



Digital Highways

Why in News?

The [National Highways Authority of India \(NHAI\)](#) has announced its plan to develop around **10,000 km of [Optic Fibre Cable \(OFC\)](#) infrastructure** across the country by the fiscal year 2025.

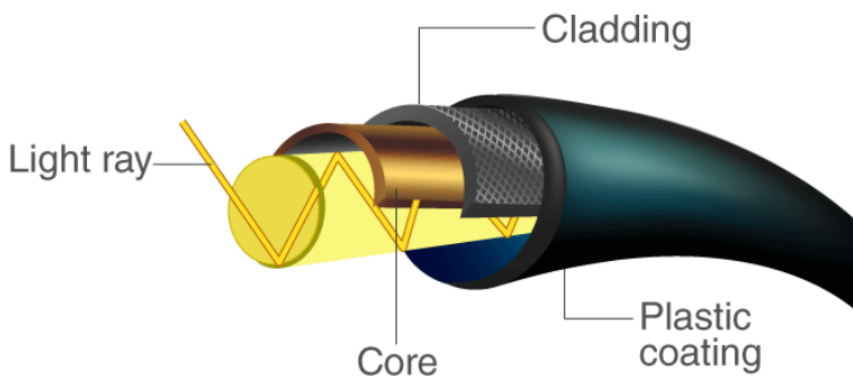
- NHAI's plan aligns with [United Nations' Sustainable Development Goals \(SDGs\)](#) targets, which aim at providing access to safe, affordable, accessible, and sustainable transport systems for all by 2030.

What is OFC?

▪ About:

- Fiber-optic cables are like tubes that hold tiny wires made of glass or plastic. They **use light to send information much faster than regular wires** that use electricity.
- Metal wires are preferred for transmission in optical fibre communication as signals travel with less damage.
 - The optical fiber works on the principle of **total internal reflection (TIR)**.
 - **TIR is the complete reflection of a ray of light** within a medium such as water or glass from the surrounding surfaces back into the medium.
- Light rays can be used to transmit a huge amount of data (In case of long straight wire without any bend).
 - In case of a bend, the optical cables are designed such that they bend all the light rays inwards (using TIR).

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▪ Development of OFC Network:

- The OFC network will be developed by the **National Highways Logistics Management Limited (NHLML)**, a fully owned special purpose vehicle (SPV) of NHAI.
- It will implement the network of Digital Highways by developing integrated utility corridors along the National Highways to develop OFC infrastructure.
- NHAI has identified around 1,367 km on Delhi-Mumbai Expressway and 512 km on Hyderabad-Bangalore Corridor as pilot routes for the Digital Highway development. Providing internet connectivity to remote locations across the country, the OFC network will

help to expedite the rollout of new-age telecom technologies like 5G & 6G

What are Digital Highways?

- Digital Highways or Roads are digital platforms that offer shared public and private services. They **utilize data, technology, and connectivity to improve the Strategic Road Network (SRN) in terms of design, construction, operation, and usage.** This will result in safer travel, quicker deliveries, and better experiences for all.

What is National Highways Authority of India?

- **About:** NHA was set up under **the NHA Act, 1988.**
- **Objective:** It has been entrusted with the **National Highways Development Project (NHDP),** along with other minor projects **for development, maintenance and management.**
 - NHDP is a project to upgrade, rehabilitate and widen major highways in India to a higher standard. The project was started in 1998.
- **Vision:** To meet the nation's need for the provision and **maintenance of National Highways network to global standards** and to **meet user's expectations** in the most time bound and cost-effective manner and **promote economic wellbeing** and quality of life of the people.

[Source: PIB](#)

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