



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO SHREE VIGNESHWARA 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

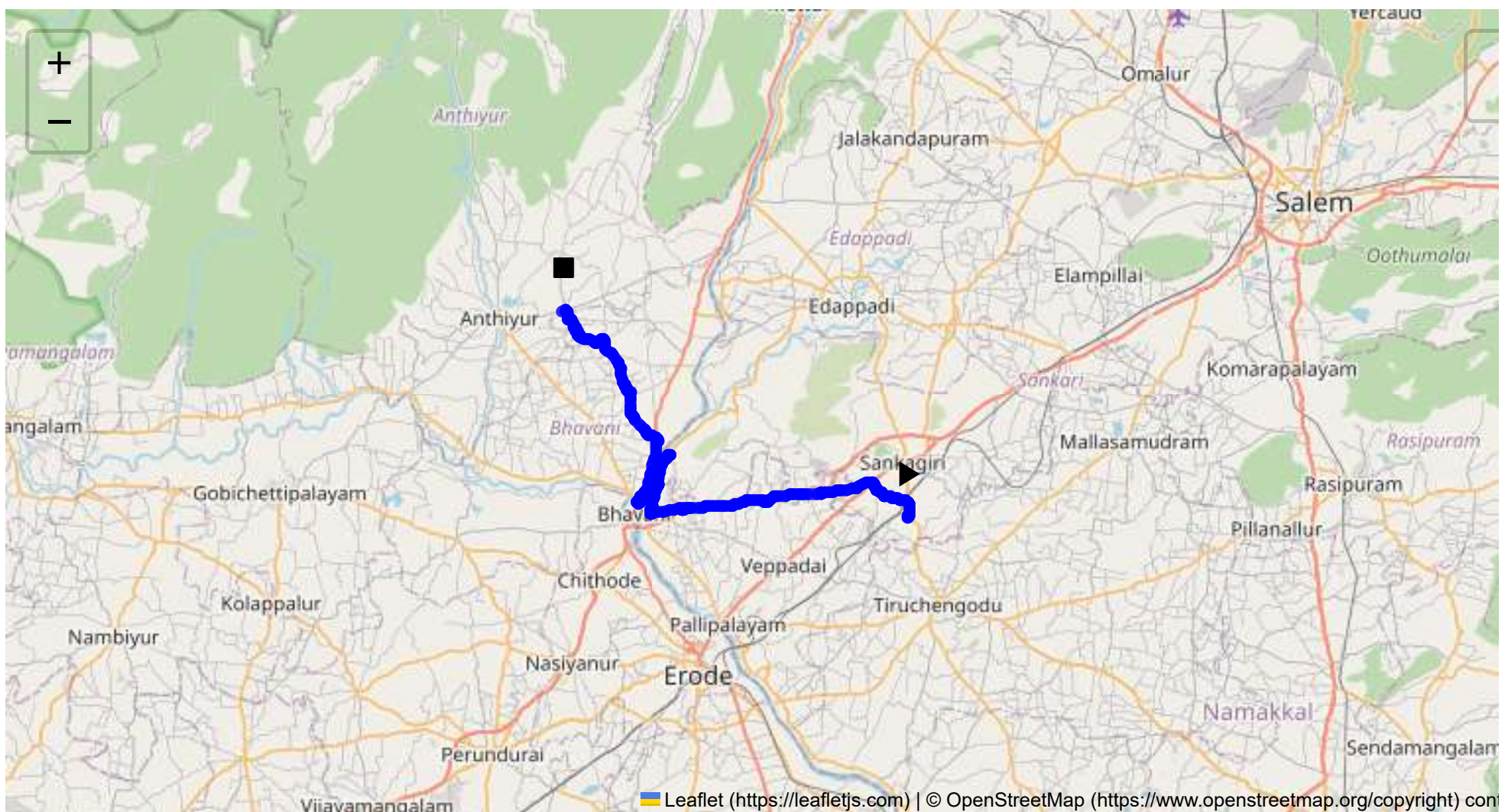
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 52.31 km
Estimated Duration: 1.3 hours
Adjusted Duration (Heavy Vehicle): 1.7 hours
Start: (11.4381, 77.8734)
End: (11.579715, 77.631813)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route from Sangagiri to Kuttaimedu in Tamil Nadu covers approximately 52.31 kilometers and primarily traverses a mix of national highways, state highways, and local roads. Key waypoints include Puthur, Vijaya Thottam in Erode, Sangagiri, Urachikottai, and Bhavani-Vellithiruppur-Chennampatti Road. It typically takes heavy vehicles about 1.33 hours to complete this journey.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu typically experiences a tropical climate, characterized by hot and humid conditions. During the summer months, temperatures can be quite high, while the monsoon season, generally from June to September, brings heavy rainfall that might lead to waterlogging and road slipperiness. Cyclones are also a concern during the northeast monsoon (October to December), which can disrupt travel significantly.

3. Analysis of Traffic Patterns

- **Sangagiri and Erode:** These areas may experience higher traffic volumes due to commercial activity and local businesses. Peak hours are typically between 8-10 AM and 5-7 PM.
- **Congestion-Prone Areas:** Entry and exit points of major towns like Erode often see congestion, as do major intersections along NH 544H.

4. Assessment of Road Quality and Infrastructure

The quality of the roads varies:

- **NH 544H:** Generally in good condition with adequate lane markings and signage.
- **State and Local Roads:** These can have varying conditions, with some worn surfaces, unexpected potholes, and less roadside infrastructure.

5. Suggestions for Alternative Routes

In case of emergencies, consider:

- **Via NH 544:** If parts of the designated route are inaccessible, NH 544 can be utilized, although it may increase travel time.
- **Local Detours:** Some smaller bypasses may offer routes around congested areas or blockages but require local knowledge for navigation.

6. Local Regulations Affecting Hazardous Material Transport

Transporting hazardous materials is subject to strict regulations:

- Documentation, including permits specific to hazardous materials, is mandatory.
- Certain materials may require specific route restrictions or need escorts.
- Speed limits and timing restrictions (night travel may not be permitted in some segments).

7. Historical Incidents Involving Heavy Vehicles or Hazardous Materials

There have been occasional incidents along this corridor, primarily related to:

- Overtakes due to road curvature and speed mismanagement.
- Accidents at poorly lit intersections during night-time travel.

8. Environmental Considerations and Sensitive Areas

There are few areas of specific concern environmentally along this route; however:

- Pay attention near villages and agricultural areas to reduce noise and emissions.
- Crossings over waterways should be approached with caution to avoid spills or contamination.

9. Analysis of Communication Coverage

Mobile network coverage is generally decent along the major highways:

- **Dead Zones:** Potential weak spots may occur in less developed areas, particularly near Bhavani - Vellithiruppur - Chennampatti Road.

10. Estimated Emergency Response Times

- **Urban Areas (Sangagiri, Erode):** Emergency response is relatively quick, generally within 30 minutes.
- **Rural Segments:** Could extend to 45 minutes or longer due to distance and road conditions.

11. Overall Summary of Risk Assessment

The route includes both well-maintained highways and lesser-quality local roads. Key risks involve weather-related challenges, traffic congestion, and possible communication issues. Emergency response capacity is stronger in urban areas than rural, which affects the overall risk profile, particularly for transporting hazardous materials. Proper planning, adherence to regulations, and real-time navigation adjustments are crucial for minimizing risk.

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	High	11.45350, 77.85700	15 KM/Hr
5	Turn	Medium	11.45845, 77.85141	30 KM/Hr
6	Turn	Medium	11.46046, 77.85037	30 KM/Hr
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46316, 77.84921	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
9	Turn	Medium	11.44467, 77.72092	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	Blind Spot	Blind Spot	11.48173, 77.70723	10 KM/Hr
14	Turn	Medium	11.46090, 77.69969	30 KM/Hr
15	Blind Spot	Blind Spot	11.44985, 77.69520	10 KM/Hr
16	Turn	High	11.45331, 77.68803	15 KM/Hr
17	Blind Spot	Blind Spot	11.44979, 77.68549	10 KM/Hr
18	Turn	High	11.44948, 77.68645	15 KM/Hr
19	Turn	High	11.44801, 77.68596	15 KM/Hr
20	Blind Spot	Blind Spot	11.44842, 77.68473	10 KM/Hr
21	Turn	High	11.49333, 77.69855	15 KM/Hr
22	Turn	Medium	11.49531, 77.69212	30 KM/Hr
23	Turn	Medium	11.52412, 77.67994	30 KM/Hr
24	Turn	Medium	11.52455, 77.67971	30 KM/Hr
25	Turn	Medium	11.52466, 77.67945	30 KM/Hr
26	Turn	Medium	11.52455, 77.67875	30 KM/Hr
27	Turn	High	11.52463, 77.67853	15 KM/Hr
28	Turn	Medium	11.55323, 77.66321	30 KM/Hr
29	Turn	Medium	11.56078, 77.66166	30 KM/Hr
30	Turn	High	11.56090, 77.66151	15 KM/Hr
31	Turn	Medium	11.55836, 77.65483	30 KM/Hr
32	Turn	Medium	11.56246, 77.64507	30 KM/Hr
33	Turn	High	11.56360, 77.64467	15 KM/Hr
34	Turn	Medium	11.56385, 77.64370	30 KM/Hr
35	Turn	Medium	11.56828, 77.64184	30 KM/Hr
36	Turn	Medium	11.56883, 77.64088	30 KM/Hr
37	Turn	High	11.57445, 77.63827	15 KM/Hr
38	Turn	High	11.57447, 77.63706	15 KM/Hr
39	Turn	Medium	11.57467, 77.63691	30 KM/Hr
40	Turn	Medium	11.57975, 77.63548	30 KM/Hr
41	Turn	High	11.57991, 77.63495	15 KM/Hr
42	Turn	High	11.58056, 77.63456	15 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
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	PGR Hospital	11.4512002, 77.687185	30 km/h	Medium
18	hospital	Lrk Hospital	11.4544553, 77.6889783	30 km/h	Medium
19	hospital	Kharthik Hospital	11.4516542, 77.6871221	30 km/h	Medium
20	hospital	Ramya Hospital	11.4512773, 77.6870043	30 km/h	Medium
21	hospital	Vignesh Hospital	11.4513898, 77.6879679	30 km/h	Medium
22	hospital	Gopikrishnan Eye Hospital	11.451813, 77.687171	30 km/h	Medium
23	hospital	Mahaswaran Hospital	11.4519883, 77.6882952	30 km/h	Medium
24	clinic	KS Homeo Clinic	11.451398, 77.687344	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
25	hospital	Karunya Hospital	11.451637, 77.687949	30 km/h	Medium
26	hospital	Jaswanth Arun Hospital	11.451794, 77.687216	30 km/h	Medium
27	hospital	Balakrishna Hospital	11.4514522, 77.688074	30 km/h	Medium
28	clinic	Soorya Hospital Maternity and Child Care	11.4517604, 77.6871956	30 km/h	Medium
29	clinic	JK Skin Clinic	11.4508168, 77.6865545	30 km/h	Medium
30	clinic	V.S Eye and Dental Care	11.4512557, 77.686801	30 km/h	Medium
31	clinic	Suriyaraja Siddha Health Care	11.45133, 77.686898	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
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	Ashok Krishna Hospital	11.4483344, 77.6856579	30 km/h	Medium
37	hospital	Shri Mani Hospital	11.44771, 77.6838471	30 km/h	Medium
38	clinic	Sri Hari Clinic	11.4483503, 77.6850963	30 km/h	Medium
39	hospital	Immiaditya Hospital	11.4501276, 77.6836088	30 km/h	Medium
40	hospital	Sri Saravana Hospital	11.4506202, 77.6829676	30 km/h	Medium
41	hospital	Senthil Hospital	11.4475854, 77.6844482	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

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
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: 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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44467, 77.72092



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: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.48173, 77.70723



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46090, 77.69969



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 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: High
Speed Limit: 15 KM/Hr
Coordinates: 11.49333, 77.69855



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.49531, 77.69212



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.52412, 77.67994



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

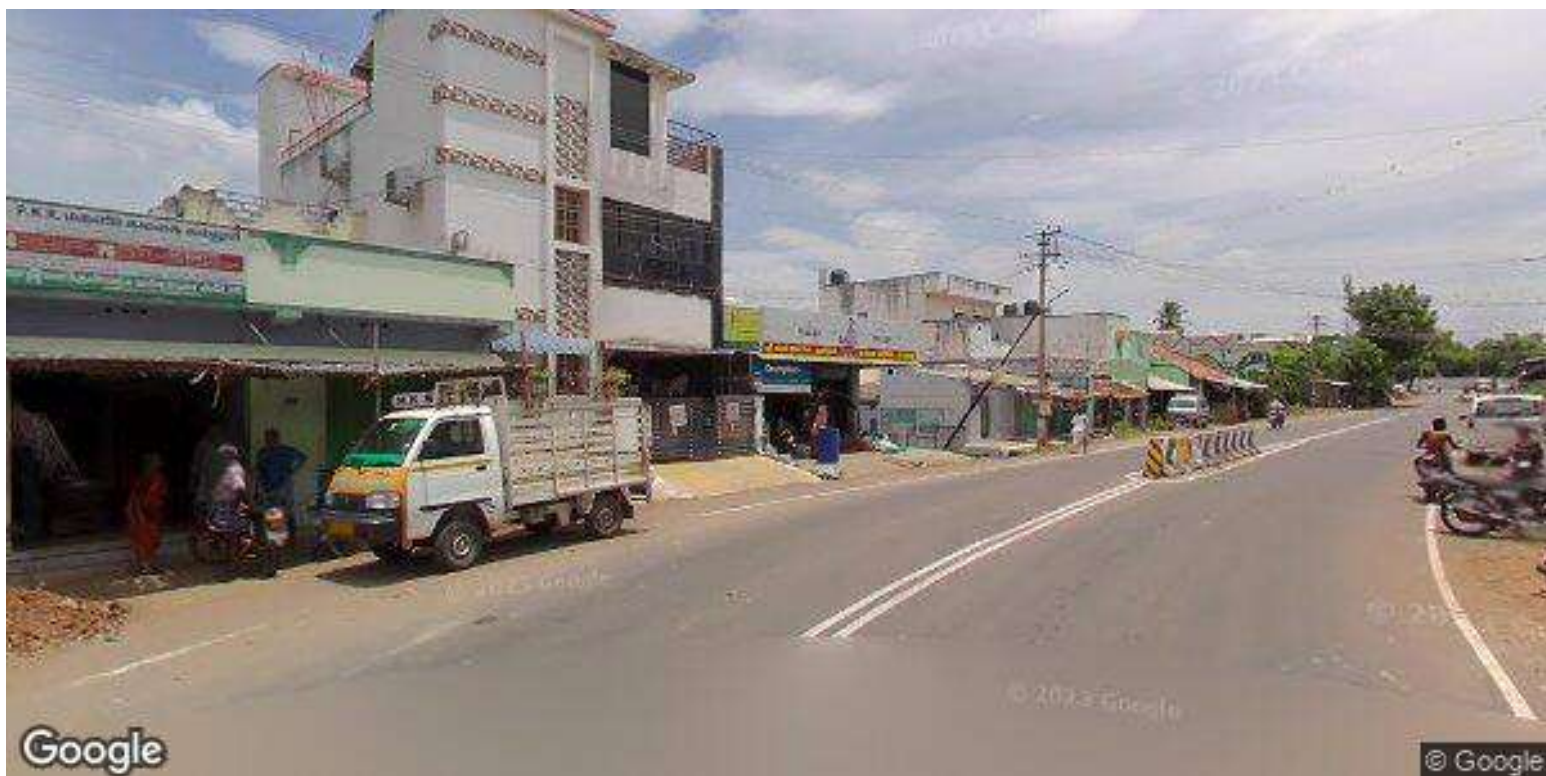
Coordinates: 11.52455, 77.67971



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.52466, 77.67945



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.52455, 77.67875



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.52463, 77.67853



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.55323, 77.66321



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.56078, 77.66166



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.56090, 77.66151



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.55836, 77.65483



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.56246, 77.64507



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.56360, 77.64467



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.56385, 77.64370



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.56828, 77.64184



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.56883, 77.64088



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57445, 77.63827



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57447, 77.63706



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57467, 77.63691



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57975, 77.63548



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57991, 77.63495



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.58056, 77.63456

