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# Multi-Lane Free Flow Tolling: India's First Barrier-less Toll Plaza on NH-48

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**ECONOMY****SCIENCE & TECH**

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# Multi-Lane Free Flow Tolling: India's First Barrier-less Toll Plaza on NH-48

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## WHY IN NEWS

Union Minister for Road Transport and Highways **Nitin Gadkari** inaugurated India's **first Multi-Lane Free Flow (MLFF) barrier-less tolling system** at the **Chorayasi Toll Plaza on NH-48 (Surat-Bharuch section), Gujarat** on May 1, 2026. The Ministry on May 11, 2026 confirmed the **end-2026 rollout target** for MLFF across the National Highway network.

## BACKGROUND: INDIA'S TOLLING EVOLUTION

PHASE	YEAR	MECHANISM
Manual cash tolling	1990s-2014	Operator-collected cash, paper receipts
FASTag introduced	2014	RFID-based electronic toll collection (ETC)
FASTag mandatory	February 2021	All vehicles required to use FASTag at toll plazas
Hybrid FASTag + cash	2021-2025	Mixed lanes; long FASTag queues during peak
<b>MLFF launched</b>	<b>May 1, 2026</b>	<b>Barrier-less; ANPR + FASTag</b>

FASTag transformed toll collection but still depended on physical barriers and stop-go interactions. A 2024 IIM-Bangalore study estimated that even with FASTag, the average vehicle lost **~7 minutes per major toll plaza** during peak hours.

## WHAT IS MLFF?

**Multi-Lane Free Flow** is a tolling architecture where:

- There are **no physical barriers** – vehicles do not slow down or stop
- Tolls are deducted **automatically** as the vehicle drives through under a gantry
- Two parallel identification systems are used:
  - 1 **FASTag (RFID)** – the existing NPCI-managed electronic toll system

**2 Automatic Number Plate Recognition (ANPR)** – cameras read the number plate; the system queries the **VAHAN** database to identify the vehicle

- For vehicles without a valid FASTag balance or wallet, an **E-Notice** is issued to the registered owner via the Parivahan portal

COMPONENT	FUNCTION
Overhead gantry	Hosts cameras and antennas
ANPR cameras	Read number plates as vehicle passes
RFID antenna	Reads FASTag, deducts toll
Central toll processor	Matches plate to FASTag account; processes payment
E-Notice system	Issues invoice for missed payments

## THE CHORAYASI PILOT: DAY-1 NUMBERS

PARAMETER	DETAIL
<b>Location</b>	Chorayasi, NH-48 (Surat-Bharuch), Gujarat
<b>Inaugurated by</b>	Nitin Gadkari, Minister of Road Transport and Highways
<b>Date</b>	May 1, 2026
<b>Day-1 vehicle throughput</b>	~41,500 vehicles
<b>Average passage time</b>	Continuous flow (no stop)
<b>System uptime Day-1</b>	Near 100% reported

**NH-48** is the busiest National Highway corridor in India – connecting Delhi to Mumbai (and onward to Chennai as NH-48 was renumbered from the older NH-8 and NH-4 system in 2010).

## THE ROLLOUT PLAN

PHASE	TIMELINE	SCOPE
<b>Phase 1</b>	2026	<b>25 NH toll plazas</b> with MLFF – mostly high-traffic golden quadrilateral and expressway plazas
<b>Phase 2</b>	FY 2026-27	<b>~200 plazas</b> under MLFF; spans North-South and East-West corridors
<b>Target</b>	End of 2026	MLFF operational across the entire NH network

Implementing agency: **National Highways Authority of India (NHAI)** – a statutory body under the **NHAI Act, 1988**, functioning under the Ministry of Road Transport and Highways (MoRTH).

## WHY MLFF MATTERS

### 1. Travel Time and Fuel

A NITI Aayog 2023 brief estimated that ~Rs 1.45 lakh crore is lost annually in India due to traffic congestion. Toll-plaza idling alone contributes significant fuel burn and emissions.

### 2. Logistics Cost Competitiveness

India's logistics cost is **~13-14% of GDP** (vs ~8% in OECD economies). The **National Logistics Policy 2022** targets bringing this to **single digits by 2030**. Smoother tolling is part of that ecosystem – alongside PM Gati Shakti, dedicated freight corridors, and multi-modal logistics parks.

### 3. Emissions

NH-48 alone reportedly accounts for over **3 lakh tonnes/year of CO<sub>2</sub>** at toll-plaza idling under the older system. MLFF should cut this substantially.

### 4. Compliance and Revenue

Toll evasion – through unregistered vehicles, expired FASTags, or queue-jumping – is harder under ANPR-backed MLFF. The E-Notice system creates a legally enforceable post-pay path.

## CONCERNS AND IMPLEMENTATION ISSUES

CONCERN	DETAIL
<b>Privacy</b>	ANPR creates a passive movement record. Data protection under the DPDP Act, 2023 needs explicit governance.
<b>ANPR error rate</b>	Worn or non-standard plates can cause misreads. Day-1 reports suggest a low but non-zero error rate.
<b>Dispute redress</b>	E-Notice recipients must have a smooth appeal mechanism, especially for vehicles wrongly identified.
<b>Cyber security</b>	Centralised database = high-value target.
<b>FASTag balance</b>	Drivers may not know they have insufficient balance until they receive an E-Notice.

## UPSC RELEVANCE

### GS Paper 3 – Economy and Infrastructure

- National Highways and transport infrastructure
- Logistics cost competitiveness; National Logistics Policy 2022
- PM Gati Shakti National Master Plan (2021)

### GS Paper 2 – Governance

- NHAI as a statutory body
- DPDP Act, 2023 and government surveillance powers
- Public service delivery digitisation

### Mains Angles

- 1 “Reducing logistics cost is critical for India’s manufacturing competitiveness.” Discuss with reference to recent reforms.
- 2 Examine the privacy implications of large-scale ANPR-based road infrastructure.
- 3 Evaluate the rollout of PM Gati Shakti and its convergence with other infrastructure schemes.

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**MULTI-LANE FREE FLOW (MLFF):**

India's first MLFF launched: Chorayasi Toll Plaza, NH-48 (Surat-Bharuch), Gujarat

Date: May 1, 2026; inaugurated by Nitin Gadkari (MoRTH)

Day-1 throughput: ~41,500 vehicles

Technology: ANPR + FASTag (RFID); overhead gantries; no barriers

E-Notice for missed payments

**ROLLOUT:**

Phase 1: 25 NH plazas in 2026

Phase 2: ~200 plazas in FY 2026-27

Target: full NH network MLFF by end-2026

**IMPLEMENTING AGENCY: NHAI, STATUTORY BODY UNDER NHAI ACT, 1988; UNDER MORTH.**
**FASTAG:**

Launched 2014; managed by NPCI

Mandatory pan-India since 2021 (from February 15, 2021)

RFID-based (passive UHF, 860-960 MHz)

**NATIONAL LOGISTICS POLICY 2022:**

Target: bring logistics cost from ~13-14% of GDP to single digits by 2030

Pillars: digital integration, unified logistics interface platform (ULIP), Gati Shakti

**NH-48: CONNECTS DELHI-MUMBAI-CHENNAI (FORMERLY NH-8 / NH-4 BEFORE 2010 RENUMBERING).**

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