

**JSS Mahavidyapeetha  
JSS SCIENCE AND TECHNOLOGY UNIVERSITY  
SRI JAYCHAMRAJENDRA COLLEGE OF ENGINEERING  
JSS Technical Institutions' Campus, Mysuru – 570006**



**“Report on Road Condition and Safety of Maruti  
Temple Road, Gangotri Layout, Mysuru”**

Thesis submitted in partial fulfillment of curriculum prescribed for the  
award of the degree of

**BACHELOR OF ENGINEERING  
IN  
CIVIL ENGINEERING**

*by*

*Jeevith Kumar J*  
(01JST19CV030)

*Kapase Yogesh*  
(01JST19CV032)

*Vineeth H*  
(01JST19CV105)

**DEPARTMENT OF CIVIL ENGINEERING  
July, 2023**

## **ABSTRACT**

This report focuses on evaluating the road condition and safety of Maruti Temple Road, located in Gangotri Layout, Mysuru. The road plays a crucial role in providing accessibility and connectivity to the local residents, religious pilgrims, and tourists visiting the area. The objective of this study is to assess the current state of the road and identify potential safety concerns that could impact the users.

To achieve this, a comprehensive survey was conducted, including on-site inspections, data collection, and analysis. The road condition was evaluated based on parameters such as surface quality, potholes, cracks, and drainage. Safety aspects were examined through the assessment of road signs, markings, visibility, lighting, and pedestrian facilities.

The findings of the report reveal that Maruti Temple Road is in a deteriorating condition, with multiple sections exhibiting significant surface distress, including potholes and cracks. This poses a threat to the safety of road users, especially two-wheelers and pedestrians. Moreover, the lack of proper drainage systems results in water stagnation during the rainy season, further exacerbating the road's condition.

Additionally, the study identified several safety concerns, including faded road markings, inadequate signage, and insufficient lighting, which could lead to accidents and confusion among drivers. Pedestrian facilities, such as sidewalks and crosswalks, were found to be inadequate, jeopardizing the safety of pedestrians.

Based on these findings, the report recommends immediate repair and maintenance of the road, including resurfacing, patchwork, and drainage improvements. It also suggests enhancing safety measures by repainting road markings, installing clear signage, improving lighting infrastructure, and constructing proper pedestrian facilities.

The implementation of these recommendations will help restore the road's condition, ensuring smoother and safer travel for all users. It is essential for the local authorities and relevant stakeholders to take prompt action to address these issues and prioritize the safety and convenience of the people using Maruti Temple Road.

## CONTENTS

<b>Title</b>	<b>Pg. No.</b>
Abstract	2
List of Figures	3
Introduction	5
Road Parameters	6
Crash Data	7
Collision Diagram and Condition Diagram	8
Causes of Accidents	9
Recommended Measures	14
Summary and Conclusion	18

## LIST OF FIGURES

<b>Title</b>	<b>Pg. No.</b>
Figure 1: Maruti Temple Road, Gangotri Layout, Mysuru	6
Figure 2: Potholes	8
Figure 3: Collision Diagram	8
Figure 4: Condition Diagram	10
Figure 5: Potholes	11
Figure 6: Incomplete Maintenance	12
Figure 7: Absence of Road Markings	13

## INTRODUCTION

Accidents that occur on small residential roads can have a significant impact on overall traffic deaths. These roads, typically found in residential neighborhoods and housing communities, are often characterized by lower speed limits and less traffic volume compared to major thoroughfares. However, the potential dangers associated with these roads should not be underestimated. This introduction explores the reasons why accidents on small residential roads can contribute to the overall number of traffic fatalities.

Small residential roads are commonly used by local residents, including pedestrians, cyclists, and motorists. Due to their close proximity to homes and community facilities, these roads often experience a higher concentration of vulnerable road users, such as children, elderly individuals, and individuals with disabilities. The presence of these vulnerable road users increases the risk of accidents, as they may have limited awareness or ability to respond quickly to unexpected situations.

Moreover, small residential roads may lack proper infrastructure and safety measures compared to larger arterial roads. Traffic calming measures, such as speed bumps, traffic islands, and designated pedestrian crossings, are often absent on these roads, making them more prone to speeding and reckless driving. Inadequate lighting and poor visibility can further contribute to the likelihood of accidents, particularly during nighttime hours.

When accidents occur on small residential roads, the consequences can be severe. Due to the relatively lower speeds on these roads, drivers and passengers may develop a false sense of security, leading to a relaxed attitude towards adhering to traffic rules and regulations. This complacency, coupled with the presence of vulnerable road users, increases the likelihood of accidents resulting in serious injuries or even fatalities.

It is important to recognize that accidents on small residential roads are not isolated incidents. Each accident contributes to the overall number of traffic deaths, making it crucial to address the safety concerns associated with these roads. By implementing effective traffic management strategies, improving infrastructure, and raising awareness about safe driving practices, the number of accidents and fatalities on small residential roads can be significantly reduced, ultimately making the roads safer for all users.

## ROAD PARAMETERS

Type of Road	: Residential road (ODR)
Location (Lat & Lon)	: (12.3071344, 76.6201587)
Lane width	: 3.75m
Road Width	: 7.5m
Road Length	: 630m
Kerb Width	: 1.2m
Max Permissible speed	: 40 kmph
Vehicle count	: Approx. 12 vehicles/min
Vehicle type	: LMVs and 2-wheelers



*Figure 1: Maruti Temple Road, Gangotri Layout, Mysuru*

## CRASH DATA

<b>Time</b>	<b>Date</b>	<b>Type of collision</b>	<b>Accident cause</b>	<b>Vehicles involved</b>
<b>17:15</b>	<b>15-01-2023</b>	<b>rear end collision</b>	<b>Reduced carriageway width due to parking</b>	<b>scooty v/s car</b>
<b>18:00</b>	<b>14-01-2023</b>	<b>rear end collision</b>	<b>Over speeding and carelessness of the rider</b>	<b>auto v/s car</b>
<b>21:15</b>	<b>19-01-2023</b>	<b>side swipe</b>	<b>Reduced visibility due to foliage</b>	<b>car V/s bike</b>
<b>08:30</b>	<b>25-01-2023</b>	<b>rear end collision</b>	<b>Water filled pothole impairing the driving ability</b>	<b>scooty v/s car</b>
<b>18:00</b>	<b>21-02-2023</b>	<b>Head on</b>	<b>Improper maintainence work</b>	<b>Car and kerb</b>

## COLLISION DIAGRAM AND CONDITION DIAGRAM

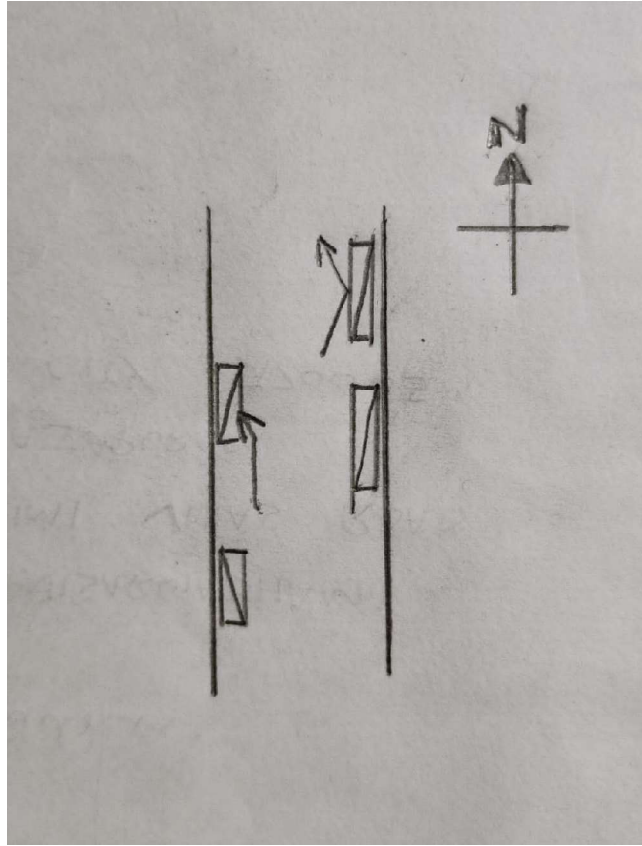


Figure 2: Collision Diagram

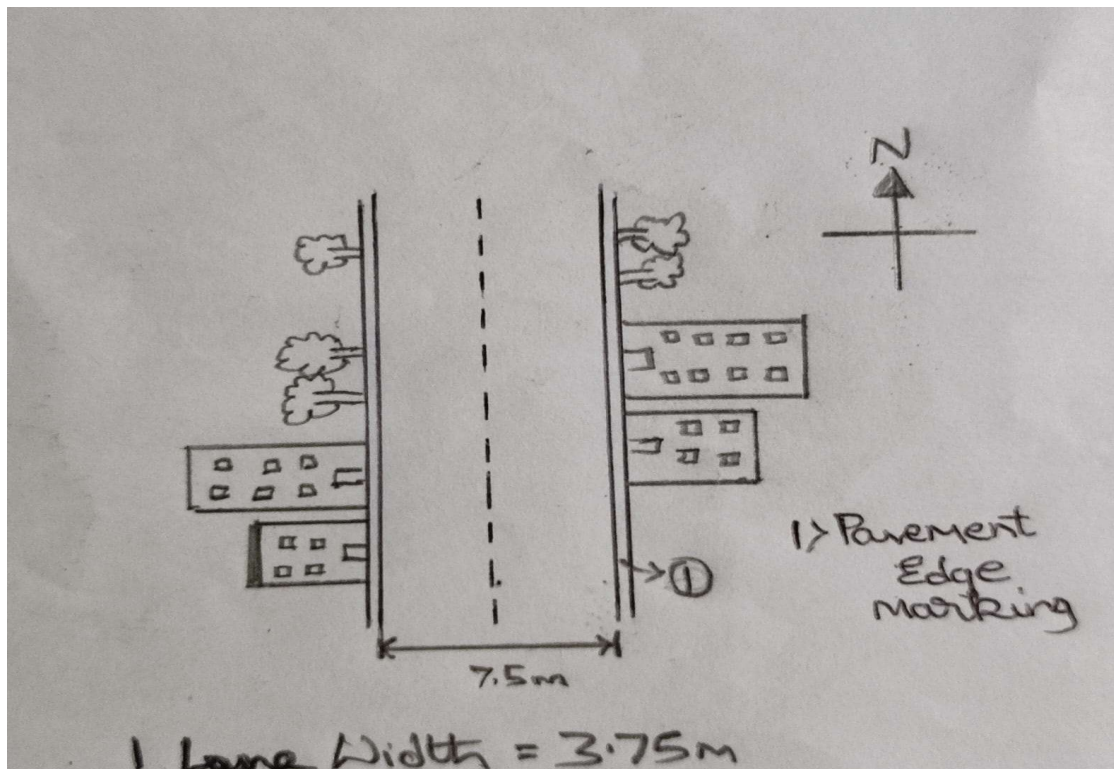


Figure 4: Condition Diagram



## CAUSES OF ACCIDENTS

### 1. Poor Condition of Road :



*Figure 5: Potholes*

The road in consideration is in a poor condition. It is filled with numerous potholes, making it challenging to navigate. The surface is uneven and rough, causing discomfort and potential damage to vehicles passing over it. The lack of proper maintenance is evident, with cracks and patches scattered along its length. The road's deteriorating condition poses a risk to the safety of drivers, cyclists, and pedestrians alike. It is evident that immediate attention and repair are required to restore the road to a safer and more functional state. The current state of the road is not only inconvenient but also hazardous, warranting urgent action from the relevant authorities.

## 2. Residential Parking on either sides :



*Figure 6: Parking of Residential Vehicles, thereby reducing effective road width*

Residential parking on either side of the road can contribute to accidents and safety concerns. When cars are parked along the curb, it narrows the available space for moving vehicles, creating congestion and reducing visibility for drivers. This limited space can lead to conflicts between vehicles trying to pass each other, especially in narrow residential streets. It becomes challenging to anticipate oncoming traffic or pedestrians, increasing the risk of collisions. Additionally, parked cars may obstruct the line of sight at intersections, making it difficult for drivers to see approaching vehicles or pedestrians. Addressing the issue of residential parking and implementing effective parking management strategies is crucial to ensure safer road conditions and reduce the potential for accidents.

### 3. Low visibility due to vegetation :



*Figure 7: Foliage obstructing the SSD*

Low visibility caused by overgrown vegetation can contribute to accidents and road hazards. When trees, shrubs, or other vegetation obstruct the view of drivers, it becomes difficult to see oncoming traffic, pedestrians, or potential hazards ahead. This lack of visibility increases the risk of collisions, especially at intersections or curves where quick reactions are crucial. Moreover, overhanging branches or foliage may obstruct road signs, making it challenging for drivers to navigate safely. Regular maintenance and trimming of vegetation along roadsides are essential to ensure clear visibility and prevent accidents caused by poor sightlines.

### 4. Poor drainage :

Poor drainage on roads can lead to hazardous conditions and contribute to accidents. When roads lack proper drainage systems, water accumulates and creates puddles or standing water. This can result in reduced traction for



vehicles, increasing the likelihood of skidding or hydroplaning. Inadequate drainage also leads to the formation of potholes and erosion, further compromising road integrity. Additionally, during heavy rainfall, poor drainage can cause water to overflow onto the road surface, reducing visibility and increasing the risk of accidents. Addressing drainage issues through regular maintenance and implementing effective drainage systems is essential to ensure safer road conditions and prevent accidents caused by water-related hazards.

#### **5. Incomplete maintenance :**



*Figure 8: Incomplete Maintenance*

Incomplete maintenance of roads can contribute to accidents and pose significant safety risks. When roads are not properly maintained, potholes, cracks, and uneven surfaces can develop, creating hazards for drivers. These road imperfections can cause loss of control, tire damage, and accidents, particularly for vehicles traveling at higher speeds. Inadequate maintenance can also lead to faded road markings, making it difficult for drivers to navigate and increasing the risk of lane departures or confusion at intersections. To ensure road safety, it is crucial for authorities to prioritize regular and thorough maintenance, including timely repairs, resurfacing, and repainting of road markings, to prevent accidents caused by neglected road conditions.

## 6. Absence of road markings :



*Figure 9: Absence of Road Markings*

The absence of road markings can significantly contribute to accidents and compromise road safety. Road markings, such as lane dividers, crosswalks, and directional arrows, provide important visual cues for drivers, aiding in navigation and traffic flow. When these markings are missing or faded, it can lead to confusion and uncertainty among drivers, increasing the risk of collisions and lane encroachments. The absence of clear markings at intersections can result in right-of-way violations and potential accidents. To mitigate these risks, it is essential for road authorities to ensure the regular maintenance and repainting of road markings, providing clear guidance to drivers and enhancing overall road safety.

## **RECOMMENDED MEASURES**

### **1. Potholes fillings :**

- a) Conduct regular inspections, promptly repairing any identified potholes to prevent further deterioration and minimize the risk of accidents.
- b) Improve road markings, signage, and public awareness to alert drivers to the presence of potholes and encourage cautious driving, reducing the likelihood of accidents.

### **2. Prohibition of parking of residential vehicles :**

- a) Implement designated parking areas: Provide designated parking spaces or parking lots within residential areas where residents can park their vehicles safely. This helps reduce the need for parking on the roadside, minimizing obstructions and improving visibility for drivers, thus reducing the risk of accidents.
- b) Strict enforcement and penalties: Enforce strict regulations against parking residential vehicles on the road and implement penalties for violations. This discourages residents from parking their vehicles in prohibited areas and encourages them to utilize designated parking spaces. Effective enforcement mechanisms, such as ticketing and towing, can deter illegal parking and ensure compliance with parking regulations, thereby enhancing road safety.

### **3. Maintenance of vegetation on kerb :**

To prevent accidents due to non-maintenance of vegetation on the curb, the following measures are recommended:

- a) Regular trimming and pruning: Implement a proactive maintenance schedule for trimming and pruning vegetation along the curb. Regularly trim overhanging branches and cut back vegetation that obstructs visibility for drivers. This will help improve sightlines and ensure clear visibility of oncoming traffic, pedestrians, and road signs.

- b) Adequate clearance zones: Establish and enforce clearance zones between the curb and vegetation. Ensure that there is sufficient space between the edge of the road and the vegetation to prevent any encroachment onto the roadway. This will allow for unobstructed movement of vehicles and reduce the risk of accidents caused by vegetation blocking the line of sight.

By implementing these measures, road authorities can enhance visibility, reduce the potential for accidents, and create safer conditions for drivers and pedestrians alike.

#### **4. Proper drainage system to be provided :**

To prevent accidents due to the lack of a proper drainage system, the following measures are recommended:

- a) Implement effective drainage infrastructure: It is crucial to establish a well-designed and efficient drainage system that can effectively collect and divert water away from the road surface. This includes constructing appropriate drainage channels, gutters, and catch basins to facilitate the efficient flow of water. Regular maintenance should be conducted to ensure the system remains clear of debris and blockages.
- b) Improve road surface design and materials: The road surface should be constructed or resurfaced using materials that have good drainage properties, such as porous asphalt or permeable concrete. These materials allow water to permeate through the surface and prevent water accumulation, reducing the risk of hydroplaning and loss of traction. Additionally, road profiles should be designed with proper slope and crossfall to ensure water drains efficiently to the designated drainage points.

By implementing these measures, the risk of accidents caused by poor drainage can be significantly reduced, ensuring safer road conditions for drivers and minimizing the chances of hydroplaning, skidding, or loss of control due to water accumulation.

## **5. Proper execution of maintenance works :**

To prevent accidents due to the lack of proper execution of maintenance works, the following measures are recommended:

- a) **Regular Inspection and Monitoring:** Conduct regular inspections and monitoring of maintenance works to ensure that they are executed correctly and meet the required standards. This includes assessing the quality of repairs, resurfacing, and other maintenance activities. Timely identification of any deficiencies or errors can help prevent accidents resulting from inadequate maintenance.
- b) **Quality Assurance and Supervision:** Implement strict quality assurance measures and effective supervision throughout the maintenance process. This involves having qualified personnel oversee the execution of maintenance works to ensure compliance with specifications and safety guidelines. Adequate supervision helps identify and rectify any substandard or incomplete work, reducing the chances of accidents caused by poor execution.

By implementing these measures, the likelihood of accidents resulting from the lack of proper execution of maintenance works can be significantly reduced. It ensures that maintenance activities are carried out effectively, adhering to the required standards and guidelines, thus enhancing overall road safety.

## **6. Providing of road markings :**

To prevent accidents due to the lack of road markings, the following measures are recommended:

- a) **Regular Inspection and Maintenance:** Conduct regular inspections of road markings to identify faded or missing markings. Implement a maintenance schedule to ensure timely repainting and restoration of road markings. This includes lane dividers, crosswalks, stop lines, and other relevant markings. Proactive maintenance will enhance visibility and



provide clear guidance to drivers, reducing the risk of accidents caused by confusion or improper lane usage.

- b) Enhanced Visibility Measures: Implement measures to enhance the visibility of road markings, especially in low-light conditions or adverse weather. This can include using reflective or high-contrast paint for road markings, installing raised pavement markers or reflectors, and ensuring proper lighting at intersections. Enhanced visibility will help drivers easily distinguish road markings, promoting safer driving behavior and reducing the chances of accidents related to unclear or faded markings.

By implementing these recommended measures, road authorities can significantly improve road safety by addressing the issue of inadequate road markings. Clear and visible road markings will provide drivers with vital information, reduce confusion, and contribute to a safer and more efficient traffic flow.

## SUMMARY AND CONCLUSIONS

### Summary:

The report on the road condition and safety of Maruti Temple Road in Gangotri Layout, Mysuru provides a comprehensive evaluation of the current state of the road and identifies potential safety concerns. The objective of the study was to assess the road's condition and its impact on the safety of road users. Through on-site inspections, data collection, and analysis, the study revealed significant issues that need to be addressed.

The findings of the report indicate that Maruti Temple Road is in a deteriorating condition, with multiple sections exhibiting significant surface distress. Potholes and cracks are prevalent, making it challenging for vehicles to navigate the road safely. The uneven and rough surface not only causes discomfort to road users but also poses a threat to their safety. Immediate attention and repair are required to restore the road to a safer and more functional state.

In addition to the poor road condition, the report identified several safety concerns. Faded road markings, inadequate signage, and insufficient lighting were found to be major issues affecting road safety. Clear and visible road markings play a crucial role in guiding drivers and preventing accidents. The absence of proper signage and lighting can lead to confusion and increase the risk of collisions, especially during nighttime hours. Addressing these concerns is essential to enhance road safety and prevent accidents.

Furthermore, the study highlighted the inadequate pedestrian facilities along Maruti Temple Road. Sidewalks and crosswalks were found to be insufficient, jeopardizing the safety of pedestrians. With a significant number of religious pilgrims and tourists visiting the area, it is crucial to provide safe and convenient pedestrian infrastructure. Enhancing pedestrian facilities will not only improve safety but also promote active transportation and reduce dependency on motor vehicles.

Based on these findings, the report recommends a series of measures to prevent accidents and enhance road safety. Immediate repair and maintenance of the road are

necessary, including resurfacing, patchwork, and drainage improvements. These measures will help restore the road's condition and ensure smoother and safer travel for all users.

Additionally, the report suggests enhancing safety measures by repainting road markings, installing clear signage, improving lighting infrastructure, and constructing proper pedestrian facilities. By addressing these issues, road authorities can significantly improve road safety, reduce accidents, and enhance the overall transportation experience for residents and visitors.

In conclusion, the report emphasizes the urgent need for attention to the road condition and safety of Maruti Temple Road. The deteriorating condition, along with the absence of proper markings, signage, and pedestrian facilities, poses significant risks to road users. The recommended measures, including repair and maintenance, enhancement of safety features, and improvement of pedestrian infrastructure, will contribute to a safer and more efficient road network. It is essential for the local authorities and relevant stakeholders to take prompt action to address these issues and prioritize the safety and convenience of the people using Maruti Temple Road.

### **Conclusions:**

The study on the road condition and safety of Maruti Temple Road in Gangotri Layout, Mysuru concludes that immediate attention and action are required to address the issues identified. The road's deteriorating condition, characterized by potholes, cracks, and inadequate drainage, poses a significant risk to road users. These conditions not only affect the comfort of drivers but also compromise their safety.

Moreover, the absence of proper road markings, faded signage, and insufficient lighting further contribute to the potential for accidents. Clear and visible road markings play a crucial role in guiding drivers and ensuring proper traffic flow. The lack of these markings can lead to confusion, lane encroachments, and collisions. Improving road signage and lighting infrastructure will enhance visibility and reduce the likelihood of accidents, especially during nighttime hours.

Furthermore, the study highlights the need for better pedestrian facilities along Maruti Temple Road. Inadequate sidewalks and crosswalks put pedestrians at risk and discourage active transportation. By improving

pedestrian infrastructure, such as wider sidewalks, well-marked crosswalks, and adequate lighting, the safety and convenience of pedestrians can be significantly enhanced.

To address these issues, the report recommends immediate repair and maintenance of the road. Resurfacing, patchwork, and drainage improvements are necessary to restore the road's condition and ensure smoother travel. Additionally, enhancing safety measures by repainting road markings, installing clear signage, improving lighting, and constructing proper pedestrian facilities is essential.

In conclusion, the study emphasizes the need for prompt action to address the poor condition and safety concerns of Maruti Temple Road. By implementing the recommended measures, local authorities can restore the road's condition, enhance safety, and provide a better transportation experience for all road users. Prioritizing the maintenance and improvement of infrastructure is crucial to ensure the safety and convenience of residents and visitors alike.