JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to SRI SIVASELVI AGENCIES

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

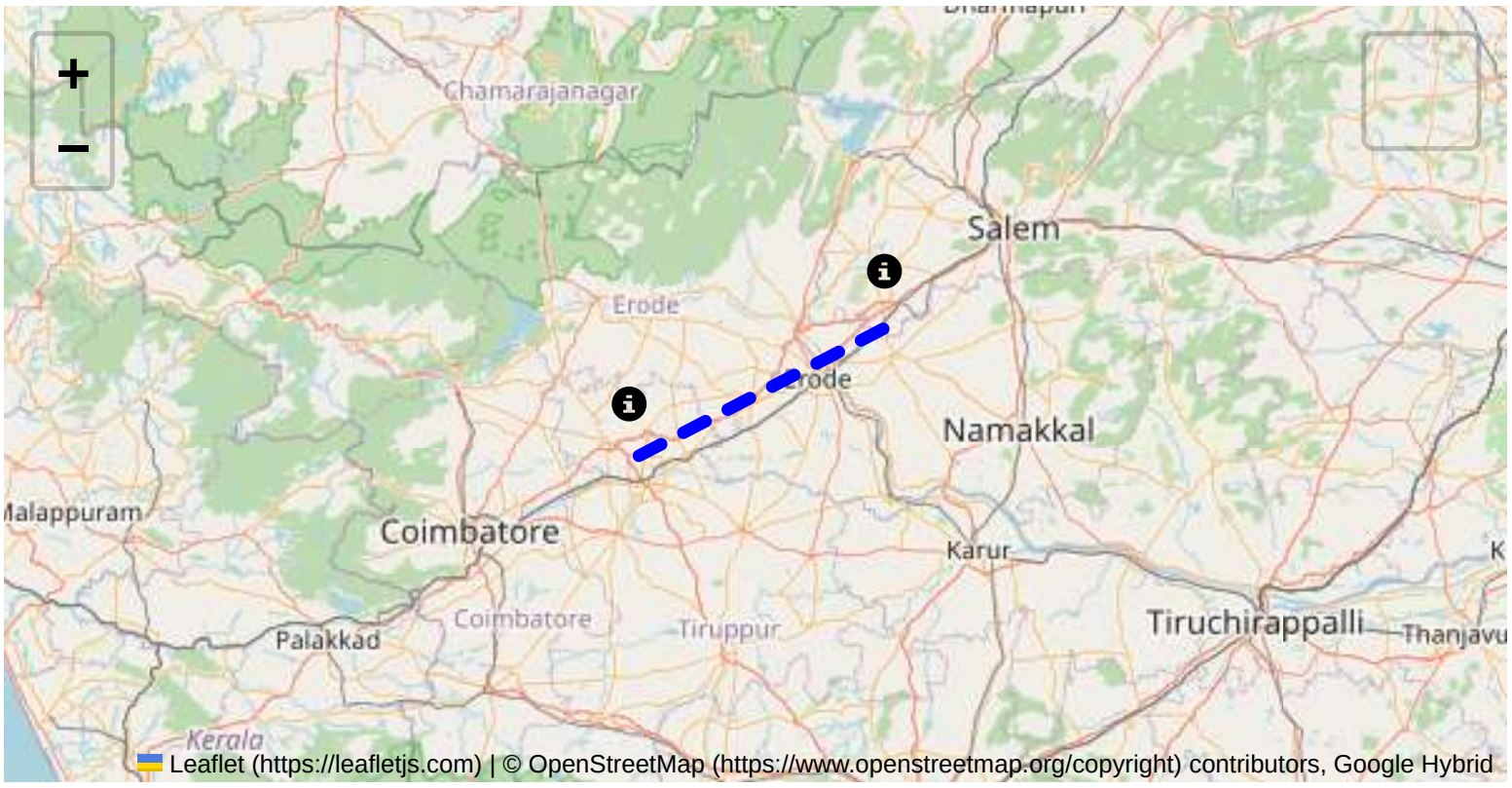
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

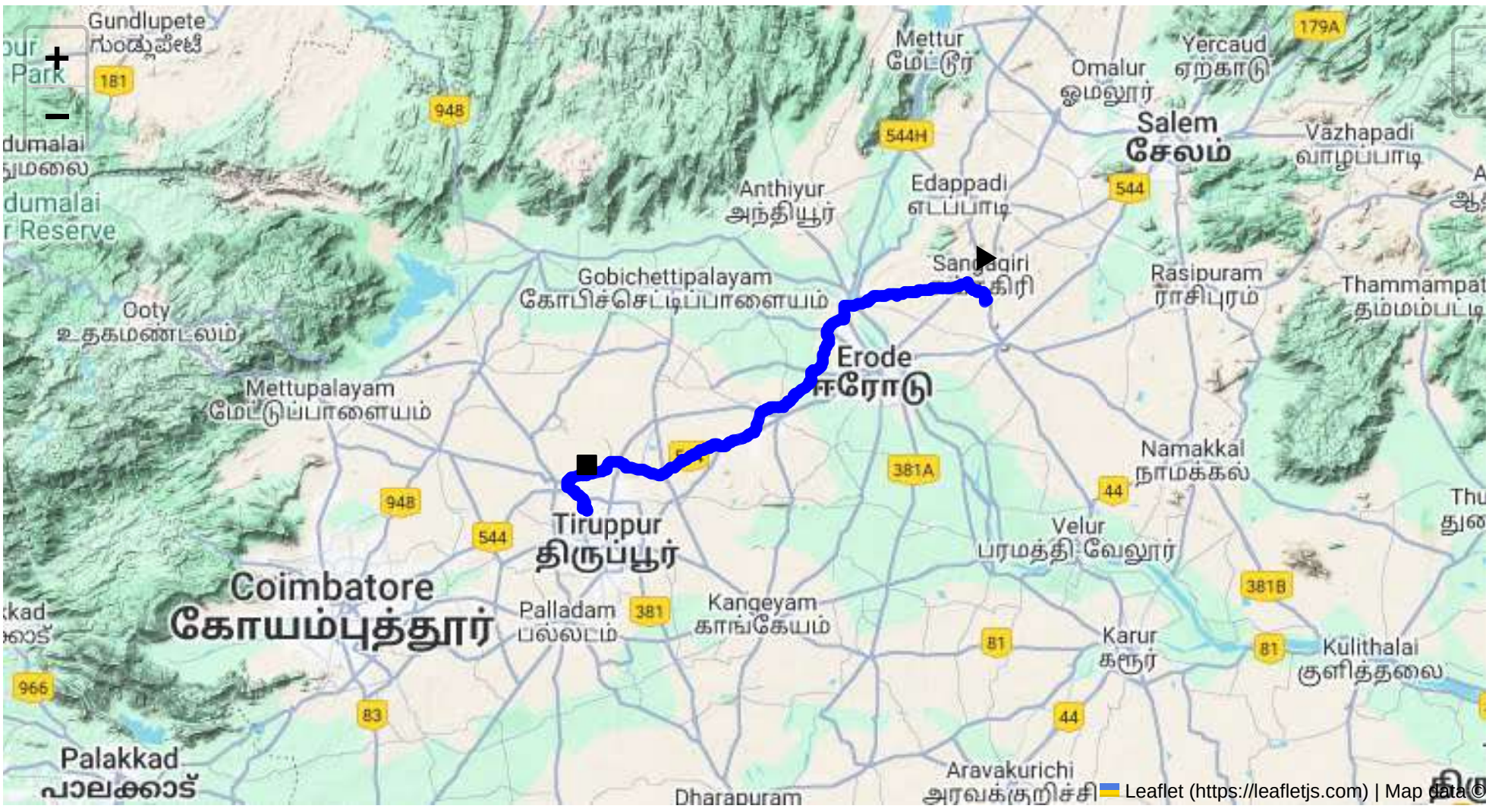
Compliance with Government Directives

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: 90.19 km
Estimated Duration: 1.7 hours
Adjusted Duration (Heavy Vehicle): 2.1 hours
Start: (11.4381, 77.8734)
End: (11.151241, 77.310257)



Welcome to the Journey Risk Management Study

Route Safety Analysis: CVQF+23W, Sangagiri to 573/1B, Rakkiya Palayam Road, Avinashi

1. Overview of the Route Map

The route primarily follows NH544, a well-maintained national highway that runs between Sangagiri and Avinashi. This highway is commonly used for cargo transportation, including hazardous materials.

2. Typical Weather Conditions and Potential Weather-Related Hazards

- **Weather**: Tamil Nadu experiences a tropical climate. Heavy rainfall is most likely during the southwest monsoon (June to September) and northeast monsoon (October to December).
- **Hazards**: Monsoonal rains can lead to slick road surfaces and, occasionally, localized flooding. Reduced visibility due to heavy rains and fog in some sections can pose additional risks.

3. Traffic Patterns

- **Congestion-prone Areas**: Cities and towns along the route such as Sankari and Tiruchengode can experience congestion during peak hours (8-10 AM and 5-8 PM).
- **Traffic Analysis**: NH544 generally handles heavy vehicle traffic well, but congestion is possible near toll plazas and urban areas. Real-time traffic updates are recommended.

4. Assessment of Road Quality and Infrastructure

- **Road Quality**: NH544 is generally in good condition, with smooth tarmac and proper signage. However, local roads in rural sections may have potholes and less distinct road markers.
- **Infrastructure**: Facilities such as rest stops and fueling stations are available at regular intervals along the highway.

5. Suggestions for Alternative Routes

- An alternative route via SH86 and SH81 can be used in case of emergencies or heavy congestion, although these state highways are narrower and might not support as high a volume of traffic efficiently.

6. Local Regulations Affecting Hazardous Material Transport

- Special permits and documentation are required for transporting hazardous materials in Tamil Nadu.
- Time restrictions may apply in populated areas to avoid transit during peak traffic.

7. Overview of Historical Incidents

- **Incidents**: While NH544 is relatively well-regulated, there have been occasional accidents involving heavy vehicles due to driver fatigue or high speeds.
- **Preventive Measures**: Enforcement of speed limits and regular driver rest breaks can mitigate these risks.

8. Environmental Considerations and Sensitive Areas

- Protection of agricultural lands and local water bodies is a priority. Waste disposal from vehicles in these areas is strictly regulated.
- Noise restrictions may be in place in populated and environmentally sensitive zones.

9. Analysis of Communication Coverage

- NH544 generally has strong mobile network coverage, but occasional dead zones might exist in rural or less populated sections.
- Use of multi-network SIM cards could help maintain consistent communication.

10. Estimated Emergency Response Times

- **Urban Areas**: Emergency response within cities like Tiruchengode is usually under 30 minutes.
- **Rural Areas**: Response times can extend to 45 minutes to an hour due to distance and accessibility.

12. Overall Summary of Risk Assessment

The route from Sangagiri to Avinashi on NH544 is generally safe and well-suited for the transport of hazardous materials. However, precautions should be taken regarding weather conditions, traffic congestion, and adherence to local regulations. Regular communication checks and preparedness for emergencies will ensure minimal disruptions. Additionally, drivers should be trained in environmental awareness to avoid violations related to pollution and local ecology.

This comprehensive route safety analysis aims to aid in preparing truck drivers for potential challenges and ensure the safe and efficient transportation of hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	U-Turn	High	11.1485866, 77.3133702	10 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44024, 77.87528	15 KM/Hr
3	Turn	High	11.44898, 77.87410	15 KM/Hr
4	Turn	Medium	11.45357, 77.85789	30 KM/Hr
5	Turn	High	11.45352, 77.85698	15 KM/Hr
6	Turn	Medium	11.45847, 77.85140	30 KM/Hr
7	Turn	Medium	11.45898, 77.85135	30 KM/Hr
8	Turn	Medium	11.46303, 77.84945	30 KM/Hr
9	Turn	Medium	11.46314, 77.84928	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
10	Turn	Medium	11.45509, 77.81383	30 KM/Hr
11	Turn	Medium	11.43165, 77.67734	30 KM/Hr
12	Turn	High	11.18254, 77.28529	15 KM/Hr
13	Turn	High	11.15202, 77.30879	15 KM/Hr
14	Turn	High	11.15167, 77.30915	15 KM/Hr
15	Turn	Medium	11.15169, 77.31145	30 KM/Hr
16	Blind Spot	Blind Spot	11.14859, 77.31337	10 KM/Hr
17	Turn	Medium	11.15169, 77.31110	30 KM/Hr

Emergency Locations

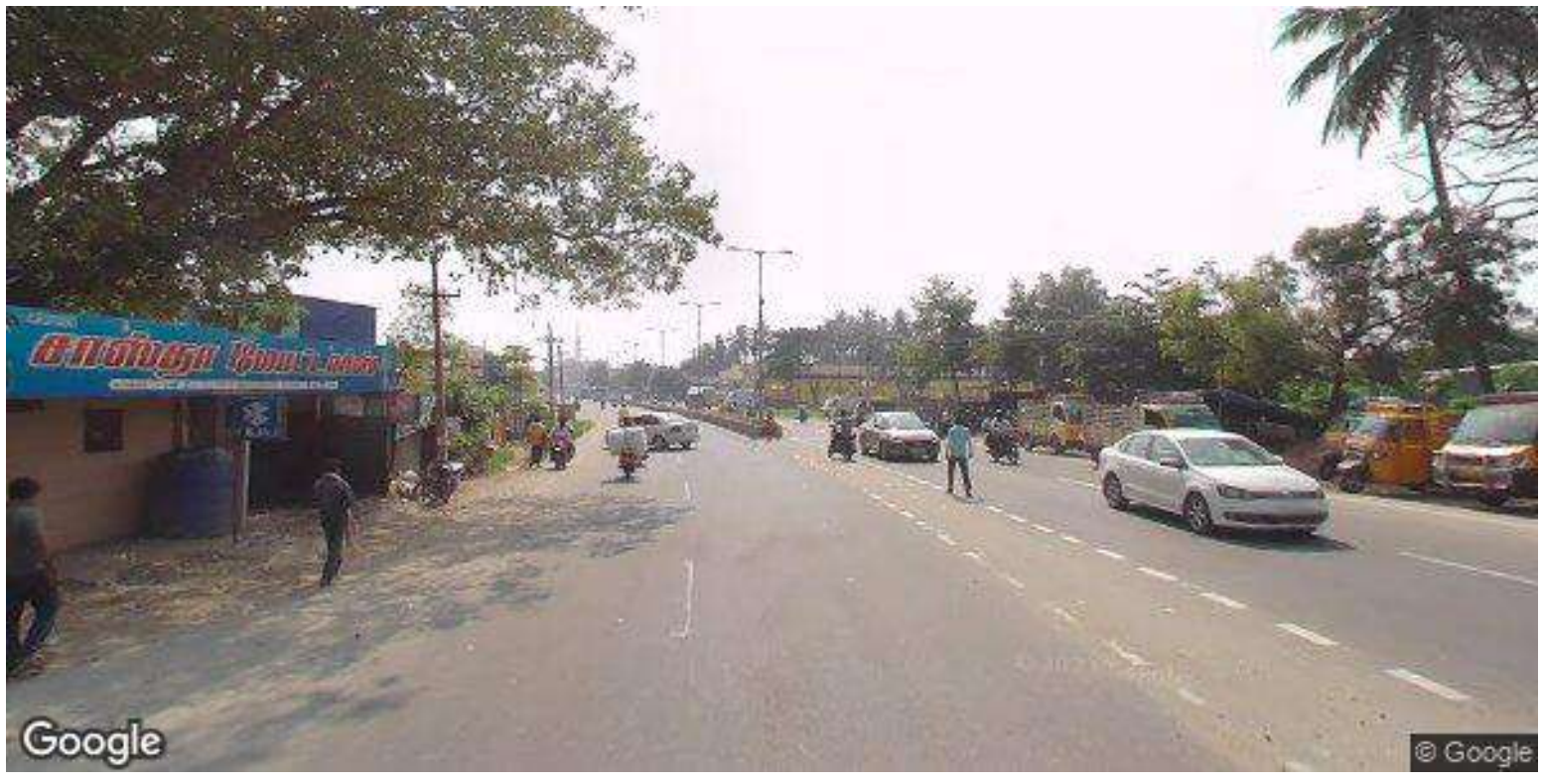
	type	name	coordinates	speed_limit	risk_level
3	hospital	Government Hospital	11.4525596, 77.7749426	30 km/h	Medium
4	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium
5	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
6	hospital	J.K.K. Trust Hospital	11.4445841, 77.7307962	30 km/h	Medium
8	hospital	Shri Sathyanarayana Hospital	11.4291297, 77.6913408	30 km/h	Medium
9	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
10	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
11	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
12	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
13	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
15	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
17	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
18	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
19	hospital	Dr. N Viswanathan Hospital	11.2412783, 77.5005502	30 km/h	Medium
20	clinic	P.M. Clinic	11.2281078, 77.4647296	30 km/h	Medium
22	hospital	Sri Renu Hospital	11.1990225, 77.4219937	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	school	KRP Matric. Hr. Sec School	11.4546193, 77.8142445	30 km/h	Medium
1	college	Vivekanandha Engineering College	11.4589312, 77.7899284	30 km/h	Medium
2	marketplace	Monday market	11.452863, 77.775989	30 km/h	Medium
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
14	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
16	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
21	marketplace	Weekly Market (sandhai)	11.2287229, 77.4646676	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: U-Turn

Risk Level: High

Speed Limit: 10 KM/Hr

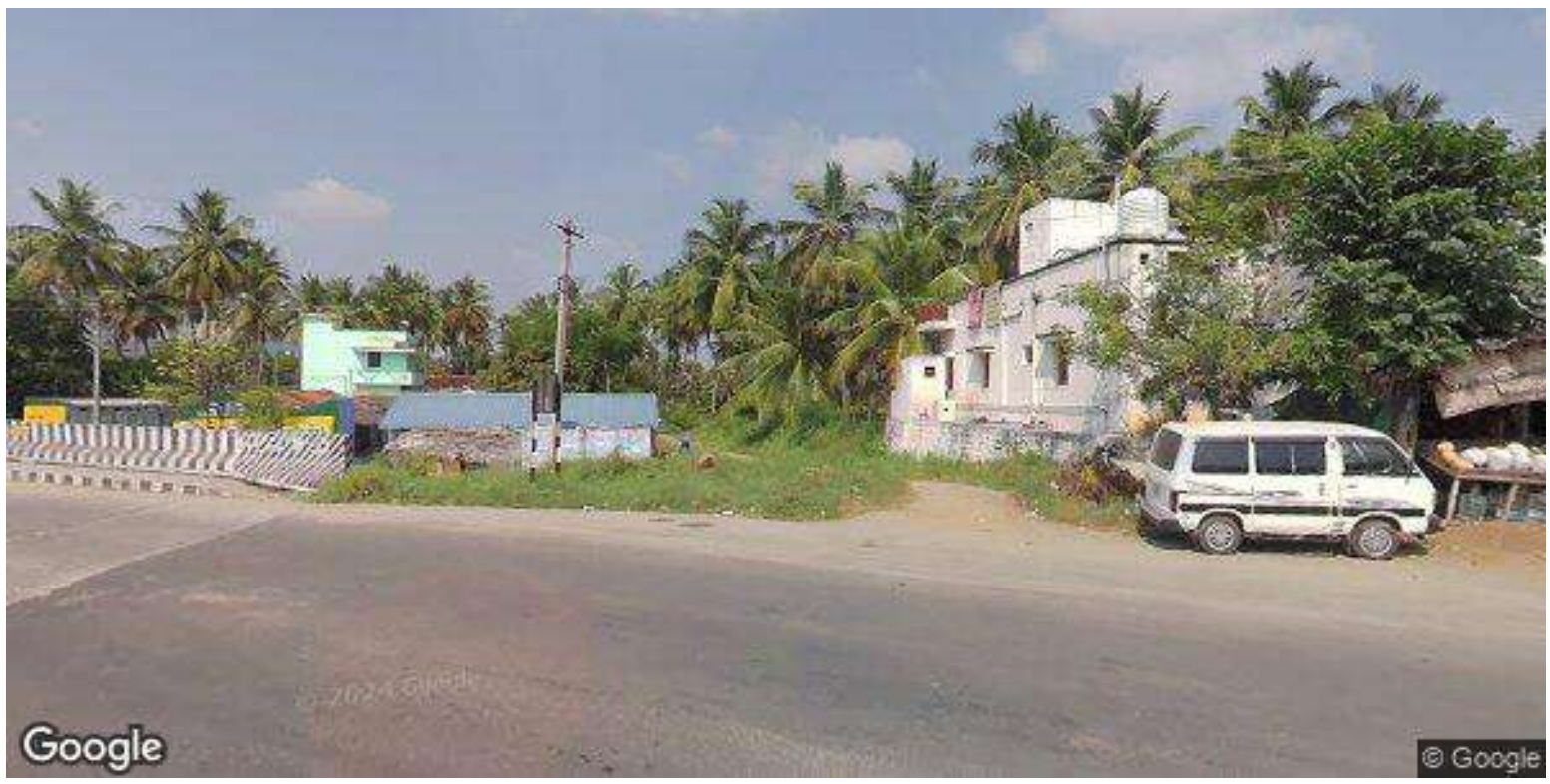
Coordinates: 11.1485866, 77.3133702

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44024, 77.87528

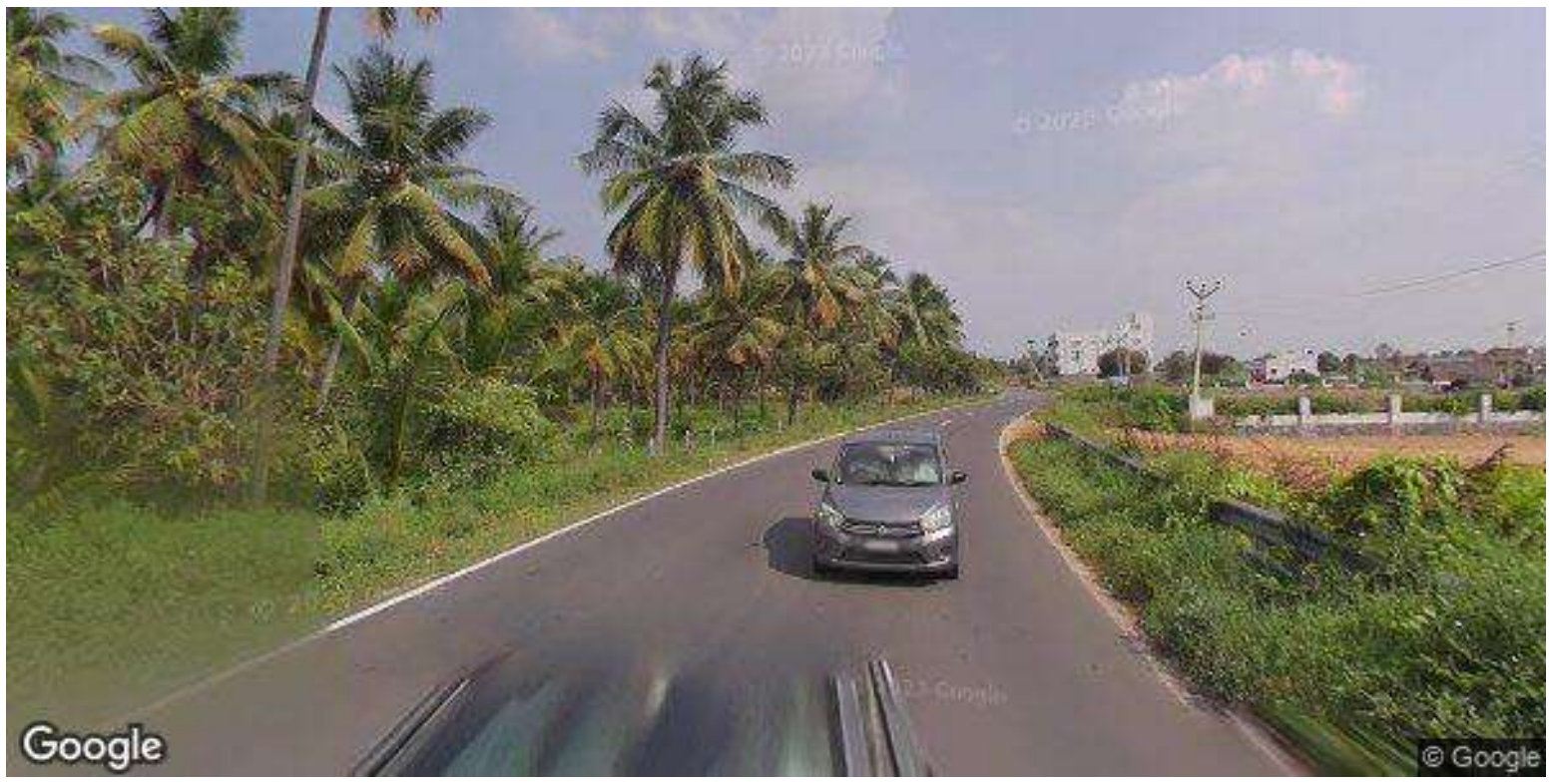


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44898, 77.87410

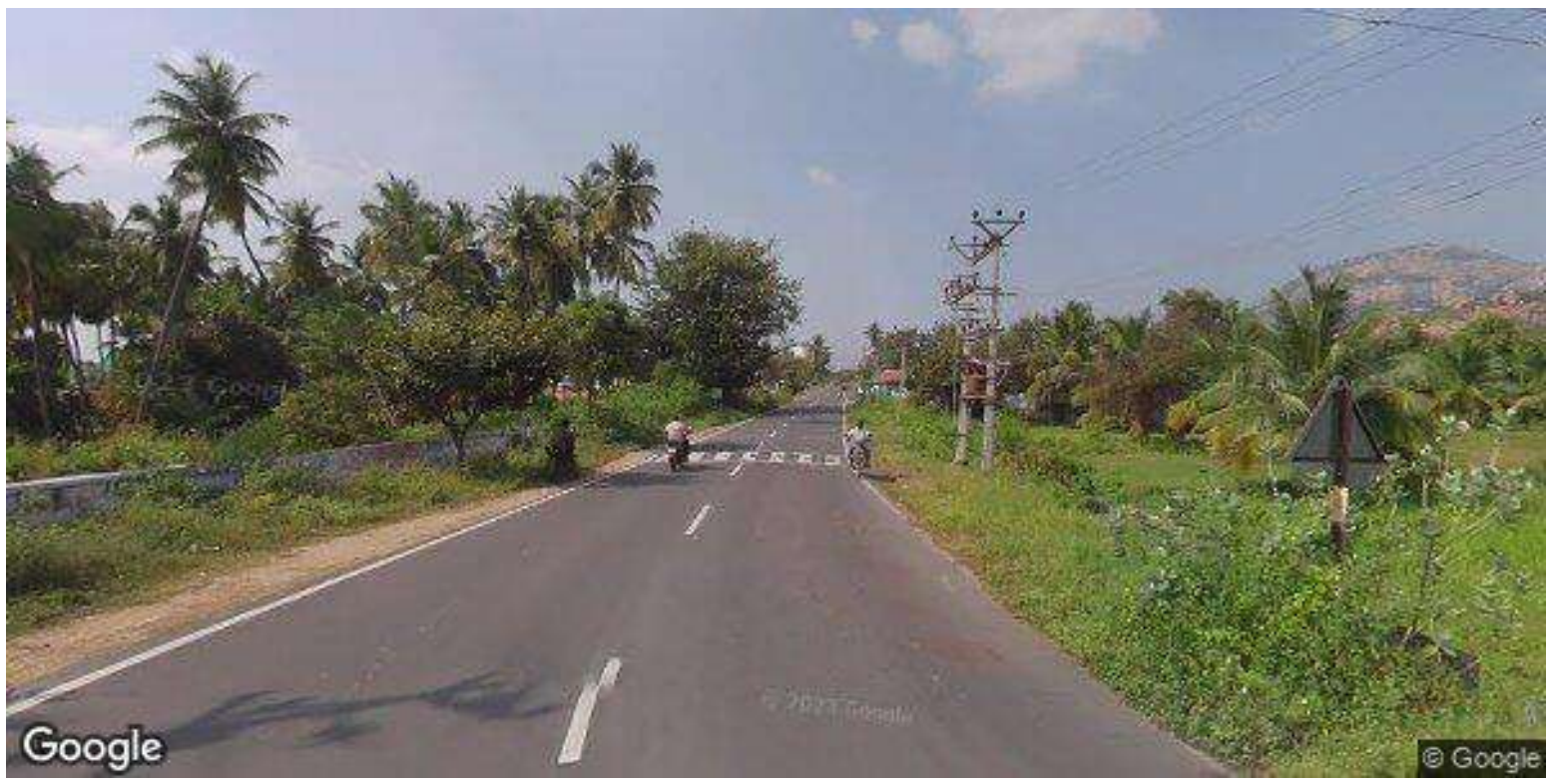


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45357, 77.85789

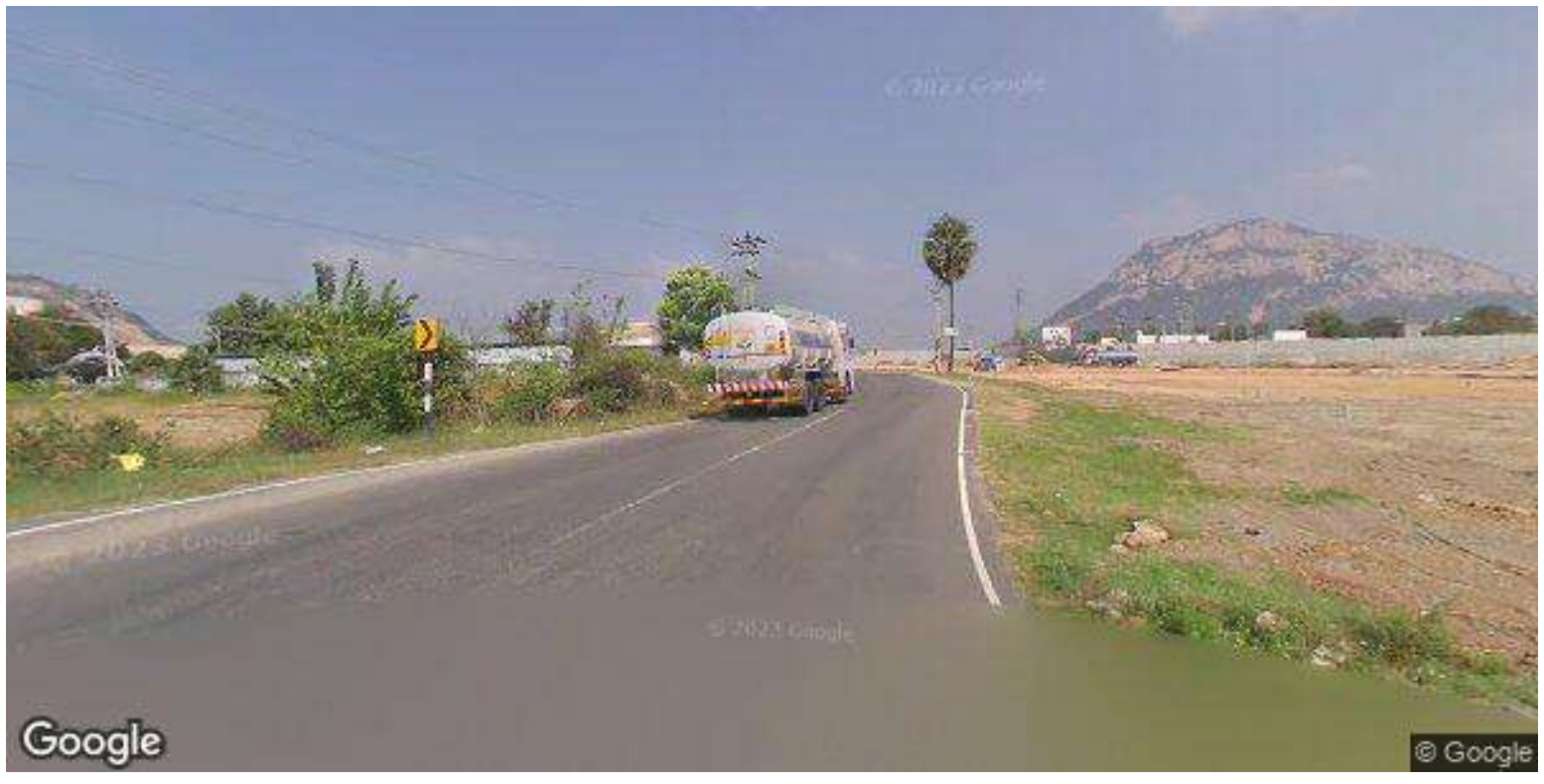


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45352, 77.85698

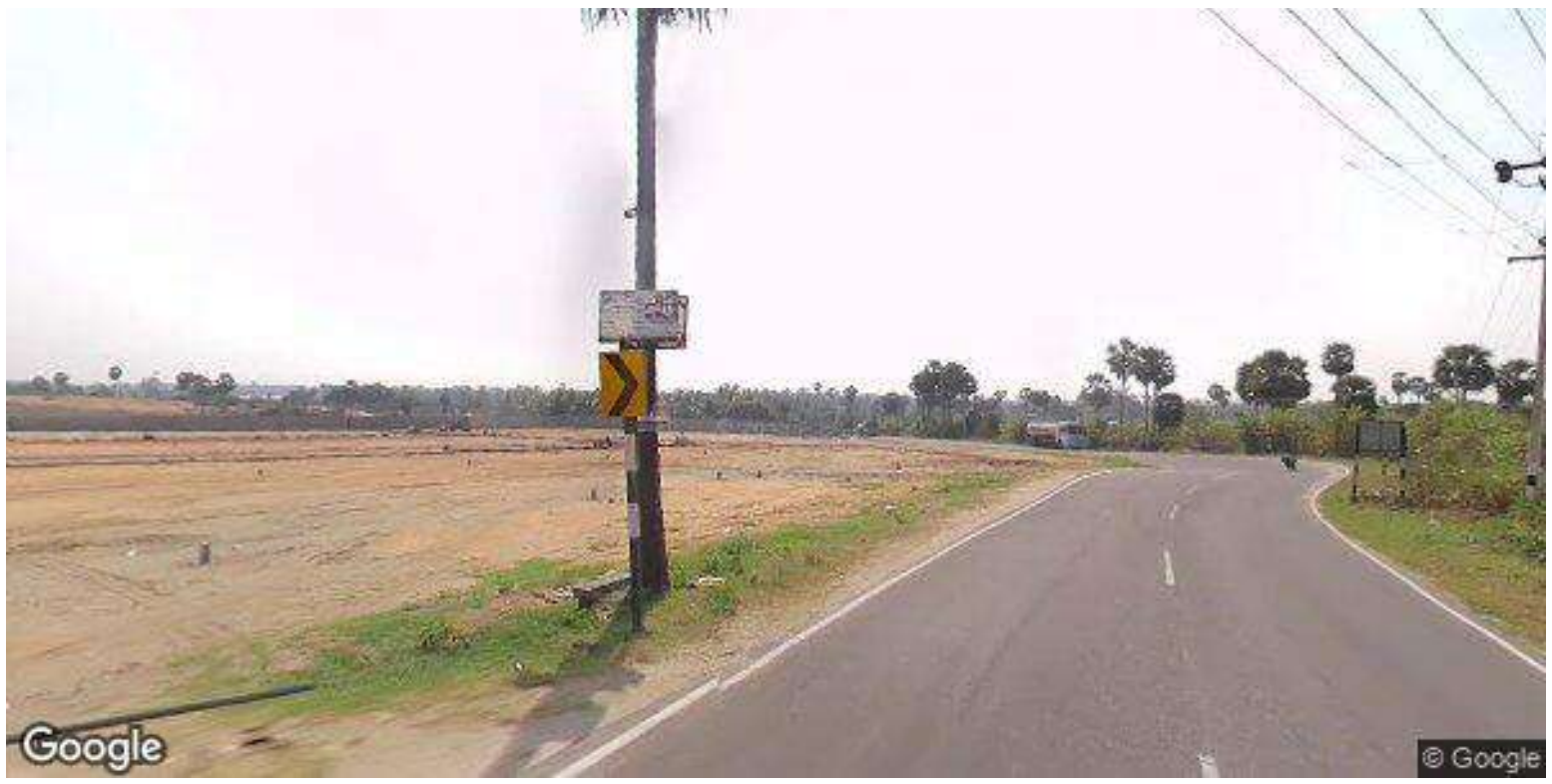


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45847, 77.85140

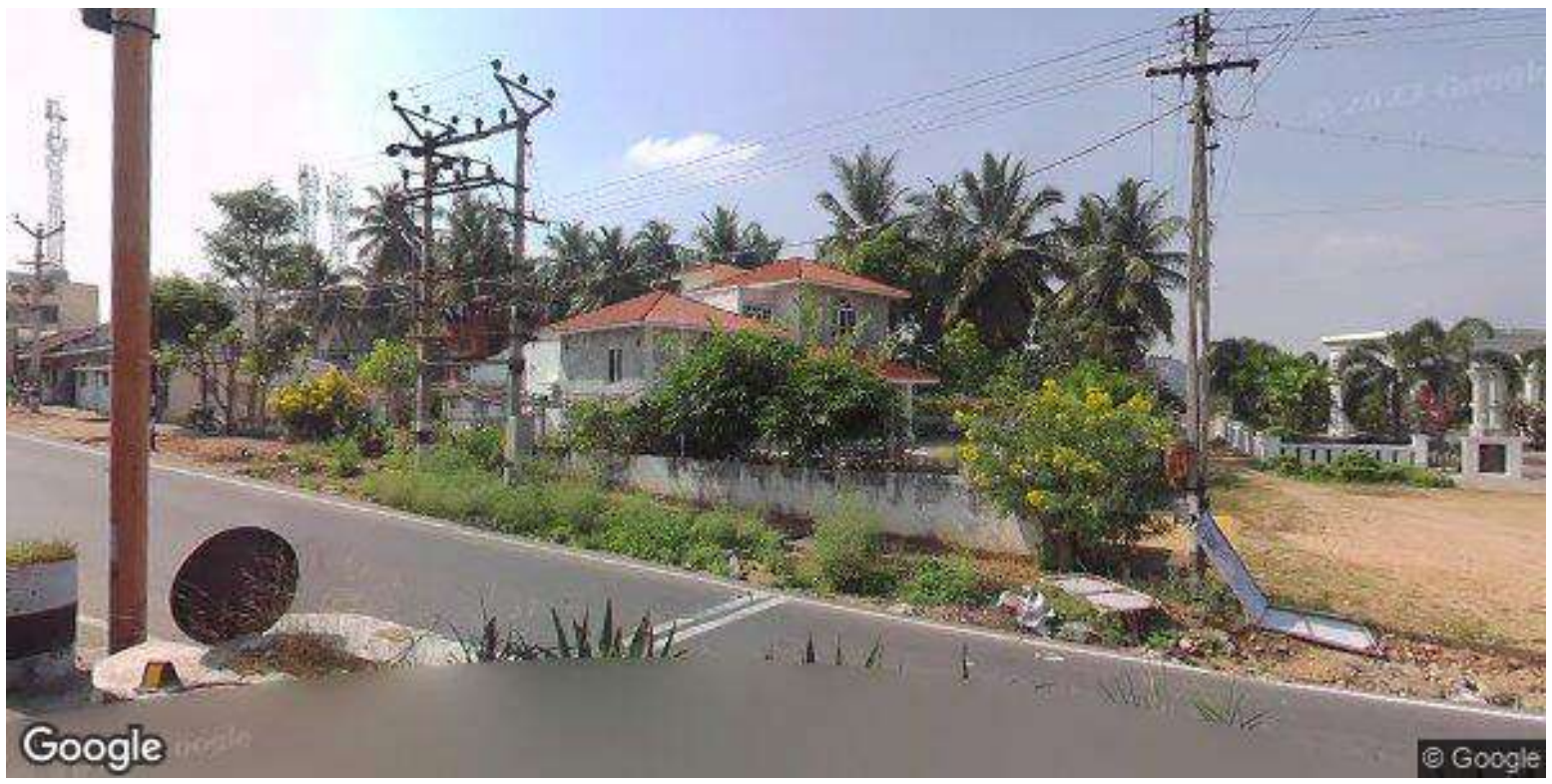


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45898, 77.85135

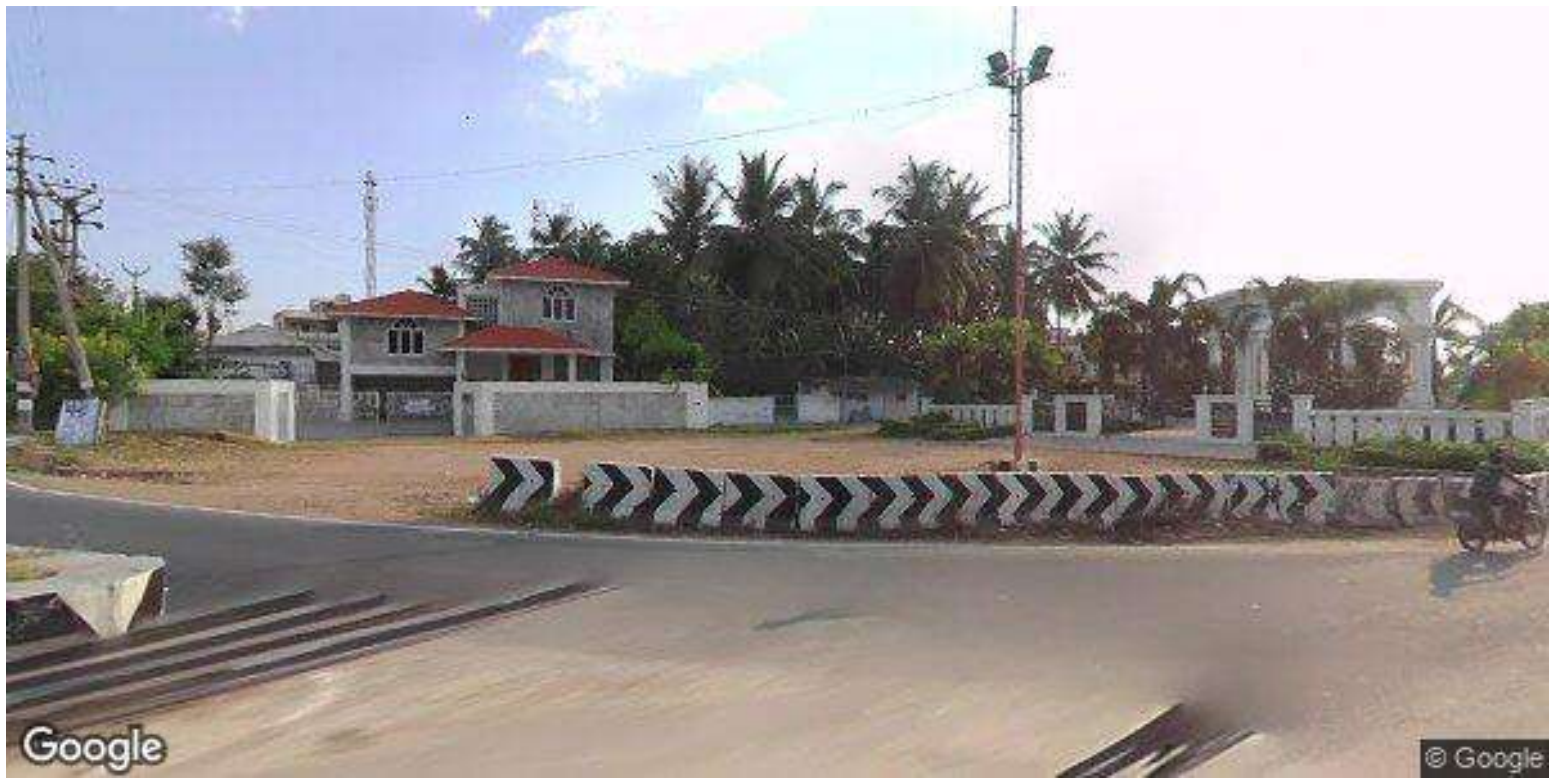


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46303, 77.84945

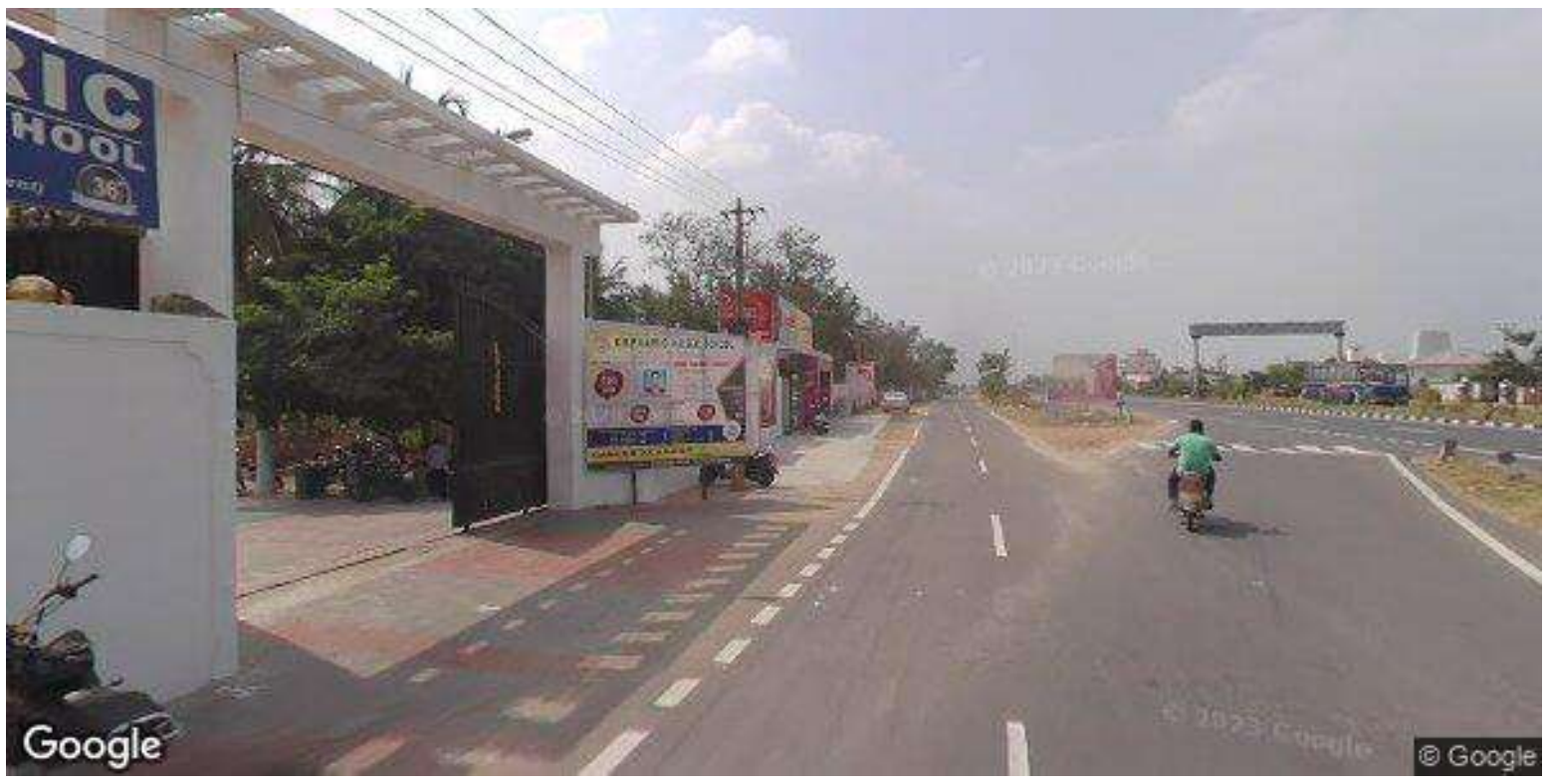


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46314, 77.84928

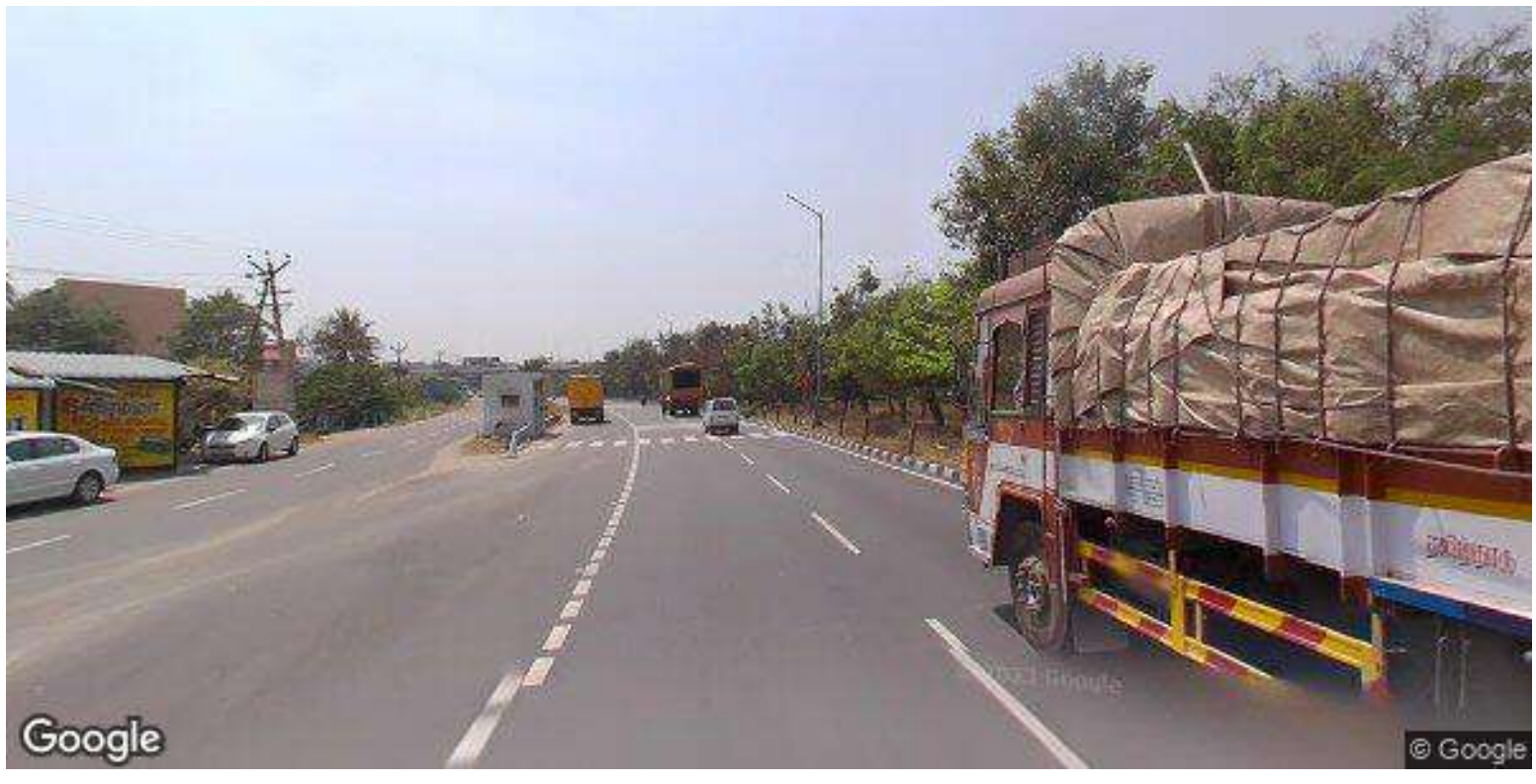


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45509, 77.81383

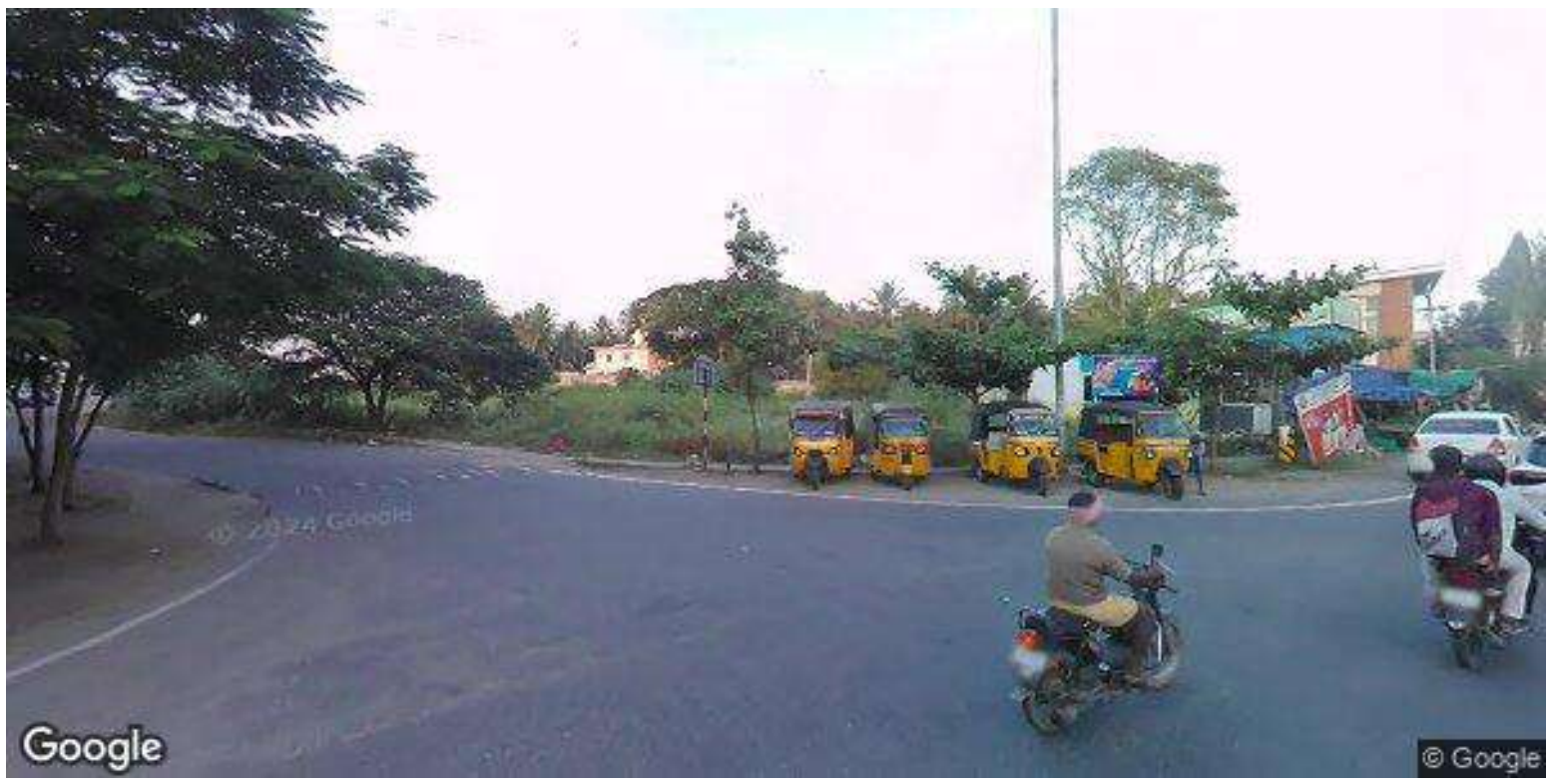


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43165, 77.67734

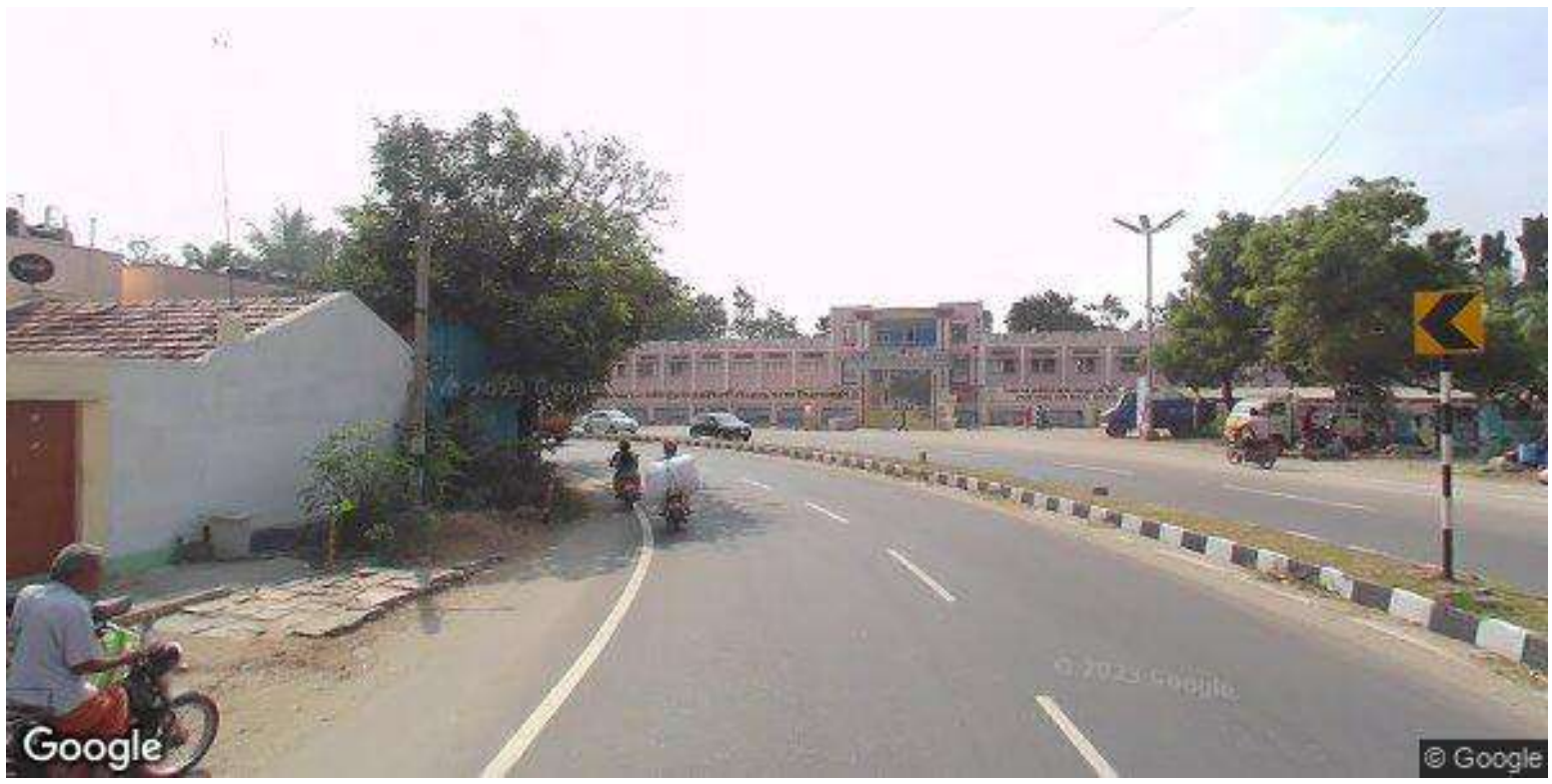


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.18254, 77.28529

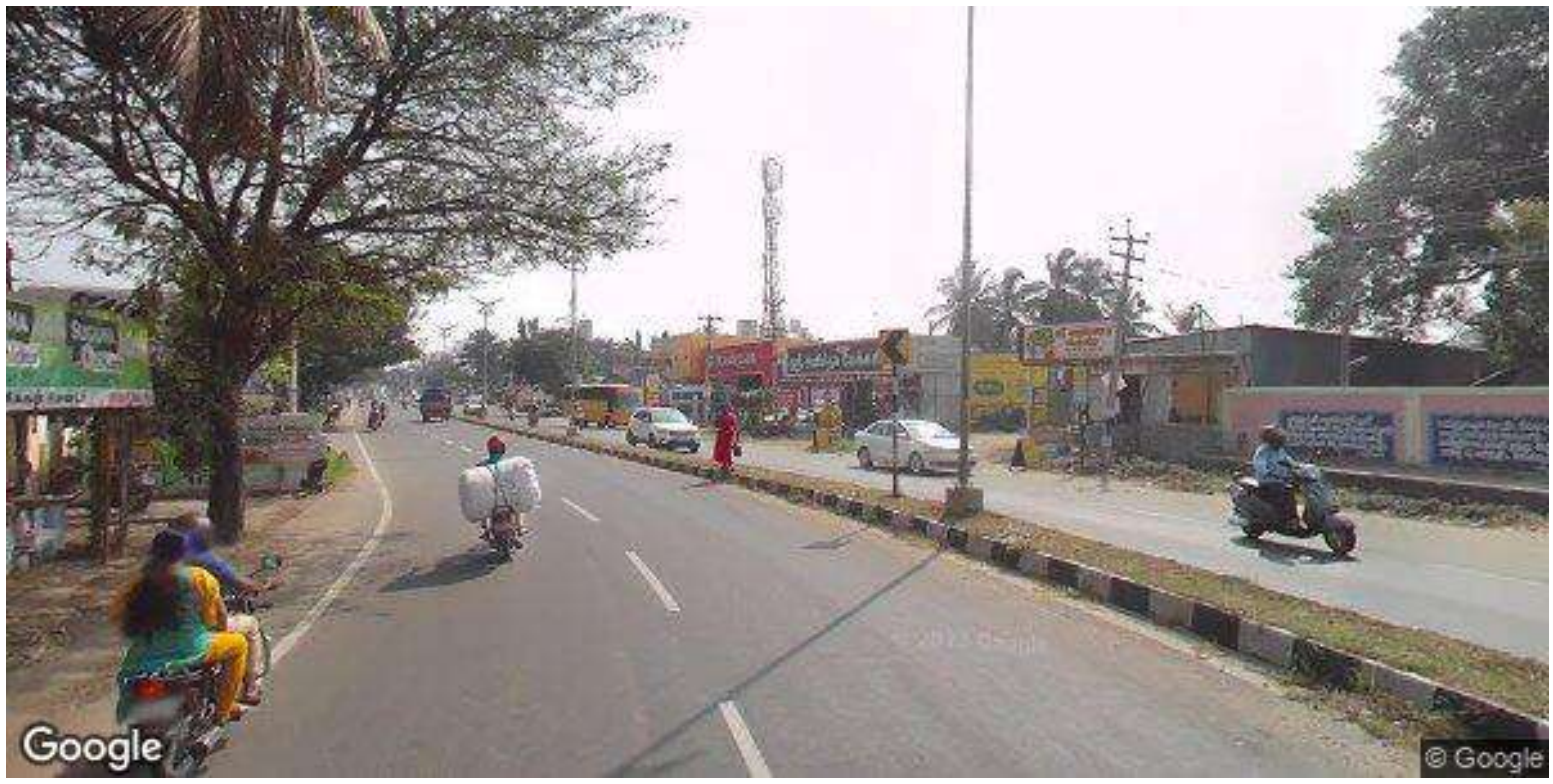


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.15202, 77.30879

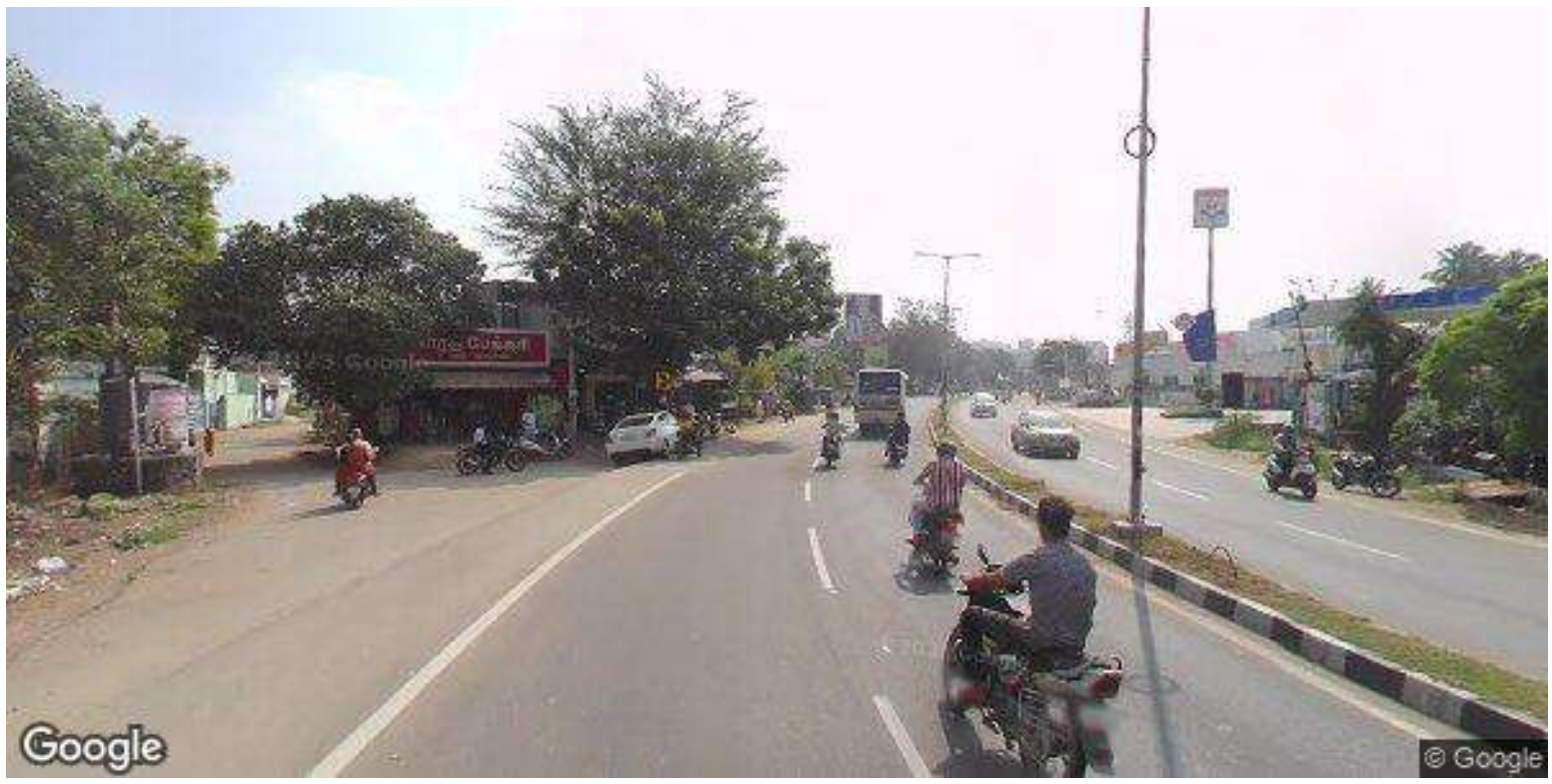


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.15167, 77.30915

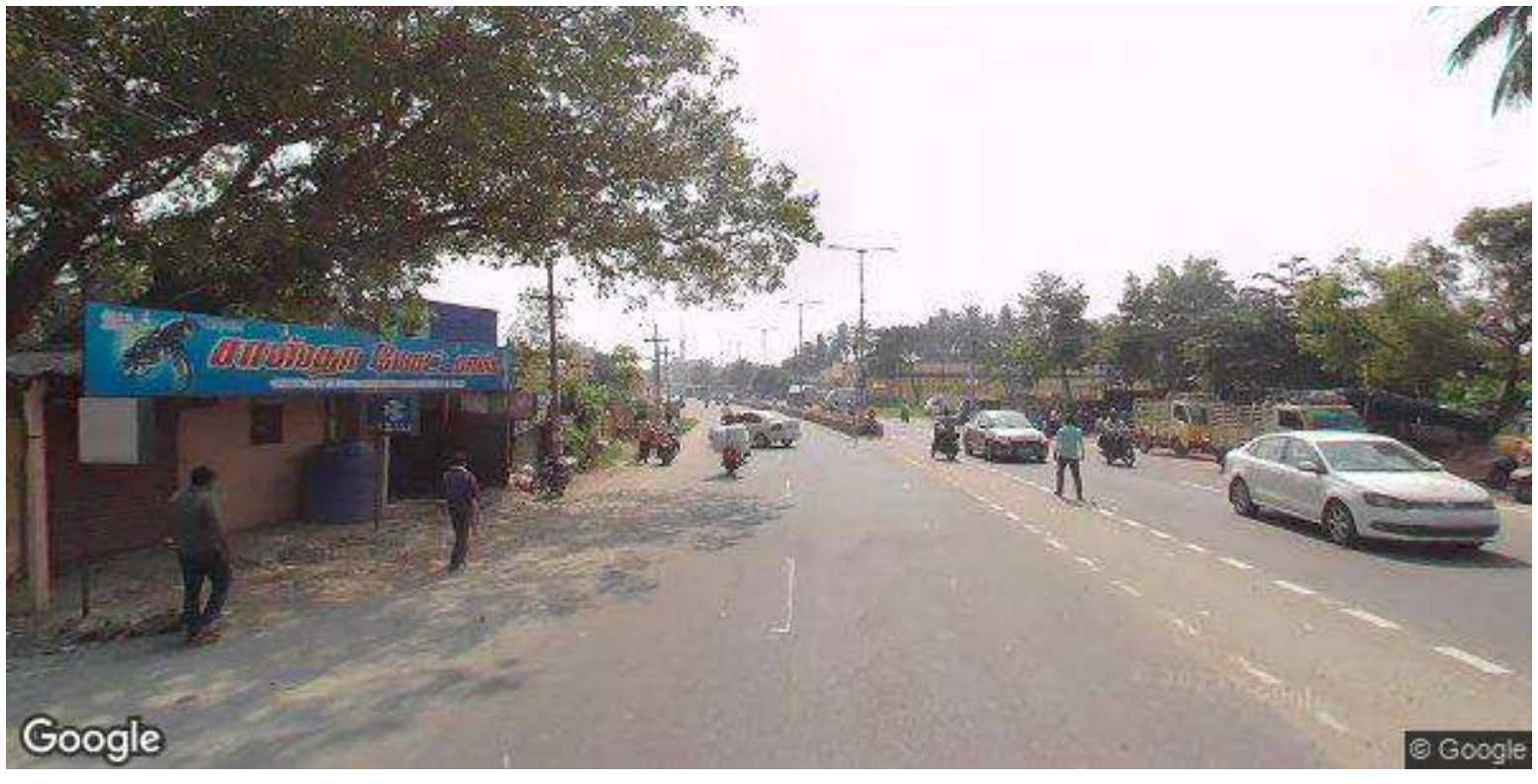


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15169, 77.31145

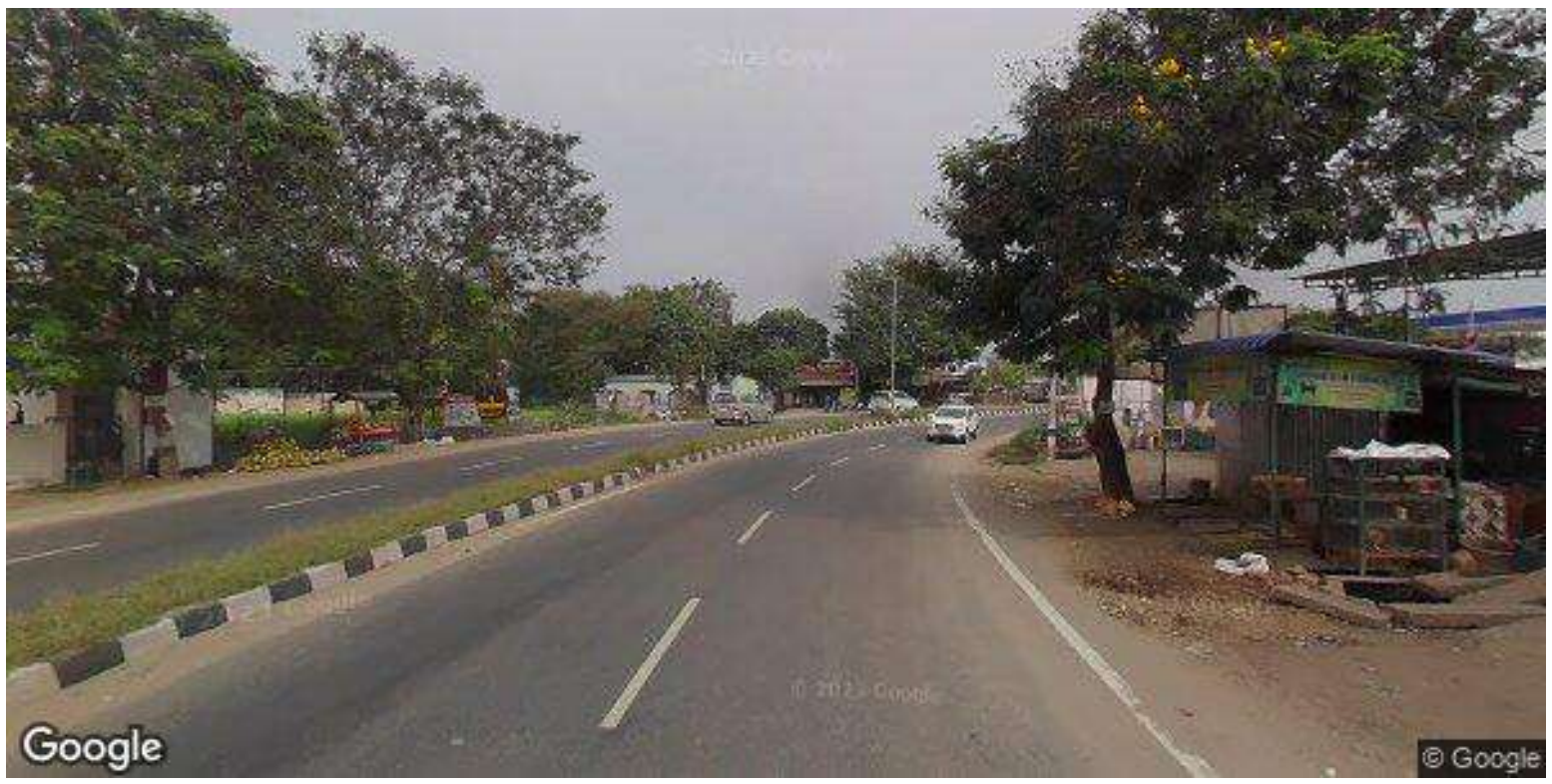


Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.14859, 77.31337



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15169, 77.31110