



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO RL 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

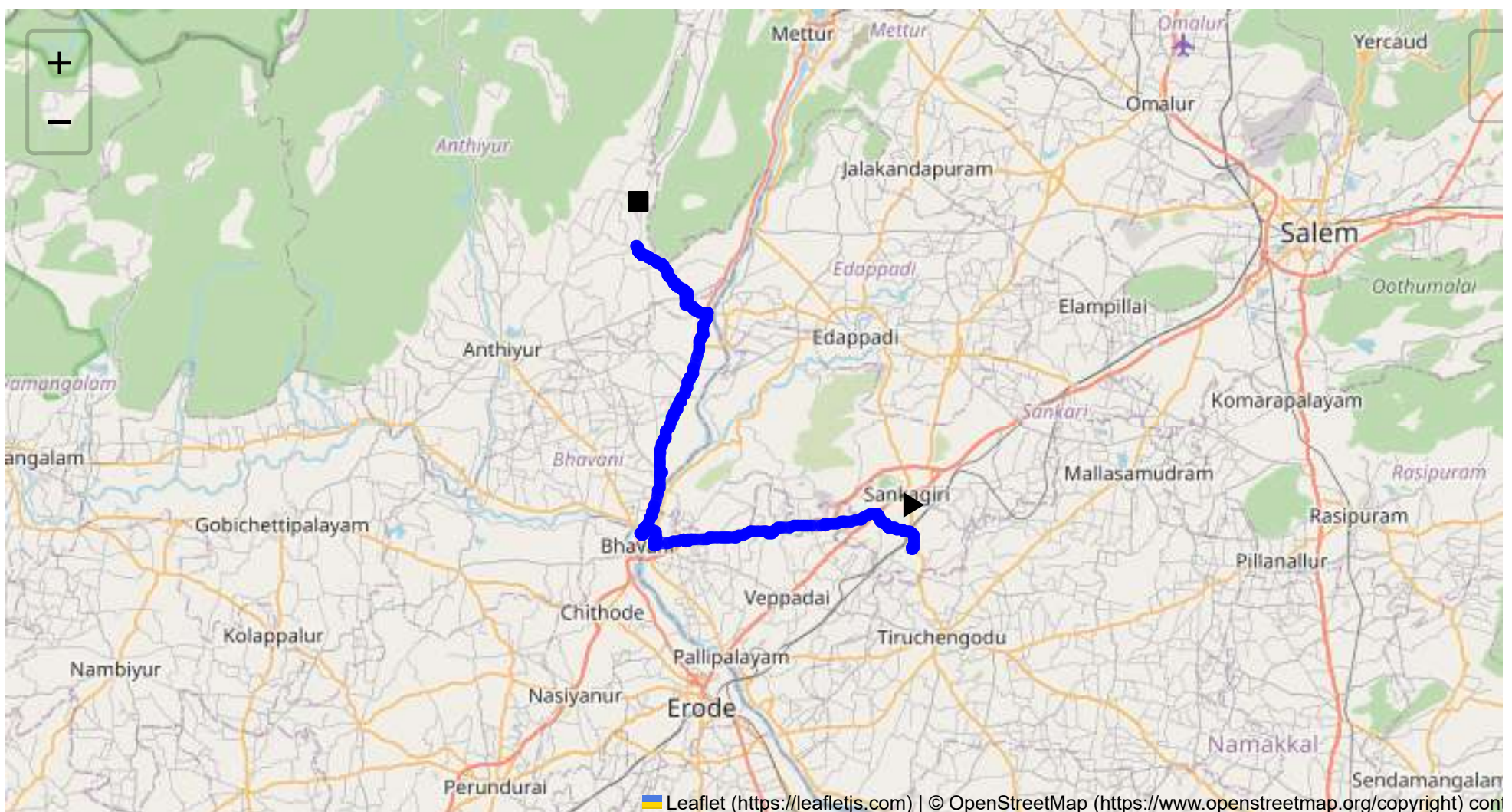
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 51.70 km
Estimated Duration: 1.3 hours
Adjusted Duration (Heavy Vehicle): 1.6 hours
Start: (11.4381, 77.8734)
End: (11.645461, 77.681813)



Welcome to the Journey Risk Management Study

Route Safety Analysis Report: CVQF+23W, Sangagiri to JMWJ+6P8, Guruvareddiur

1. Overview of the Route Map:

- The route spans approximately 51.70 kilometers, typically taking about 1.30 hours for heavy vehicles carrying hazardous materials. It passes through Puthur, Vijaya Thottam in Erode, and Padavalkalvai, primarily using NH 544H and Salem Main Road.

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

- The region experiences a tropical climate with significant rainfall during the monsoon season (from June to September), which could lead to slippery roads and reduced visibility. The summer months (March to May) are hot and dry, which might pose overheating risks for vehicles.

3. Analysis of Traffic Patterns:

- **Peak Hours:** Typically from 8:00 to 10:00 AM and 5:00 to 7:00 PM.
- **Congestion-Prone Areas:**
 - Erode sees significant congestion due to local urban traffic.
 - NH 544H experiences increased traffic near major town entries.

4. Assessment of Road Quality and Infrastructure:

- The overall road quality is moderate, with NH 544H being relatively well-maintained but subject to wear during rain.
- There might be occasional potholes or construction on rural segments, necessitating cautious driving.

5. Suggestions for Alternative Routes for Emergencies:

- Potential alternative through NH 544 or via internal roads connecting Sangagiri to Guruvareddiyur, although these might not be suitable for heavy vehicles and should be used with caution.

6. Summary of Local Regulations Affecting Hazardous Material Transport:

- Strict adherence to Tamil Nadu's regulations on time of travel and permitted routes for hazardous materials is required.
- Compliance with signage and speed limits, especially near urban zones, is essential.

7. Overview of Historical Incidents:

- There are recorded heavy vehicle accidents, mostly attributed to excessive speeding and poor weather conditions, emphasizing the need for caution.

8. Environmental Considerations and Sensitive Areas:

- Be aware of local wildlife crossings, particularly during early mornings and evenings.
- Certain areas require slowing down due to farms and villages that may have pedestrian traffic.

9. Analysis of Communication Coverage:

- Most of the route has good mobile network coverage. However, rural patches between Erode and Guruvareddiyur might experience temporary coverage drops.

10. Estimated Emergency Response Times:

- Urban segments: Approximately 20-30 minutes.
- Rural or less accessible areas: Could be up to 45 minutes to an hour.

11. Overall Summary of Risk Assessment:

- For hazardous materials, the route requires strict adherence to regulations and caution due to weather and traffic patterns. While infrastructure largely supports heavy transport, drivers should

remain vigilant, especially during peak weather seasons and in known congestion zones. Emergency preparedness and awareness of alternative routes and communication coverage are crucial.

Recommendation: Drivers should undergo specific weather condition training and emergency response drills tailored to local traffic laws and safety requirements.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	Medium	11.43822, 77.87348	30 KM/Hr
1	Turn	High	11.43961, 77.87341	15 KM/Hr
2	Turn	High	11.44029, 77.87544	15 KM/Hr
3	Turn	Medium	11.44893, 77.87413	30 KM/Hr
4	Turn	Medium	11.45127, 77.86734	30 KM/Hr
5	Turn	High	11.45350, 77.85700	15 KM/Hr
6	Turn	Medium	11.45845, 77.85141	30 KM/Hr
7	Turn	Medium	11.46046, 77.85037	30 KM/Hr
8	Turn	Medium	11.46303, 77.84945	30 KM/Hr
9	Turn	Medium	11.46316, 77.84921	30 KM/Hr
10	Turn	High	11.44377, 77.71562	15 KM/Hr
11	Turn	Medium	11.44438, 77.71501	30 KM/Hr
12	Turn	High	11.44111, 77.69331	15 KM/Hr
13	Turn	High	11.44985, 77.69520	15 KM/Hr
14	Turn	High	11.45331, 77.68803	15 KM/Hr
15	Blind Spot	Blind Spot	11.44979, 77.68549	10 KM/Hr
16	Turn	High	11.44948, 77.68645	15 KM/Hr
17	Turn	High	11.44801, 77.68596	15 KM/Hr
18	Blind Spot	Blind Spot	11.44842, 77.68473	10 KM/Hr
19	Turn	Medium	11.55440, 77.71815	30 KM/Hr
20	Turn	High	11.59946, 77.73130	15 KM/Hr
21	Turn	Medium	11.60201, 77.72112	30 KM/Hr
22	Turn	High	11.60214, 77.72100	15 KM/Hr
23	Turn	High	11.60343, 77.72102	15 KM/Hr
24	Turn	High	11.60518, 77.71676	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
25	Turn	Medium	11.60642, 77.71645	30 KM/Hr
26	Turn	Medium	11.61011, 77.71752	30 KM/Hr
27	Blind Spot	Blind Spot	11.61026, 77.71748	10 KM/Hr
28	Turn	High	11.60985, 77.71617	15 KM/Hr
29	Turn	High	11.60999, 77.71606	15 KM/Hr
30	Turn	High	11.61277, 77.71687	15 KM/Hr
31	Turn	High	11.61330, 77.71567	15 KM/Hr
32	Turn	High	11.61424, 77.71584	15 KM/Hr
33	Turn	Medium	11.61439, 77.71570	30 KM/Hr
34	Turn	High	11.61537, 77.71369	15 KM/Hr
35	Turn	Medium	11.61584, 77.71389	30 KM/Hr
36	Turn	Medium	11.61597, 77.71385	30 KM/Hr
37	Turn	Medium	11.61608, 77.71371	30 KM/Hr
38	Turn	Medium	11.61792, 77.71017	30 KM/Hr
39	Turn	Medium	11.61875, 77.70972	30 KM/Hr
40	Turn	Medium	11.63368, 77.69795	30 KM/Hr
41	Turn	High	11.63946, 77.68505	15 KM/Hr
42	Turn	Medium	11.64030, 77.68399	30 KM/Hr
43	Turn	Medium	11.64093, 77.68331	30 KM/Hr
44	Turn	Medium	11.64348, 77.68342	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
10	hospital	Senthil Nursing Home	11.4395054, 77.6957293	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
11	hospital	Govt hospital	11.4432595, 77.6941951	30 km/h	Medium
12	hospital	Government Hospital, Komarapalayam	11.4435826, 77.6946365	30 km/h	Medium
13	police	Komarapalayam Police station	11.4413141, 77.6931115	30 km/h	Medium
14	pharmacy	Devi pharmacy	11.4410349, 77.6928556	30 km/h	Medium
16	hospital	Sri Balaji Womens Centre	11.4531821, 77.6875979	30 km/h	Medium
17	hospital	Lrk Hospital	11.4544553, 77.6889783	30 km/h	Medium
18	hospital	Vignesh Hospital	11.4513898, 77.6879679	30 km/h	Medium
19	hospital	Mahaswaran Hospital	11.4519883, 77.6882952	30 km/h	Medium
20	hospital	Karunya Hospital	11.451637, 77.687949	30 km/h	Medium
21	hospital	Balakrishna Hospital	11.4514522, 77.688074	30 km/h	Medium
22	hospital	PGR Hospital	11.4512002, 77.687185	30 km/h	Medium
23	hospital	Kharthik Hospital	11.4516542, 77.6871221	30 km/h	Medium
24	hospital	Ramya Hospital	11.4512773, 77.6870043	30 km/h	Medium
25	clinic	JK Skin Clinic	11.4508168, 77.6865545	30 km/h	Medium
26	clinic	V.S Eye and Dental Care	11.4512557, 77.686801	30 km/h	Medium
27	hospital	Gopikrishnan Eye Hospital	11.451813, 77.687171	30 km/h	Medium
28	clinic	KS Homeo Clinic	11.451398, 77.687344	30 km/h	Medium
29	clinic	Suriyaraja Siddha Health Care	11.45133, 77.686898	30 km/h	Medium
30	hospital	Jaswanth Arun Hospital	11.451794, 77.687216	30 km/h	Medium
31	clinic	Soorya Hospital Maternity and Child Care	11.4517604, 77.6871956	30 km/h	Medium
32	hospital	Saraswathi Siddha Hospital	11.451769, 77.6865838	30 km/h	Medium
33	hospital	Dr Loganathan Orthopaedic Hospital	11.4554834, 77.6903362	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
34	hospital	Anbe Sivam Hospital	11.4508139, 77.6854947	30 km/h	Medium
35	hospital	Adithya Hospital	11.4515977, 77.6864105	30 km/h	Medium
36	hospital	Sri Saravana Hospital	11.4506202, 77.6829676	30 km/h	Medium
37	hospital	Ashok Krishna Hospital	11.4483344, 77.6856579	30 km/h	Medium
38	hospital	Senthil Hospital	11.4475854, 77.6844482	30 km/h	Medium
39	hospital	Shri Mani Hospital	11.44771, 77.6838471	30 km/h	Medium
40	clinic	Sri Hari Clinic	11.4483503, 77.6850963	30 km/h	Medium
41	hospital	Immiaditya Hospital	11.4501276, 77.6836088	30 km/h	Medium
42	hospital	Government Hospital	11.45112, 77.682149	30 km/h	Medium
43	hospital	Vijay Hospital	11.45091, 77.682019	30 km/h	Medium
44	hospital	S.N.A. Siddha Hospital	11.44704, 77.682877	30 km/h	Medium
45	hospital	Suham Hospital and Diabetic Centre	11.4572053, 77.6912235	30 km/h	Medium
46	hospital	Government Hospital, Guruvareddyur	11.6468761, 77.6822366	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	JKK Matriculation and Higher Secondary school	11.4446843, 77.7066207	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
8	school	JKK Girls Higher Secondary school	11.4437747, 77.7066298	30 km/h	Medium
9	school	Government Girls Hr Sec School	11.4456929, 77.7007497	30 km/h	Medium
15	school	Municipality Middle School	11.4386238, 77.6957329	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: 11.44893, 77.87413



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45127, 77.86734



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45350, 77.85700



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45845, 77.85141



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.46046, 77.85037



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: 11.46316, 77.84921



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44377, 77.71562



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44438, 77.71501



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44111, 77.69331



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44985, 77.69520



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45331, 77.68803



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.44979, 77.68549



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44948, 77.68645



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44801, 77.68596



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.44842, 77.68473



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.55440, 77.71815



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.59946, 77.73130



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.61011, 77.71752



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.61026, 77.71748



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.60985, 77.71617

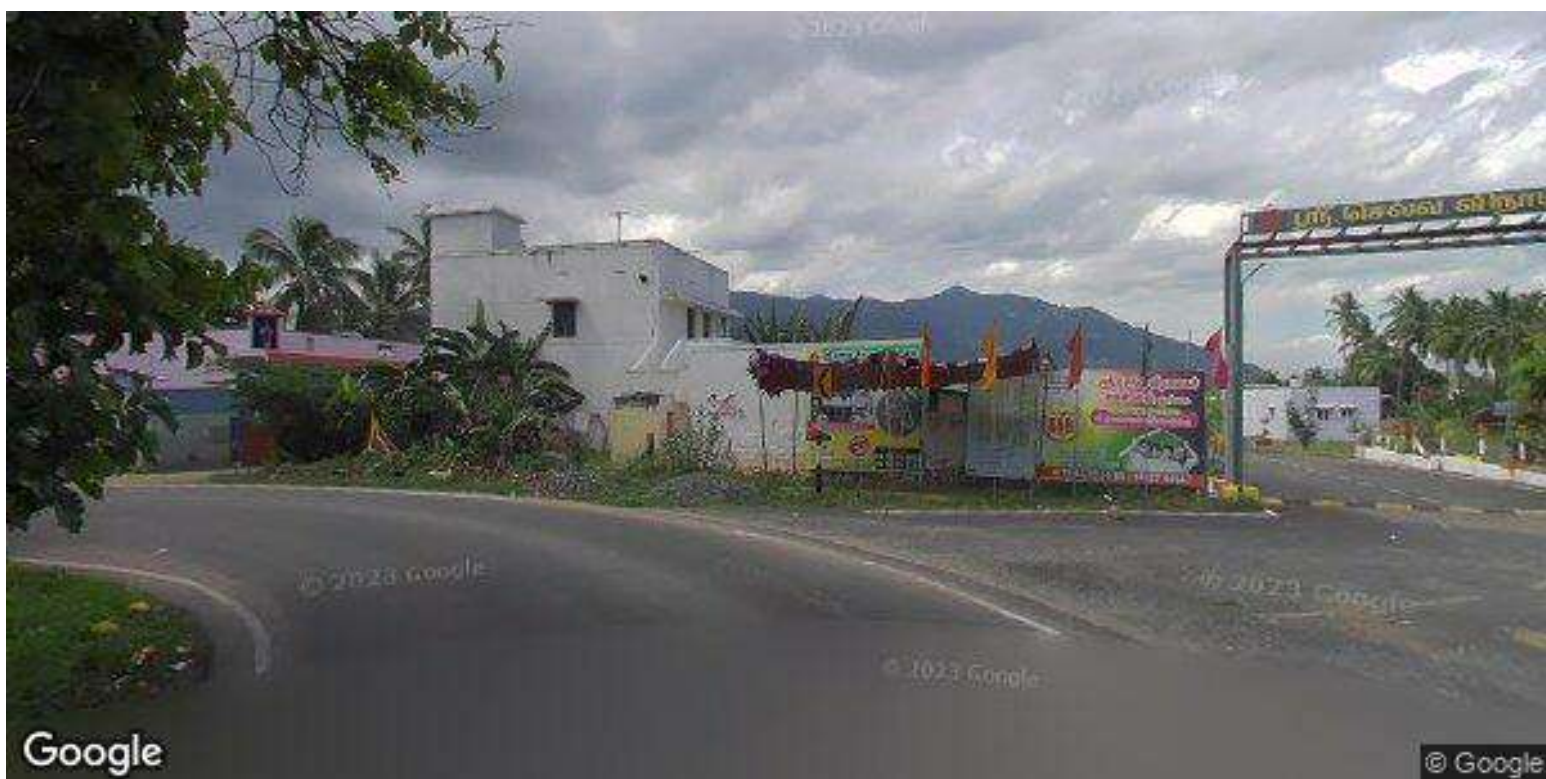


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.60999, 77.71606



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.61277, 77.71687



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.61330, 77.71567



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.61424, 77.71584



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.61439, 77.71570



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.61537, 77.71369



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.61584, 77.71389



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.61597, 77.71385



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.61608, 77.71371



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.61792, 77.71017



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.61875, 77.70972



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.63368, 77.69795



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.63946, 77.68505



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.64030, 77.68399



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.64093, 77.68331



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.64348, 77.68342
