



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### IOCL Coimbatore Terminal to Sencheri Malayadipalayam

#### Objective of the JRM Report

This JRM report is designed to ensure compliance with the Central Motor Vehicle Rules, 1989 (CMVR), AIS 140 standards, and the Road Transport Safety Policy (RTSP). It provides a comprehensive risk assessment for the transportation of hazardous materials along specified routes. By integrating these legal frameworks, the report offers a broad strategy for identifying and mitigating route-specific risks.

#### Regulatory Compliance

The report complies with the Central Motor Vehicles (Eleventh Amendment) Rules, 2022, mandating safe transportation practices for N2 and N3 category vehicles carrying hazardous materials. These rules require detailed route assessments, especially regarding road conditions, speed limits, and risk areas, to ensure safety compliance.

#### Risk Management Strategy

This report categorizes transportation routes into high-risk and medium-risk areas, with a focus on factors such as sharp turns, accident-prone regions, and elevation changes. The goal is to provide actionable

recommendations to minimize these risks, including speed regulations, driver warnings for hazardous zones, and the option of alternate routes.

## **Compliance with the Road Transport Safety Policy (RTSP)**

The report integrates RTSP provisions, including mandatory driving hours, rest periods, and nighttime driving restrictions. It ensures that drivers follow official guidelines, such as taking prescribed rest breaks and avoiding dangerous road conditions like poor visibility, heavy crowds, or high-traffic areas during peak hours.

## **Emergency Preparedness and Response**

The report highlights the significance of predetermined emergency stops for refueling, rest, and overnight stays. It includes protocols for safe responses to road hazards, alternative routes, and rerouting processes if roads are closed or severe weather arises. This aligns with the RTSP emphasis on driver safety and rapid emergency response.

## **Environmental Considerations**

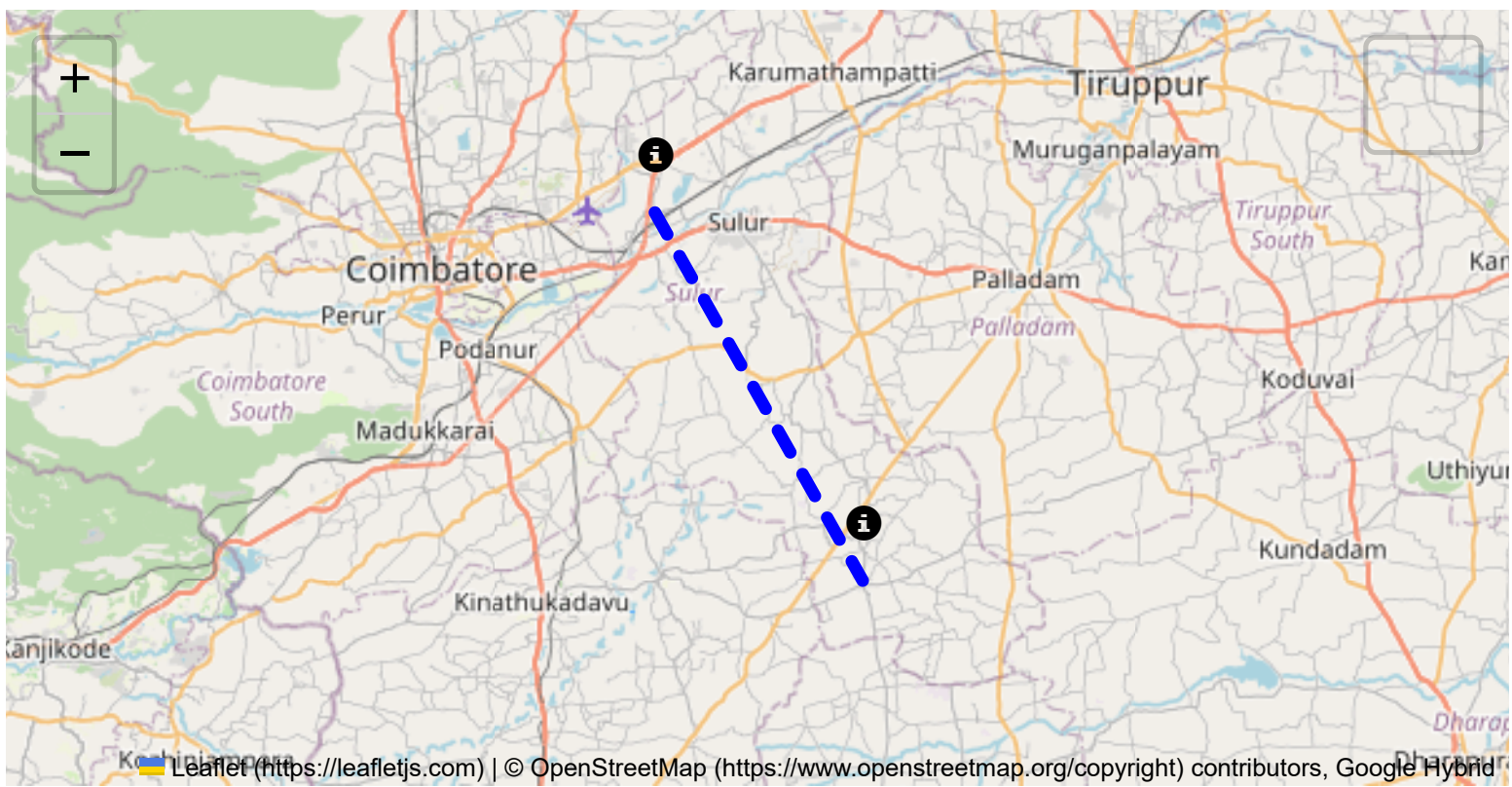
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental impacts during transport.

## **Journey Risk Mitigation**

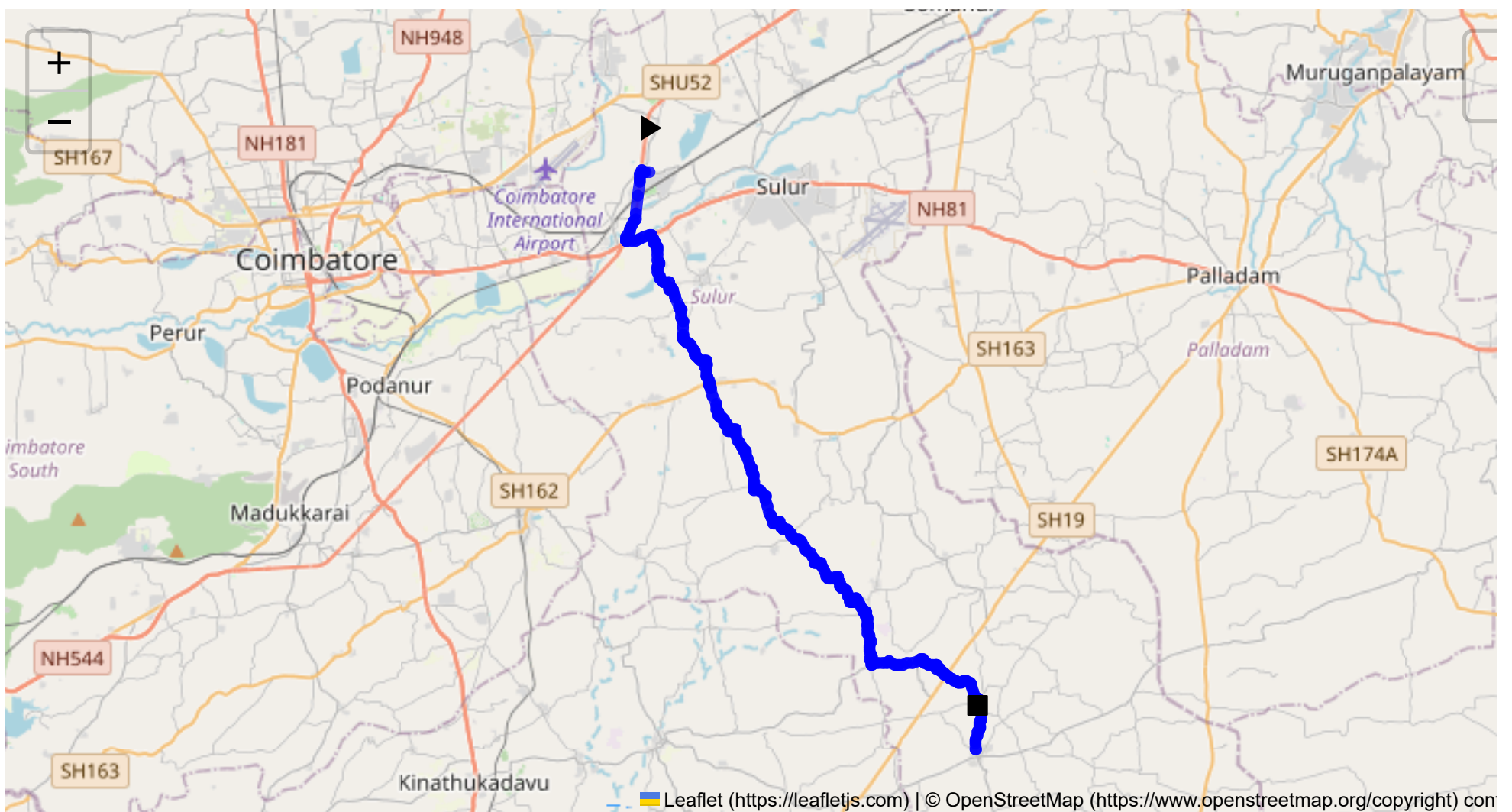
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety norms.

## **Compliance with Government Directives**

This report fully adheres to governmental directives regarding hazardous material transportation, implementing mandatory speed limits, nighttime driving restrictions, and comprehensive driver briefings and real-time alerts about route-related risks.



**Route Summary:**  
**Total Distance: 32.06 km**  
**Estimated Duration: 0.9 hours**  
**Adjusted Duration (Heavy Vehicle): 1.2 hours**  
**Start: (11.0315, 77.0797)**  
**End: (10.833217, 77.193405)**



## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map

The route from Athappagoundenpudur to Senjerimalai spans approximately 32.06 kilometers through rural and semi-urban areas of Tamil Nadu. The drive typically involves state highways and local roads, weaving through agricultural landscapes and small towns. Key locations along this route include Palladam and minor intersections such as SH166 and NH209.



## 2. Typical Weather Conditions and Potential Weather-Related Hazards

The region experiences a tropical wet and dry climate:

- **Summer (March to May):** High temperatures with occasional thunderstorms which may lead to reduced visibility.
- **Monsoon (June to September):** Heavy rains are common, increasing the risk of flooding and slick roads.
- **Winter (October to February):** Mild temperatures with sparse rainfall, posing minimal weather-related disruptions but potential fog in the early morning.

## 3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic congestion is notably higher during weekday mornings (8:00 AM - 10:00 AM) and evenings (6:00 PM - 8:00 PM).
- **Congestion-Prone Areas:** The main market areas in Palladam and near significant junctions on NH209 can experience delays due to both regular and market-day traffic.

## 4. Assessment of Road Quality and Infrastructure

- **State Highways (SH166/NH209):** Generally well-maintained with two-lane roads; however, there might be occasional potholes and uneven patches, more pronounced after monsoon seasons.
- **Local Roads:** Narrower and potentially more degraded, requiring careful navigation especially for larger trucks.

## 5. Suggestions for Alternative Routes for Emergencies

In emergencies, backtracking to nearby major highways such as NH544 (Coimbatore-Palakkad segment) might provide a quicker escape route towards larger cities with better emergency facilities.

## 6. Summary of Local Regulations Affecting Hazardous Material Transport

- Strict adherence to route permits is required. Trucks carrying hazardous materials must comply with specific timing, avoiding densely populated areas during peak times.
- Proper documentation and adherence to safety measures are mandated under regional traffic laws.

## 7. Overview of Historical Incidents

There have been isolated incidents involving heavy vehicles in Palladam, primarily due to overloading or mechanical failure. Historical records indicate no major spills or hazardous material-related incidents in recent years.

## 8. Environmental Considerations and Sensitive Areas

The route crosses agricultural land, requiring caution to minimize emissions and potential spills which could affect crops and local water sources.

## 9. Analysis of Communication Coverage

- Network Availability:** Major towns like Palladam have good mobile coverage. However, rural pockets along the route may experience sporadic service interruptions.
- Dead Zones:** Areas near dense foliage or hilly regions could experience brief coverage lapses.

## 10. Estimated Emergency Response Times

- Urban Areas (Palladam):** Approximately 15-20 minutes.
- Rural Segments:** Could extend between 30-45 minutes depending on proximity to the nearest hospital or fire station.

## 12. Overall Summary of Risk Assessment

The route is moderately risky due to:

- Weather conditions during the monsoon.
- Potential delays in emergency response in rural areas.
- Traffic interactions in semi-urban stretches.

A comprehensive risk management plan should include weather monitoring, route adjustments during peak times, strict compliance with hazardous transport regulations, and ensuring routine vehicle maintenance to mitigate incident probability.

In conclusion, while the route is generally safe with well-maintained infrastructure, close attention to weather forecasts and regulations, along with knowledge of alternative routes, is crucial for minimizing risks during the transport of hazardous materials.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Blind Spot	Blind Spot	11.03211, 77.07640	10 KM/Hr
1	Turn	Medium	11.00778, 77.07085	30 KM/Hr
2	Turn	Medium	11.00773, 77.07090	30 KM/Hr
3	Blind Spot	Blind Spot	11.01005, 77.08007	10 KM/Hr
4	Turn	High	10.99360, 77.08607	15 KM/Hr
5	Turn	Medium	10.99162, 77.08614	30 KM/Hr
6	Turn	Medium	10.99147, 77.08623	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
7	Turn	Medium	10.99140, 77.08639	30 KM/Hr
8	Turn	Medium	10.99150, 77.08684	30 KM/Hr
9	Turn	Medium	10.99143, 77.08704	30 KM/Hr
10	Turn	Medium	10.97328, 77.09207	30 KM/Hr
11	Turn	Medium	10.96706, 77.09742	30 KM/Hr
12	Turn	Medium	10.96690, 77.09891	30 KM/Hr
13	Turn	High	10.96678, 77.09908	15 KM/Hr
14	Turn	Medium	10.96172, 77.09910	30 KM/Hr
15	Turn	High	10.95872, 77.10030	15 KM/Hr
16	Turn	High	10.95871, 77.10037	15 KM/Hr
17	Turn	Medium	10.94760, 77.10404	30 KM/Hr
18	Turn	Medium	10.94726, 77.10468	30 KM/Hr
19	Blind Spot	Blind Spot	10.94262, 77.10723	10 KM/Hr
20	Turn	High	10.94340, 77.10925	15 KM/Hr
21	Turn	Medium	10.92492, 77.11587	30 KM/Hr
22	Turn	Medium	10.92372, 77.11547	30 KM/Hr
23	Turn	High	10.92270, 77.11562	15 KM/Hr
24	Turn	Medium	10.91253, 77.12238	30 KM/Hr
25	Turn	Medium	10.91090, 77.12292	30 KM/Hr
26	Turn	High	10.91081, 77.12302	15 KM/Hr
27	Turn	Medium	10.91151, 77.12434	30 KM/Hr
28	Turn	Medium	10.91150, 77.12446	30 KM/Hr
29	Turn	Medium	10.91141, 77.12458	30 KM/Hr
30	Turn	Medium	10.90876, 77.12759	30 KM/Hr
31	Turn	Medium	10.90572, 77.13015	30 KM/Hr
32	Turn	Medium	10.90545, 77.13168	30 KM/Hr
33	Turn	Medium	10.89766, 77.13692	30 KM/Hr
34	Turn	High	10.89746, 77.13706	15 KM/Hr
35	Turn	Medium	10.89725, 77.13908	30 KM/Hr
36	Turn	Medium	10.89251, 77.14146	30 KM/Hr
37	Turn	Medium	10.89197, 77.14253	30 KM/Hr
38	Turn	Medium	10.89241, 77.14486	30 KM/Hr
39	Turn	Medium	10.89236, 77.14497	30 KM/Hr
40	Turn	Medium	10.88399, 77.14962	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
41	Turn	Medium	10.88389, 77.14983	30 KM/Hr
42	Turn	Medium	10.88391, 77.15009	30 KM/Hr
43	Turn	Medium	10.88467, 77.15087	30 KM/Hr
44	Turn	High	10.88510, 77.15153	15 KM/Hr
45	Turn	High	10.88070, 77.15428	15 KM/Hr
46	Turn	High	10.88066, 77.15466	15 KM/Hr
47	Turn	Medium	10.87580, 77.15538	30 KM/Hr
48	Turn	Medium	10.86481, 77.15684	30 KM/Hr
49	Turn	High	10.86464, 77.15662	15 KM/Hr
50	Turn	High	10.86243, 77.15711	15 KM/Hr
51	Turn	High	10.86425, 77.17490	15 KM/Hr
52	Turn	Medium	10.86299, 77.17573	30 KM/Hr
53	Turn	High	10.86212, 77.17968	15 KM/Hr
54	Turn	Medium	10.86200, 77.17974	30 KM/Hr
55	Turn	Medium	10.86160, 77.17964	30 KM/Hr
56	Turn	Medium	10.86144, 77.17972	30 KM/Hr
57	Turn	Medium	10.85696, 77.19019	30 KM/Hr
58	Turn	Medium	10.85601, 77.19162	30 KM/Hr
59	Turn	Medium	10.85531, 77.19203	30 KM/Hr
60	Turn	Medium	10.85099, 77.19297	30 KM/Hr
61	Turn	Medium	10.85075, 77.19336	30 KM/Hr
62	Turn	Medium	10.85072, 77.19389	30 KM/Hr
63	Turn	Medium	10.84157, 77.19489	30 KM/Hr
64	Turn	Medium	10.84140, 77.19474	30 KM/Hr
65	Turn	Medium	10.84090, 77.19461	30 KM/Hr
66	Turn	Medium	10.84078, 77.19465	30 KM/Hr
67	Turn	High	10.84074, 77.19471	15 KM/Hr
68	Blind Spot	Blind Spot	10.83301, 77.19364	10 KM/Hr

## Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Saraswathi Hospital	11.0069868, 77.071368	30 km/h	Medium
1	clinic	Dr. V. Ramakrishnan Clinic	11.0086635, 77.081108	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	college	Kalaignar Karunanidhi Institute of Technology	10.9992121, 77.0842214	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Blind Spot  
Risk Level: Blind Spot  
Speed Limit: 10 KM/Hr  
Coordinates: 11.03211, 77.07640





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.00778, 77.07085



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.00773, 77.07090





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.01005, 77.08007



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.99360, 77.08607



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.99162, 77.08614





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.99147, 77.08623



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.99140, 77.08639





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.99150, 77.08684



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.99143, 77.08704



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.97328, 77.09207





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.96706, 77.09742



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.96690, 77.09891





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.96678, 77.09908



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.96172, 77.09910



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.95872, 77.10030





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.95871, 77.10037



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.94760, 77.10404





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.94726, 77.10468



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Coordinates:** 10.94262, 77.10723



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.94340, 77.10925





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.92492, 77.11587



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.92372, 77.11547





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.92270, 77.11562



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.91253, 77.12238



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.91090, 77.12292





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.91081, 77.12302



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.91151, 77.12434





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.91150, 77.12446



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.91141, 77.12458



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.90876, 77.12759





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.90572, 77.13015



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.90545, 77.13168





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.89766, 77.13692



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.89746, 77.13706



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.89725, 77.13908





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.89251, 77.14146



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.89197, 77.14253





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.89241, 77.14486



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.89236, 77.14497



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.88399, 77.14962





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.88389, 77.14983



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.88391, 77.15009





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.88467, 77.15087



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.88510, 77.15153



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.88070, 77.15428





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.88066, 77.15466



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.87580, 77.15538





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.86481, 77.15684



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.86464, 77.15662



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.86243, 77.15711





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.86425, 77.17490



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.86299, 77.17573





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.86212, 77.17968



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.86200, 77.17974



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.86160, 77.17964





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.86144, 77.17972



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.85696, 77.19019

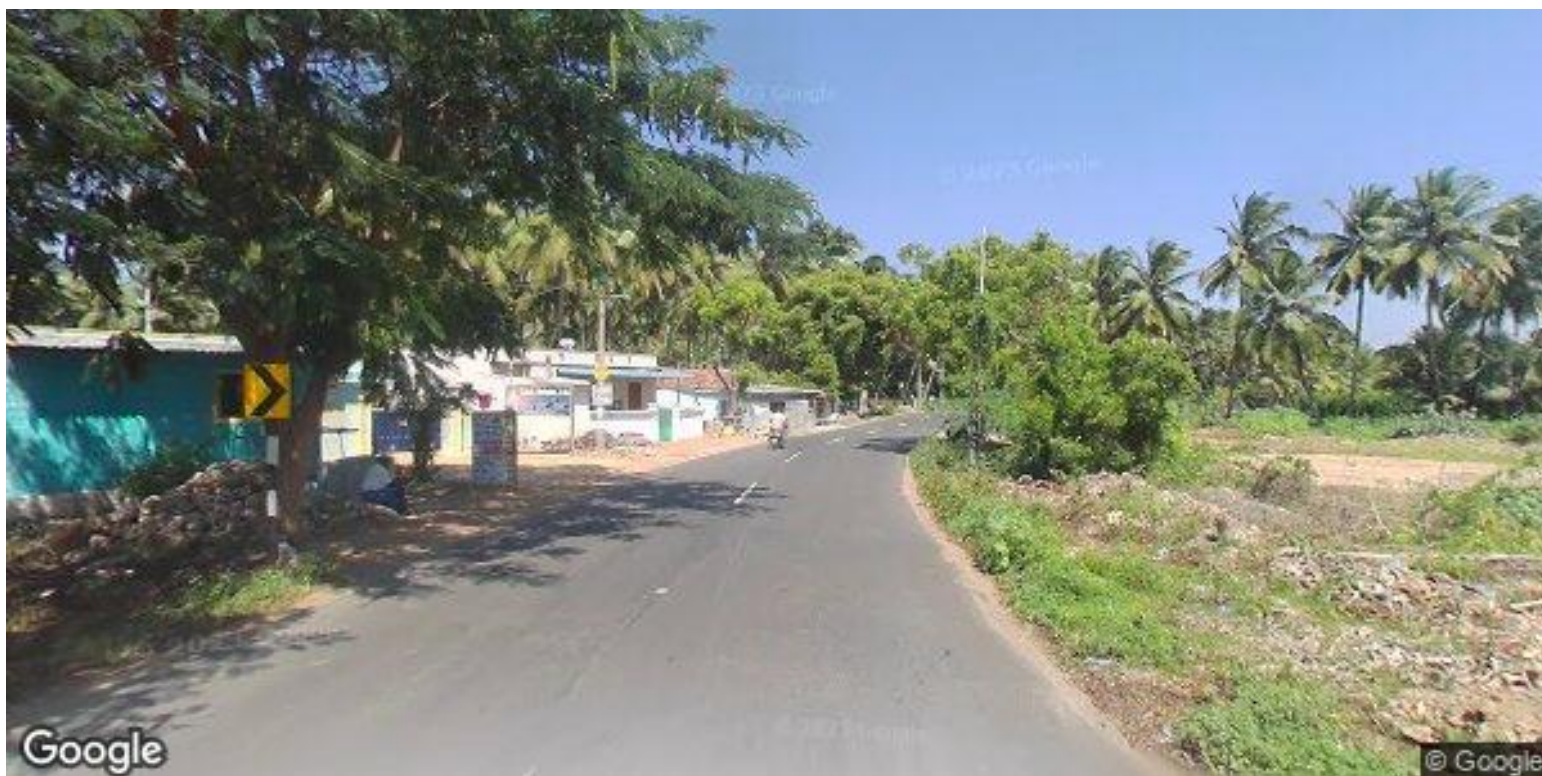




**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.85601, 77.19162



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.85531, 77.19203



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.85099, 77.19297





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.85075, 77.19336



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.85072, 77.19389





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.84157, 77.19489



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.84140, 77.19474



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.84090, 77.19461





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.84078, 77.19465

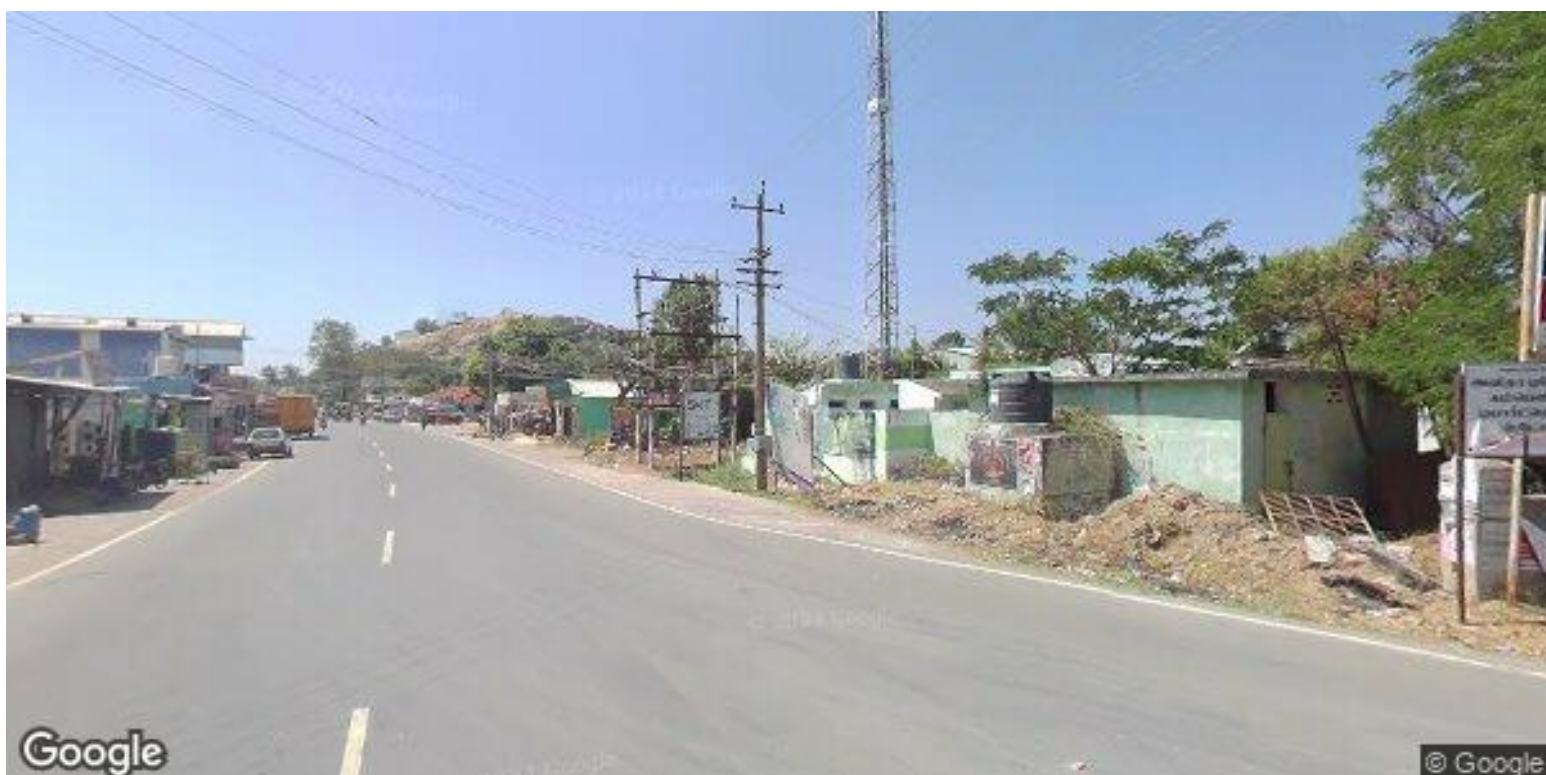


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.84074, 77.19471





**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Coordinates:** 10.83301, 77.19364

---