



## **JOURNEY RISK MANAGEMENT (JRM) STUDY**

### **Salem Terminal To SRI RAGAVENDRA ENERGY REFILLS**

#### **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

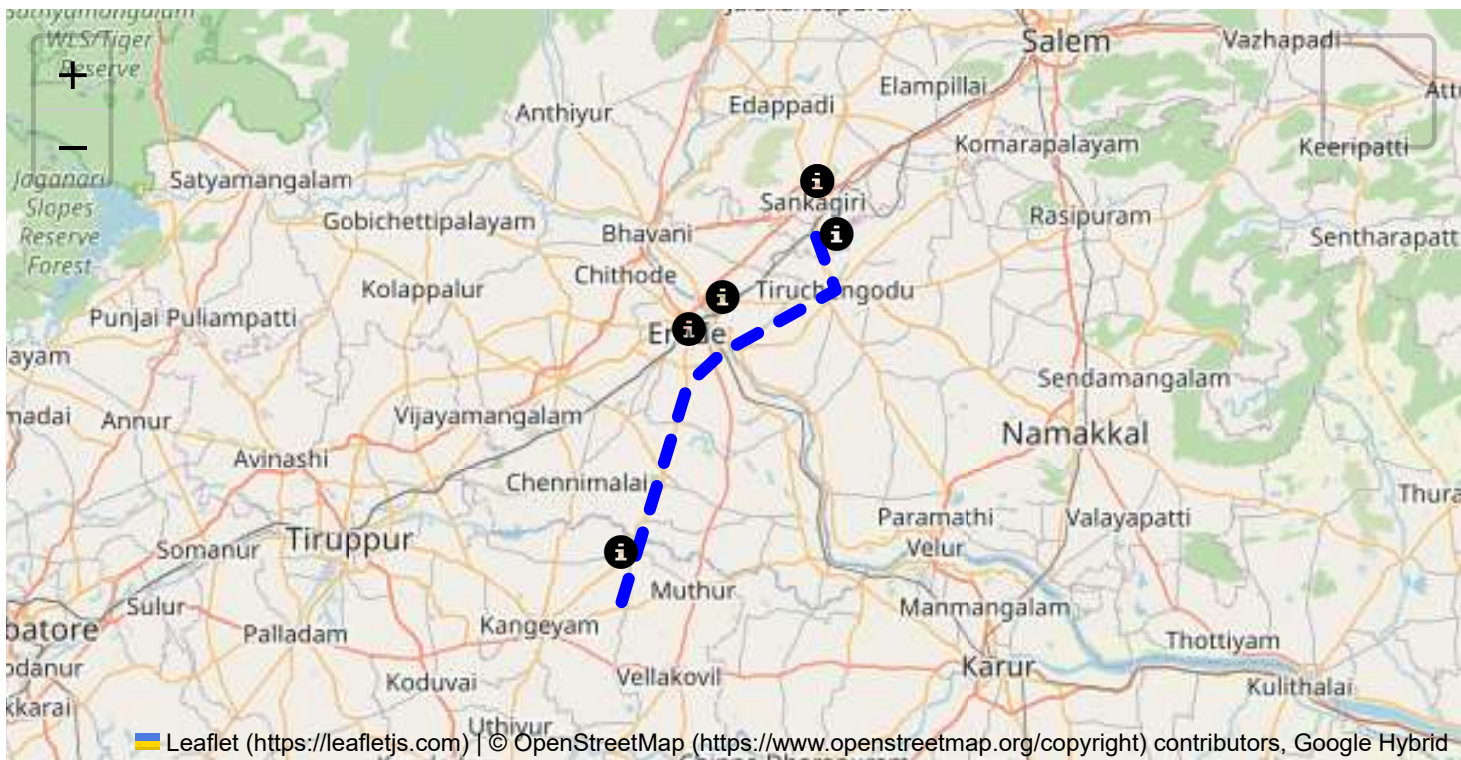
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

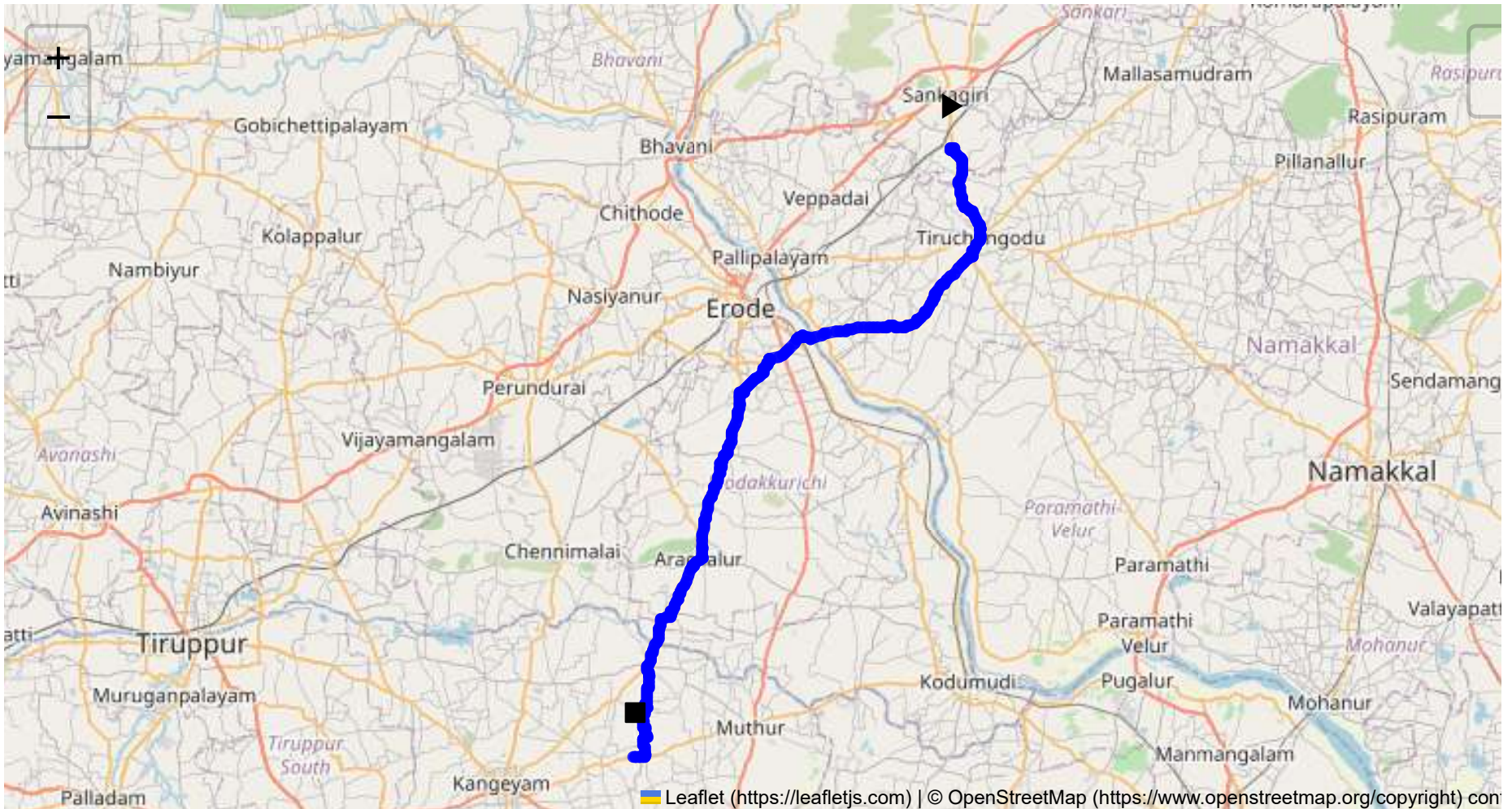
## Compliance with Government Directives

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: 63.53 km**  
**Estimated Duration: 1.6 hours**  
**Adjusted Duration (Heavy Vehicle): 1.9 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.02360819, 77.65208422)**



## Welcome to the Journey Risk Management Study

### 1. Route Overview

The route maps out a path starting in Sangagiri, proceeding through Thondikaradu in Tiruchengode, Kasipalayam E, and Kaspapettai, and ends at Suthapulikadu. The journey covers about 63.53 kilometers, typically navigated in under 2 hours under optimal conditions. The route predominantly traverses through rural and semi-urban environments, with sections transitioning from industrial zones to agricultural landscapes.

### 2. Weather Conditions

The region of Tamil Nadu is characterized by a tropical climate, experiencing high temperatures and humidity levels year-round. Monsoon rains (June to September) can lead to potential hazards like flooding or reduced visibility. During the summer months (March to May), heatwaves can affect vehicle performance, especially heavy vehicles carrying hazardous materials.

### 3. Traffic Patterns

Traffic is generally low to moderate on rural roadways, but congestion peaks during morning (8:00 AM - 10:00 AM) and evening hours (6:00 PM - 8:00 PM) due to local commuting and market activities. Tiruchengode and its vicinity may witness congestion due to commercial activity.

## 4. Road Quality and Infrastructure

The road infrastructure is generally well-maintained, yet certain stretches, especially in rural areas, may have potholes or uneven surfaces. Road markings can be faded, and lighting might not be sufficient in more remote areas. Truck drivers should be prepared for occasional abrupt changes in road quality.

## 5. Alternative Routes

In case of emergencies, alternative routes include using the NH44 towards Namakkal for broader connectivity. While this may extend travel time, it provides more robust infrastructure and access to services compared to rural roads.

## 6. Local Regulations

Transporting hazardous materials in Tamil Nadu requires adherence to state-specific regulations, including appropriate labeling, documentation, and vehicle certifications. Restrictions may apply in densely populated or environmentally sensitive regions.

## 7. Historical Incidents

There have been occasional incidents involving heavy vehicles, largely attributed to driver fatigue or mechanical failures. While hazardous material accidents are less common, any spillages generally lead to swift local regulation enforcement, emphasizing safety protocols.

## 8. Environmental Considerations

The route passes through areas with agricultural lands, requiring vigilance of any chemical or waste spillage that could affect crops or soil. Additionally, care should be taken to minimize noise and air pollution in residential areas.

## 9. Communication Coverage

Communication networks are generally reliable around urban clusters and along main roadways; however, rural areas may experience temporary coverage loss. Drivers should ensure GPS devices and communication tools are pre-loaded with route details as a precaution.

## 10. Emergency Response Times

Emergency services are primarily located in urban centers. Response times can range from 30 minutes to over an hour in rural sections of the route. It's advisable to familiarize oneself with local emergency contacts and service points.

## 11. Overall Risk Assessment Summary

The route from Sangagiri to Suthapulikadu is generally low-risk, with key considerations around the monsoon season's impact and maintaining vehicle readiness under high temperatures. Monitoring traffic patterns and dynamically adjusting travel times can mitigate congestion issues. Adhering to local regulations and having contingency plans, such as alternative routes and emergency contacts, enhances

safety for hazardous material transport. Prior preparation and cautious driving remain essential due to potential road quality variations and emergency response delays in less developed stretches.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Turn	Medium	11.43822, 77.87348	30 KM/Hr
2	Turn	High	11.43961, 77.87341	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.39671, 77.88878	30 KM/Hr
5	Turn	High	11.37862, 77.89488	15 KM/Hr
6	Turn	High	11.37850, 77.89453	15 KM/Hr
7	Turn	Medium	11.36616, 77.88885	30 KM/Hr
8	Turn	Medium	11.36602, 77.88875	30 KM/Hr
9	Turn	Medium	11.34632, 77.86836	30 KM/Hr
10	Turn	Medium	11.33882, 77.86218	30 KM/Hr
11	Turn	Medium	11.31747, 77.84240	30 KM/Hr
12	Turn	Medium	11.30951, 77.77608	30 KM/Hr
13	Turn	Medium	11.31118, 77.77139	30 KM/Hr
14	Turn	Medium	11.30970, 77.76705	30 KM/Hr
15	Turn	High	11.29490, 77.74685	15 KM/Hr
16	Turn	High	11.29133, 77.74660	15 KM/Hr
17	Turn	Medium	11.28844, 77.74319	30 KM/Hr
18	Turn	Medium	11.28558, 77.74271	30 KM/Hr
19	Turn	Medium	11.27326, 77.72991	30 KM/Hr
20	Blind Spot	Blind Spot	11.27330, 77.72711	10 KM/Hr
21	Turn	Medium	11.23054, 77.71796	30 KM/Hr
22	Turn	Medium	11.22387, 77.71385	30 KM/Hr
23	Turn	Medium	11.16078, 77.70122	30 KM/Hr
24	Turn	Medium	11.15953, 77.70067	30 KM/Hr
25	Turn	High	11.15944, 77.70068	15 KM/Hr
26	Turn	Medium	11.11918, 77.67766	30 KM/Hr
27	Turn	Medium	11.11740, 77.67198	30 KM/Hr
28	Turn	Medium	11.10481, 77.67060	30 KM/Hr



	Risk Type	Risk Level	Coordinates	Speed Limit
29	Turn	Medium	11.09509, 77.66612	30 KM/Hr
30	Turn	Medium	11.08730, 77.66436	30 KM/Hr
31	Turn	High	11.08484, 77.66195	15 KM/Hr
32	Turn	Medium	11.08433, 77.66212	30 KM/Hr
33	Turn	High	11.08365, 77.66202	15 KM/Hr
34	Turn	Medium	11.08010, 77.66431	30 KM/Hr
35	Turn	Medium	11.07926, 77.66416	30 KM/Hr
36	Turn	Medium	11.07881, 77.66383	30 KM/Hr
37	Turn	Medium	11.04802, 77.65982	30 KM/Hr
38	Turn	Medium	11.04392, 77.65930	30 KM/Hr
39	Turn	High	11.04364, 77.65937	15 KM/Hr
40	Turn	Medium	11.04257, 77.66142	30 KM/Hr
41	Turn	High	11.03742, 77.66229	15 KM/Hr
42	Turn	High	11.03726, 77.66214	15 KM/Hr
43	Turn	High	11.03732, 77.66105	15 KM/Hr
44	Turn	Medium	11.03580, 77.65957	30 KM/Hr
45	Turn	Medium	11.03559, 77.65949	30 KM/Hr
46	Blind Spot	Blind Spot	11.02383, 77.66081	10 KM/Hr

## Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Tiruchengode, Goverment Hospital	11.3903328, 77.8920627	30 km/h	Medium
1	hospital	SPM Medical Centre,Tiruchengode	11.3881331, 77.8931963	30 km/h	Medium
5	clinic	Kongu Nursing Home	11.3783065, 77.8961134	30 km/h	Medium
6	hospital	T.C.A Hospital Tiruchengode	11.3791885, 77.8965774	30 km/h	Medium
7	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	30 km/h	Medium
8	hospital	Tiruchengode Government Hospital	11.37645, 77.89426	30 km/h	Medium
9	hospital	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
10	hospital	Tirukumaran Hospitals	11.3782118, 77.8914933	30 km/h	Medium
13	hospital	Government Hospital	11.2343326, 77.719226	30 km/h	Medium

## Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	school	அரசு ஆண்கள் மேல்நிலைப் பள்ளி	11.3850439, 77.8948279	30 km/h	Medium
3	school	அரசு பெண்கள் மேல்நிலைப் பள்ளி	11.3844247, 77.8949053	30 km/h	Medium
4	marketplace	திருச்செங்கோடு தினசரி காய்கறி சந்தை	11.3833608, 77.8970145	30 km/h	Medium
11	school	KSR Educational institution	11.3772013, 77.8908807	30 km/h	Medium
12	school	MDV School	11.3719843, 77.8915244	30 km/h	Medium

## Route Photos of Risky Spots



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.38395, 77.89480





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.44029, 77.87544



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.39671, 77.88878



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.37862, 77.89488





Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.37850, 77.89453



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.36616, 77.88885



Risk Type: Turn

Risk Level: Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.36602, 77.88875**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.34632, 77.86836**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.33882, 77.86218**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.31747, 77.84240



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.30951, 77.77608



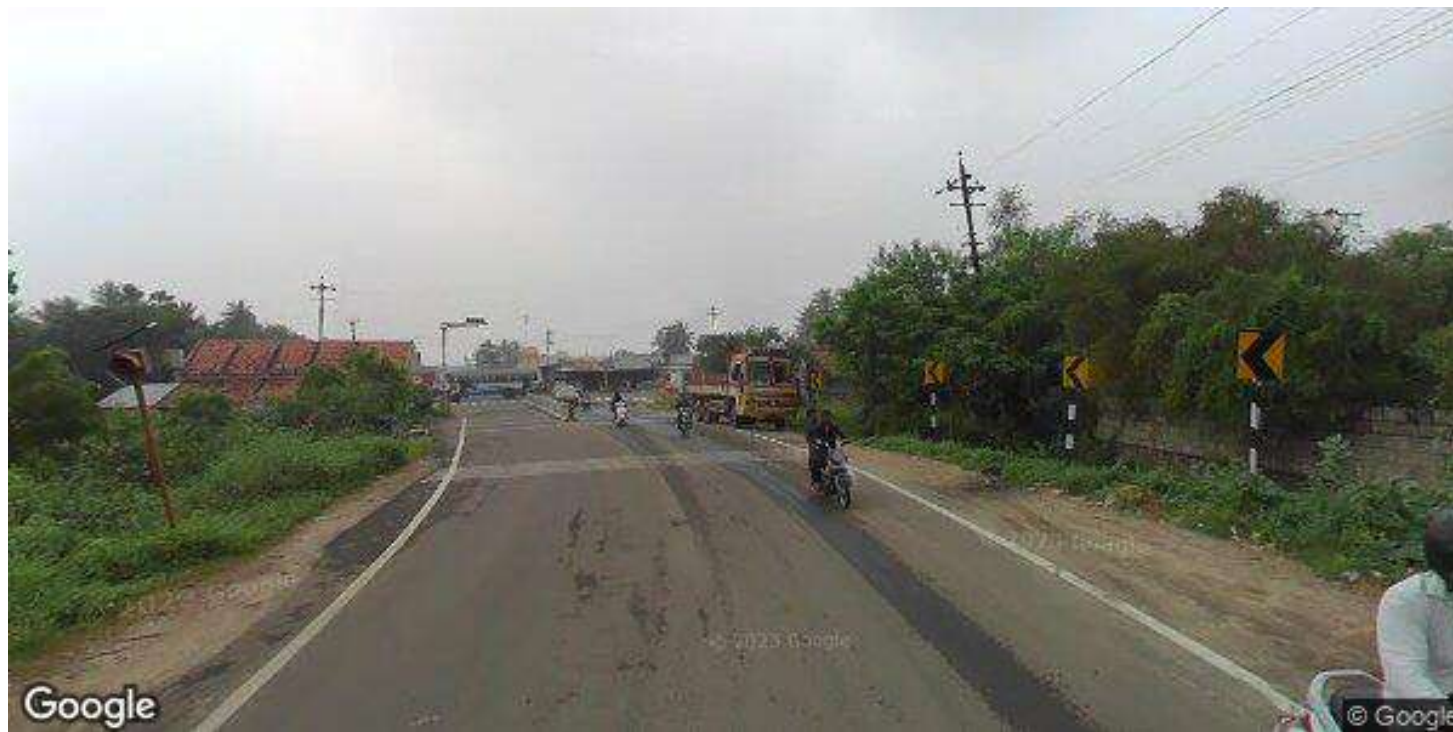
**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.31118, 77.77139**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.30970, 77.76705**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.29490, 77.74685**





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.29133, 77.74660



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.28844, 77.74319



**Risk Type:** Turn  
**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.28558, 77.74271**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.27326, 77.72991**



**Risk Type: Blind Spot**

**Risk Level: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Coordinates: 11.27330, 77.72711**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.23054, 77.71796



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.22387, 77.71385



**Risk Type:** Turn

**Risk Level:** Medium



Speed Limit: 30 KM/Hr

Coordinates: 11.16078, 77.70122



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15953, 77.70067



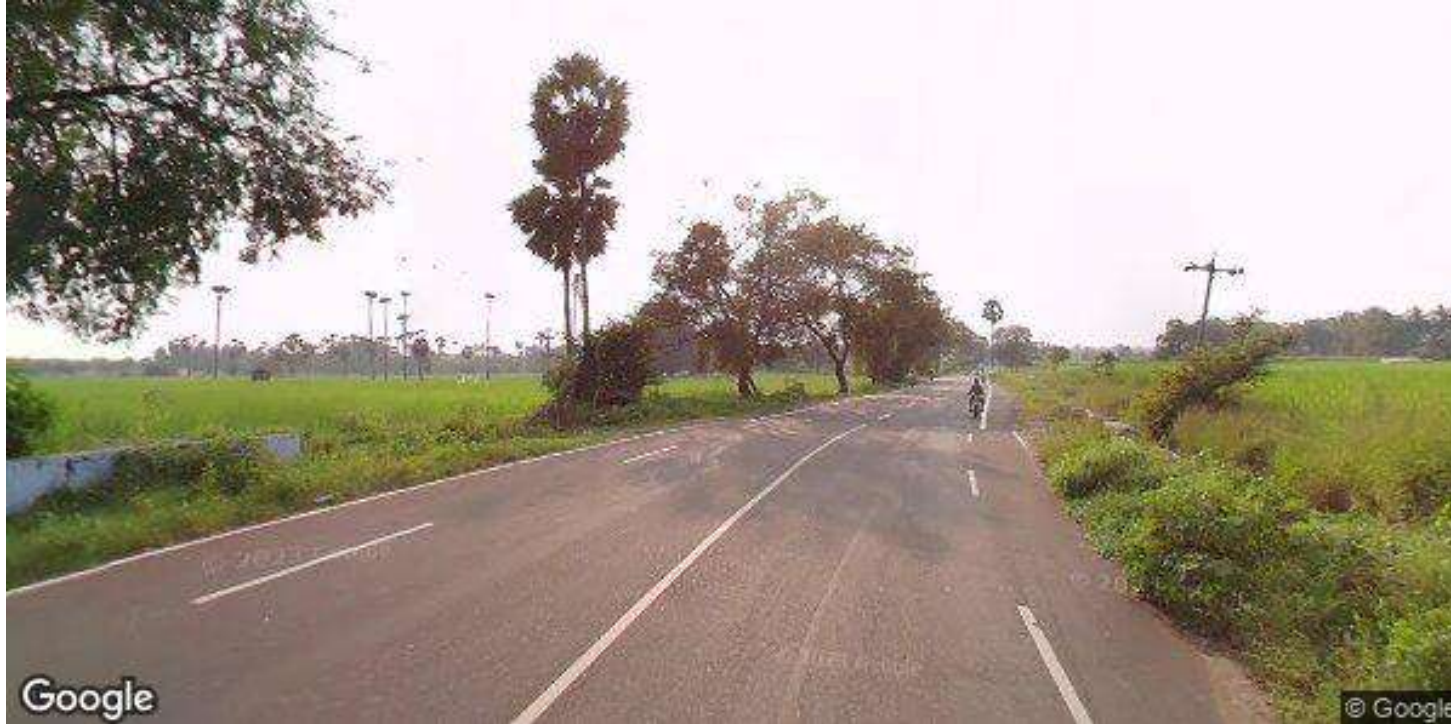
Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.15944, 77.70068





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.11918, 77.67766



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.11740, 77.67198



**Risk Type:** Turn  
**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.10481, 77.67060**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.09509, 77.66612**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.08730, 77.66436**





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.08484, 77.66195



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.08433, 77.66212



**Risk Type:** Turn  
**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.08365, 77.66202**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.08010, 77.66431**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.07926, 77.66416**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.07881, 77.66383



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.04802, 77.65982



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.04392, 77.65930**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.04364, 77.65937**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.04257, 77.66142**





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.03742, 77.66229



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.03726, 77.66214



**Risk Type:** Turn

**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.03732, 77.66105**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.03580, 77.65957**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.03559, 77.65949**





**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Coordinates:** 11.02383, 77.66081

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