

ACA – R - 49	<b>Industrial Visit Report</b>	Academic Year: 2025-26
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## ➤ Visit Report

**Subject:** Highway Engineering

**Class:** SY Civil, Semester-III

**Date of Visit:** [3/9/2025]

**Place of Visit:** Pune-Solapur Highway, Maharashtra

**Faculty Guide:** Prof.Dhere P.S.

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## ➤ Objective of the Visit

- To inspect and understand the components of the Pune-Solapur Highway.
- To study the functional aspects of various highway elements.
- To develop practical insight into highway construction and maintenance.
- To correlate theoretical knowledge of highway engineering with real-life infrastructure.

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## ➤ Introduction

The Pune-Solapur Highway is an important National Highway (NH 65) connecting Pune, a major IT and educational hub, to Solapur, known for its textile industry. The highway facilitates significant commercial and passenger traffic, which requires it to be well-designed to sustain heavy loads and variable weather conditions.

The highway consists of various components, each contributing to its structural stability, safety, and longevity. This visit provided the opportunity to observe these components on site, understand their construction methods, and learn their individual functions in maintaining highway performance.

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## ➤ Detailed Components of Pune-Solapur Highway and Their Functions

### 1. Right of Way (ROW)

- **Description:** The highway's ROW typically spans 30 to 60 meters, depending on the terrain and traffic volume.

- **Function:** Provides land for the carriageway, shoulders, medians, service roads, drainage, and utilities. Ensures future expansion possibilities.

## 2. Formation Level

- **Description:** The prepared subgrade on which the pavement structure is constructed.
- **Function:** Acts as the foundation of the highway, transferring loads safely to the natural soil. Proper compaction at this level is crucial to avoid pavement failure.

## 3. Subgrade

- **Description:** The natural soil or improved soil beneath the pavement layers.
- **Function:** Supports all overlying pavement layers; its strength directly impacts pavement performance.

## 4. Sub-base Course

- **Material:** Usually granular material or stabilized soil.
- **Function:** Provides structural support, reduces stress on subgrade, and facilitates drainage.

## 5. Base Course

- **Material:** Crushed stone, gravel, or stabilized material.
- **Function:** Main load-carrying layer that distributes traffic loads evenly to sub-base and subgrade.

## 6. Surface Course

- **Material:** Bituminous or cement concrete layer.
- **Function:** Provides a smooth, skid-resistant surface; protects underlying layers from weather and traffic wear.

## 7. Carriageway

- **Description:** The paved portion of the highway where vehicles travel.
- **Function:** Supports vehicle loads; designed to accommodate different traffic types and speeds.

## 8. Shoulders

- **Description:** The paved or unpaved strip adjacent to the carriageway.
- **Function:** Supports emergency stops, provides lateral support to the pavement, and aids in drainage.

## 9. Camber/Super Elevation

- **Camber:** The transverse slope of the carriageway, generally about 2-3%.
- **Super Elevation:** The banking of the road on curves to counteract centrifugal force.
- **Function:** Both facilitate efficient water drainage and vehicle stability on curves.

## 10. Median

- **Description:** The strip separating two carriageways in a dual carriageway highway.

- **Function:** Prevents head-on collisions by separating traffic flows; may have landscaping to control glare and enhance aesthetics.

## 11. Drainage System

- **Components:** Side drains, culverts, storm water drains.
- **Function:** Removes surface water and sub-surface water, preventing pavement damage and erosion of shoulders and embankments.

## 12. Traffic Signs and Road Furniture

- **Includes:** Directional signs, speed limits, road markings, guardrails.
- **Function:** Provides safety information, regulates traffic, and prevents accidents.

## 13. Expansion Joints and Pavement Joints (for rigid pavement sections)

- **Function:** Allows for thermal expansion and contraction, preventing cracks.
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### ➤ Observations Made During the Visit

- **Pavement Layers:** The highway showed well-constructed layered pavement with clear differentiation between base, sub-base, and surface layers. The bituminous surface was smooth and well-maintained.
  - **Shoulders:** Shoulders were sufficiently wide, paved in some stretches, and gravel-covered in others, serving their purpose effectively.
  - **Drainage:** Side drains and culverts were in good condition, with adequate slope to prevent waterlogging.
  - **Camber and Super Elevation:** Camber was noticeable on straight stretches, ensuring water runoff. Curves were banked appropriately for vehicle safety.
  - **Median:** The highway median was landscaped with vegetation, serving both safety and environmental aesthetics.
  - **Road Furniture:** Clear road signs and reflective markings were visible, contributing to traffic safety.
  - **Traffic:** The highway handled moderate to heavy traffic flow smoothly with minimal congestion.
  - **Maintenance:** Regular maintenance activities like pothole repair and shoulder cleaning were evident.
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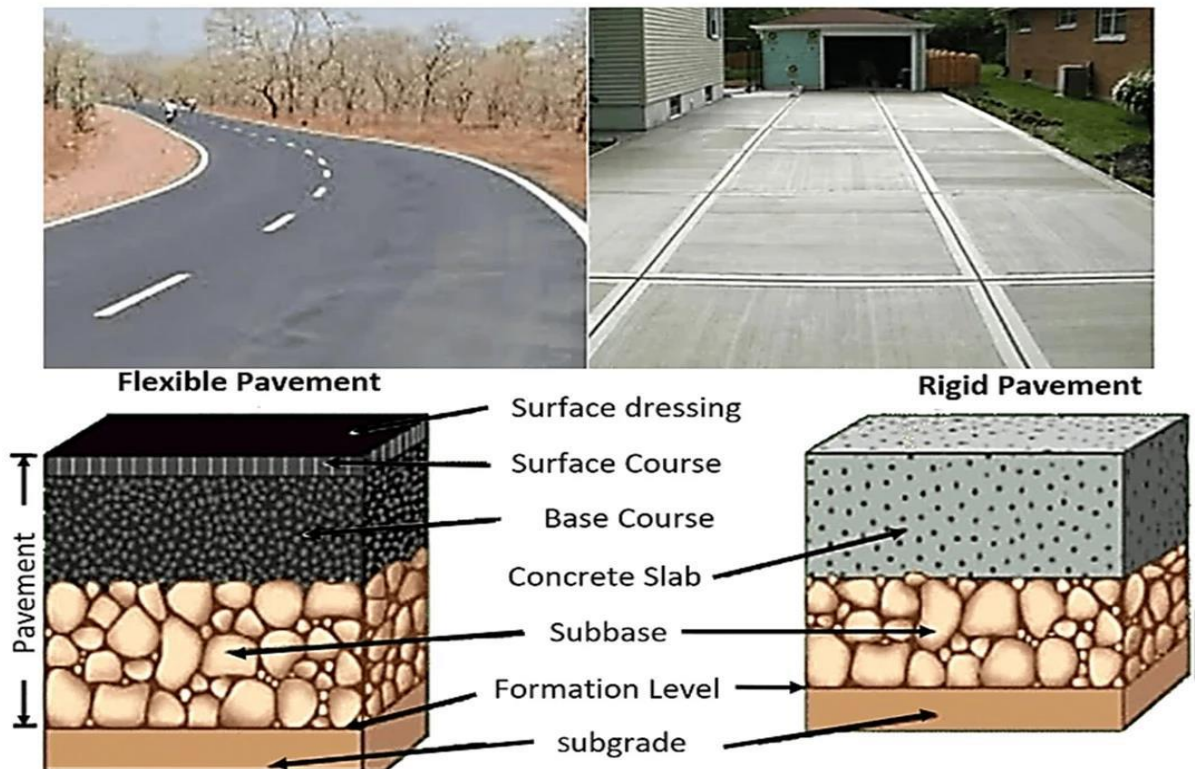
### ➤ Learning Outcomes

- Practical understanding of the importance of each pavement layer in distributing loads.
  - Recognition of how design elements like camber, super elevation, and drainage contribute to safety and durability.
  - Realization of the role of roadside infrastructure like medians and signs in traffic management.
  - Awareness of routine highway maintenance practices and their impact on road safety.
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## ➤ Conclusion

The visit to the **Pune-Solapur Highway** provided valuable hands-on exposure to highway engineering components and their functions. Observing the actual implementation of theoretical concepts deepened our understanding of highway design, construction, and maintenance. It emphasized the necessity of coordinated efforts in planning, material selection, and construction quality to ensure a safe and durable highway infrastructure.

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