

Levels of Service (LOS) A through F are a way to categorize the quality and efficiency of transportation infrastructure, especially for roads and intersections. The system, defined by the Highway Capacity Manual (HCM), helps engineers evaluate how well traffic is flowing. Here's a breakdown of each level:

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#### **LOS A – Free Flow**

- **Conditions:** Excellent
  - **Description:** Vehicles move at or near free-flow speeds. Drivers experience complete freedom to maneuver.
  - **Delay:** Minimal or none
  - **Example:** Light traffic in rural areas or early morning hours on urban roads.
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#### **LOS B – Reasonably Free Flow**

- **Conditions:** Very good
  - **Description:** Slight restrictions on maneuverability. Speed is still nearly free-flow.
  - **Delay:** Very low
  - **Example:** Suburban roads during off-peak hours.
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#### **LOS C – Stable Flow**

- **Conditions:** Acceptable
  - **Description:** Flow is stable, but maneuverability is noticeably restricted. Interactions between vehicles start to affect speed.
  - **Delay:** Moderate
  - **Example:** Typical peak hour conditions in many urban areas.
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#### **LOS D – Approaching Unstable Flow**

- **Conditions:** Marginal
- **Description:** High density and restricted speeds. Drivers have little freedom to change lanes or speeds.
- **Delay:** High
- **Example:** Busy arterial roads during rush hour.

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### LOS E – Unstable Flow/At Capacity

- **Conditions:** Poor
- **Description:** The system is at maximum capacity. Small disruptions cause serious delays.
- **Delay:** Very high
- **Example:** Freeways with bumper-to-bumper traffic at the edge of gridlock.

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### LOS F – Forced or Breakdown Flow

- **Conditions:** Failing
- **Description:** Traffic is heavily congested. Stop-and-go conditions dominate. Breakdowns in flow occur.
- **Delay:** Extreme
- **Example:** Traffic jams, gridlock, or accident zones during peak periods.

LOS Description	Traffic Flow Characteristics	Delay Level	Color Code (Suggestion)
A Free Flow	Vehicles move at free speeds, full maneuverability	Minimal	 Green
B Reasonably Free Flow	Slightly restricted, but still smooth	Very Low	 Light Green
C Stable Flow	Noticeable restrictions, interactions increase	Moderate	 Yellow
D Approaching Unstable Flow	Limited freedom to maneuver, heavy traffic	High	 Orange
E Unstable/At Capacity	At or near capacity, stop-and-go possible	Very High	 Red
F Forced/Breakdown Flow	Traffic breakdown, jams, stop-and-go prevalent	Extreme	 Dark Red