



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to CHERAN PETROLEUMS

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

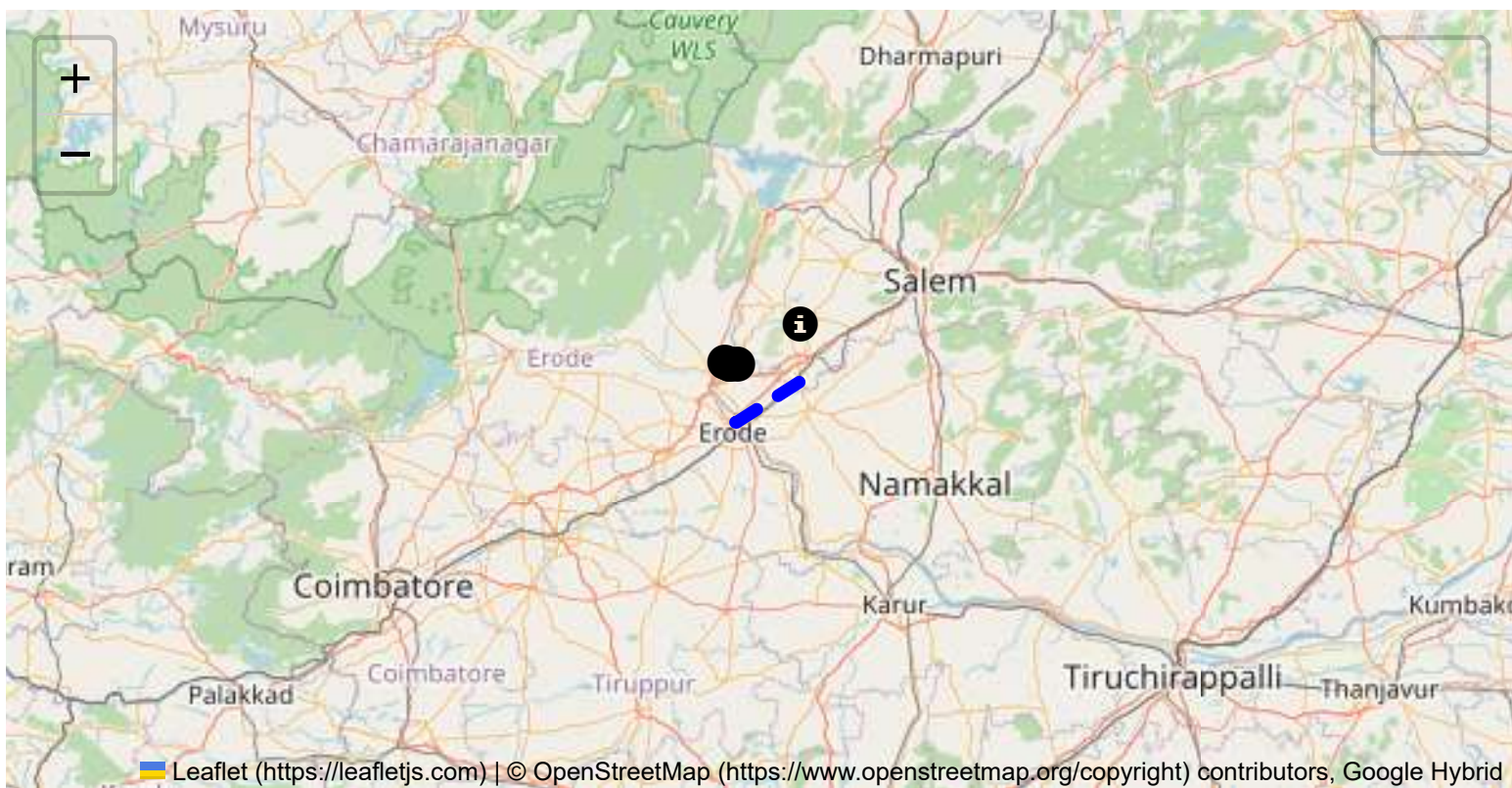
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

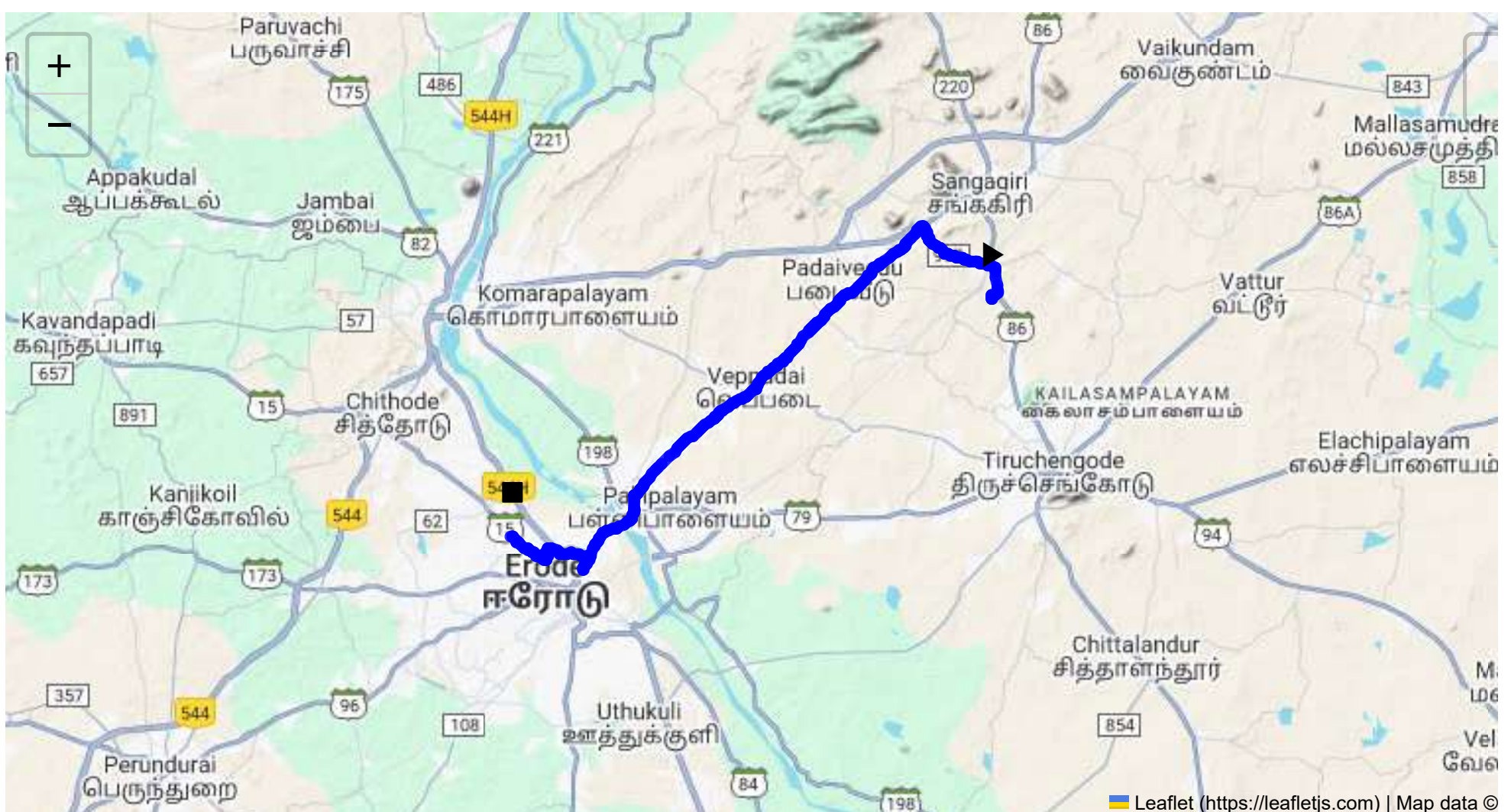
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 28.14 km
Estimated Duration: 0.8 hours
Adjusted Duration (Heavy Vehicle): 1.0 hours
Start: (11.4381, 77.8734)
End: (11.356938, 77.70507)



Welcome to the Journey Risk Management Study

Route Safety Analysis Report

1. Overview of the Route Map

The route begins in CVQF+23W, Sangagiri, and progresses towards Erode, with stops at Karungalpalayam, EPB Nagar, and Santhakaadu within Erode. Approximately 28.14 kilometers in length, the trip typically

takes 47 minutes for heavy vehicles carrying hazardous materials. The route primarily involves state highways and urban roads.

2. Typical Weather Conditions and Potential Weather-Related Hazards

This region of Tamil Nadu experiences a tropical climate with hot summers (March to May), heavy monsoons (June to September), and mild winters (November to February). During the monsoon season, heavy rainfall can lead to waterlogging in certain sections, causing potential safety hazards like hydroplaning and visibility issues.

3. Analysis of Traffic Patterns

Traffic density increases during typical commuting times, particularly in the morning (8:00-10:00 AM) and evening (5:00-7:00 PM). Congestion-prone areas include the approach to Erode city, especially near major junctions and market areas. Be prepared for slow-moving traffic in these areas due to narrow roads and busy intersections.

4. Assessment of Road Quality and Infrastructure

The highways are generally in good condition, but as you enter urban areas, road quality may decrease with potential potholes and narrow lanes. Signage and lighting are adequate along most sections, although some urban stretches may lack clear demarcations.

5. Suggestions for Alternative Routes

In case of emergencies or roadblocks, an alternative is to use NH544 to bypass major urban congestion, recalibrating routes accordingly. Local drivers or navigation systems can assist in rerouting through less congested parallel roads.

6. Summary of Local Regulations

Tamil Nadu imposes regulations on the transport of hazardous materials, requiring adherence to vehicle safety standards and prohibiting transportation during specific hours in densely populated areas. Ensure compliance with Material Safety Data Sheets (MSDS) and secure appropriate permits.

7. Overview of Historical Incidents

Historically, there have been few notable incidents involving heavy vehicles on this route. Most relate to common urban challenges like traffic congestion and enforced stops due to check posts.

8. Environmental Considerations and Sensitive Areas

Erode district has a few protected parks and water bodies; ensure minimal operational impact such as avoiding spillage and contamination, especially near sensitive ecological zones like the Cauvery River and surrounding agricultural fields.

9. Analysis of Communication Coverage

Overall, communication coverage is robust along this route, with major mobile networks providing consistent coverage. Potential dead zones are mostly limited to rural stretches outside of urban centers.

10. Estimated Emergency Response Times

Emergency response times vary. Within urban areas like Erode, response can be expected within 15-20 minutes. However, it may take longer on rural segments, potentially extending up to 40 minutes due to limited access. Knowing local emergency contacts is advisable for quick assistance.

11. Overall Summary of Risk Assessment

The risk assessment for this route indicates moderate potential risks, primarily elevated in congested urban zones and during adverse weather conditions. Consistent communication, adherence to regulations, awareness of traffic patterns, and preparation for alternative routes will maximize safety and efficiency for heavy vehicles transporting hazardous materials.

Overall, careful planning and adherence to safety procedures will mitigate most potential hazards on this route. Adjusting travel times to avoid peak hours can further reduce risks associated with traffic congestion.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.37086, 77.74828	15 KM/Hr
1	U-Turn	High	11.3453211, 77.7304652	10 KM/Hr
2	Turn	High	11.43811, 77.87348	15 KM/Hr
3	Turn	Medium	11.43956, 77.87340	30 KM/Hr
4	Turn	High	11.43968, 77.87345	15 KM/Hr
5	Turn	High	11.44029, 77.87544	15 KM/Hr
6	Turn	Medium	11.44898, 77.87410	30 KM/Hr
7	Turn	Medium	11.45357, 77.85789	30 KM/Hr
8	Turn	Medium	11.45348, 77.85706	30 KM/Hr
9	Turn	Medium	11.45352, 77.85698	30 KM/Hr
10	Turn	Medium	11.46318, 77.84913	30 KM/Hr
11	Turn	Medium	11.46312, 77.84886	30 KM/Hr
12	Turn	High	11.34532, 77.73047	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
13	Blind Spot	Blind Spot	11.34535, 77.73036	10 KM/Hr
14	Blind Spot	Blind Spot	11.34964, 77.73257	10 KM/Hr
15	Turn	High	11.35072, 77.72261	15 KM/Hr
16	Turn	High	11.35306, 77.71961	15 KM/Hr
17	Turn	Medium	11.35269, 77.71811	30 KM/Hr
18	Turn	Medium	11.35173, 77.71753	30 KM/Hr
19	Turn	Medium	11.35167, 77.71753	30 KM/Hr
20	Turn	Medium	11.35138, 77.71774	30 KM/Hr
21	Turn	Medium	11.35129, 77.71775	30 KM/Hr
22	Turn	High	11.35101, 77.71764	15 KM/Hr
23	Turn	High	11.35076, 77.71790	15 KM/Hr
24	Turn	High	11.34859, 77.71744	15 KM/Hr
25	Turn	Medium	11.35250, 77.71083	30 KM/Hr
26	Turn	Medium	11.35249, 77.71072	30 KM/Hr
27	Turn	High	11.35664, 77.70582	15 KM/Hr
28	Turn	Medium	11.35658, 77.70571	30 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
1	hospital	Cheran Hospital	11.3680302, 77.7481976	30 km/h	Medium
2	pharmacy	Pharmacy	11.3652161, 77.7486375	30 km/h	Medium
3	hospital	Sri Kumaran E N T Hospital	11.3657814, 77.7477763	30 km/h	Medium
4	hospital	Sri Krishna Hospital	11.3656648, 77.7477783	30 km/h	Medium
5	hospital	Visaalam Hospitals	11.3651528, 77.747808	30 km/h	Medium
6	police	Police Station	11.3630177, 77.7476505	30 km/h	Medium
7	hospital	Government Hospital	11.3608508, 77.747453	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
9	hospital	Sri Hari Sakthivel Hospital	11.3526901, 77.7323055	30 km/h	Medium
10	hospital	Senthil Prakash Hospital	11.352639, 77.732267	30 km/h	Medium
11	hospital	V K Hospital	11.3513792, 77.7313976	30 km/h	Medium
12	hospital	Dhanvantri Critical Care Center	11.3504266, 77.7311274	30 km/h	Medium
13	hospital	Dhanvantri Critical Care Centre	11.35099, 77.730508	30 km/h	Medium
14	hospital	Indrajith Yoga Nature Cure Hospital	11.3499973, 77.732974	30 km/h	Medium
16	hospital	Kumudha Hospital	11.3467172, 77.7306797	30 km/h	Medium
17	hospital	City Hospital	11.3451151, 77.7300887	30 km/h	Medium
18	clinic	K.B.N. Nursing Home	11.344835, 77.7310771	30 km/h	Medium
19	clinic	Kpn Nursing Home	11.3437022, 77.7304525	30 km/h	Medium
20	hospital	Milan Hospital	11.343591, 77.733182	30 km/h	Medium
21	hospital	Roja Hospital	11.3509181, 77.7282478	30 km/h	Medium
23	hospital	Sreedhareeam Eye Hospital	11.352858, 77.722408	30 km/h	Medium
24	pharmacy	Chinthamani Medical Department	11.347629, 77.7190874	30 km/h	Medium
25	hospital	Sri Jai Shakthi Dentistry, Speciality Children Dental Hospital	11.3476429, 77.7186408	30 km/h	Medium
26	pharmacy	Deepa Medicals	11.3466632, 77.718547	30 km/h	Medium
27	hospital	Arasan Eye Hospital	11.3464182, 77.7163893	30 km/h	Medium
28	hospital	Nalli Hospital	11.3463567, 77.7171556	30 km/h	Medium
29	hospital	KS Eye Hospital	11.3465289, 77.7175494	30 km/h	Medium
30	hospital	Cauvery Nature Cure Hospital	11.3459862, 77.7171349	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
31	hospital	Priya Hospital	11.346512, 77.718023	30 km/h	Medium
32	hospital	TAT Ent Hospital	11.34639, 77.716936	30 km/h	Medium
33	clinic	APN Clinic	11.3515168, 77.7135642	30 km/h	Medium
34	hospital	Veerappanchataram Government Hospital	11.34858, 77.713203	30 km/h	Medium
35	hospital	S R Hospital	11.3587931, 77.7030647	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	school	Ssri Valliappa Vidhayalayam mat hr school	11.4004878, 77.7794381	30 km/h	Medium
8	marketplace	Weekly Market	11.3605669, 77.7488199	30 km/h	Medium
15	school	Municipality Girls Higher secondary school	11.3495618, 77.7325011	30 km/h	Medium
22	school	Siddhartha Matriculation school	11.3519996, 77.7247861	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.37086, 77.74828



Risk Type: U-Turn

Risk Level: High

Speed Limit: 10 KM/Hr

Coordinates: 11.3453211, 77.7304652



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: 11.45348, 77.85706



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: 11.46318, 77.84913



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46312, 77.84886



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.34532, 77.73047



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.34535, 77.73036



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.34964, 77.73257



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.35072, 77.72261



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.35306, 77.71961



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35269, 77.71811



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35173, 77.71753



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35167, 77.71753



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35138, 77.71774



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35129, 77.71775



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

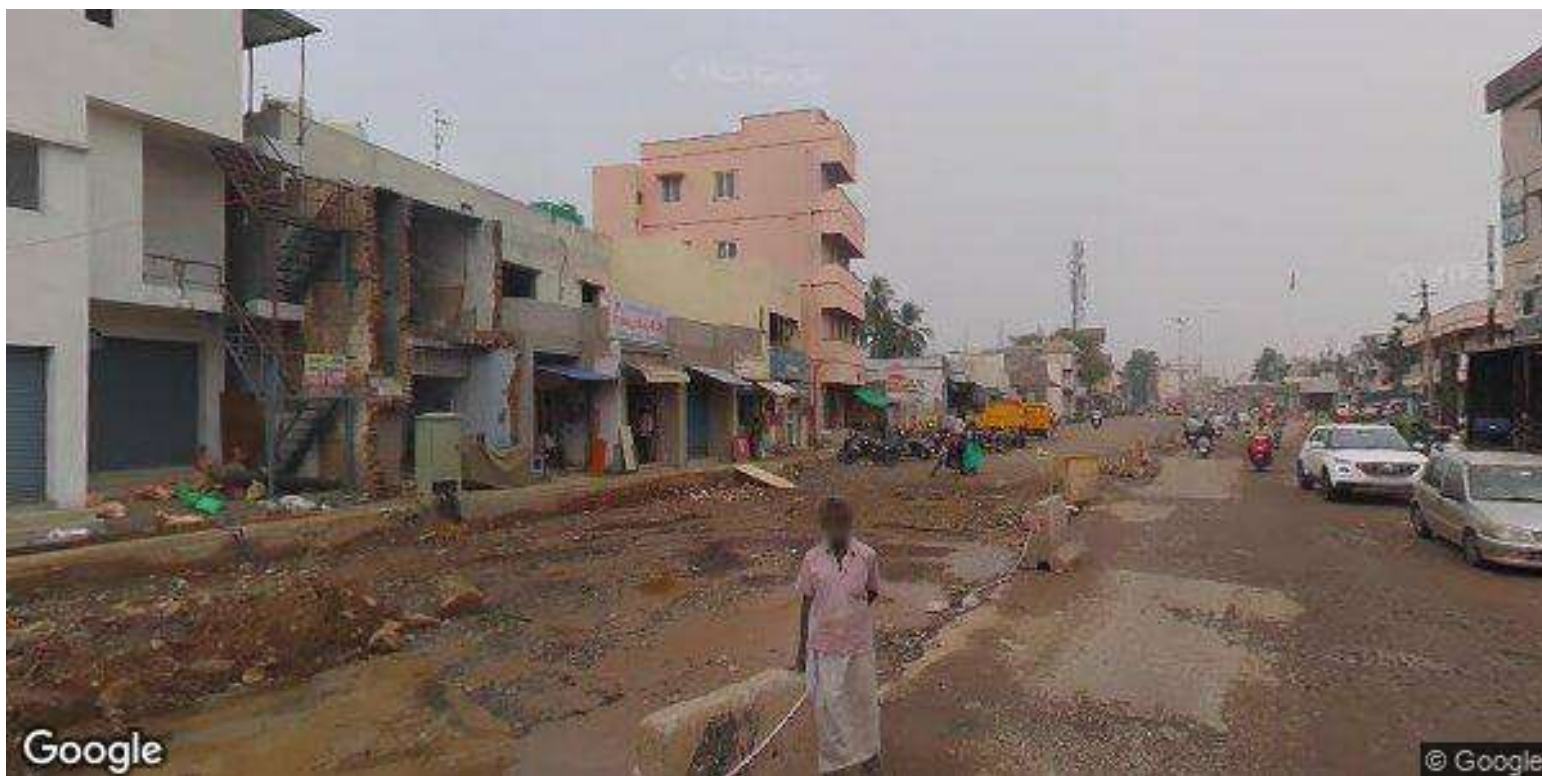
Coordinates: 11.35101, 77.71764



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.35076, 77.71790



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.34859, 77.71744



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.35250, 77.71083



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35249, 77.71072



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.35664, 77.70582



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35658, 77.70571
