



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### IOCL Coimbatore Terminal to Rajeswari Agency

#### 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**

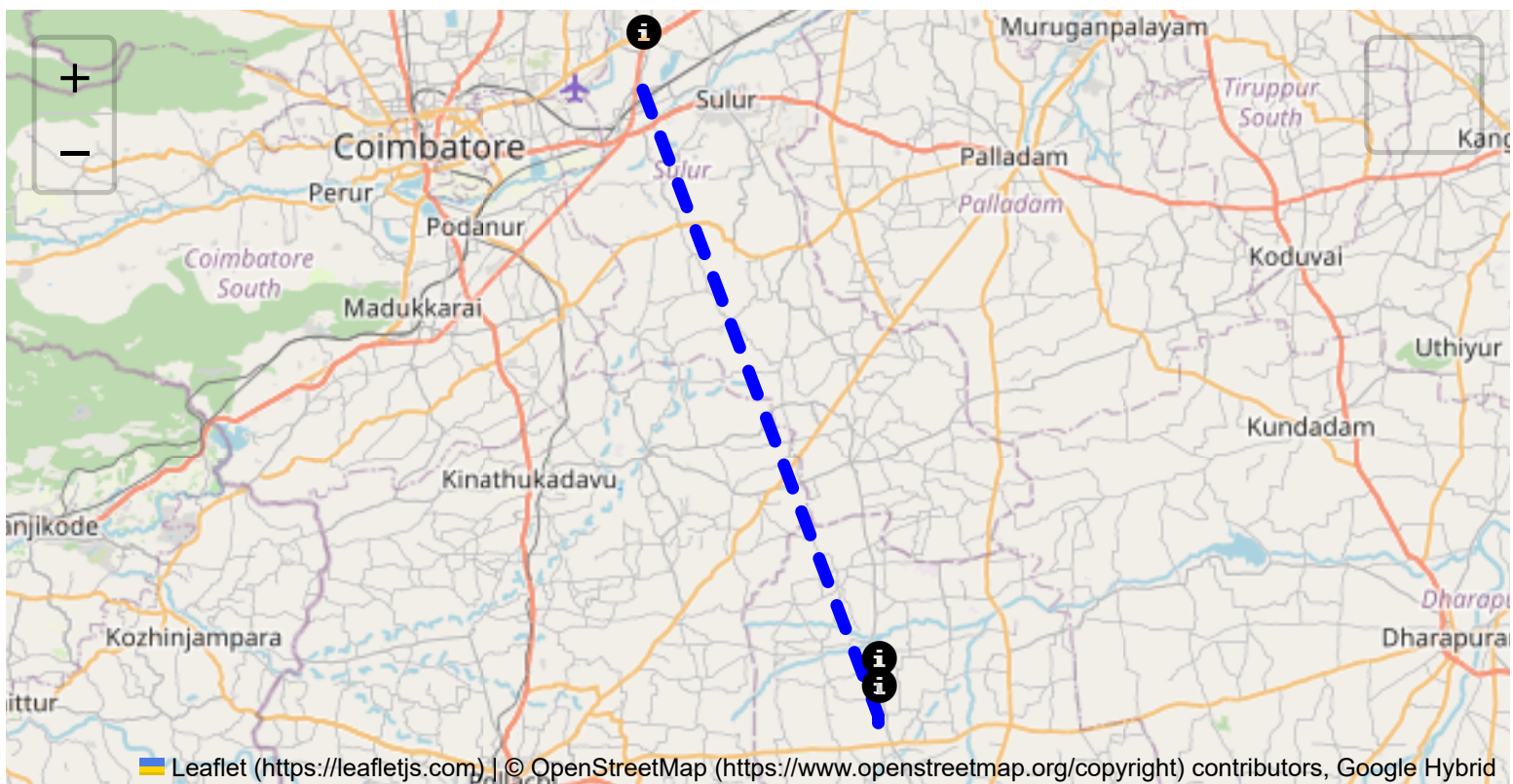
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

## **Journey Risk Mitigation**

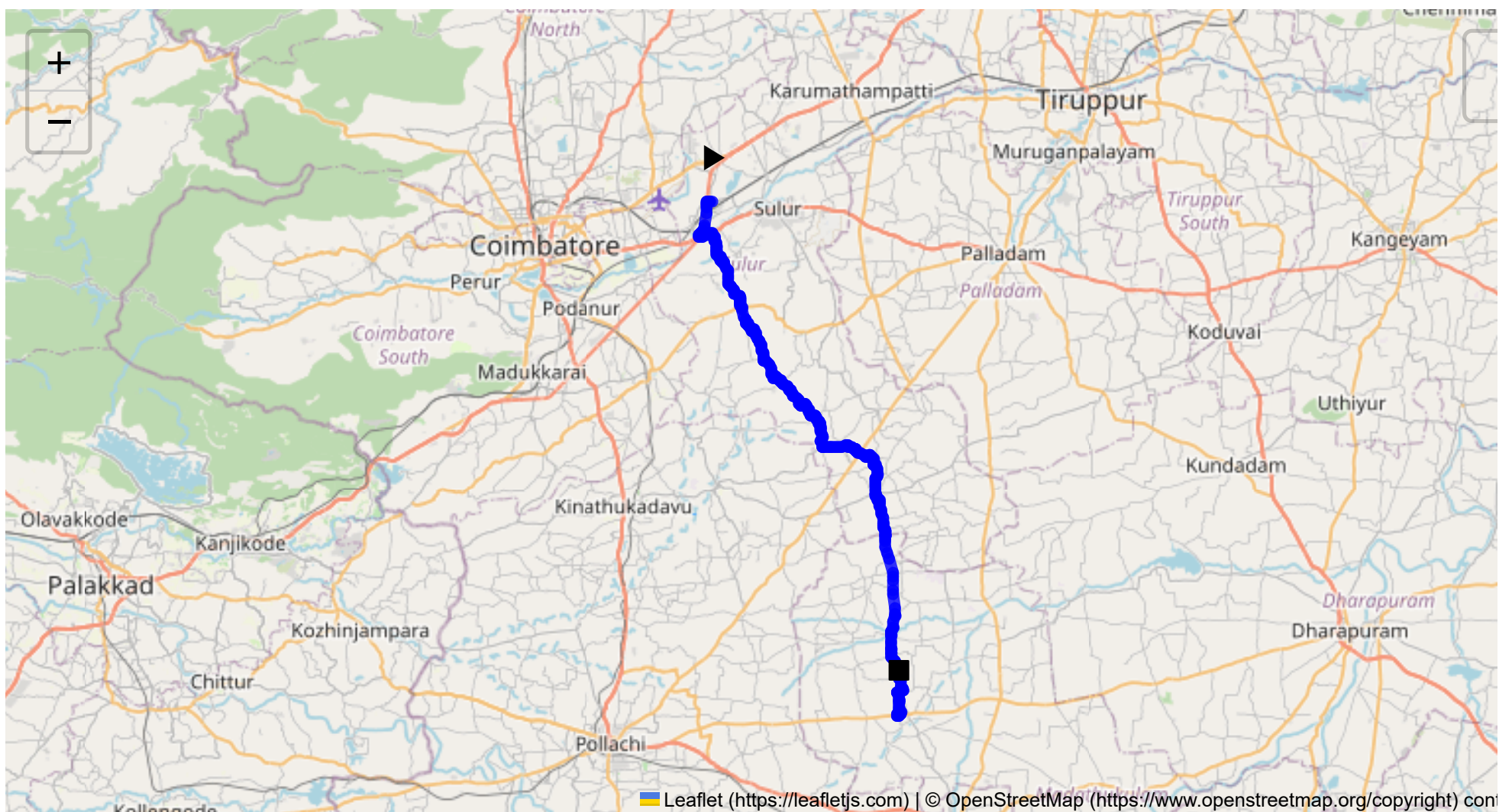
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 50.46 km**  
**Estimated Duration: 1.4 hours**  
**Adjusted Duration (Heavy Vehicle): 1.7 hours**  
**Start: (11.0315, 77.0797)**  
**End: (10.679155, 77.209352)**



## Welcome to the Journey Risk Management Study

### Route Safety Analysis Report

#### 1. Overview of the Route Map

The route from Athappagoundenpudur to Somavarapatti spans approximately 50.46 kilometers and involves navigating through rural and semi-urban regions of Tamil Nadu. Key waypoints include a pass



through M6V5+JR Somavarapatti. The journey is primarily on state highways and local roads.

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

Tamil Nadu has a tropical climate, with the route experiencing the following:

- **Summer (March to June):** High temperatures can contribute to road surface damage.
- **Monsoon (July to September):** Heavy rainfall can lead to slippery roads, reduced visibility, and potential flooding.
- **Winter (November to February):** Mild weather with occasional fog in the early morning.

Drivers should be cautious of the monsoon period due to the possibility of localized flooding and reduced grip on the roads.

## 3. Analysis of Traffic Patterns

- **Peak Hours:** Generally coincide with local commerce activities—typically from 8 AM to 10 AM and 4 PM to 7 PM.
- **Congestion-Prone Areas:** Areas near market towns and intersections where state highways meet local roads exhibit high traffic volumes. These locations may see increased congestion during harvest seasons or festivals.

## 4. Assessment of Road Quality and Infrastructure

- **Road Conditions:** Primarily two-lane roads with some sections showing wear and tear. Potholes and uneven surfaces are common, especially post-monsoon.
- **Infrastructure:** Limited lighting in rural stretches and basic signage.

## 5. Suggestions for Alternative Routes

In case of emergencies such as road blockages:

- **Alternative 1:** Divert back towards major cities such as Coimbatore for better facilities.
- **Alternative 2:** Use bypasses around major towns if available to avoid crowded areas.

## 6. Local Regulations Affecting Hazardous Material Transport

- **Permit Requirements:** Transport of hazardous materials requires specific permits from the local transport authorities.
- **Timing Restrictions:** Night travel might be regulated depending on the nature of the materials.

## 7. Overview of Historical Incidents

- **Heavy Vehicle Accidents:** Reports of occasional truck tipping due to road conditions.
- **Hazardous Materials:** Limited reported incidents but adherence to guidelines is crucial.

## 8. Environmental Considerations and Sensitive Areas

- Agricultural Areas:** The route passes through farming zones; spills can have significant ecological impacts.
- Wildlife Crossings:** Some segments may be close to wildlife habitats, requiring careful navigation to avoid accidents.

## 9. Analysis of Communication Coverage

- Communication:** Mobile network coverage varies, with potential dead zones in rural segments—drivers should ensure offline navigation capability.

## 10. Estimated Emergency Response Times

- Near Towns:** Rapid response within 30 minutes.
- Rural Areas:** Delays expected, up to 1 hour or more depending on specific location.

## 11. An Overall Summary of Risk Assessment

The route presents moderate risk for transporting hazardous materials due to weather variability, road conditions, and congestion in urban sections. Key risks include poor weather during the monsoon, infrastructure limitations, and communication dead zones. Strict adherence to transport regulations and route monitoring is essential to ensure safety.

In conclusion, with regular maintenance checks for vehicles, adherence to driving schedules avoiding peak hours, and emergency preparedness, the identified risks can be effectively managed. Drivers are advised to stay informed about weather forecasts and local traffic updates to navigate the route safely.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Blind Spot	Blind Spot	11.03211, 77.07640	10 KM/Hr
1	Blind Spot	Blind Spot	11.00778, 77.07085	10 KM/Hr
2	Blind Spot	Blind Spot	11.01005, 77.08007	10 KM/Hr
3	Turn	Medium	11.00699, 77.08112	30 KM/Hr
4	Turn	Medium	10.99407, 77.08389	30 KM/Hr
5	Turn	High	10.99360, 77.08607	15 KM/Hr
6	Turn	High	10.99147, 77.08623	15 KM/Hr
7	Turn	High	10.99143, 77.08704	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
8	Turn	Medium	10.97512, 77.09080	30 KM/Hr
9	Turn	Medium	10.97328, 77.09207	30 KM/Hr
10	Turn	Medium	10.96706, 77.09742	30 KM/Hr
11	Turn	High	10.96678, 77.09908	15 KM/Hr
12	Turn	Medium	10.96594, 77.09921	30 KM/Hr
13	Turn	Medium	10.96172, 77.09910	30 KM/Hr
14	Turn	Medium	10.94726, 77.10468	30 KM/Hr
15	Blind Spot	Blind Spot	10.94272, 77.10720	10 KM/Hr
16	Turn	High	10.94340, 77.10925	15 KM/Hr
17	Turn	High	10.92270, 77.11562	15 KM/Hr
18	Turn	Medium	10.92234, 77.11761	30 KM/Hr
19	Turn	Medium	10.92028, 77.11981	30 KM/Hr
20	Turn	Medium	10.91253, 77.12238	30 KM/Hr
21	Turn	Medium	10.91090, 77.12292	30 KM/Hr
22	Turn	High	10.91081, 77.12302	15 KM/Hr
23	Turn	High	10.91150, 77.12446	15 KM/Hr
24	Turn	Medium	10.90973, 77.12522	30 KM/Hr
25	Turn	Medium	10.90876, 77.12759	30 KM/Hr
26	Turn	Medium	10.90572, 77.13015	30 KM/Hr
27	Turn	Medium	10.90545, 77.13168	30 KM/Hr
28	Turn	High	10.89746, 77.13706	15 KM/Hr
29	Turn	High	10.89725, 77.13908	15 KM/Hr
30	Turn	Medium	10.89251, 77.14146	30 KM/Hr
31	Turn	Medium	10.89197, 77.14253	30 KM/Hr
32	Turn	High	10.89236, 77.14497	15 KM/Hr
33	Turn	Medium	10.88950, 77.14612	30 KM/Hr
34	Turn	Medium	10.88399, 77.14962	30 KM/Hr
35	Turn	Medium	10.88389, 77.14983	30 KM/Hr
36	Turn	Medium	10.88391, 77.15009	30 KM/Hr
37	Turn	Medium	10.88467, 77.15087	30 KM/Hr
38	Turn	High	10.88510, 77.15153	15 KM/Hr
39	Turn	Medium	10.88068, 77.15443	30 KM/Hr
40	Turn	High	10.88066, 77.15466	15 KM/Hr
41	Turn	Medium	10.87649, 77.15563	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
42	Turn	Medium	10.86761, 77.15622	30 KM/Hr
43	Turn	High	10.86481, 77.15684	15 KM/Hr
44	Turn	High	10.86464, 77.15662	15 KM/Hr
45	Turn	High	10.86243, 77.15711	15 KM/Hr
46	Turn	High	10.86425, 77.17490	15 KM/Hr
47	Turn	High	10.86200, 77.17974	15 KM/Hr
48	Turn	High	10.86160, 77.17964	15 KM/Hr
49	Turn	Medium	10.85888, 77.18247	30 KM/Hr
50	Turn	Medium	10.85611, 77.18752	30 KM/Hr
51	Turn	Medium	10.85612, 77.18812	30 KM/Hr
52	Turn	Medium	10.85696, 77.19019	30 KM/Hr
53	Turn	Medium	10.85601, 77.19162	30 KM/Hr
54	Turn	Medium	10.85531, 77.19203	30 KM/Hr
55	Turn	Medium	10.85143, 77.19268	30 KM/Hr
56	Turn	Medium	10.85099, 77.19297	30 KM/Hr
57	Turn	Medium	10.85075, 77.19336	30 KM/Hr
58	Turn	Medium	10.85072, 77.19389	30 KM/Hr
59	Turn	Medium	10.84090, 77.19461	30 KM/Hr
60	Turn	Medium	10.84078, 77.19465	30 KM/Hr
61	Turn	High	10.82656, 77.19588	15 KM/Hr
62	Turn	Medium	10.82595, 77.19730	30 KM/Hr
63	Turn	High	10.82573, 77.19738	15 KM/Hr
64	Turn	Medium	10.81023, 77.19998	30 KM/Hr
65	Turn	High	10.80169, 77.20101	15 KM/Hr
66	Turn	Medium	10.73448, 77.20510	30 KM/Hr
67	Turn	High	10.73381, 77.20462	15 KM/Hr
68	Turn	Medium	10.71552, 77.20716	30 KM/Hr
69	Turn	Medium	10.71526, 77.20776	30 KM/Hr
70	Turn	Medium	10.71512, 77.20788	30 KM/Hr
71	Turn	Medium	10.71185, 77.20824	30 KM/Hr
72	Turn	High	10.69518, 77.21276	15 KM/Hr
73	Blind Spot	Blind Spot	10.69471, 77.20928	10 KM/Hr
74	Turn	Medium	10.68957, 77.21048	30 KM/Hr
75	Turn	Medium	10.68360, 77.21069	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
76	Turn	High	10.67888, 77.21137	15 KM/Hr
77	Turn	Medium	10.67876, 77.20973	30 KM/Hr
78	Turn	High	10.67888, 77.20943	15 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:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.00778, 77.07085



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





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.00699, 77.08112



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.99407, 77.08389





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

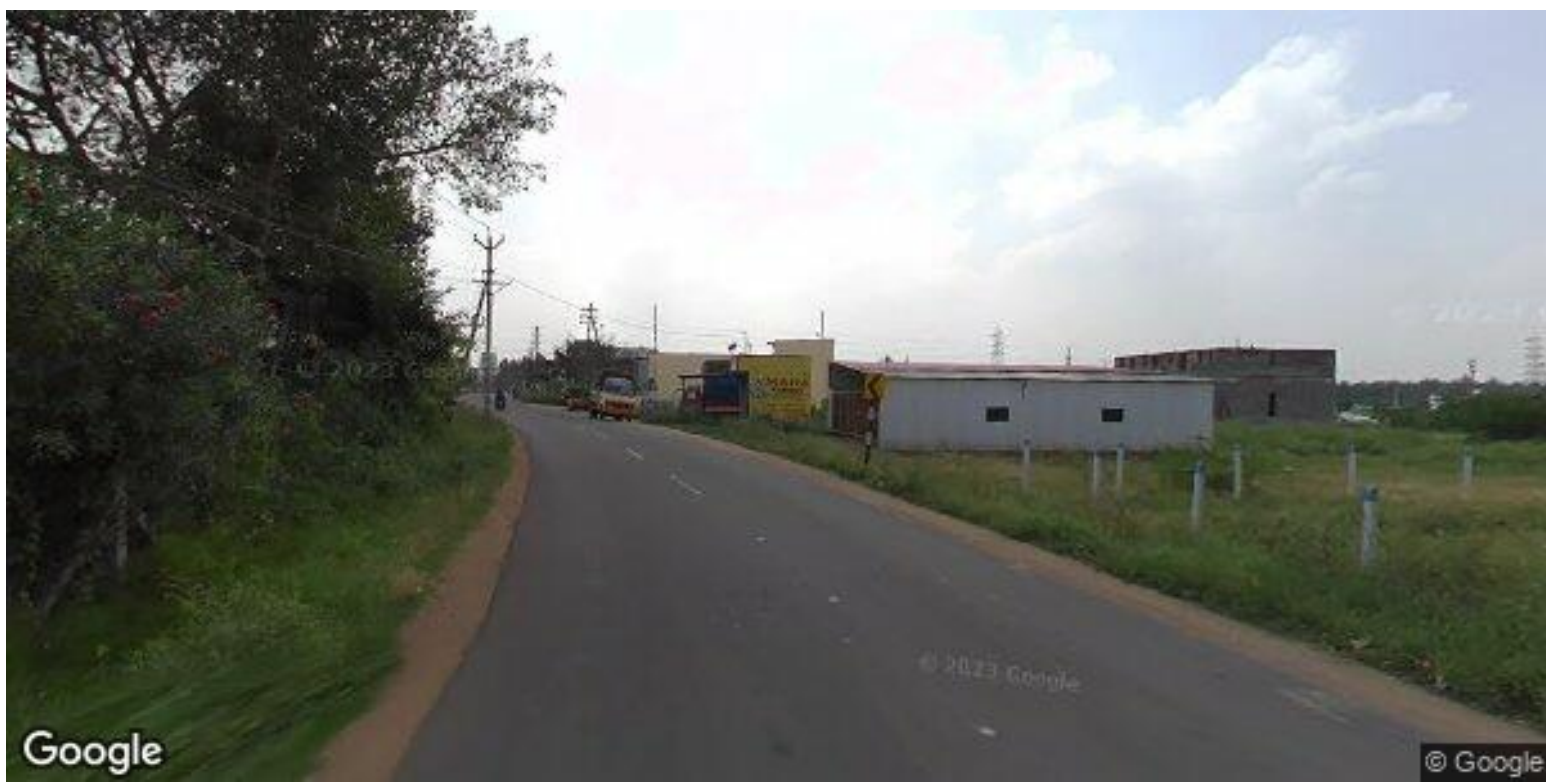


**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.99147, 77.08623



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.99143, 77.08704





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.97512, 77.09080



**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

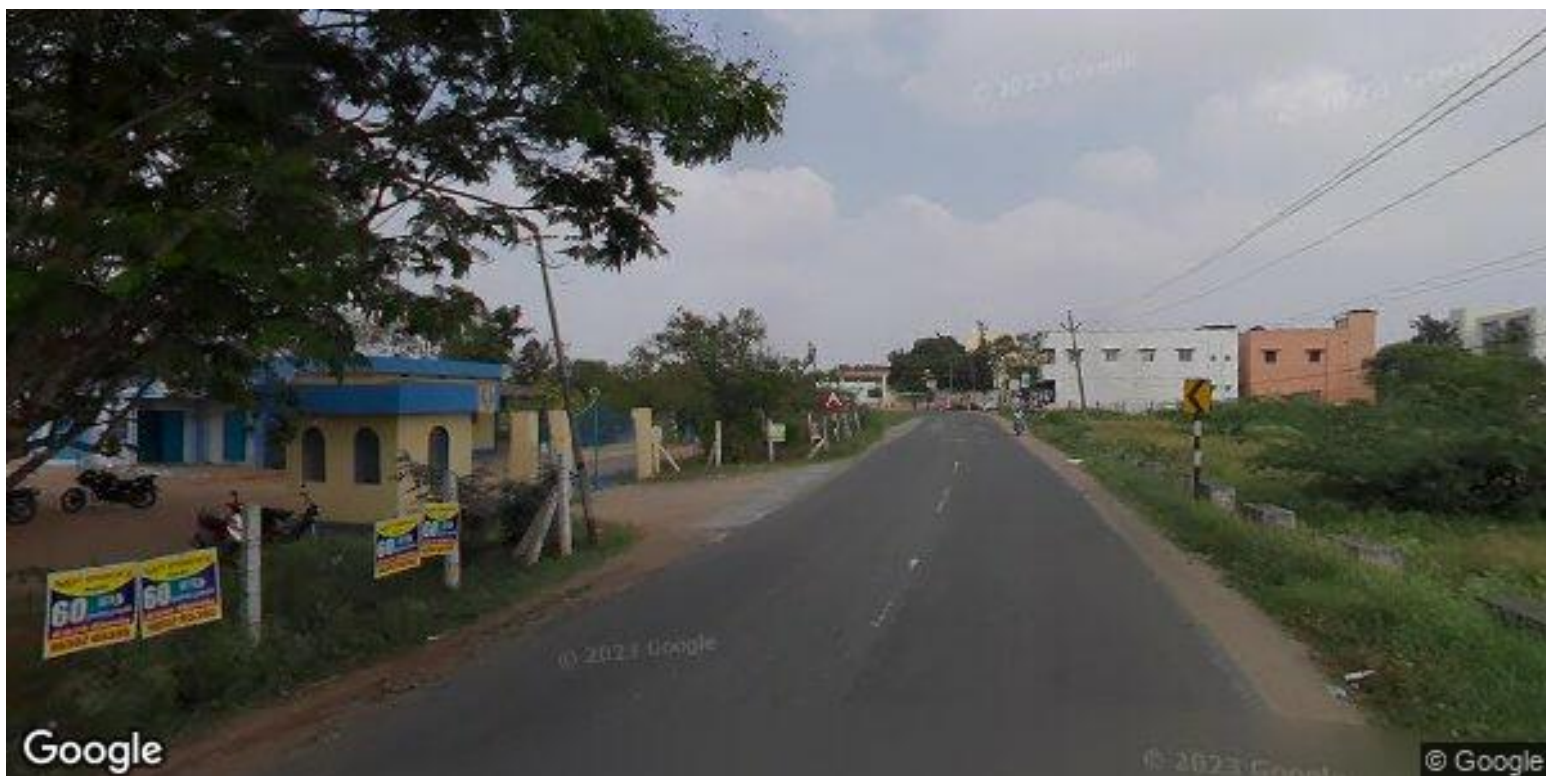


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.96678, 77.09908



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.96594, 77.09921





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.96172, 77.09910



**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:** 10.94272, 77.10720



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.94340, 77.10925



**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:** 10.92234, 77.11761



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.92028, 77.11981





**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:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.91150, 77.12446



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.90973, 77.12522





**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



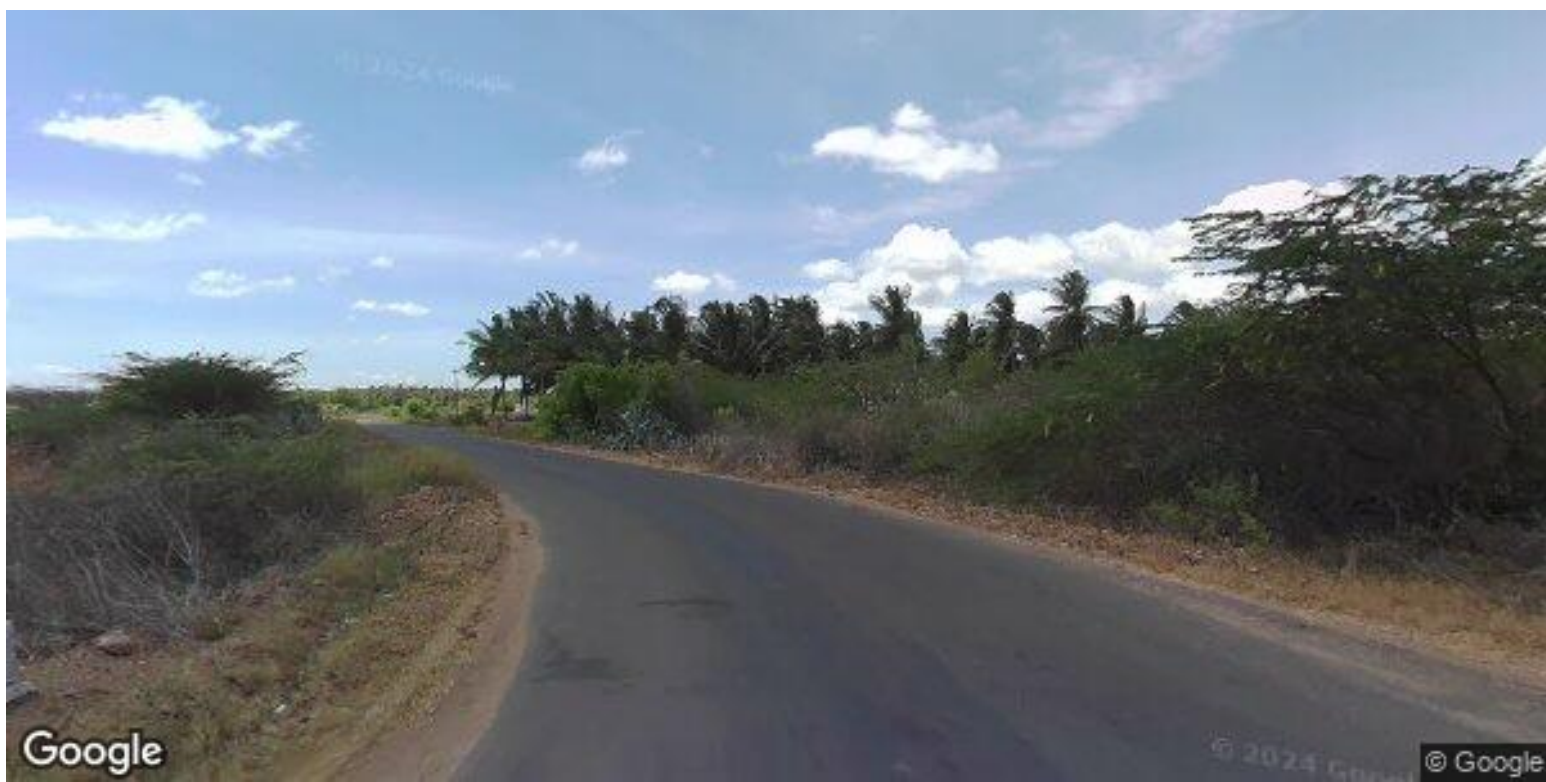
**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.90545, 77.13168





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



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 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:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.89236, 77.14497





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.88950, 77.14612



**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:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.88068, 77.15443





**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:** 10.87649, 77.15563



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.86761, 77.15622





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 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:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.86200, 77.17974





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.86160, 77.17964



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.85888, 77.18247





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.85611, 77.18752



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.85612, 77.18812



**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



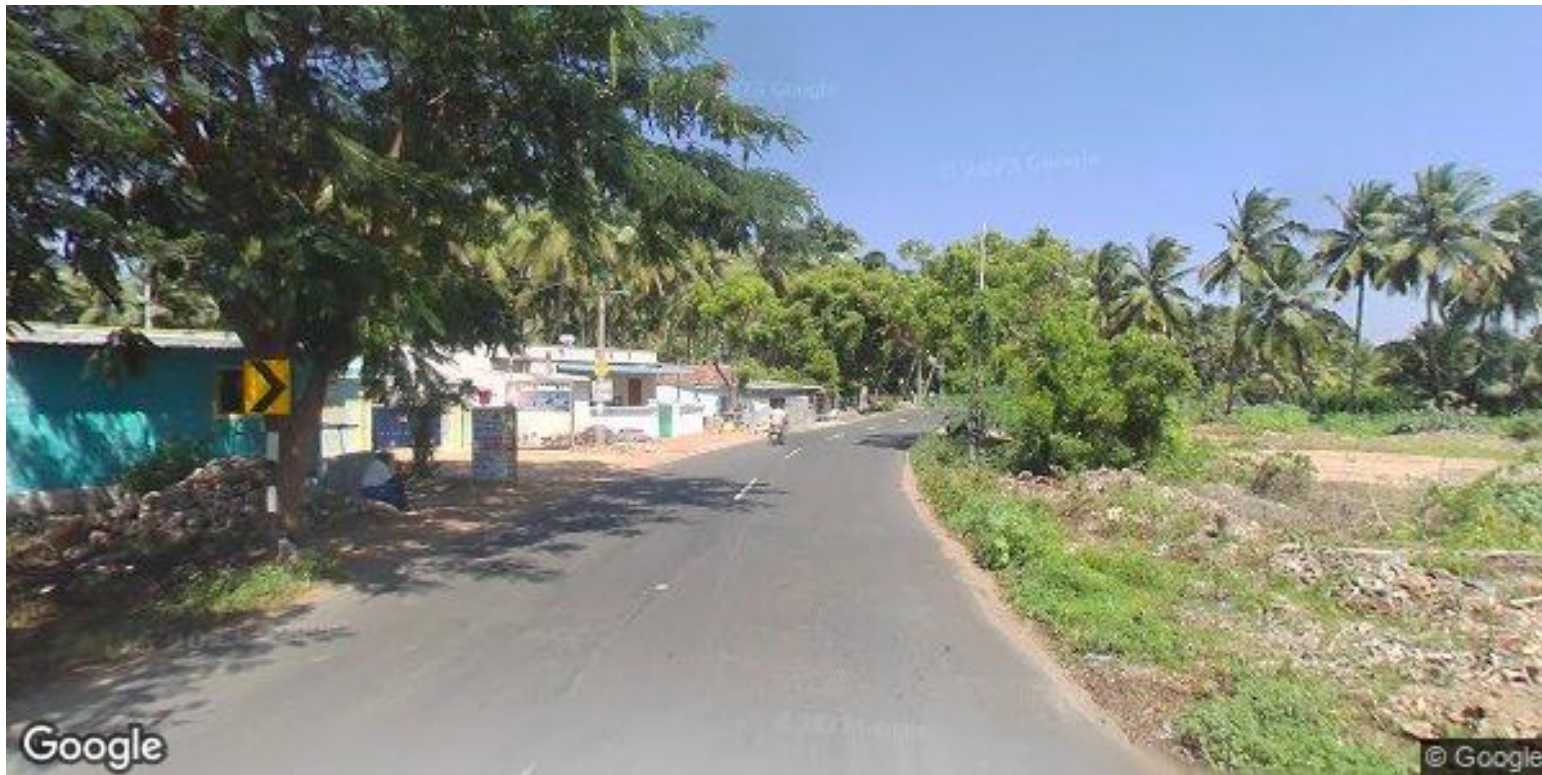


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.85143, 77.19268



**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:** 10.84090, 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:** 10.82656, 77.19588



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.82595, 77.19730





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.82573, 77.19738



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.81023, 77.19998





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.80169, 77.20101



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.73448, 77.20510



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.73381, 77.20462





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.71552, 77.20716



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.71526, 77.20776





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.71512, 77.20788



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.69518, 77.21276



**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 10.69471, 77.20928





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.68957, 77.21048



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.68360, 77.21069





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.67888, 77.21137



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 10.67876, 77.20973



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 10.67888, 77.20943

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