driving applications
v. Efficient public transport systems

c. Some of the major use cases for India may include:

i. **Smart traffic management:** Adaptive traffic lights based on live vehicle density; Reduced waiting times at intersections
ii. **Highway safety:** Hazard warnings for fog, accidents, wrong side driving, or over-speeding; Safer expressways and national highways.
iii. **Emergency vehicle prioritization:** Ambulances and fire services receiving green signal priority.
iv. **Electronic tolling and FASTag integration:** Seamless tolling and congestion management.
v. **Connected Public Transport:** Fleet tracking and optimized bus routing in smart cities.
vi. **5G Enabled connected mobility:** Ultra low latency communications through mobile telecom networks enabling V2X applications.

2. GLOBAL LESSONS IN NETWORK COORDINATION AND EFFICIENCY

a. **Lessons from International Frameworks:** The evolution of global V2X regulatory frameworks demonstrates a clear shift toward standardized, coordinated deployments, and several global examples have been captured comprehensively in the consultation paper itself. In the United States, the Federal Communications Commission (FCC) originally set aside the 5.9 GHz band for Dedicated Short-Range Communications (DSRC) to be deployed independently by transport sectors. However, due to limited deployment, slow adoption, competing demands for spectrum, and the emergence of alternative Cellular V2X (C-V2X) technologies, the FCC ultimately reclaimed a portion of the band and transitioned the remainder to C-V2X. This highlights the importance of assigning safety-critical spectrum within a framework that ensures long-term deployment incentives, coordination, and accountability.

b. **The Enabling Role of Telecom Infrastructure:** Regions experiencing structured V2X scaling—such as China and the European Union—rely heavily on the existing capabilities of mobile networks to enable their ecosystems. While these models involve close collaboration between automotive OEMs, local governments, and road authorities, telecom operators play a significant enabling role through the provision of connectivity, network infrastructure, and core communications capabilities. By leveraging established network architectures, authorized operators manage the overarching communication layers, allowing other stakeholders to integrate safely without needing to build independent radio networks from the ground up.

3. SPECTRUM MANAGEMENT EFFICIENCY

a. The National Frequency Allocation Plan 2025 (NFAP-2025) sets aside a 50 MHz block in the 5875–5925 MHz band for Intelligent Transport Systems. If this spectrum is distributed in a fragmented manner across multiple entities i.e. automotive brands or municipal transport authorities or other 3rd party entities, the administrative and technical complexity of preventing signal degradation increases significantly, besides managing interference in such critical time and location sensitive services, should be non-negotiable.

b. Assigning this spectrum to authorized Telecom Service Providers (TSPs) introduces a centralized framework that reduces coordination and governance complexity, maximizing spectral efficiency across the country.

4. ECONOMIC RATIONALITY AND CARRIER-GRADE INFRASTRUCTURE REUSE

a. **Capital Optimization via Existing Assets:** Deploying a national roadside network requires substantial capital. TSPs are particularly well-positioned to execute this because they already operate hundreds of thousands of base stations, utility poles, fiber-optic backhaul routes, and redundant power systems across major national highways and urban corridors.

b. **Strategic Co-location and Cost Reduction:** While specific V2X use cases will always require dedicated infrastructure installations at critical nodes such as intersections, toll plazas, and traffic signals, a substantial portion of Roadside Unit (RSU) deployments can leverage existing telecom assets. Forcing road transport authorities or private consortia to install duplicate backhaul networks and mounting poles is an inefficient use of national capital. A TSP-led managed-services model allows transport authorities to minimize capital expenditure (CapEx) and focus on core transit infrastructure.

c. **Meeting Low-Latency and Mission-Critical Baselines:** V2X applications involve low-latency and mission-critical communications, such as cooperative collision avoidance and automated braking, which demand high availability and carrier-grade reliability. TSPs possess decades of operational experience maintaining these stringent performance requirements under strict regulatory oversight. Establishing and auditing these demanding performance baselines across a fragmented landscape of non-telecom operators would present massive governance and enforcement challenges for the regulator.

5. NATIONAL ARCHITECTURE, ROAMING, AND STANDARDIZATION

a. **Seamless Cross-Brand and Cross-Border Interoperability:** For V2X to achieve its public safety objectives, vehicles must communicate instantly regardless of the manufacturer or the state jurisdiction they are crossing. Standardizing deployments under 3GPP-specified C-V2X architectures provides a clear blueprint for this nationwide coordination, roaming, and seamless communication.

b. **Channel Coordination in High-Density Zones:** Under 3GPP standards, when vehicles enter high-density urban environments, cellular networks can dynamically coordinate and allocate available radio resources. This technical capability allows for the mitigation of signal congestion and protects the low-latency delivery of mission-critical safety alerts. TSPs are well placed to oversee these deployments due to their existing experience with large-scale 3GPP and ETSI standards, roaming capabilities and real-time network traffic management.

c. **Core Network Capabilities at Scale:** Furthermore, V2X is not merely a localized radio device ecosystem. It increasingly relies on nationwide mobility management, secure authentication, roaming, SIM/eSIM management, security credential distribution, edge computing, and seamless integration with 4G/5G core networks. TSPs already operate these highly technical functions at scale, providing an existing, field-tested operational foundation for authorization that non-telecom entities cannot easily replicate.

6. LEGAL CONTINUITY AND COMPLIANCE GOVERNANCE

a. **Alignment with the Telecommunications Act, 2023:** Section 3(1)(a) of the Telecommunications Act, 2023 mandates that any entity establishing, operating, or maintaining a telecommunication network must obtain explicit authorization from the Central Government. To the extent that V2X systems involve the establishment, operation, or

maintenance of communications infrastructure and networks for the transmission of messages, they may fall within the scope of the Telecommunications Act, 2023. While the Act establishes the baseline requirement for network authorization, the policy rationale strongly favors TSPs as the designated authorized entities. TSPs already operate under a comprehensive, mature regulatory framework, making them the most stable and legally robust vehicles for spectrum holding and public safety network operations.

b. **Streamlining Lawful Interception and Security Governance:** Section 20 of the Act requires all authorized communication networks to support lawful interception mandates. Fragmenting V2X network management across multiple non-telecom entities introduces significant compliance complexity, monitoring burdens, audit requirements, and security governance challenges for national enforcement agencies. Managing this infrastructure through TSPs who possess established, fully audited lawful interception frameworks simplifies regulatory oversight and ensures uniform compliance.

c. **Data Governance and Regulatory Oversight:** Vehicle telemetry contains highly sensitive data. TSPs operate under mature licensing conditions that include strict compliance frameworks, auditability, and clear lawful access obligations. Integrating V2X into this existing system provides a stronger foundation for maintaining data governance and security compliance, ensuring that sensitive data is strictly regulated and easily auditable by relevant authorities.

7. THE ROLE OF TSPS IN ENABLING V2X

a. In India, the TSPs would play a crucial role in enabling V2X, since it is fundamentally a connectivity service, as both V2X/V2I communications rely heavily on 4G/5G connectivity, Edge computing, IoT Platforms, Low-latency communication infrastructure and Nationwide coverage for connected mobility.

b. The above are already the core capabilities of Licensed TSPs. Creating a separate authorisation would unnecessarily duplicate an already established telecom framework.

8. EFFICIENT UTILIZATION OF EXISTING TELECOM INFRA THROUGH EXISTING LICENSE / AUTHORIZATION

a. TSPs have already made substantial investments in the telecom infrastructure, including 4G/5G networks. Fiber backhaul, Edge computing, towers, cybersecurity and lawful interception systems. Leveraging existing telecom infrastructure would thus enable faster rollout of V2X services, Lower deployment costs and better interoperability and reduced regulatory overlap.

b. A separate authorization may thus fragment the infrastructure and delay the development of ecosystem for V2X/V2I communications and create Uneven regulatory obligations, Spectrum access asymmetry, Compliance gaps and Market distortions.

c. Entities offering telecom like connectivity may create regulatory arbitrage. Keeping V2X within the Access license/authorisation framework ensures a level playing field. Given that V2X/V2I services are intrinsically dependent on telecom- grade connectivity, security, mobility management and nationwide network infrastructure, enabling such services through existing Access licensees/authorizations would ensure efficient deployment, stronger security oversight, regulatory consistency and faster realization of India's connected mobility objectives.

d. **Hence, existing access service providers should be considered for providing V2X/V2I services and suitable provisions may be added in the Unified License (Access service authorisation) as well as new Access authorisation under the Telecommunications Act 2023.**

QUESTION–WISE COMMENTS

Q1. Whether there is a need to introduce an authorisation for vehicle-to-infrastructure (V2I) communication service under Section 3(1)(a) of the Telecommunications Act, 2023? If yes, please provide input with respect to the following aspects:
(a) Eligibility conditions for the authorisation;
(b) Period of validity of the authorisation and conditions for its renewal;
(c) Service area of the authorisation;
(d) Scope of service of the authorisation;
(e) Technical, operating, security related conditions etc. of the authorisation;
(f) Any other related aspect. Kindly provide a detailed response with justification.

And

Q2. In case your reply to Q1 is no, what should be the mechanism for enabling, facilitating and regulating vehicle-to-infrastructure (V2I) communication service in India? Kindly provide a detailed response with justification.

VIL Comments to Question No. 1 and 2

1. No, there is no requirement to introduce a separate authorisation for Vehicle-to-Infrastructure (V2I) communication services. It is submitted that V2I, and more broadly Vehicle-to-Everything (V2X) communications, should be enabled under the extant Access Service licence/authorisations granted under Section 3(1)(a) and as covered under Section 3(6) of the Telecommunications Act 2023.

2. **V2X is inherently a telecom connectivity service:** As elaborated in the preface, V2X ecosystems are fundamentally dependent on 4G/5G connectivity, Ultra-low latency communication frameworks, Nationwide mobility and session management, Edge computing and IoT platforms. These elements constitute the core building blocks of licensed telecom services, and are already

deployed and operated by TSPs at scale. Accordingly, V2X services are most appropriately treated as an extension of existing access services, rather than as a distinct service category warranting a separate authorisation.

3. **Optimal utilisation of existing telecom infrastructure:** Licensed TSPs have made substantial, long-term investments in:

    a. Nationwide radio access and fibre backhaul networks
    b. Core network infrastructure, including mobility and authentication systems
    c. Power, redundancy, and resilience frameworks
    d. Security, monitoring, and lawful interception systems

    Leveraging these existing assets would enable expeditious rollout of V2X services, avoid unnecessary duplication of infrastructure, Optimise national resource utilisation. Conversely, a separate authorisation framework risks fragmented infrastructure development and inefficient capital deployment.

4. **Avoidance of ecosystem fragmentation and regulatory arbitrage:** The introduction of a separate authorisation regime would result in Multiplicity of entities deploying parallel communication networks, Increased coordination and interoperability challenges, Spectrum fragmentation and heightened interference risk and Non-uniform regulatory and security obligations. Given the mission-critical and safety-sensitive nature of V2X use-cases, such fragmentation would be sub-optimal. Enabling these services through licensed TSPs ensures Centralised governance, Uniform compliance and Efficient spectrum utilisation.

5. **Alignment with international best practices:** Global experience indicates that scalable V2X ecosystems are anchored in cellular network-based architectures, with telecom operators playing a central enabling role. Advanced jurisdictions rely on telecom networks for large-scale deployments. Existing operator-led frameworks facilitate interoperability, roaming, and reliability. This underscores that leveraging licensed telecom frameworks is a globally validated and efficient model.

6. **Security, lawful interception, and governance considerations:** V2X communications entails Safety-critical signalling, Exchange of sensitive vehicular and mobility data. Licensed TSPs are already subject to Statutory lawful interception requirements, stringent security, audit, and compliance frameworks as well as defined data governance obligations. Extending V2X under this framework ensures robust security oversight and regulatory enforceability, whereas a fragmented model would introduce significant monitoring and compliance challenges

7. In view of the foregoing submission that no separate authorisation is warranted and same should be made part of extant Access service license/authorisation, the comments to (a) to (f) are addressed as follows:

    a. **Eligibility conditions:** No separate eligibility conditions are required to be prescribed. V2X/V2I services should be permitted only through entities holding valid Access Service licence/authorisation, i.e., licensed TSPs.

b. **Period of validity of the authorisation and conditions for its renewal:** No independent validity or renewal framework is required. The provision of V2X/V2I services should be coterminous with the validity of the underlying Access Service licence/authorisation, including applicable renewal conditions.

c. **Service area of the authorisation:** No separate service area definition is required. V2X/V2I services should be permitted within the licensed service area of the respective TSP, including PAN-India service areas, as applicable.

d. **Scope of service of the authorisation:** No separate scope of service needs to be defined. The scope of V2X/V2I services should be subsumed within the scope of Access Services, with an enabling clarification, if required, that 'V2X/V2I constitutes telecom connectivity-enabled Access Services and Such services are delivered over existing access networks.

e. **Technical, operating, security related conditions etc. of the authorisation:** No separate technical or security conditions are required. All prevailing and applicable conditions applicable to Access Service licensees should apply including related to Network Performance and QoS, Security & Lawful Interception, Data Governance and compliance frameworks as well as adherence to globally harmonized standards (such as 3GPP-based frameworks).

f. **Any other related aspect. Kindly provide a detailed response with justification:** No additional provisions are necessary. Any enabling measures, if considered appropriate, may be incorporated within the existing Access Service licence/authorisation framework, or maybe issued through suitable guidelines / clarifications.

8. **In view of the above submissions, we strongly urge the Authority that:**

   a. **No separate authorisation should be introduced for V2X / V2I services; and**

   b. **Such services should be permitted exclusively under existing Access Service license/Authorisations as provided for, under Section 3(1)(a) and as covered under Section 3(6) of the Telecommunications Act 2023.**

Q3. Any other suggestions relevant to the authorisation for vehicle-to-infrastructure (V2I) communication service may be submitted with proper explanation and justification.

VIL Comments to Q. No.3

In view of the comments made under question no. 1 and 2 above, no additional suggestions are warranted, as V2X/V2I services may be effectively enabled within the existing Access Service License/Authorisation framework.

Q4. Whether a specific technology (such as LTE-based C-V2X, NR-based C-V2X etc.) should be prescribed for the implementation of C-V2X in India? If yes, which technology should be adopted for the implementation of C-V2X? If no, in what manner, the issues related to inter-operability between different technologies should be addressed? Kindly provide a detailed response with justification.

VIL Comments to Q. No.4

1. Yes, it is submitted that a specific and harmonised technology framework should be prescribed for the implementation of C-V2X in India, which is supported on all 3GPP technologies including LTE-based C-V2X and NR-based C-V2X.

2. **In this regard, it is submitted that while initial deployments may happen over LTE-based C V2X (3GPP Release 14/15), there would be use cases for NR-based C-V2X (5G-based) also, and it should be left to the market to decide their deployments as required.**

3. Before providing further inputs, we would like to submit a matrix (given in table below), containing services for which LTE or NR based C-V2X should be used and for which connectivity existing/future telecom infrastructure should be used.

Sub-Category of V2X services	Connectivity Option
V2V: Vehicle to Vehicle	Technologies based on 3GPP standards (i.e. LTE-based C-V2X or NR-based C-V2X)
V2I: Vehicle to Infrastructure	Technologies based on 3GPP standards (i.e. LTE-based C-V2X or NR-based C-V2X)
V2N: Vehicle to Network	Existing and future telecom infrastructure
P2N: Pedestrian to Network	Existing and future telecom infrastructure
I2N: Infrastructure to Network	Existing and future telecom infrastructure
V2P: Vehicle to Pedestrian	Existing and future telecom infrastructure

4. **Maturity and Commercial Readiness of LTE-based and NR-based C-V2X**

   a. LTE-based C-V2X is a globally standardised and commercially available technology, having been defined under 3GPP Release 14. It has already achieved significant ecosystem development, with commercially available chipsets, modules, and infrastructure equipment, and has entered early-stage deployments in multiple markets.

b. NR-based C-V2X has also been introduced as part of later 3GPP releases as an evolutionary enhancement, primarily aimed at advanced use cases such as autonomous driving, though it is under progressive development and limited deployment globally.

5. **Global Deployment Trends and Policy Direction:**

   a. The consultation paper captures various global precedence. International experience demonstrates that cellular V2X deployments are being initiated on LTE-based technologies as a foundational layer however, in many instances the deployments of NR-based C-V2X has not been barred.

   b. Thus, while initial deployment may happen over LTE-based C-V2X, the market conditions may also lead to deployment of NR-based C-V2X, without requiring change in regulatory and spectrum policies else it introduces time-consuming process if deployments are to be done in near future.

6. **Suitability for Initial Safety and ITS Use Cases:** LTE-based C-V2X is capable of supporting key "Day 1" V2X applications such as collision warnings, hazard alerts, emergency vehicle prioritisation, and traffic signal coordination. These use cases address the core public safety and traffic management objectives of V2X deployment and do not necessitate the advanced capabilities associated with NR-based C-V2X.

7. **Evolution Path towards NR-based C V2X:** NR-based C-V2X introduces enhanced capabilities such as ultra-low latency and support for advanced autonomous driving scenarios, and has been designed as an evolution of LTE-based C-V2X with provisions for coexistence and backward compatibility.

8. In this context, using only one technology may increase deployment costs, create ecosystem uncertainty, delay rollout of essential safety applications. It is therefore appropriate that for C-V2X, all technologies as per 3GPP technologies/standards i.e. LTE-based C-V2X and NR-based C-V2X be allowed, and it should be market forces which should determine the deployments and their phases.

9. **Accordingly, it is recommended that all 3GPP technologies i.e. both LTE-based C-V2X and NR-based C-V2X should be allowed for implementation in India, as it provides long-term certainty and enables scalable, evolving and cost-efficient deployment leveraging existing telecom infrastructure.**

Q5. Whether there is a need to bring road-side units (RSUs) and on-board units (OBUs) under the regime of Mandatory Testing Certification of Telecom Equipment (MTCTE)? If no, in what manner, Electromagnetic Interference (EMI), Electromagnetic Compatibility (EMC), safety, technical and security requirements prescribed by TEC/ DoT may be ensured? Kindly provide a detailed response with justification.

VIL Comments to Q. No.5

1. Yes, we recommend the need to bring Road-side units (RSUs) and on-board units (OBUs) under the regime of MTCTE to make it standardized & avoid any security related threats.

2. This should be done in consideration that C-V2X ecosystems involve telecom-grade communications, safety- critical applications and interaction with public digital infrastructure.

3. The RSUs and OBUs form the core communication components of the C-V2X ecosystem. Certification under MTCTE would help ensure:

    a. Interoperability across different OEMs, telecom networks and infrastructure providers.
    b. Harmonized functioning across LTE based and NR based C-V2X technologies.
    c. Seamless communication between vehicles, roadside infrastructure and telecom networks and
    d. Long-term ecosystem continuity and backward compatibility.

4. Absence of standardization may lead to fragmented deployments, incompatibility issues and operational inefficiencies.

5. C-V2X systems support safety critical functions, such as collision avoidance, emergency alerts, traffic signal coordination, intelligent transportation systems (ITS) and connected mobility services. Hence, any compromise in communication security may have significant public safety implications.

6. **Hence, we recommend the need to bring Road-side units (RSUs) and on-board units (OBUs) under the regime of MTCTE to make it standardized & avoid any security related threats.**

Q6. To ensure inter-operability among different RSUs/ OBUs, whether there is a need to standardize the layered communication framework (stack) for higher layers (other than the access layer in which C-V2X will be used) of Intelligent Transportation System (ITS)? If yes, which standard for ITS stack and security should be adopted? Specifically, whether the ETSI standard for ITS stack and security, as recommended by the Task Force on Intelligent Transportation System for the use of 5.9 GHz (mentioned at para 3.5 of this consultation paper) should be adopted? If no, in what manner, inter-operability among different RSUs/ OBUs can be ensured? Kindly provide a detailed response with justification.

VIL Comments to Q. No.6

In view of the comments given to question no. 1 above, that C-V2X should be introduced through existing access service license/authorisation framework; there is no need to define any standard. The license/authorisation conditions prescribe adoption of TEC or global standards. Further, for additional

security conditions, same should be prescribed through separate guidelines/instructions, without hard-coding them into license/authorisation.

Q7. Whether there is a need for prescribing a security framework for ITS/ C-V2X in India? If yes,
(a) What should be the security framework for ITS/ C-V2X?
(b) Which agency [such as Controller of Certifying Authorities (CCA), Ministry of Electronics & Information Technology (MeitY)] should implement the Public Key Infrastructure (PKI) framework for ITS/ C-V2X in India?
(c) How to ensure coexistence of V2X PKI certificates with the legacy PKI mechanism in India i.e. based on X.509, operated by Root Certifying Authority of India (RCAI)?
Please provide a detailed response with justifications.

VIL Comments to Q. No.7

1. Access service license/authorisation frameworks are already aligned with the security requirements for C-V2X as recommended in the final report of the Task Force on Intelligent Transport System (ITS) in the recommendations for Automotive Industry Standards and regulations related to Intelligent Transportation systems, and rollout of communication between Vehicle to anything (V2X).

2. For additional security conditions, we recommend that should be prescribed through separate guidelines/instructions.

Q8. What should be the regulatory framework for the assignment of frequency spectrum to the entities holding the proposed V2I communication service authorisation? Specifically,
(a) Whether there is a need for partitioning the 30 MHz spectrum (5,875-5,905 MHz) for specific applications such as "safety applications" and "operational applications (non-safety applications)"?
(b) In case more than one authorised entity has to operate in the same geographical area, what should be the mechanism for simultaneous use of the spectrum? Specifically, whether the spectrum should be divided amongst the authorised entities in an exclusive manner, or should the authorised entities utilize the spectrum in a shared manner?
(c) If your response to part (b) is "in an exclusive manner", what should be the minimum quantity of spectrum to be assigned to each entity holding the proposed V2I communication service authorisation? If your response to part (b) is "in a shared manner", whether there is a need to prescribe a mechanism for interference management?
(d) For interference management, whether there is a need to prescribe –
(i) minimum directionality of road-side unit (RSU), or
(ii) protection distance between the RSUs, or
(iii) maximum antenna height for RSUs? If yes, what should be such parameter(s)?
(e) Whether there is need to mandate a mechanism for obtaining prior approval (analogous to SACFA clearance) for the establishment of RSUs by the entities holding the proposed V2I

communication service authorisation? If no, in what manner, the establishment of RSUs should be regulated?

(f) For avoiding (i) interference between RSUs, (ii) interference between RSUs and OBUs, and (iii) interference between OBUs, whether the radiated power limits for OBUs and RSUs and OOBE limits, recommended by the Task Force on Intelligent Transportation System for the use of 5.9 GHz (mentioned at para 3.4 of this consultation paper) should be adopted? If no, what should be the radiated power limits for OBUs and RSUs and OOBE limits?

(g) What should be the maximum period of assignment of spectrum to the entities holding the proposed V2I communication service authorisation?

(h) Whether there is a need to prescribe roll-out obligations associated with the assignment of spectrum to the entities holding the proposed V2I communication service authorisation?

(i) Whether there is a need to introduce a provision for the surrender of frequency spectrum? Kindly provide a detailed response with justification.

VIL Comments to Q. No. 8

It is submitted that the regulatory framework for spectrum assignment for V2X/V2I services should be designed to ensure efficient utilisation, operational flexibility, and nationwide scalability, while avoiding fragmentation of spectrum and duplication of network infrastructure.

1. **Licensed Spectrum to be Assigned for Use by TSPs (Not Entity-Specific Allocation):**

   a. The identified 5.9 GHz band (5875–5925 MHz) should be assigned for use by licensed Access Service Providers (TSPs) as part of the IMT ecosystem, rather than being directly assigned to multiple standalone V2I authorised entities or ring-fenced for specific players.

   b. **V2X is fundamentally a telecom-enabled connectivity layer, and therefore, spectrum utilisation should remain anchored with licensed TSPs, who already possess nationwide network infrastructure, Spectrum management capabilities and Established regulatory compliance frameworks.**

   c. **This approach is aligned with the principle that V2X services should be delivered over existing licensed telecom networks, ensuring scalability, interoperability, and quality of service.**

2. **Non-Exclusive and Location-Specific Spectrum Utilisation Framework:**

   a. Given that V2I deployments will typically be localized and corridor-based (e.g., highways, intersections, urban transport zones), the practical implementation model should be as follows:

      - Road/transport authorities (e.g., NHAI, State authorities, urban bodies) may empanel/select a TSP for deployment of V2I infrastructure (RSUs, connectivity, etc.) on a specific stretch of road or defined geography;

- The selected TSP may deploy and operate the required infrastructure and utilise the assigned spectrum on that specific stretch;

- Such utilisation should be permitted on a non-exclusive, geographically coexistent basis, without long-term exclusive assignment of spectrum to any single entity;

b. Accordingly, the spectrum framework should be use-based and deployment-driven, rather than entity-exclusive.

3. **Non-Exclusive, Shared and Non-Protection Basis**

a. In order to support multiple deployments and avoid inefficient spectrum hoarding, it is submitted that:

- Spectrum in the 5.9 GHz band should be made available to TSPs on a non-exclusive, shared basis, with appropriate technical coordination mechanisms;

- Such use should be on a non-protection basis between different localised deployments, given that deployments will be geographically segregated and managed through network coordination;

- TSPs, leveraging their network management capabilities, would be best placed to ensure Interference management, Dynamic resource allocation and Seamless operation across overlapping or adjacent deployments

b. This model ensures that limited spectrum resources are optimally and efficiently utilised, without artificial partitioning or rigid exclusivity.

4. **Allocation – In General or through Application**

a. **Preferable approach:** The spectrum can be assigned in general to the TSPs, who are holding IMT spectrum and are providing access services. It's use will depend upon which TSP is selected by the specific road section/corridor owning authority e.g. NHAI for a specific National Highway. The TSPs should be mandated to inform the DoT/WPC before they start using the spectrum.

b. **Alternate Approach:** It can be assigned post a TSP is selected by the specific road section/corridor owning authority e.g. NHAI for a specific National Highway. In such cases, a time-bound online application process can be put in place, with a deemed approval within 30 days of application. This approach will bring in an additional step before deployments thereby, introducing delay.

5. **Risk of exclusive allocation:** Exclusive allocation is fraught with risks of reverse pressure on the specific road section/corridor owning authority, by reducing the choice of TSP they can use for

deployment of C-V2X. This may create geographical and localised monopoly thus, bringing in the consequences of a monopoly market.

6. **No Need for Static Partitioning of Spectrum**

   a. There should be no rigid partitioning of spectrum between safety and non-safety applications, as such a static approach reduces flexibility in utilisation, leads to inefficient spectrum use and does not reflect real-world traffic and application dynamics.

   b. Instead, spectrum use should be dynamically managed by TSP networks, which are already capable of prioritising safety-critical traffic through QoS and network slicing mechanisms.

7. **Interference Management and Technical Governance**

   a. Rather than prescribing rigid regulatory allocation constructs, it is submitted that Interference management should be addressed through standards-based technical frameworks (3GPP, TEC, WPC guidelines).

   b. Parameters such as radiated power, emission limits, and deployment norms may be prescribed through technical standards and certification mechanisms rather than licensing conditions.

   c. This approach ensures flexibility, future readiness, and alignment with global best practices.

8. **Consistency with IMT-Based V2X Ecosystem**

   a. The proposed framework is consistent with the broader principle that:

      - V2X ecosystems should be built on licensed IMT spectrum integrated with 4G/5G networks; and
      - Fragmented allocation to multiple non-telecom entities would increase coordination complexity, Create interoperability challenges and Compromise performance of safety-critical applications.

   b. A TSP-led model ensures network-grade reliability, scalability, and regulatory accountability.

9. **Conclusion:** In view of the above, it is submitted that:

   a. **The 5.9 GHz band should be assigned for use by licensed TSPs as part of the IMT ecosystem, and not directly allocated to multiple standalone TSP entities.**

   b. **Exclusive assignment will bring in geographical/localised monopoly.**

   c. **Spectrum utilisation should be deployment-specific, non-exclusive, and shared, based on projects undertaken by road/transport authorities;**

d. **The selected TSP for a given stretch should be permitted to deploy infrastructure and utilise spectrum on that stretch, without conferment of exclusive spectrum rights; and**

e. **Spectrum access should be on a non-protection basis with appropriate technical coordination mechanisms, ensuring efficient utilisation and coexistence.**

This framework will ensure optimal utilisation of scarce spectrum resources, enable rapid and scalable deployment of V2X services, and maintain consistency with the TSP-led, Access Service-based regulatory approach submitted in response to Q1 and Q2.

(a) Whether there is a need for partitioning the 30 MHz spectrum (5,875-5,905 MHz) for specific applications such as "safety applications" and "operational applications (non-safety applications)"?

10. **It is submitted that there is no requirement for any static or rigid partitioning of the identified 5.9 GHz spectrum band into separate portions for safety and operational (non-safety) applications.**

11. Such artificial segmentation would lead to inefficient utilisation of scarce spectrum resources and would not reflect the dynamic and context-driven nature of V2X traffic. Instead, spectrum utilisation should remain technology-agnostic and application-flexible, with prioritisation of safety-critical traffic being managed through network-level QoS and traffic management mechanisms within TSP networks.

(b) In case more than one authorised entity has to operate in the same geographical area, what should be the mechanism for simultaneous use of the spectrum? Specifically, whether the spectrum should be divided amongst the authorised entities in an exclusive manner, or should the authorised entities utilize the spectrum in a shared manner?

12. In scenarios where, multiple entities intend to deploy V2I infrastructure within the same geographical area, the spectrum should not be allocated on an exclusive basis to individual entities. Instead, it is submitted that spectrum should be made available for use by licensed Access Service Providers (TSPs), who may, in turn, support deployments for various road/transport agencies.

13. Given that V2I deployments are inherently location-specific and corridor-based, the concerned road authority may select a TSP for a particular road stretch or project, and such TSP may deploy and operate the required infrastructure using the spectrum in that localized area. Accordingly, spectrum usage should follow a shared, non-exclusive framework, enabling multiple deployments across geographies without conferring exclusive rights over the band.

(c) If your response to part (b) is "in an exclusive manner", what should be the minimum quantity of spectrum to be assigned to each entity holding the proposed V2I communication

service authorisation? If your response to part (b) is "in a shared manner", whether there is a need to prescribe a mechanism for interference management?

14. It is reiterated that exclusive spectrum assignment to specific V2I entities is neither necessary nor desirable. A shared usage model, anchored with licensed TSPs, is more appropriate and efficient. In such a framework, interference management should not be addressed through rigid spectrum segmentation, but through operator-level coordination and standards-based mechanisms.

15. Licensed TSPs are already equipped to manage radio resources dynamically and can ensure coexistence between deployments across adjacent or overlapping geographies through network planning, scheduling, and resource allocation. Therefore, shared spectrum usage with network-driven coordination is the most suitable approach.

16. **Risk of exclusive allocation:** Exclusive allocation is fraught with risks of reverse pressure on the specific road section/corridor owning authority, by reducing the choice of TSP they can use for deployment of C-V2X. This may create geographical and localised monopoly thus, bringing in the consequences of a monopoly market.

(d) For interference management, whether there is a need to prescribe –
(i) minimum directionality of road-side unit (RSU), or
(ii) protection distance between the RSUs, or
(iii) maximum antenna height for RSUs? If yes, what should be such parameter(s)?

17. It is submitted that technical parameters related to interference management—such as antenna characteristics, deployment norms, and emission limits—should not be prescribed as rigid regulatory conditions, but instead be governed through standards-based technical specifications issued by relevant bodies such as TEC and WPC or 3GPP.

18. This approach ensures adaptability to evolving technologies and deployment scenarios, while maintaining alignment with global standards. Prescriptive regulatory thresholds may otherwise constrain innovation and lead to sub-optimal deployments in diverse operating environments.

(e) Whether there is need to mandate a mechanism for obtaining prior approval (analogous to SACFA clearance) for the establishment of RSUs by the entities holding the proposed V2I communication service authorisation? If no, in what manner, the establishment of RSUs should be regulated?

19. There should be no requirement for a prior approval mechanism analogous to SACFA clearance for each RSU deployment, as this would introduce procedural delays and hinder rapid rollout of V2X infrastructure.

20. Instead, an intimation-based or simplified approval framework may be adopted, wherein deployments are governed through compliance with Certified equipment (e.g., MTCTE), Standardised technical parameters and Applicable safety and interference norms

21. Such an approach would facilitate fast and scalable deployment, particularly in the context of public safety applications.

(f) For avoiding (i) interference between RSUs, (ii) interference between RSUs and OBUs, and (iii) interference between OBUs, whether the radiated power limits for OBUs and RSUs and OOBE limits, recommended by the Task Force on Intelligent Transportation System for the use of 5.9 GHz (mentioned at para 3.4 of this consultation paper) should be adopted? If no, what should be the radiated power limits for OBUs and RSUs and OOBE limits?

22. It is appropriate that radiated power limits and out-of-band emission (OOBE) norms recommended by relevant expert bodies (such as the ITS Task Force, 3GPP) be adopted, subject to harmonisation by TEC/WPC in consultation with mobile access service providers. These technical parameters should be aligned with IMT ecosystem requirements to ensure coexistence with other services and minimise interference risks.

23. Such alignment will ensure that V2X deployments operate within globally consistent and technically robust parameters.

(g) What should be the maximum period of assignment of spectrum to the entities holding the proposed V2I communication service authorisation?

24. In line with the overall framework proposed, spectrum should not be assigned separately to individual V2I authorised entities. Instead, it should form part of the existing or future IMT spectrum assignments to licensed TSPs, within which V2X services are delivered.

25. Accordingly, the question of a separate assignment period for V2I-specific spectrum does not arise. Stability and investment certainty would instead be ensured through the underlying telecom spectrum assignment framework applicable to TSPs, which is already well established.

(h) Whether there is a need to prescribe roll-out obligations associated with the assignment of spectrum to the entities holding the proposed V2I communication service authorisation?

26. It is submitted that no specific roll-out obligations should be imposed for V2X deployments at this stage, as the ecosystem is still evolving globally and deployment models are expected to vary across geographies and use cases.

27. Imposing rigid obligations may constrain innovation and deter investment. Instead, deployment should be demand-driven and project-based, with road authorities and implementing agencies undertaking deployments in collaboration with TSPs based on identified use cases and priorities.

28. Besides, the V2I services are dependent upon further tender and terms of the specific road/corridor owning authority and will not be in exclusive control of the V2I service authorised entity.

(i) Whether there is a need to introduce a provision for the surrender of frequency spectrum? Kindly provide a detailed response with justification.

29. A separate provision for surrender of spectrum for V2I services is not required, as spectrum for V2X would be utilised within the broader IMT assignments held by TSPs.

30. Incase spectrum is assigned post approval of an application – as mentioned in point no. 5 above in comments to this question, then there should be a provision allowing surrender of spectrum, upon 30 days of expiry/termination/suspension of contract with the specific road/corridor owning agency.

Q9. Whether there is a need for prescribing timelines for processing the applications for the assignment of spectrum to the entities holding the proposed V2I communication service authorisation? Kindly provide a detailed response with justification.

VIL Comments to Q. No.9

Kindly refer our comments to Question no. 8 above, which are being reproduced herein below:

1. **Allocation – In General or through Application**

    a. **Preferable approach:** The spectrum can be assigned in general to the TSPs, who are holding IMT spectrum and are providing access services. It's use will depend upon which TSP is selected by the specific road section/corridor owning authority e.g. NHAI for a specific National Highway. The TSPs should be mandated to inform the DoT/WPC before they start using the spectrum. **In this approach, there is no need of prescribing any timelines for processing the applications for the assignment of spectrum to the access service providers.**

    b. **Alternate Approach:** It can be assigned post a TSP is selected by the specific road section/corridor owning authority e.g. NHAI for a specific National Highway. In such cases, a time-bound online application process can be put in place, with a deemed approval within 30 days of application. This approach will bring in an additional step before deployments thereby, introducing delay. **If this approach is adopted, there is need of prescribing 30-day timeline for processing the applications for the assignment of spectrum to the access service providers.**

2. **Risk of exclusive allocation:** Exclusive allocation is fraught with risks of reverse pressure on the specific road section/corridor owning authority, by reducing the choice of TSP they can use for deployment of C-V2X. This may create geographical and localised monopoly thus, bringing in the consequences of a monopoly market.

Q10. Whether there are any other suggestions related to assignment of spectrum to the entities holding the proposed V2I communication service authorisation? Please provide a detailed response with justification.

VIL Comments to Q. No.10

No comments.

Q11. Any other issues/suggestions relevant to the regulatory framework for V2X communication may be submitted with proper explanation and justification.

VIL Comments to Q. No.11

No comments.

Q12. In view of the public welfare-oriented nature of V2X applications and the need to encourage the deployment of such infrastructure and services, should there be spectrum charges levied on spectrum assigned to the V2I communication service authorised entities under the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

And

Q13. If answer to Q12 is affirmative, whether the spectrum charges for the V2I communication service authorised entities under the proposed V2I communication service authorisation should be determined based on the spectrum charging methodology prescribed by the Department of Telecommunications (DoT) vide its order dated 11.12.2023? If yes, then which of the radiocommunication services specified in the said order, should be taken as basis for calculation of spectrum Charges? Please provide detailed justification in support of your response.

VIL Comments to Question no. 12 and 13

1. It is submitted that no spectrum charges should be levied for V2X/V2I services, particularly at this stage of ecosystem development. V2X services are fundamentally public welfare-oriented and safety-critical in nature, designed to enhance road safety, reduce accidents and fatalities, and improve overall traffic efficiency across the country. These services are not conventional commercial telecom offerings, but are aligned with broader national objectives relating to road safety, intelligent transport systems, and public infrastructure development. In this context, imposing spectrum charges would be misaligned with the essential public interest character of such services and would act as a disincentive to their rapid deployment.

2. It is further submitted that the likely deployment model for V2I infrastructure in India will be project-driven and anchored in Government, semi-Government, and public sector entities, such as NHAI, State road authorities, and urban local bodies. Under this model, Telecom Service Providers (TSPs) will typically be engaged through tenders for specific road stretches, corridors, or mobility projects. Consequently, any regulatory or spectrum-related costs imposed on TSPs will not be absorbed within their own balance sheets, but will necessarily be factored into project costing and ultimately passed on to the respective Government or road-owning agency.

3. Therefore, the imposition of spectrum charges in such a framework would effectively translate into an additional fiscal burden on public authorities, increasing the cost of infrastructure projects and potentially constraining the scale and pace of V2X deployment. This would be counterproductive to the objective of encouraging widespread adoption of safety-critical technologies across national and state transport networks.

4. It is also relevant to reiterate that V2X services should be deployed by existing mobile access service providers, and for using the IMT spectrum, substantial spectrum charges are already being paid under the current regulatory framework. As such, any additional levy specifically for V2X would amount to duplicative charging for the same underlying spectrum resource, which is neither justified nor efficient from a regulatory perspective.

5. Accordingly, it is submitted that no spectrum charges should be levied for V2X/V2I services at this stage, and the regulatory approach should instead focus on enabling deployment, minimising cost burdens, and encouraging ecosystem development in the interest of public safety and national infrastructure.

6. It is further submitted that this position may be reviewed after a period of approximately five (5) years through consultative exercise, once the V2X ecosystem in India matures, deployment models stabilize, and clearer commercial use cases and revenue streams emerge.

Q14. If answer to Q12 is affirmative, whether the spectrum charges for the V2I communication service authorised entities under the proposed V2I communication service authorisation should be levied as a percentage of Adjusted Gross Revenue (AGR)? If yes, are there any specific operational/ non-operational revenue items that should be included in/ excluded from AGR for the purpose of determination of spectrum charges? Please provide your response with detailed justification.

VIL Comments to Q. No.14

As provided in above comments to question no 12 and 13, we strongly recommend that there should be no spectrum charges on the spectrum assigned, atleast for an initial period of 5 years, post which a review can be carried out through a consultative exercise. Accordingly, the decision on the Inclusions and exclusions in the Adjusted Gross Revenue (AGR) may also be taken at an appropriate time.

Q15. If response to questions 13 and 14 is negative, then what should be the appropriate methodology for determination of spectrum charges for the V2I communication service authorised entities under the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.15

We reiterate our above comments to Question no. 12, 13 and 14.

Q16. For spectrum assigned to the V2I communication service authorised entities under the proposed V2I communication service authorisation, what should be the appropriate payment terms for spectrum charges, if any? Please provide your response with detailed justification.

VIL Comments to Q. No.16

We reiterate our above comments to Question no. 12, 13 and 14.

Q17. What are the potential sources of revenue, if any, for an V2I communication service authorised entity under the proposed V2I communication service authorisation? Please provide your response with detailed justification.

VIL Comments to Q. No.17

1. It is submitted that the potential for direct revenue generation from V2I/V2X services, particularly in the near to medium term, is limited and fundamentally different from traditional telecom service models. V2X deployments are expected to be primarily corridor-specific, project-driven, and led by Government, semi-Government, and public sector agencies, with Telecom Service Providers (TSPs) acting largely as implementation partners rather than independent commercial service providers.

2. In the Indian context, the principal model for deployment is expected to involve public authorities such as NHAI, State transport agencies, and urban local bodies undertaking projects for specific highways, urban corridors, or smart city zones. Under this framework, TSPs would be selected through tender-based processes for deployment of connectivity infrastructure, RSUs, and associated services. Accordingly, the primary revenue stream for TSPs would arise in the form of project-based payments or service contracts from such authorities, rather than from end-users or subscribers in a conventional sense.

3. This indicates that V2X is inherently a public infrastructure and safety-oriented deployment, where revenue is linked to execution of Government projects rather than ongoing commercial monetisation. Any costs associated with network provisioning, spectrum usage, or infrastructure

deployment are therefore likely to be embedded within project budgets and borne by the procuring authority, rather than recovered through market-driven revenue streams.

4. Further, it is important to note that V2X applications—particularly in their initial phases—are centred around safety-critical and mobility use cases such as collision avoidance, traffic signal coordination, and hazard warnings. These use cases are designed to deliver societal and economic benefits in terms of reduced accidents, improved efficiency, and enhanced public safety, rather than direct monetizable services.

5. International experience also supports this deployment and revenue model. For example, in China, large-scale C-V2X deployments have been undertaken through government-led pilot zones and "vehicle-road-cloud integration" projects, where roadside infrastructure, communication systems, and edge computing are deployed across selected urban areas and transport corridors as part of coordinated public initiatives. These deployments focus on enabling smart public transport, traffic management, and safety applications, with infrastructure investments driven by state-backed programmes rather than end-user revenue models.

6. Similarly, in other jurisdictions such as the United States, V2X deployments have been supported through government-funded programs and pilot projects, where roadside units and connected vehicle environments have been deployed by public agencies in collaboration with industry stakeholders. These examples demonstrate that V2X ecosystems globally are initially sustained through public sector investment and policy support, rather than standalone commercial revenue streams.

7. In light of the above, it is submitted that any potential revenue streams for V2I authorised entities may, at best, evolve gradually over time through expanded use cases such as logistics optimisation, fleet management, or advanced mobility services; Value-added services built on top of V2X data platforms; Integration with broader smart city and intelligent transport ecosystems. **However, such opportunities remain evolving and uncertain at present, and should not be assumed as a basis for imposing regulatory or financial burdens in the current stage.**

8. **Accordingly, it is submitted that V2X/V2I services should be viewed primarily as public infrastructure and safety-driven deployments, with revenue models that are Project-based, Government-led, and Non-traditional in nature.**

9. **In view of this, regulatory approaches—including those related to spectrum charges or revenue-linked levies (authorisation/license fee) —should be carefully calibrated to avoid imposing financial burdens that would ultimately be borne by public authorities and could hinder deployment.**

Q18. What should be the definitions of Gross Revenue (GR), Applicable Gross Revenue (ApGR), and Adjusted Gross Revenue (AGR) for V2I communication service authorised entity under the proposed V2I communication service authorisation? Further, what should be the relevant items of revenue,

exclusions and deductions and consequent definitions of GR, AGR and ApGR? Please provide your response with detailed justification.
And

Q19. What revenue components should be included in, or excluded from, the computation of Gross Revenue (GR), Applicable Gross Revenue (ApGR) and Adjusted Gross Revenue (AGR) for the purpose of determining authorisation fees or spectrum charges for the proposed V2I communication service authorisation? Please provide your response with detailed justification.

VIL Comments to Q. No. 18 and 19

1. We reiterate our above comments to Question no. 12, 13, 14 and 17 that there should be no spectrum charges applicable for the spectrum assigned for V2I services, for an initial period of 5 years. Decision on the definitions of Gross Revenue (GR), Applicable Gross Revenue (ApGR), and Adjusted Gross Revenue (AGR) shall also be taken along with the decision on charging mechanism, through a consultative exercise at a relevant point in time.

2. The revenue generated by the access licence holders through these services shall be kept out of the purview of the AGR (existing license fee calculations) for initial period of 5 years.

Q20. Whether revenue derived from safety-related V2X services under the proposed V2I communication service authorisation should be excluded from the computation of AGR, in view of their public interest and non-commercial nature? Please provide your response with detailed justification.

VIL Comments to Q. No.20

Please refer our above comments to Question no, 12, 13, 14 and 17.

We reiterate that no spectrum charge or any authorisation/license fee should be applicable on the revenue derived from the V2X services. Therefore, this revenue should be explicitly excluded while computing AGR of the access service providers, irrespective of the V2X services being safety-related or non-safety related.

Q21. What should be the appropriate entry fee for V2I communication service authorised entities under the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.21

We reiterate our above comments to Question no. 1 and 2 and submit that V2I services should be allowed to be provided by only access service providers. Therefore, there should be no separate or

additional entry fee applicable. The extant norms of entry fee amount for taking access service authorisation should suffice.

Q22. What should be the appropriate terms and conditions for bank guarantees for the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.22

We reiterate our above comments to Question no. 1 and 2 and submit that V2I services should be allowed to be provided by only access service providers. Therefore, there should be no separate or additional bank guarantees applicable and the extant norms should suffice.

Q23. What should be the applicable minimum equity and minimum net worth requirements for authorised entities under the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.23

We reiterate our above comments to Question no. 1 and 2 and submit that V2I services should be allowed to be provided by only access service providers. Therefore, there should be no separate or additional requirements of minimum equity and minimum networth to be fulfilled.

Q24. What should be the applicable application processing fee for the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.24

We reiterate our above comments to Question no. 1 and 2 and submit that V2I services should be allowed to be provided by only access service providers. Therefore, there should be no separate or additional application processing fee for the V2I services and the extant norms applicable to access authorisation should suffice.

Q25. What should be the applicable rate of authorisation fee for proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.25

1. We reiterate our above comments to Question no. 1 and 2 and submit that V2I services should be allowed to be provided by only access service providers. Further, we reiterate our above comments to question no. 12, 13 and 17.

2. It is submitted that the likely deployment model for V2I infrastructure in India will be project-driven and anchored in Government, semi-Government, and public sector entities, such as NHAI, State road authorities, and urban local bodies. Under this model, Telecom Service Providers (TSPs) will typically be engaged through tenders for specific road stretches, corridors, or mobility projects. Consequently, any regulatory or spectrum-related costs imposed on TSPs will not be absorbed within their own balance sheets, but will necessarily be factored into project costing and ultimately passed on to the respective Government or road-owning agency.

3. The imposition of authorisation fee in such a framework would effectively translate into an additional fiscal burden on public authorities, increasing the cost of infrastructure projects and potentially constraining the scale and pace of V2X deployment. This would be counterproductive to the objective of encouraging widespread adoption of safety-critical technologies across national and state transport networks.

4. **Therefore, we strongly urge the Authority to exempt the V21 services from the ambit of any authorisation/license fee, given the nature of services and business model involved. The access service providers should also be explicitly allowed to exclude revenue from these services while computing AGR for the payment of license/authorisation fees.**

Q26. Apart from the financial provisions discussed earlier, are there any other financial terms and conditions that should be made applicable for the proposed V2I communication service authorisation? Please provide detailed justification in support of your response.

VIL Comments to Q. No.26

No comments.

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