

## **DIPA's Response to TRAI Consultation Paper on "Use of Street Furniture for Small Cell and Aerial Fibre Deployment"**

### **PREAMBLE**

1. At the outset, we would like to thank the Authority to bring out this Consultation paper for discussion on the **Use of street furniture for small cell and aerial fibre deployment** as the implementation of the same is pending for a very long time. We appreciate the Authority for its constant efforts for the growth of digital infrastructure in the Country which carries utmost importance in a fast-digitizing nation like ours.
2. Such efforts need to be continued in the right direction for achieving national objectives and meeting the exponentially growing demand for telecommunication/digital services, especially for the implementation of various Government programmes like Digital India, Make in India, development of Smart Cities and timely deployment of 5G etc.
3. Small cells are low-powered radio access nodes or base stations (BS) operating in licensed or unlicensed spectrum that have a coverage range from a few meters up to a few hundred meters.
4. Small cells intend to provide localized coverage in households and hotspot services especially in areas like city-centres and transport hubs. Small cells provide coverage only for a very short distance and therefore they are installed in a dense or hyper dense manner, i.e., a very large number (even more than 200 per square kilometer) for good geographical coverage to provide highly reliable and high-capacity broadband.
5. The use of higher frequency bands for 5G services would require that macro cells be complemented with extensive deployment of small cells so as to support all kinds of uses and applications, at all locations. In longer-term a full-fledged 5G network will consist of Macro Base Stations, working in low/mid-frequency band, to provide umbrella coverage and many Small Base Stations, working in mid/high frequency band to provide ultra-high broadband capacity, coverage in hard-to-reach areas and enabling low latency services.
6. With small cells becoming an important part of 5G rollout, fiberized backhaul will be key. India has approximately 2.9 million kilometres of OFC. 34.4% of the towers are currently fiberised. Total 70% of the towers need to be fiberized by 2024 keeping in line with the National Broadband Mission guidelines and also to achieve a smooth rollout of 5G. Emphasis shall be given to the new OFC technologies (e.g: connectorized OFC, Optical-Electrical Hybrid Cable, Bend Insensitive Optical Fiber, etc.) to accelerate tower Fiberization.

7. Considering the cost involved, complexity and time frames for densification of the proposed 5G network infrastructure, there is a need to put in place a mechanism for using the existing street resources for large-scale deployment of small cells. Granting access to street furniture by the controlling authorities at a reasonable cost could remove a significant hurdle in 5G small cell deployment in the country.

## 8. Current Status

- a. TSP/IPs develop the light weight infrastructure capable of handling 1T deployments
- b. Limited ROW availability for deployment of small cells and aerial fibre on street furniture (utilities/street light poles)
- c. Majority of DISCOMs and municipal bodies are reluctant to lease poles (public infrastructure) for Small Cell and Aerial OFC deployment
- d. TSPs/IPs acquire the right of usage of street furniture from concerned authorities (wherever allowed) and upgrade the infrastructure to support small cells.
- e. Globally strong shift in optical fiber technologies is observed as legacy ITU-T G.652.D fiber is being replaced by bend-insensitive ITU-T G.657 fiber. Additionally, there is a shift in the adaptation/deployment of high fiber count OFC as modern technologies demand more bandwidth and more devices need to be connected through the fibers. Ribbon technologies are getting preference in high fiber count cables due to ease in splicing & fiber management. New ribbon technologies (partially bounded ribbon) have evolved.
- f. Fire safety regulations for premises cabling & equipment in most of the European countries are made stringent like CPR rating.
- g.

## BACKGROUND

### 9. Some of Global Trends regarding the Use of Street Furniture for the deployment of Small Cell and Aerial OFC are:

- a) United States of America – Since the US comprises a lot of states, the state legislatures have enacted their small cell legislation that streamlines regulations to facilitate the deployment of 5G small cells. The FCC has released an order entailing the following:
  - a. RoW Fees and Other Charges
    - i. RoW Access fees
    - ii. Fees for the use of government property in the RoW such as light poles, traffic lights, utility poles, and other similar property suitable for hosting Small Cell

- iii. Application or review fees and similar fees imposed by a state or local government as part of their regulation of the deployment of Small Cell inside and outside the RoW
  - b. Approval Timelines – The failure of a state or local government to issue a decision on an SWF siting application within the presumptively reasonable periods (60 days, 90 days) above will constitute a “failure to act” and amount to a presumptive prohibition on the provision of personal wireless services.
- b) European Union – The European Union, through the European Electronics Communication Code (EECC), 2018 has adopted a set of regulations to simplify the deployment of “Small area wireless access points (SAWAP)”, the term used to refer to small cells in the report. Article 58 of the code provisions that the competent authorities shall not unduly restrict the deployment of SAWAP, and that member States shall seek to ensure that any rules governing the deployment of the same are nationally consistent.
- c) Australia – The Australian Communications and Media Authority and the Department of Communications have put in place several policies to facilitate infrastructure deployment, including reductions in planning requirements for small-cell deployments in the public space, and the removal of barriers between license types to facilitate the re-allocation of incumbent spectrum holders.
- d) Hong Kong – No Right of Way has been provided for the use of radio base station (RBS) for 5G rollout specifically, but guidelines and a One-stop Application Procedure (OSAP) has been provided for the installation of RBS at rooftops, building and restricted areas for serving all generations of services.
- e) Others
  - a. The Infocomm Media Development Authority (IMDA) in **Singapore** has directed “mobile installation spaces” — typically rooftop spaces reserved for telecommunication equipment — to be provided to network operators by building developers and owners free of charge.
  - b. In **Japan**, operators can install 5G base stations on 208,000 traffic lights across the country and the Government has proposed that the costs of using the traffic lights for 5G deployments be shared between operators and local administrations. Moreover, traffic lights are planned to be equipped with communication functions for traffic data collection & processing and emergency communication.
  - c. In **Seoul (South Korea)**, 5G networks were established on subway lines being used as street furniture.
  - d. In **Egypt**, no building permits are required for small cell deployments subject to meeting RF guidelines.
  - e. As per the Wayleave Right under the Telecommunications Act 2003 of **Austria**, the providers of a communications network can exercise

wayleave rights on public property, such as streets, footpaths, public places, and the airspace above, free of charge and without special authorization.

- f. In a paper released on the 5G action plan for **Denmark**, the Danish Energy Agency has mentioned their plans for issuing guidelines (including best practice examples) for public authorities on how to deal with applications for permission to set up telecommunications infrastructure.

## Our Question-wise response to TRAI Consultation Paper is as follows:

**Q1. Is there a requirement for any modification in existing RoW Rules as notified by DoT to accommodate small cell deployment on street furniture? If yes, please provide the changes required.**

### DIPA's Response

Yes, As the quantum of small cells for the upcoming technology like 5G will be very huge, various further amendments and modifications will render themselves necessary for the deployment of robust digital infrastructure in the country.

Some of the issues at hand that will require urgent intervention are:

1. Lengthy and complex procedures will need to be turned to **Simplified rules for a faster and streamlined approval process like time-bound one stop digital approval** to ensure quick and timely deployment as per the expected requirements.
2. With India still not prepared for commercial 5G rollout, the government will need to provide **easy access to TSPs/IPs to public infrastructure** like street lights, traffic lights, metro pillars, electricity poles, bus stops, public buildings/rooftops for the installation of small cells on non-discriminatory terms.
3. For site locations, where electricity authorities, metro rail corporations or other government organizations are permitting installations of small cells & telecom infrastructure, need for further permission from municipal corporation and local bodies can be eliminated to **speed up the approval process.**
4. As large numbers of small cells are required to be deployed, in order to reduce the approval time and administrative burden of local authorities, **batch processing for group of small cells** will play a crucial role. Also, for making deployment of huge number of small cells **economically viable**, administrative fee for getting approvals/clearances needs reconsideration. **Removal of entry barriers** like

registration fees/RoW charges for ease of installation would promote new competitors in the market.

5. Though comprehensive RoW Rules, November 2016 have been notified, necessary steps need to be taken to follow up with the state governments for **getting** RoW Rules, November 2016 **implemented properly**. Moreover, keeping with the requirements of small cell deployment, **suitable amendment in the** RoW Rules, November 2016 **will be beneficial**.
  6. **Sharing of the small cell sites be also permitted in order to save CAPEX**, this has already been recommended by TRAI multiple times
  7. **Streamline guidelines for development of future street infrastructure** to support small cells and aerial fibre & power systems
  8. **DISCOMS /local bodies/municipalities to comply with the guidelines and ensure the availability of ROW** for aerial optical fibre laying & other telecom infrastructure
  9. **Unrestricted access to RWAs for installation of Small Cells**
  10. RoW rules should allow Aerial Fiber on TSP owned poles and Energy Board (EB) poles.
  11. RoW rules should do away with the collection of all charges/ minimize charges levied per KM.
  12. **No Location-specific restrictions/requirements for installing Small Cells**
  13. **Availability of LT electric connection up to 4KW at street furniture** locations wherever required for powering small cells and OFC equipment
  14. **Create awareness** regarding the opportunities, benefits of better coverage
  15. There shall be proper guidelines for OFC deployment, especially in aerial installation by selecting the right accessories based on the condition of the street furniture as it ensures good network health and QoS even in extreme weather conditions.
- Q2. Have the amendments issued in 2021 to RoW rules 2016 been able to take care of the needs of aerial fibre deployment? If not, what further amendments can be suggested? Please provide exact text with justification.**

### **DIPA's Response**

**As per Ericsson Mobility Report, November 2021, the average data consumption per user is 18.4 GB which is expected to rise up to 50 Gb by 2027. To meet the requirement of exponential data growth, fiberisation is a necessity.** The present set of guidelines do not all pervasively cover the scope of Aerial Fibre or use of Street Furniture for the deployment of Small Cells and Aerial OFC.

There is need for comprehensive guidelines which cover all the aspects of Aerial Cable deployment such as the approval process should be less cumbersome, single authority for giving approval on behalf of multiple departments, GIS mapping of all street infrastructure on state portal etc. to be part of the existing policy.

Hence, suitable amendments will be needed to ensure that the same is streamlined.

1. **Streamline guidelines for development of future street infrastructure** to support small cells and aerial fibre & power systems
2. **DISCOMS /local bodies/municipalities to comply with the guidelines and ensure the availability of ROW** for aerial optical fibre laying & other telecom infrastructure
3. **Level Playing Field**: As no RoW charge for BharatNet, the same must be applied to the rollout of fibre by service/infra providers to level the playing field.
4. **No Extra Charges**: No extra charges should be levied for fibre deployment since the ownership of the land does not change hands, and there is no erosion in its value.
5. There should be a provision of **bulk approval and no separate NoCs should be required for each micro-site or small cell.**
6. **Provision of GIS mapping of all street infrastructure** on state portal etc in the existing policy.
7. **Creation of National Fiber Authority and establishment of National Grid**: As per NDCP 2018, DoT has proposed the creation of the National Fiber Authority of India, which will resolve the issues related to OFC rollout on priority.
8. **Amendments in the National Building Code**: The national building code should be amended and all the upcoming infrastructure projects should have provisions for laying of duct, cables, for telecom services similar to the provisions made for public utilities like water and electricity. Telecom infrastructure (like duct, cables and other telecom equipment) to be deployed under the national building code / within any premises must comply with fire safety requirements (like CPR rating). .

Telecom Infrastructure needs to be declared “Critical” infrastructure and accorded the status of “Public Utility”.

9. **Sharing of fiber:** The sharing of aerial fibre as much as possible to the tower should be mandated as this will avoid duplication of infrastructure, as well as result in CAPEX reduction. Emphasis on sharing of fiber shall be given by using next generation OFC technologies like termination-friendly cables (micromodule cable), high fiber count OFC, Installation & maintenance friendly (light weight OFC, lower diameter, mid-span accessible, etc), CAPEX friendly (longer span Aerial OFC).

### **Q3. What are the suggestions of stakeholders for aligning RoW policies issued by various other Central Government Bodies with existing DoT RoW policy?**

#### **DIPA’s Response**

- There are inconsistencies in RoW related fees and procedures across various Central Government Agencies and States.
- In order to bring consistency in RoW related procedures and general principles related to RoW permission, fees, compensation, charges etc. there is a need to issue Policy Guidelines keeping in view the fact that **telecom is a central subject and Centre has exclusive privilege to provide for guiding principles in relation to establishment of telecom infrastructure in the country.**

There is an urgent need for the alignment of the RoW Rules at the various Authority levels. The same might be achieved by:

1. The **documentation required for issuing NOC should be the same/similar for all the departments.**
2. **No multiple approvals should be needed for access to street furniture**
3. The central government bodies should be **made to adopt these RoW Rules in their respective policies/ by-laws** in the same way as states are getting their respective telecom policies aligned with Central RoW Rules.
4. **Timelines for clearing the NOC should be the same for all the departments.** There should be a definitive 21-day timeline for clearing the application by all the departments. In case of non-conformity, there should be deemed approval clause.
5. **All portals should be connected/hyperlinked to a single-window central portal for better monitoring and processing.**

6. **Rates and processing fees should be made rationalized across every department**

**Q4. Whether it should be mandated that certain public infrastructure (municipality buildings, post offices, bus, and railway stations, etc.) be earmarked to have dedicated spaces that allow service providers to deploy macro/small cells? If yes, what are the possibilities and under what legal framework this can be done? What should be the terms and conditions of use of such infrastructure? Please provide detailed inputs with justifications.**

**AND**

**Q5. Can some of the street furniture like traffic lights, metro pillars etc be earmarked for mandatory sharing between controlling administrative authority and Telecom Service/Infrastructure providers for deployment of small cells and aerial fiber? Does existing legal framework support such mandating? What should be the terms and conditions of such sharing? Please provide details.**

**AND**

**Q6. How can infrastructure mutualization and infrastructure collaboration be ensured to avoid exclusive rights of way? What legal provisions can support mandating these? Provide full details.**

**DIPA's Response Q4, Q5, Q6**

**Benefits of Street Furniture for 5G**

**Street furniture** refers to objects in public spaces that can house small-cell units in boxes and are considered visually commonplace and acceptable to the public with **a power source for the wireless equipment to function.**

- Usage of Public Infrastructure like Electricity Poles for Aerial OFC
- Street Furniture provides power backup and coverage

With the cost of deployment rising every day, Small Cell deployment on Street Furniture tends to provide various benefits.

- Better Quality of Services (QoS)
- Expanding network coverage
- Going closer to the consumers
- Access at a reasonable cost would increase cost savings
- Smoothen 5G rollout by reducing a major hurdle

**Reforms Required**



- **Dedicated space should be made available on a mutually agreed commercial basis**
- **Uniform guidelines need to be issued for public infrastructure/street furniture which is under the jurisdiction of the Central Government.**
- For public infrastructure/street furniture under the State Government jurisdiction, the **State Broadband Committee needs to play a pivotal role** in providing an enabling framework for the roll-out of networks. This will provide the **State to be ranked higher in the Broadband Readiness Index** which would encourage investments in the State.
- The present system of granting access to public spaces/ structures for installing small cells varies by state and the local body/agency and **must be made uniform** in its application with simple and efficient processes to award permits
- **Sharing of the small cell sites be permitted**, this has already been recommended by TRAI
- **Streamline guidelines for granting permissions for use of street infrastructure** to support small cells and aerial fibre & power systems
- **DISCOMS /local bodies/municipalities to comply with the guidelines and ensure the availability of ROW** for aerial optical fibre laying & other telecom infrastructure
- **Unrestricted access to RWAs for installation of Small Cells**
- **No Location-specific restrictions/requirements for installing Small Cells**
- Therefore, there should be **clear provisions in RoW Rules for mandatory sharing of street furniture citing telecom connectivity being an essential service.**
- The Administrative authority should be encouraged to come up with their **own guidelines providing for these street infrastructures free of cost or bare minimum charge.** This is similar to state and municipal corporations are encouraged to have their telecom policy aligned with central RoW Rules 2016. **States should have enabling provisions for using the Street Furniture such as EB/LT Poles, Street Light Poles etc.**
- There should be a clear provision in RoW Rules 2016 **exempting small cell installations from location registration requirements** unless necessary for other reasons.

State and Central governments can encourage sharing by incentivizing in terms of lower restoration/ BG charges etc.

### **Infrastructure Collaboration and Mutualization**

- Mutualization is sharing of a common infrastructure by all service providers. Therefore, Infrastructure mutualization **will result in sharing of street infrastructure** and which will further ensure that all the TSPs/IP-1s should have co-existing Right of Way on the particular street furniture.

- The **administrative authority should include mandatory sharing in an unbiased manner** with all service providers in **their respective operating manuals/ policies**. It should be cleared through guidelines that telecom is a central subject and all policies concerning or affecting telecom connectivity should be governed by central rules and guidelines.
- A collaborative infrastructure houses different networks or is jointly constructed with other linear infrastructures, such as electricity lines or roads. In some cases, service providers should be allowed to erect street furniture in collaboration with administrative authority for small cell deployment. This will mean co-existing ownership rights and will avoid exclusive right of way. Even in collaboration, all service providers should be allowed to share in an unbiased manner.
- **Any party causing any damage etc. should be responsible for the timely restoration and pay the restoration charges.**
- This will ensure no exclusive right of way to any administrative authority. This **RoW can be shared further by each co-owner party.**
- **In the case of infrastructure mutualization or collaboration, an agreement can be signed by both the parties which would be binding on them.**

**Q7. Should there be permission exemption for deploying certain categories of small cells at all places or all categories of small cells at certain places (Like apartments etc.)? What legal framework will support such exemptions?**

**AND**

**Q8. What should be the criterion/ conditions (like power, height etc.) and administrative procedure for implementing such exemptions? Please provide exact text with detailed justifications.**

### **DIPA's Response Q7, Q8**

#### **Suggested Exempted Categories**

##### **1. In Building Solutions (IBS)**

The Policy should intend to promote installation of In Building Solution (IBS), where there is a poor connectivity in terms of weak signal strength inside the office, shopping mall, hospitals, multi-story building, education institutions and objective is to strengthen quality of service of mobile network.

- In Building Solution Component being a small equipment can be installed on any type of land/building/utility pole and there is no requirement of getting the permission for installation of these components from the Local Authority/Nodal Officer but it is required to get permission from the Administrative Authority of the concerned building. (Applicable only for Government buildings and no such NoC/Consent will be required for private buildings).

- The application may be made to the Administrative Authority of the Building/ Head of the office with Layout diagram for implementing IBS in the building.
- There shall be no fee to be charged for IBS. However, charges can be levied for provision of power, fixtures, etc. if taken by the applicant.

## 2. Small Cell, Micro Cell, Poles and Micro-Communication equipment

- “Micro Communications Equipment” means a Pico/ Micro/ Pole site which is small in size and light in weight, deployed on buildings, utility/ streets poles, street furniture, indoors in large buildings viz: malls convention centres and in areas having space constraints, narrow streets, densely populated areas and open public spaces.
- Installation of Micro/Small Communication Equipment/Pole shall be promoted where erection of Mobile towers may not be feasible.
- Micro/Small Communications Equipment, because of their size, can be installed on any type of land/building/zone across the State regardless of its specified land use including but not limited to the premises of Institutional/Government buildings/residential buildings like Multi-Story Buildings/Group Housing Complexes/building used for industrial and commercial purposes, On street electric poles, telegraph poles and other structures.
- However, no specific Permission is needed for installation of Small Cell, Micro Cell and Micro-Communication equipment except from the consent of property owner.
- The application may be made to the Property Owner/Administrative Authority of the Building/ Head of the office with Layout diagram for implementing IBS in the building.

### Suggested Guidelines

- There should be **permission exemption for deploying of the small cells at all the places provided the small cells do not violate the radiation norms as decided by the appropriate authority of DoT.**
- There should **not be any permission required for deployment of small cells on private property.**
- There should be only need of intimation to govt. administrative authority without any permission fee requirement for small cell deployment. There can be legal framework for **compulsory sharing with no exemptions except on matter of National Security or where it interferes with working of street furniture.**
- **No additional permission should be required where already permission is available for other telecom infrastructure.**
- **Such exemptions should made part of RoW Rules 2016 or may be issued in form of guidelines/ clarifications to RoW Rules 2016 by DoT and central govt. for small cell deployment.**

### Criteria/Conditions for Exemption

- The **only** criteria or conditions that should be applicable is **structural stability and number of small cells allowed in consonance with that.**
- **The deployment should not hamper the aesthetics of the existing structure**
- Only that street furniture should be earmarked where **suitable power supply is available or can be made available.**
- **Either amendment in RoW Rules 2016 or guidelines/clarification to RoW Rules** should be made to exempted small cells and earmarked street furniture should always be available for small cells deployment.
- **No permission except intimation** should be necessary. **Intimation should be given in bulk area wise and not for each street furniture.** Small cells should be then deployed in **3-4 days**.
- Street Furniture Administrative authority **should include these clarifications in their operational manuals or policy documents.**

**Q9. For Small Cells that do not fall under the exemption category, should there be a simplified administrative approval process (like bulk approvals etc.) for deployment? If yes, what should be the suggested process? If not, what should be the alternative approach?**

### DIPA's Response

1. Ideally, there should not be any approval required except the 3-4 days prior intimation to deployment.
2. For a few small cells that do not fall under the exemption category, there should be a simplified administrative approval process:
  - Application for approval should have provision for **bulk approvals** basis area-wise.
  - There should **not be any fee** for such approvals. The only basis of seeking approvals should be the security of the nation and infrastructure and sharing of available infrastructure costs (power expense etc).
  - Charges, if any, are to be **only** levied in case of any defacement of such structures, and should **not** be limited to more than restoration charges
  - Once deployed, the approvals should **not** be taken back except on serious issues such as national security, structural defects/ incapability etc.
  - Approval should not be allowed to be taken back on frivolous non-scientific based public complaints.
3. With India still not prepared for commercial 5G rollout, the government will need to provide **easy access to TSPs/IPs to public infrastructure** like street lights, traffic lights, metro pillars, electricity poles, public buildings/rooftops for the installation of small cells on non-discriminatory terms.

4. For site locations, where electricity authorities, metro rail corporations or other government organizations are permitting installations of small cells & telecom infrastructure, need for further permission from municipal corporation and local bodies can be eliminated to **speed up the approval process**. Also, **deemed approval clause should be added to provide permissions within a reasonable timeframe**.
5. As large numbers of small cells are required to be deployed, in order to reduce the approval time and administrative burden of local authorities, **batch processing for group of small cells** will play a crucial role. Also, for making deployment of huge number of small cells **economically viable**, administrative fee for getting approvals/clearances needs reconsideration. **Removal of entry barriers** like registration fees/RoW charges for ease of installation would promote new competitors in the market.
6. **DISCOMS /local bodies/municipalities to comply with the guidelines and ensure the availability of ROW** for aerial optical fibre laying & other telecom infrastructure
7. **Unrestricted access to RWAs for installation of Small Cells**
8. **No Location-specific restrictions/requirements for installing Small Cells**
9. **Availability of LT electric connection up to 4KW at street furniture** locations wherever required for powering small cells and OFC equipment
10. For **small cells being deployed inside private apartments, no formal approval from the respective government authority should be made mandatory**.

**Q10. What power-related problems are envisaged in deploying small cells on street furniture? Please provide full details.**

**AND**

**Q11. What viable solutions are suggested to address these problems? Please provide full details.**

### **DIPA's Response Q10, Q11**

Despite making remarkable progress in electricity distribution over the years, India still faces challenges in meeting its growing power demand. The reliable supply remains low in the country with unstable grid connectivity in many parts.

1. Uninterrupted power supply is one of the primary requirements for functioning of small cells and therefore **street furniture like electric poles, bus shelter, billboards, gazebos, traffic lights that already have electric connection can be best suited to host small cells.**
2. This can be an **economically efficient solution as no extra capital expenditure is required to make electricity provisions.**
3. There has to be **proper arrangements for cooling and heat dissipation requirements.**
4. There is a need to look into a common power consumption bill for a large number of small cell sites (**bulk billing**) which are going to be installed on street furniture. **A lot of effort will be wasted if a bill is issued on a pole-by-pole basis.**
5. **Availability of LT electric connection up to 4KW at street furniture** locations wherever required for powering small cells and OFC equipment.
6. However, **some sort of power backup will be required to be hosted in the equipment that will be mounted on the street furniture.**
7. Provision for **priority electricity connection within 15 days, at industrial tariffs** should be set in place.
8. Demand notice at the time of connections is generally on higher side citing various reasons such as need of separate transformers, lines to be fetched from far areas etc. **Telecom being critical and essential service discounted prices and minimum requirements and charges should be imposed while raising demand notice at the time of EB installation.**
9. **DISCOMS should not process Disconnection easily on minor complaints of residents and corporators.**
10. **Industrial rates of electricity should be applicable** to telecom/digital infrastructure industry to not further increase the OPEX for an already CAPEX intensive and essential industry.
11. DISCOMS in most of the states are not aware about the use of street furniture for small cells, the power consumption, extra load required for deployment of small cells on poles, upgradation of existing EB lines to cater the extra load, metering and billing , sub meters etc. Other than these no alternative backup or less backup with small batteries which can stand up to 45 mins to 1 hr in case of power failure. **Proper awareness and training is needed to ensure the importance of small cells and aerial OFC for a robust digital infrastructure in the country.**

**12. Sublet of electricity from the private entity e.g. owner of the house/building or nearby establishment to be allowed.**

**13. Separate space to be earmarked for deploying gensets/battery banks at minimum cost**

**Q12. Is there a need for standardizing the equipment or installation practices for next-generation small cell deployment on street furniture? If yes, what are the suggested standards and what should be the institutional mechanisms for defining, and complying to them?**

**DIPA’s Response to Q12**

As presently the data consumption by the users is growing exponentially, **an immediate need for this standardisation does not seem evident.** Hence, presently it would be better to efficiently use the existing street infrastructure for the deployment of the small cells and aerial OFC complying with relevant national / TEC standards. (include mandatory fibre sharing). There is a need to standardize the OFC to ensure easy, reliable and safe deployment, future proofing, effective utilization of the street furniture and support other needs like ease in fibre sharing, Opex and Capex friendliness.

**The cell site can be complied with TEC standard TEC 13019:2021, as may be amended from time to time.**

Typical configurations including weight, power consumption and dimensions are as given below:

Type of small cell	Coverage Radius	Power consumption	Transmit power per carrier per Transmit PA	Number of users (approx.)	Backhaul type	Weight Approx.	Temp
Indoor cells	10 – 50 m	50 – 100 watts	100 – 250 mW	8 – 16	Wired, fiber	< 2 kg	+5°C to +40°C (indoor)
Pico cells	100 - 200 m	60 – 150 Watts	250 mW – 5 W	32 – 100	Wired, Fiber. Microwave	5 – 12 Kg	-40 °C to +55 °C (outdoor) +5°C to +40°C (indoor)

Micro cells	200 m – 1000 m	100 – 500 watts	5W – 20W	200	Wired, fiber, Microwave	5 – 20 Kg	-40 to +55 °C
Street micro	250 m – 2500 m	200 - 500 watts	20W	200 – 400	Wired, fiber, Microwave	6 – 20 Kg	-40 to +55 °C
High band mm wave	100 – 1000 m	200 – 500 watts	Total EIRP: 53 – 62 dBm	32 – 200	Wired, fiber	6 – 15 Kg	-40 to +55 °C
Baseband unit	NA	50 – 400 watts	Processing unit	Configurable	Wired, fiber, Microwave	5 – 20 Kg	0 – 55 degree

**Standardisation can be done for the structures, poles and other street furniture that will be developed in the future.**

**Standardisation of Small Cell equipment being a lengthy process will lead to a huge delay in the go-to-market time for 5G services besides the increase in costs. Hence, the same might not be evidently needed/wanted right away.**

**The equipment or installation practices for next generation small cell deployment on street furniture has to be technology and market driven.**

**Request Members to further comment**

**Q13. Is there a need for a specific mechanism for collaboration among local bodies /agencies for deployment of small cells and aerial fiber using street furniture? If yes, what mechanisms should be put in place for collaboration among various local bodies/agencies involved in the process of permissions with TSPs/IP1s and to deal with other aspects of Small Cell deployment?**

**AND**

**Q14. Kindly suggest an enabling Framework that shall include suggestions about the role of various authorities, rules of coordination among them, compliance rules and responsibilities, approval process, levies of fees/penalties, access rules etc.**



## DIPA's Response Q13, Q14

### Stakeholder Department/Authority owning respective Street Furniture/ Alignment

- DISCOMs - Electricity Department
- Ministry of Defense, Cantonment Board – Cantonment Area
- MoCA, Airport Authority of India - Airports
- MAHUA, respective Metro Authority – Metro Stations/Pillars
- MAHUA, PWD/CPWD - Street Poles/Lights
- Department of Post - Post Office

There is an urgent need for the alignment of the RoW Rules at the State and various Authority levels. The same might be achieved by:

1. Local bodies/ Agencies should be made to understand that **Deployment of small cells and other telecom infrastructure is an essential service and therefore providing its infrastructure should be mandatory and not choice** in their respective SOPs and procedures.
2. For site locations, where electricity authorities, metro rail corporations or other government organizations are permitting installations of small cells & telecom infrastructure, **further permission from Municipal corporations and local bodies need not be mandated.**
3. There should be **uniformity in grant of access to public spaces/ structures** for installing small cells across the state and the local bodies.
4. Constitution of **State Level and District Level inter-department Task Force for speed up deployment of small cells.**
5. There should be **no fee** and mutual sharing of infrastructure and connectivity should be the base of collaboration. Charges, if any, are to be only levied in case of any defacement of such structures, and must **not** be more than **restoration charges.**
6. Local bodies/ agencies need to provide approvals/ permissions in a reasonable time period w.r.t. deployment of small cells. There is a need for **bulk/one-time approval for the small cells by the agencies. Timelines for clearing the NOC should be same for all the departments.**
7. All infrastructure owning agencies shall be required to be on a single **web portal for processing online applications** for small cell deployment cases and their disposal.
8. There shall be **Grid availability for electrical power supply by electricity boards for small cells.**
9. The **documentation required for issuing NOC should be same/similar for all the departments.**

10. **Legal enforcement of RoW guidelines and its amendments across all the departments.**
11. **Constitution of State Level and District Level Task Force for speed up deployment of small cells.**
12. **Nodal officers should be appointed by each department for telecom related issues.**

### **Enabling Framework**

- Digital connectivity should be considered as **essential nation-building activity**.
- There should be **no choice but mandatory** to provide public infrastructure for digital infrastructure like small cells.
- Various authorities should have this policy of providing their infrastructure for digital connectivity free of cost or on minimal charges embedded in their department rules.
- Exempted small cells should be allowed to be set on providing prior intimation on bulk and area basis. The information of the same should be with both infrastructure owner and small cell deployer. The only basis of consideration should be safety and structural capacity.
- All licensees/infrastructure providers should have an **equal opportunity** for installation of small cell infrastructure.
- Each pole or street furniture should not be considered a separate unit for permission, electricity connection, billing etc. **Instead, area wise unit like city, village etc should be considered for the same.**
- There should be a **single web portal** for such permissions and information where all concerned authorities should be available and have access to. **Other services like electricity supply etc should also be applied and made available through same portal.**
- There should be a coordination committee with representative of all concerned authorities with regular meetings for grievance redressal mechanism.
- Charges, if any, are to be only levied in case of any defacement of such structures, and should **not** be limited to more than restoration charges

**Q15. How can sharing street furniture for small cell deployment be mandated or incentivized? What operational, regulatory, and licensing related issues are expected to be involved in sharing of small cells through various techniques in the Indian context and what are the suggested measures to deal with the same?**

### **DIPA's Response Q15**

### **Benefits of Street Furniture for 5G**

**Street furniture** refers to objects in public spaces that can house small-cell units in boxes and are considered visually commonplace and acceptable to the public with **a power source for the wireless equipment to function.**

- Usage of Public Infrastructure like Electricity Poles for Aerial OFC
  - Cost effective
  - Ease to manage
- Street Furniture providing power backup and coverage
  - Reduces power consumption
  - Enhanced coverage

With the cost of deployment rising every day, Small Cell deployment on Street Furniture tends to provide various benefits.

- Better Quality of Services (QoS)
- Expanding network coverage
- Going closer to the consumers
- Access at reasonable cost would increase cost savings
- Smoothen 5G rollout by reducing a major hurdle

### **Benefits of Sharing:**

**Telecom Infrastructure Providers facilitate & support the unique and innovative concept of “Sharing of Telecom Infrastructure”. Mandatory sharing should be promoted to reap the many benefits that it offers to the TSPs and Ips.**

1. Expansion of Network Coverage
2. Reduce CAPEX and OPEX
3. Reduce barriers to entry due to reduction in the cost of deployment
4. Minimise duplication of infrastructure
5. Faster time to roll out services

### **How to encourage private sector participation**

1. IP1s should be the first one to be offered development of common infrastructure, as their business model is based on sharing on a non-discriminatory manner.
2. Sharing of infrastructure needs to be made mandatory. This will have similar positive impact at ground level as clear skyline provided through sharing of telecom towers.
3. Exclusive rights of laying infrastructure should be given to ensure some long-term business viability/visibility.
4. Finance at cheaper interest rates and financial incentives
5. The commercial arrangements with the seeker should be left on mutual consent/bilateral basis.

6. Telecom connectivity through small cell deployment should be envisaged as **essential nation building activity**. So **no profit making or rental generation** should be the target from street furniture available for small cell deployment.
7. The administrative department **can also be incentivized through network and connectivity sharing** from these deployed cells. This will reduce their expenditure on connectivity and improve the working and efficiency of the department through full-time high-speed data connectivity.
8. The electricity department will have corporate customers which will be paying bill without any hassle and thus **increasing their bill paying customer base**.

**Q16. Whether there should be any specific regulatory and legal framework to enable Small Cell and Aerial Cable deployment on**

- **Bus Shelters**
- **Billboards**
- **Electric/Smart Poles**
- **Traffic lights**
- **Any other street furniture**

**AND**

**Q17. What should be the commercial arrangements between the TSP's/Infrastructure Providers and street furniture owners for the same?**

**DIPA's Response Q16, Q17**

There is not any specific regulatory and legal framework is required except few clarifications as below:

- There should be the requirement of intimation/ permission from one administrative authority i.e. the owner of street furniture only. No multiple department permissions should be required.
- For Electric poles owned by DISCOMS, **no** intimation or permission from local bodies should be required.
- Similarly for Billboards, **no** separate permission from local bodies etc should be required.
- The street furniture should be provided by the authorities on a non-discriminatory basis
- **Centre-State Coordination** – With the huge reliability on the digital infrastructure, the playing field has changed. This calls for a greater thrust on **Centre- State coordination favouring the implementation of uniform tax abatement code, analogous labour laws, and a common framework to facilitate ease of doing business.**
- The **rent should be regulated so as to not act as a barrier** by increasing the cost for the already capital intensive infrastructure industry.

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Commercial arrangements between the TSPs/ IP1s and street furniture providers are to be **decided between the parties only**. But following points need to be taken care of through guidelines etc:

- The **street furniture should be available to all in a non-biased manner. There should be uniformity in the grant of access to public spaces/ structures** for installing small cells across the state and the local bodies.
- Public street furniture should be made available with **no or bare minimum charges**.
- Exempting small cell installations from location registration requirements unless necessary for other reasons.
- **Charges, if any, are to be only levied in case of any defacement of such structures, and must be limited to more than restoration charges**
- **The commercial arrangements with the seeker should be left on mutual consent/bilateral basis.**

**Request Members to comment**