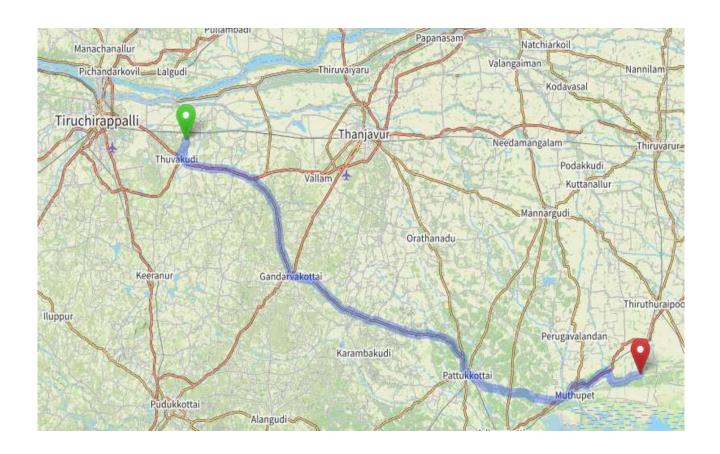
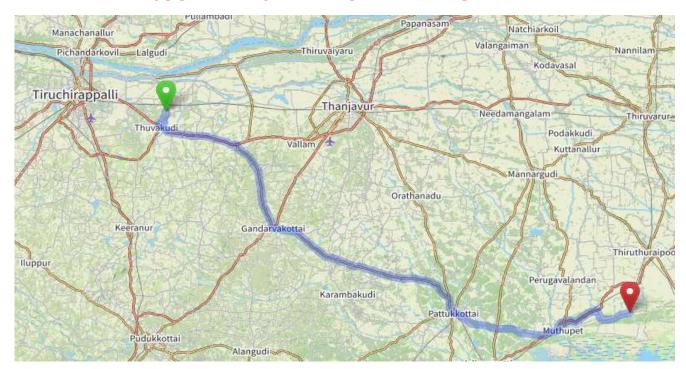


WELCOME TO JOURNEY RISK MANAGEMENT (JRM) STUDY USING ARTIFICIAL INTELLIGENCE (AI) FOR IOCL TRICHY TERMINAL

<u>IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SRI SOLAI AANDAVAR</u> <u>AGENCIES (</u>10.425341 , 79.603693) TOTAL DISTANCE – 117KM





Welcome to the Journey Risk Management Study for SRI SOLAI AANDAVAR AGENCIES

Total distance: 117km; start with: (10.7753, 78.8368), End with: (10.425341, 79.603693)

Route Safety Analysis Report

1. Overview of the Route Map

The route from Trichy Terminal (T.N)- Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow Vallam Rd to Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukottai Rd in Thennamanadu North Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavu, Follow Pattukkottai Byepass Rd and MDR343 to your destination and Total distance from Trichy Terminal To SRI SOLAI AANDAVAR AGENCIESAGENCIESIS 117KM.

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions:

Trichy Terminal (T.N) To SRI SOLAI AANDAVAR AGENCIES experiences a tropical climate with heavy monsoon rains from June to September, high humidity, and moderate temperatures throughout the year, The summers are short and sweltering; the winters are short, cool, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 60.8°F to 110°F and is rarely below 60.8°F to 110°F.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	33.0	38.0	41.0	43.0	43.0	42.0	40.0	39.0	38.0	37.0	34.0	33.0	43.0
	(91.4)	(100.4)	(105.8)	(109.4)	(109.4)	(107.6)	(104.0)	(102.2)	(100.4)	(98.6)	(93.2)	(91.4)	(109.4)
Average high °C (°F)	30.27	32.88	36.0	38.27	38.79	36.78	36.17	35.4	35.03	32.9	30.38	29.34	34.35
	(86.49)	(91.18)	(96.8)	(100.89)	(101.82)	(98.2)	(97.11)	(95.72)	(95.05)	(91.22)	(86.68)	(84.81)	(93.83)
Daily mean °C (°F)	26.57	28.67	31.87	34.46	35.18	33.45	32.92	32.18	31.78	29.86	27.44	26.32	30.89
	(79.83)	(83.61)	(89.37)	(94.03)	(95.32)	(92.21)	(91.26)	(89.92)	(89.2)	(85.75)	(81.39)	(79.38)	(87.6)
Average low °C (°F)	19.88	20.93	24.04	27.62	28.89	27.59	27.04	26.45	25.95	24.64	22.43	20.93	24.7
	(67.78)	(69.67)	(75.27)	(81.72)	(84.0)	(81.66)	(80.67)	(79.61)	(78.71)	(76.35)	(72.37)	(69.67)	(76.46)
Record low °C (°F)	16.0	17.0	19.0	22.0	25.0	25.0	24.0	23.0	22.0	21.0	18.0	17.0	16.0
	(60.8)	(62.6)	(66.2)	(71.6)	(77.0)	(77.0)	(75.2)	(73.4)	(71.6)	(69.8)	(64.4)	(62.6)	(60.8)
Average precipitation mm (inches)	12.32 (0.49)	20.82 (0.82)	26.34 (1.04)	57.63 (2.27)	102.32 (4.03)	61.68 (2.43)	63.88 (2.51)	124.75 (4.91)	141.74 (5.58)	231.04 (9.1)	159.62 (6.28)	71.08 (2.8)	89.44 (3.52)
Average precipitation days (≥ 1.0 mm)	3.09	3.27	5.36	7.36	16.73	12.36	13.55	18.91	19.64	22.73	17.55	9.73	12.52
Average relative humidity (%)	72.01	65.19	58.27	53.97	51.56	50.59	51.14	56.11	60.33	70.18	77.39	76.61	61.95
Mean monthly sunshine hours	11.19	11.34	11.34	11.63	12.65	12.68	11.83	11.24	11.05	9.11	7.68	8.29	10.84

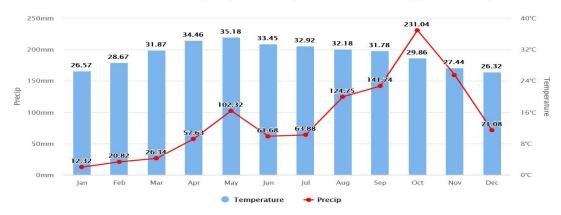
Weather-Related Hazards:

Trichy Terminal (T.N) To SRI SOLAI AANDAVAR AGENCIES Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To SRI SOLAI AANDAVAR AGENCIES weather stations and weather warnings that include risk of thunder, high UV index and forecast gales.

Climate Graph

The chart below shows the mean monthly temperature and precipitation of Tiruchirappalli in recent years.



Analysis of Traffic Patterns

Peak Hours:

Typically, Trichy Terminal (T.N) To SRI SOLAI AANDAVAR AGENCIES peak traffic hours are from 8:00 AM to 11:00 AM and 4:00 PM to 8:00 PM on weekdays.

Congestion-Prone Areas:

- Green and Clean Technology solution
- GOPI VELKANAISINC SHOP
- Aishwarya Medical Centre
- Taj Auto Disel Works
- Gobi Studio
- National Malliga Park
- Dhanvi Agenci
- Ak Chettinad Restaurant
- Yazh Veera Tea Coffee

Assessment of Road Quality and Infrastructure

Road Quality: Generally, the roads are well-maintained but can suffer from potholes and waterlogging on State Highway during the monsoon season.

Infrastructure: Adequate signage, street lighting, and traffic signals are present, but some areas may lack proper drainage systems, leading to waterlogging.

• Suggestions for Alternative Routes for Emergencies

Alternative Route 1-). The route from Trichy Terminal (T.N)- Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow Vallam Rd to Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd in Thennamanadu North Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavu, Follow Pattukkottai Byepass Rd and MDR343 to your destination

Alternative Route 2:-) The route from Trichy Terminal (T.N)- Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow Vallam Rd to Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukottai Rd in Thennamanadu North Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavu, Follow Pattukkottai Byepass Rd and MDR343 to your destination

Summary of Local Regulations Affecting Hazardous Material Transport

Regulations: Transport of hazardous materials is regulated by the Petroleum and Explosives Safety Organization (PESO) and the Motor Vehicles Act. Specific routes and timings may be restricted for hazardous material transport.

Permits: Ensure all necessary permits and documentation are in place.

• Overview of Historical Incidents

Historical Incidents: There have been occasional incidents involving heavy vehicles, particularly during the monsoon season due to waterlogging and poor visibility. No major incidents involving hazardous materials have been reported recently.

***** Environmental Considerations and Sensitive Areas

- Sensitive Areas: Green and Clean Technology solution, GOPI
 VELKANAISINC SHOP, Aishwarya Medical Centre, Taj Auto Disel Works,
 Gobi Studio, National Malliga Park, Dhanvi Agenci, Ak Chettinad
 Restaurant, Yazh Veera Tea Coffee
- Educational institutions Aishwarya Medical Centr,: Green and Clean Technology
- **Hospital:** Aishwarya Medical Centre, Vivekananda Hospital, AYUSH HOSPITAL.
- Gas Station: ESSAR petrol pump, SP Petroleum (HPCL), HP PETROL PUMP M/S. A.V.R. PETROL, Indian Oil, Indian Oil.sk petrol (BPCL)
- Environmental Impact: Minimize noise and air pollution, especially in residential and sensitive areas.
- **Air pollution**: Volatile chemicals evaporate during the filling and discharge process, or from leaks.
- Loss of habitats: Oil and gas operations can degrade animal habitats and disrupt migratory pathways.
- Oil spills: Oil spills can be devastating for animals and humans.
- **Greenhouse gas emissions**: Oil and gas operations can emit greenhouse gases like methane.
- Analysis of Communication Coverage

Communication Coverage: Generally good throughout the route, but potential dead zones may exist densely built-up areas or underpasses.

Dead Zones: Monitor for any communication blackouts, especially in underpasses or near large buildings.

 Estimated Emergency Response Times::: Green and Clean Technology solution, GOPI VELKANAISINC SHOP, Aishwarya Medical Centre, Taj Auto Disel Works, Gobi Studio, National Malliga Park, Dhanvi Agenci, Ak Chettinad Restaurant, Yazh Veera Tea Coffee

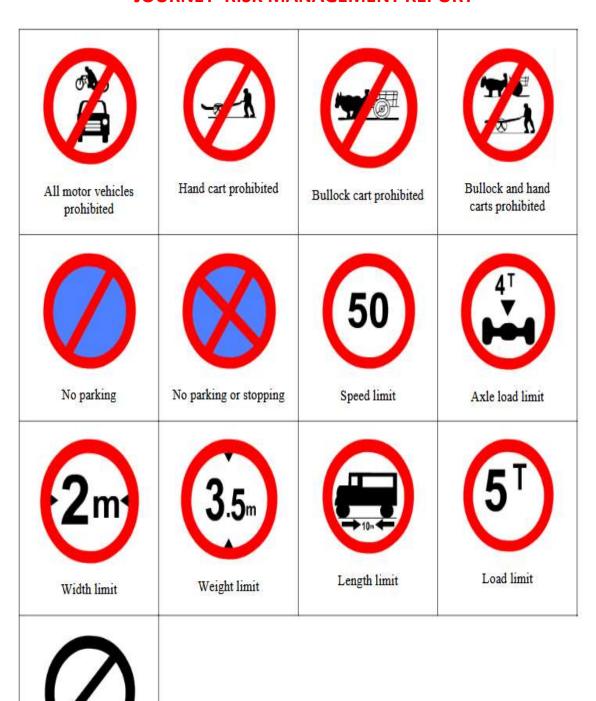
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- like, have quicker response times (15- 20 minutes). Congested areas may experience delays (up to 30-40 minutes).
- Overall Summary of Risk Assessment
- **Risk Level:** Moderate to High, especially during monsoon season.
- **Key Risks**: Waterlogging, traffic congestion, and potential communication dead zones.
- **Mitigation Measures**: Plan travel during non-peak hours, ensure proper vehicle maintenance, and have alternative routes and emergency contacts ready and control on the speed limit of the vehicle.
- Road Signage for TT/PT Driver

Road Traffic Signs in India

Mandatory/Regulatory Signs



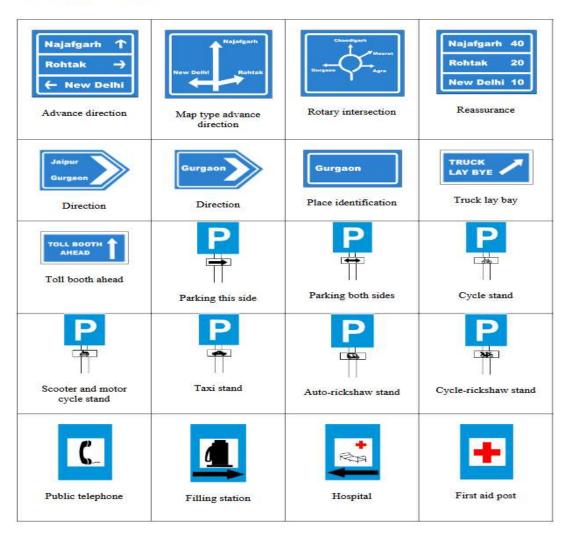


Restriction ands

Cautionary signs



Information signs



Conclusion

The route for Trichy Terminal (T.N) To SRI SOLAI AANDAVAR AGENCIES is generally manageable but poses several risks, particularly during the monsoon season. Proper planning, adherence to regulations, and awareness of potential hazards can significantly mitigate these risks.

• Risk Assessment - Sharp Turns

Risk Type	Risk Level	Coordination	Distance From Start	Recommendation Speed
Sharp turn	Medium	10.769517372474736,	650 M	20km/hr TO 30
		78.83735063199906		Km/Hr
Sharp turn	Medium	10.76584461192607, 78.8361700257199	1.1 KM	20km/hr TO 30 Km/Hr
C1 4	Medium		121/1	
Sharp turn	Medium	10.764182189802032, 78.83459588401435	1.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.75826698538096,	2 KM	20km/hr TO 30
		78.83349398474651		Km/Hr
Sharp turn	Medium	10.756372549032195,	2.4 KM	20km/hr TO 30
		78.83034570133539		Km/Hr
Sharp turn	High	10.751346435623256,	3.2 KM	10km/hr TO 15
		78.8252297405902		Km/Hr
Sharp turn	High	10.749451955814655,	3.8 KM	10km/hr TO 15
		78.83046376176118		Km/Hr
Sharp turn	Medium	10.741610640579689,	4.8 km	20km/hr TO 30
		78.82718594844422		Km/Hr
Sharp turn	Medium	10.734287918634735,	5.9 KM	20km/hr TO 30
		78.82046183804047		Km/Hr
Sharp turn	Medium	10.713512709090521,	8.5 KM	20km/hr TO 30
		78.80911996491783		Km/Hr
Sharp turn	Medium	10.706666925588681,	9.3 KM	20km/hr TO 30
		78.80782375086409		Km/Hr
Sharp turn	Medium	10.699582172344776,	10.5 KM	20km/hr TO 30
_		78.80004646577926		Km/Hr
Sharp turn	High	10.691462364523247,	11.9 KM	10km/hr TO 15
_		78.79064891388968		Km/Hr
Sharp turn	Medium	10.6638374704095,	14.9 KM	20km/hr TO 30
		78.78862357927507		Km/Hr
Sharp turn	Medium	10.660732498370965,	15.4 KM	20km/hr TO 30
		78.78635520468103		Km/Hr

Sharp turn	Medium	10.64842417274851, 78.78704271204515	16.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.642648477065759, 78.78790978721874	17.4 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.639334503912071, 78.7842488031525	18 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.638103590426153, 78.78270733617721	18.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.63038659627268, 78.78135855241705	19.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.624941974019475, 78.78241831096254	19.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.619736436728504, 78.78185104657456	20.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.613392037576439, 78.78421141788797	21 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.604822155245836, 78.78266995091272	22 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.597762474060362, 78.78165149877057	22.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.590328563954534, 78.7826630864731	23.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.588623947680798, 78.78150698624165	23.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.58674533173466, 78.77729220760148	24.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.58637702814883, 78.77604894716654	24.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.585791089639176, 78.7750441199752	24.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.584033267538665, 78.77536770828819	24.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.55207259980482, 78.77880669261698	28.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.54546223984727, 78.77944431801846	29.3 KM	20km/hr TO 30 Km/Hr

Sharp turn	Medium	10.541561023304784,	29.7 KM	20km/hr TO 30
		78.77784340726133		Km/Hr
Sharp turn	High	10.52477999016818,	31.6 KM	10km/hr TO 15
		78.77752490228748		Km/Hr
Sharp turn	High	10.521431084738632,	32 KM	10km/hr TO 15
		78.77745677842805		Km/Hr
Sharp turn	Medium	10.514728592539958,	32.8 KM	20km/hr TO 30
		78.77906070610587		Km/Hr
Sharp turn	Medium	10.507838008323152,	33.5 KM	20km/hr TO 30
		78.77943735896314		Km/Hr
Sharp turn	Medium	10.50052020126909,	34.3 KM	20km/hr TO 30
		78.7790797087057		Km/Hr
Sharp turn	Medium	10.496250005036513,	34.9 KM	20km/hr TO 30
		78.77734255028975		Km/Hr
Sharp turn	Medium	10.489166372788649,	35.7 KM	20km/hr TO 30
		78.7783644081588		Km/Hr
Sharp turn	Medium	10.474420648999708,	37.3 KM	20km/hr TO 30
		78.77808616022145		Km/Hr
Sharp turn	High	10.45391794914818,	39.7 KM	10km/hr TO 15
		78.78476638769894		Km/Hr
Sharp turn	Medium	10.443872002798981,	40.9 KM	20km/hr TO 30
		78.78448084740042		Km/Hr
Sharp turn	Medium	10.426564690033553,	42.8 KM	20km/hr TO 30
		78.784106018056		Km/Hr
Sharp turn	Medium	10.419529717884418,	43.6 KM	20km/hr TO 30
		78.787205653675		Km/Hr
Sharp turn	Medium	10.410653640207517,	44.7 KM	20km/hr TO 30
		78.78942177042451		Km/Hr
Sharp turn	Medium	10.408086816992583,	45 KM	20km/hr TO 30
		78.79021138170222		Km/Hr
Sharp turn	High	10.392767935903917,	46.9 KM	10km/hr TO 15
		78.7984669421206		Km/Hr
Sharp turn	High	10.389652130315442,	47.3 KM	10km/hr TO 15
		78.7982455395774		Km/Hr
Sharp turn	Medium	10.389300343861581,	47.4 KM	20km/hr TO 30
		78.79947176904749		Km/Hr

Sharp turn	Medium	10.388781039324968,	47.7 KM	20km/hr TO 30
		78.80178798026876		Km/Hr
Sharp turn	Medium	10.3861350173034,	48.1 KM	20km/hr TO 30
		78.80463458801475		Km/Hr
Sharp turn	Medium	10.383052649752944,	48.5 KM	20km/hr TO 30
		78.80414069003375		Km/Hr
Sharp turn	High	10.381997266923852,	49 KM	10km/hr TO 15
		78.80923294852758		Km/Hr
Sharp turn	Medium	10.379450931691476,	49.4 KM	20km/hr TO 30
_		78.80819405973043		Km/Hr
Sharp turn	Medium	10.377524414312752,	50.6 KM	20km/hr TO 30
		78.81982620901724		Km/Hr
Sharp turn	Medium	10.376519270076473,	51.3 KM	20km/hr TO 30
		78.82554861340262		Km/Hr
Sharp turn	Medium	10.373409207132324,	51.8 KM	20km/hr TO 30
		78.82952024849244		Km/Hr
Sharp turn	High	10.372404049727633,	52.1 KM	10km/hr TO 15
		78.83216004804609		Km/Hr
Sharp turn	High	10.37243755502647,	52.2 KM	10km/hr TO 15
_		78.83219410997582		Km/Hr
Sharp turn	Medium	10.360601636594547,	53.6 KM	20km/hr TO 30
		78.83631575150659		Km/Hr
Sharp turn	Medium	10.866508015064756,	56.5 KM	20km/hr TO 30
_		79.19793257306773		Km/Hr
Sharp turn	High	10.895116182091103,	65.5 KM	20km/hr TO 30
		79.27561764511675		Km/Hr
Sharp turn	High	10.933874969696973,	71.4 KM	20km/hr TO 30
		79.31201990496727		Km/Hr
Sharp turn	Medium	10.939827530231794,	75.2 KM	20km/hr TO 30
_		79.34724116678898		Km/Hr
Sharp turn	Medium	10.982625742789363,	82.8 KM	20km/hr TO 30
		79.3893912017942		Km/Hr
Sharp turn	High	11.04389975183917,	90.7 KM	20km/hr TO 30
		79.41075127077596		Km/Hr
Sharp turn	High	11.045165558425763,	91.1 KM	10 km/hr TO 15
		79.41228373020506		Km/Hr

Sharp turn	High	10.3862710030705,	96.4 KM	20km/hr TO 30
		79.46040419630081		Km/Hr
Sharp turn	High	10.393024876099867,	98.2 KM	20km/hr TO 30
		79.47671202729477		Km/Hr
Sharp turn	High	10.3944792550454,	100 KM	20km/hr TO 30
		79.48285722253779		Km/Hr
Sharp turn	High	10.408962021224546,	105 KM	20km/hr TO 30
		79.5142087528766		Km/Hr
Sharp turn	High	10.431193187614456,	110 KM	10km/hr TO 30
		79.55116752538252		Km/Hr
Sharp turn	Medium	10.412959625751295,	112 KM	20km/hr TO 30
		79.56095222397889		Km/Hr

<u>IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SRI SOLAI AANDAVAR</u> <u>AGENCIES (</u>11.038157 , 79.410362) TOTAL DISTANCE – 117 KM



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10.764113439530249, 78.83446118711721



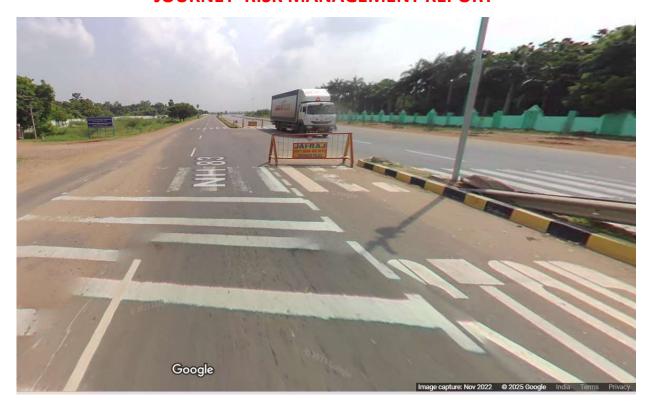
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10.75028318292191, 78.82795244340517



10.749185832475025, 78.8304590222586



10.739443239536497, 78.83780144303421



10.66061597511672, 78.78654572646798 ALARP/JRM/TNSO/SSAA



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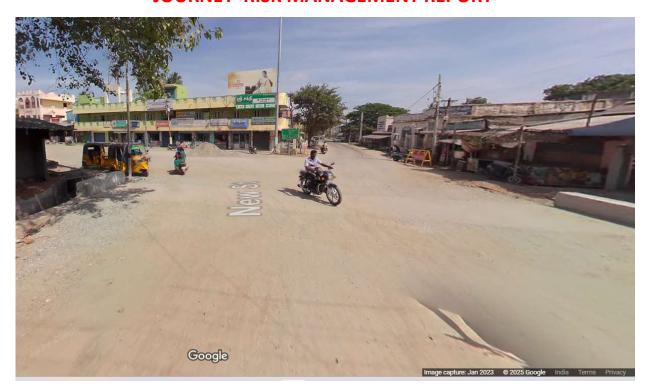
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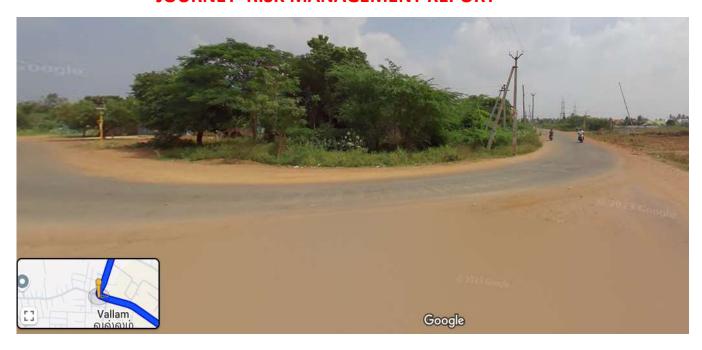
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10.72143459678268, 79.06775818479343



 $10.715798068337826,\,79.0687875894845$



10.645572284613904, 79.23767876049183



10.442904207734156, 79.30668447999003



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