



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO JPS SAMY FUELS

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

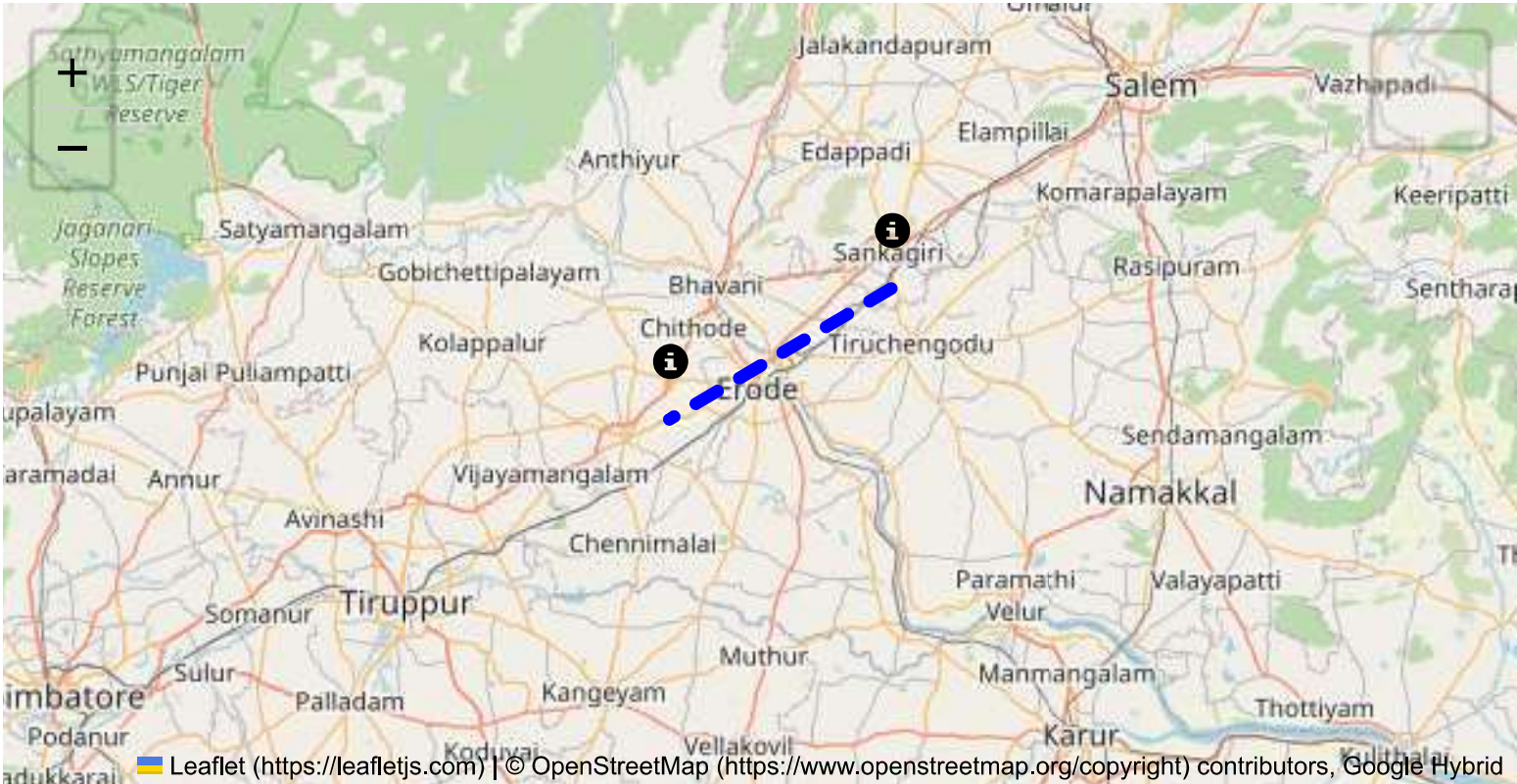
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

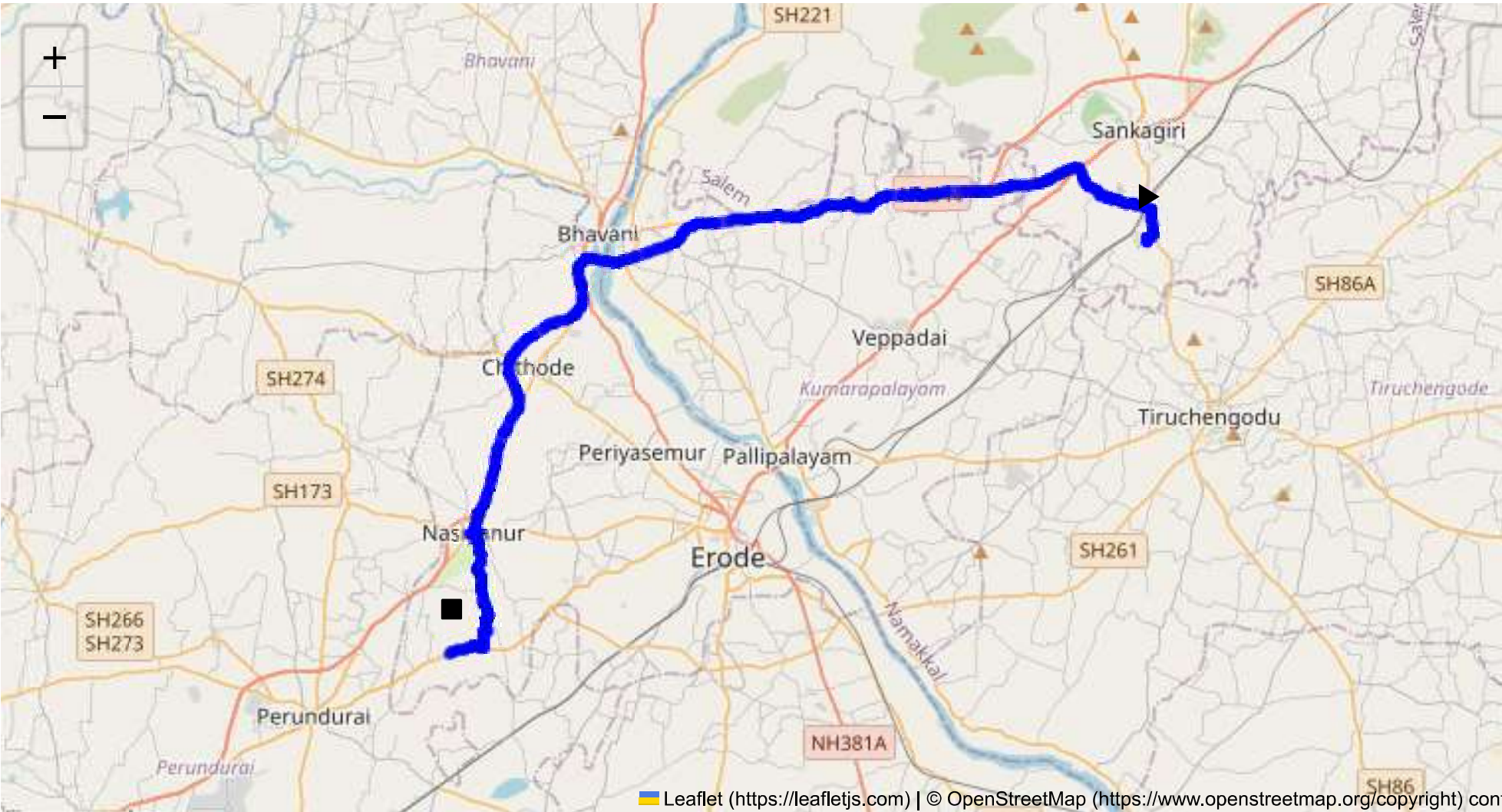
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 42.97 km
Estimated Duration: 0.9 hours
Adjusted Duration (Heavy Vehicle): 1.1 hours
Start: (11.4381, 77.8734)
End: (11.297633, 77.631085)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map:

The route starts from Sangagiri in Tamil Nadu and ends in Villupuram. The drive takes approximately 43 kilometers through the Indian state of Tamil Nadu. The route primarily goes through rural and semi-urban areas with stretches on national and state highways known for varying traffic densities. The exact route

involves traveling along regional connectors that may include State Highway 88 or similar routes depending on the specified path.

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

- **Weather Conditions:** Tamil Nadu experiences a tropical climate. The weather is generally hot and humid, with significant rainfall during the monsoon season (June to September).
- **Potential Hazards:** Monsoon rains can lead to flooding and landslides, particularly in poorly drained areas or hilly terrain. Visibility might be reduced due to heavy rainfall or occasional fog during early mornings in winter.

3. Analysis of Traffic Patterns:

- **Peak Hours:** Traffic congestion is generally higher during the morning (8-10 AM) and evening (5-7 PM) hours.
- **Congestion-Prone Areas:** Market areas, school zones, and junctions near major towns like Erode might experience slow-moving traffic and frequent stops.

4. Assessment of Road Quality and Infrastructure:

- **Road Quality:** Roads can vary from well-maintained highways to narrow, pothole-riddled local roads. Sections of this route might involve transitions from smooth multi-lane highways to single-lane roads with less maintenance.
- **Infrastructure:** Bridges and overpasses exist, but some rural junctions lack proper signages or lights, necessitating caution.

5. Suggestions for Alternative Routes for Emergencies:

In case of roadblocks or adverse conditions, using parallel highways or major state highways like SH-6 or NH-68, where applicable, can be considered as alternatives. These highways generally provide better road conditions and facilities.

6. Summary of Local Regulations Affecting Hazardous Material Transport:

- Transport of hazardous materials requires compliance with national guidelines provided by the Petroleum and Explosives Safety Organisation (PESO).
- There may be restrictions on carrying certain substances through densely populated or environmentally sensitive areas.

7. Overview of Historical Incidents:

- Historical data indicate incidents involving heavy vehicles mainly stem from overloading and mechanical failures.

- Previous accidents may have involved failure to manage sharp turns or inability to control vehicles in poor weather conditions.

8. Environmental Considerations and Sensitive Areas:

- The route does not pass through major wildlife reserves but does traverse areas that have agricultural lands sensitive to pollution.
- Driving through villages and towns should be done cautiously to minimize noise and chemical pollution.

9. Analysis of Communication Coverage:

- Major highways and routes generally have good cellular network coverage, but remote rural stretches may experience temporary dead zones.
- Critical areas to monitor include underpasses or deep rural valleys where reception might be weak.

10. Estimated Emergency Response Times:

- Emergency response times are more efficient near major highways, estimated at 30-45 minutes within larger towns.
- In rural sections, response times might extend to 1-2 hours depending on proximity to the nearest city.

12. Overall Summary of Risk Assessment:

- **High-Risk Areas:** Include narrow village roads, high-traffic zones, and stretches prone to flooding.
- **Moderate Risks:** Include variation in road conditions and potential communication dead zones.
- **Manageable Risks:** Predominantly involve predictable traffic patterns and manageable weather with timely adjustments and precautions.

Overall, the route demands proactive engagement with local traffic norms, constant weather updates, and caution in rural and semi-urban sections to mitigate risks effectively.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43811, 77.87348	15 KM/Hr
1	Turn	Medium	11.43956, 77.87340	30 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.44898, 77.87410	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
5	Turn	Medium	11.45357, 77.85789	30 KM/Hr
6	Turn	Medium	11.45352, 77.85698	30 KM/Hr
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46318, 77.84913	30 KM/Hr
9	Turn	High	11.34530, 77.64058	15 KM/Hr
10	Turn	High	11.34499, 77.64081	15 KM/Hr
11	Blind Spot	Blind Spot	11.33828, 77.63811	10 KM/Hr
12	Blind Spot	Blind Spot	11.33843, 77.64074	10 KM/Hr
13	Turn	High	11.31036, 77.64416	15 KM/Hr
14	Turn	Medium	11.31017, 77.64390	30 KM/Hr
15	Turn	High	11.30925, 77.64361	15 KM/Hr
16	Blind Spot	Blind Spot	11.30899, 77.64304	10 KM/Hr
17	Blind Spot	Blind Spot	11.30535, 77.64365	10 KM/Hr
18	Turn	Medium	11.30536, 77.64333	30 KM/Hr
19	Turn	Medium	11.30490, 77.64269	30 KM/Hr
20	Blind Spot	Blind Spot	11.29945, 77.64212	10 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

	type	name	coordinates	speed_limit	risk_level
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
14	hospital	Veena Hospital	11.3367614, 77.6366566	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

Route Photos of Risky Spots



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: 11.44898, 77.87410



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45357, 77.85789



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45352, 77.85698



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: 11.46318, 77.84913



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.34530, 77.64058



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.34499, 77.64081



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.33828, 77.63811



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.33843, 77.64074



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.31036, 77.64416



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.31017, 77.64390



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.30925, 77.64361

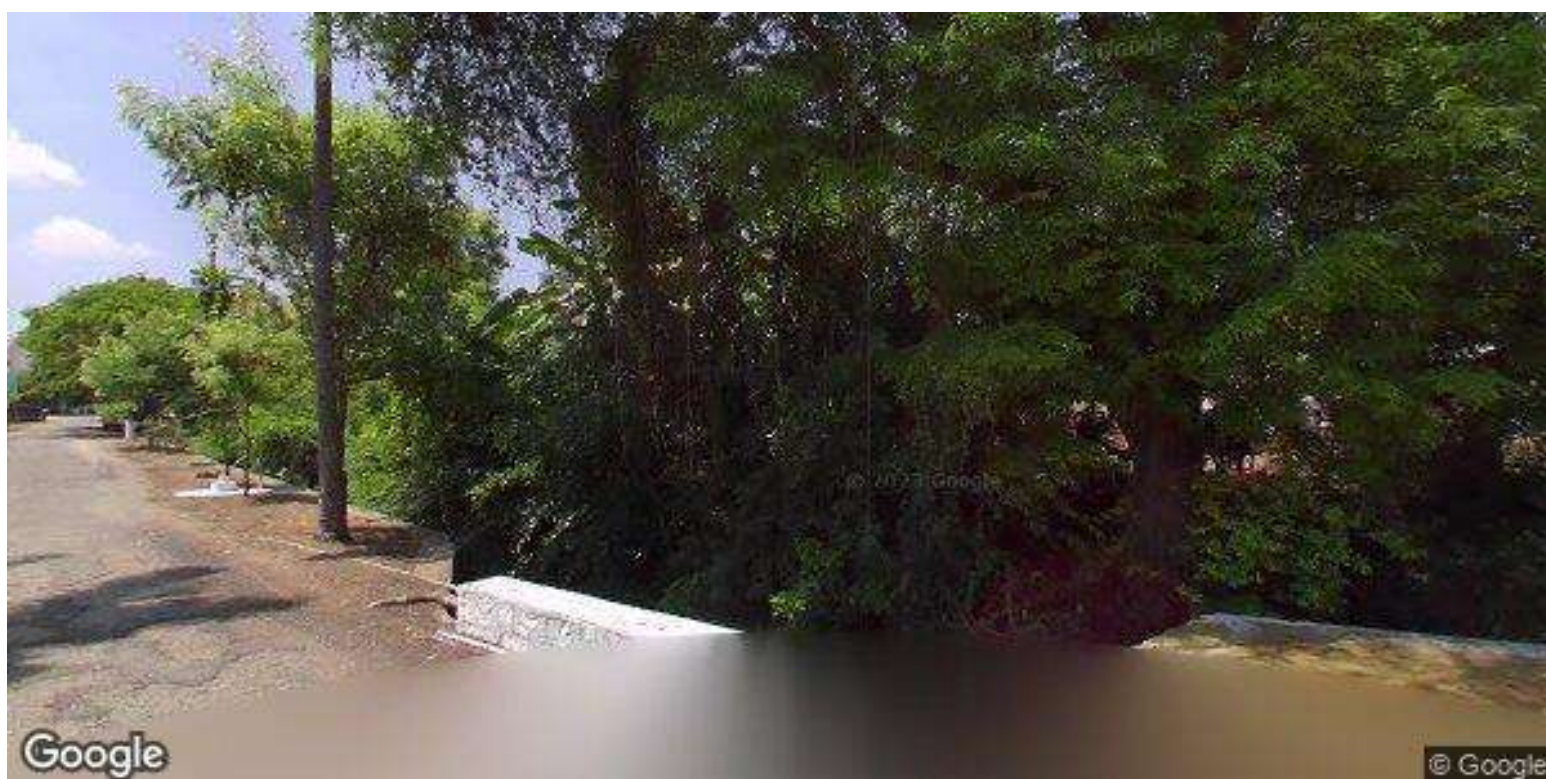


Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.30899, 77.64304



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.30535, 77.64365



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.30536, 77.64333



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.30490, 77.64269



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.29945, 77.64212

