

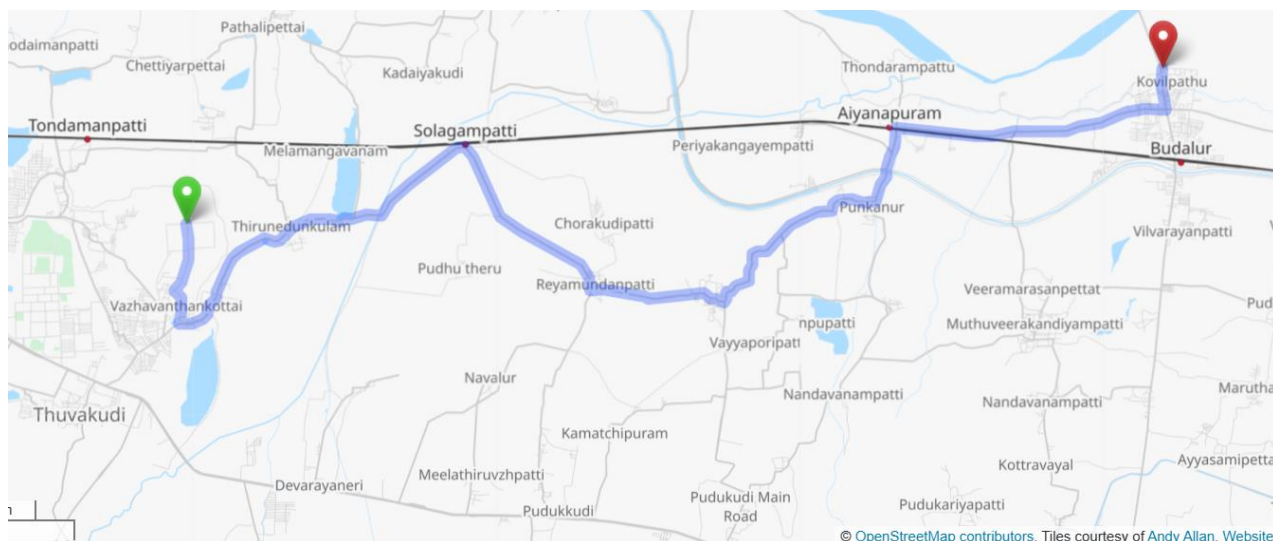
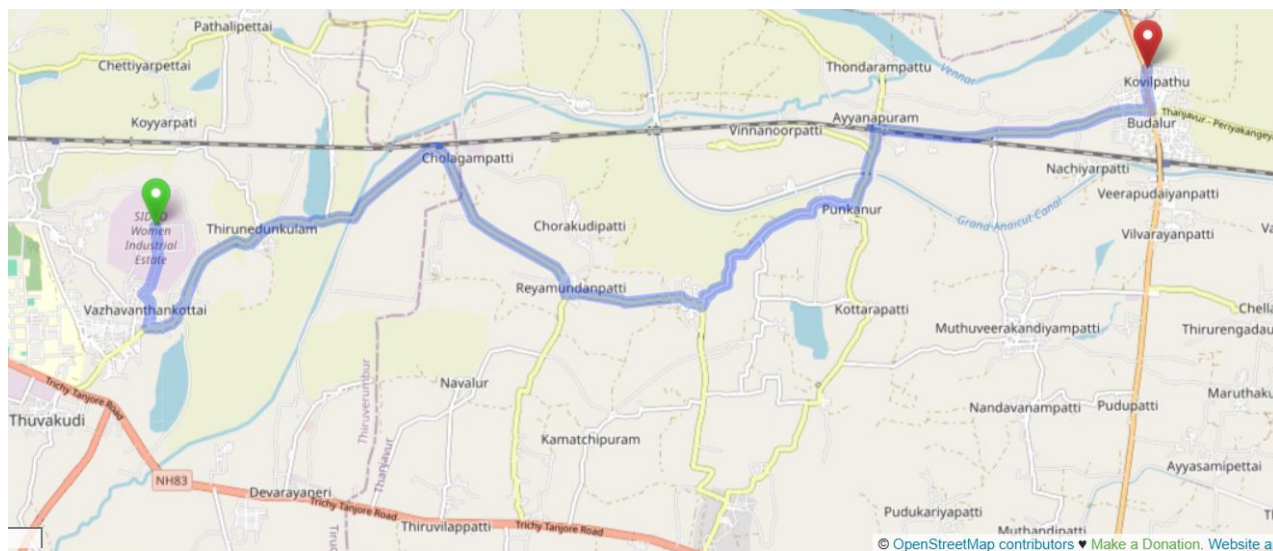


IndianOil

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

JOURNEY RISK MANAGEMENT REPORT

IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SREE BAGAVATHI AGENCIES (10.796248 , 78.978256) TOTAL DISTANCE – 28.5 KM



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Welcome to the Journey Risk Management Study for SREE BAGAVATHI AGENCIES

Total distance: 28.5 km; Start with: (10.7753 , 78.8368), End with: (10.796248 , 78.978256)

❖ Route Safety Analysis Report

1. Overview of the Route Map

The route from Trichy Terminal (T.N) TO SREE BAGAVATHI AGENCIES IS, Head south on SIDCO to Indian oil Storage, Turn right at M. J. Agencies, At Jude Digital Studios, continue onto Thuvakudi toSIDCO& Indian oil Storage, Turn left at the church onto NH 83, Slight left onto SH 99, Turn right at Namma Xerox onto Agraharam , and Total distance from Trichy Terminal To SREE BAGAVATHI AGENCIES IS 28.5 KM.

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To SREE BAGAVATHI 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 (91.4)	38.0 (100.4)	41.0 (105.8)	43.0 (109.4)	43.0 (109.4)	42.0 (107.6)	40.0 (104.0)	39.0 (102.2)	38.0 (100.4)	37.0 (98.6)	34.0 (93.2)	33.0 (91.4)	43.0 (109.4)
Average high °C (°F)	30.27 (86.49)	32.88 (91.18)	36.0 (96.8)	38.27 (100.89)	38.79 (101.82)	36.78 (98.2)	36.17 (97.11)	35.4 (95.72)	35.03 (95.05)	32.9 (91.22)	30.38 (86.68)	29.34 (84.81)	34.35 (93.83)
Daily mean °C (°F)	26.57 (79.83)	28.67 (83.61)	31.87 (89.37)	34.46 (94.03)	35.18 (95.32)	33.45 (92.21)	32.92 (91.26)	32.18 (89.92)	31.78 (89.2)	29.86 (85.75)	27.44 (81.39)	26.32 (79.38)	30.89 (87.6)
Average low °C (°F)	19.88 (67.78)	20.93 (69.67)	24.04 (75.27)	27.62 (81.72)	28.89 (84.0)	27.59 (81.66)	27.04 (80.67)	26.45 (79.61)	25.95 (78.71)	24.64 (76.35)	22.43 (72.37)	20.93 (69.67)	24.7 (76.46)
Record low °C (°F)	16.0 (60.8)	17.0 (62.6)	19.0 (66.2)	22.0 (71.6)	25.0 (77.0)	25.0 (77.0)	24.0 (75.2)	23.0 (73.4)	22.0 (71.6)	21.0 (69.8)	18.0 (64.4)	17.0 (62.6)	16.0 (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

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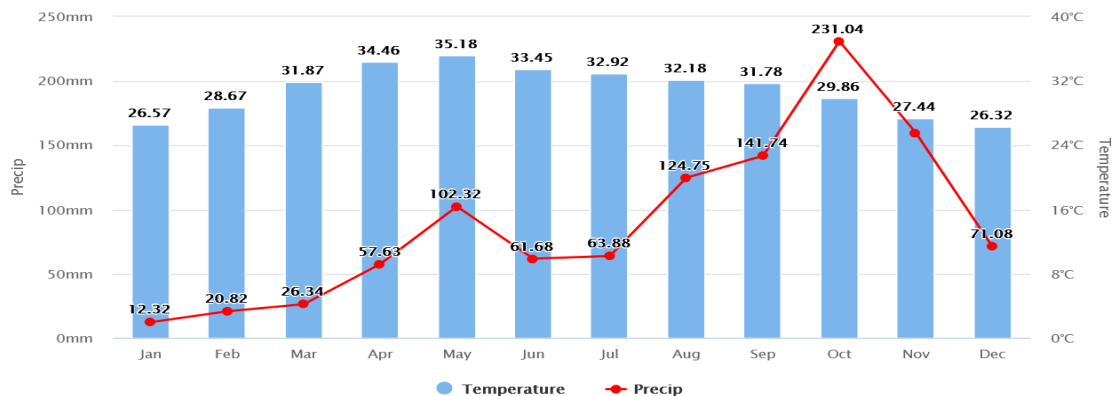
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Weather-Related Hazards: Trichy Terminal (T.N) To SREE BAGAVATHI AGENCIES Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To SREE BAGAVATHI 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 SREE BAGAVATHI 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:

- Malar Mahal
- Old Burma Colony
- Government Branch Press, Tiruchirappalli
- State Institute Of Hotel Management and Catering Technology R.K.A.P MAHAL

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- Pandiyan store malagai and vegetables
- J CARS AUTO CONSULTING
- Ramya Sathianathan Polytechnic College

❖ 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-). Head south on SIDCO to Indian oil Storage, Turn right at M. J. Agencies, At Jude Digital Studios, continue onto Thuvakudi toSIDCO& Indian oil Storage, Turn left at the church onto NH 83, Slight left onto SH 99, Turn right at Namma Xerox onto Agraharam.

Alternative Route 2- Drive along Valavanthankottai to Thirunedukulam temple road, Thirunedukulam To Paper Mill road, Vendaiyapatti Rd and Vendaiyampatti to Punganur Rd, Head south on SIDCO to Indian oil Storage, Turn left toward Valavanthankottai to Thirunedukulam temple road, Turn left at Rayamundampatti Gvt.School onto Vendaiyapatti Rd, Turn right at Namma Xerox onto Agraharam.

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

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- **Sensitive Areas:** Malar Mahal, Old Burma Colony, Government Branch Press, Tiruchirappalli, National Institute of Technology Tiruchirappalli, AGN InfoSystems & AGN INFOTECH, NIT Trichy, BHELEC CINEMA 4K Dolby 7.1, MedPlus Trichy Rail Nagar.
- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, National Institute of Technology Tiruchirappalli, AGN InfoSystems & AGN INFOTECH, NIT Trichy.
- **Hospital:** - Dr Kamali's Home Clinic, Muthammal Medical Foundation Hospital, Times Hospital - (Trichy Institute of Medical and Educational Services), Apollo Speciality Hospitals – Trichy. GVN Hospital (P) Ltd. - Multispecialty Hospital Trichy.
- **Gas Station:** IndianOil, Bharat Petroleum - Sri Vela Fuels, IndianOil, Reliance Petrol Bunk.
- **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-** Malar Mahal, Old Burma Colony, Government Branch Press, Tiruchirappalli, National Institute of Technology Tiruchirappalli, AGN InfoSystems & AGN INFOTECH, NIT Trichy, BHELEC CINEMA 4K Dolby 7.1, MedPlus Trichy Rail Nagar,

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areas 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

















 Stop	 Give way	 No entry	 Straight prohibited
 One way	 One way	 Vehicles prohibited in both directions	 Horn prohibited
 Pedestrians prohibited	 Cycles prohibited	 Right turn prohibited	 Left turn prohibited
 U-turn prohibited	 Overtaking prohibited	 Trucks prohibited	 Tonga prohibited

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 <p>All motor vehicles prohibited</p>	 <p>Hand cart prohibited</p>	 <p>Bullock cart prohibited</p>	 <p>Bullock and hand carts prohibited</p>
 <p>No parking</p>	 <p>No parking or stopping</p>	 <p>Speed limit</p>	 <p>Axle load limit</p>
 <p>Width limit</p>	 <p>Weight limit</p>	 <p>Length limit</p>	 <p>Load limit</p>
 <p>Restriction and</p>			

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Cautionary signs

 <p>Right hand curve</p>	 <p>Left hand curve</p>	 <p>Right hand pin bend</p>	 <p>Left hand pin bend</p>
 <p>Right reverse bend</p>	 <p>Narrow bridge</p>	 <p>Gap in median</p>	 <p>Cycle crossing</p>
 <p>Pedestrian crossing</p>	 <p>School</p>	 <p>Men at work</p>	 <p>Roundabout</p>
 <p>Narrow road</p>	 <p>Road widens</p>	 <p>Side road left</p>	 <p>Side road right</p>

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Information signs

Advance direction	Map type advance direction	Rotary intersection	Reassurance
Direction	Direction	Place identification	Truck lay bay
Toll booth ahead	Parking this side	Parking both sides	Cycle stand
Scooter and motor cycle stand	Taxi stand	Auto-rickshaw stand	Cycle-rickshaw stand
Public telephone	Filling station	Hospital	First aid post

Conclusion

The route for Trichy Terminal (T.N) To SREE BAGAVATHI 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.

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- Risk Assessment - Sharp Turns**

Risk Type	Risk Level	Coordination	Distance From Start	Recommendation Speed
Sharp turn	Medium	10.769517372474736, 78.83735063199906	650 M	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.76584461192607, 78.8361700257199	1.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.764182189802032, 78.83459588401435	1.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.75826698538096, 78.83349398474651	2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.756372549032195, 78.83034570133539	2.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.751346435623256, 78.8252297405902	3.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.757906942798716, 78.81117677157785	6.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.785323754147436, 78.87680600856652	7.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.775597658098823, 78.88241988403091	8.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.76827781156173, 78.8941579872747	10.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.765069055632479, 78.89507662144159	10.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.76306356582582, 78.91487829126149	12.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.769681631534489, 78.91885903931806	13.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.775798199335314, 78.92814745145009	15.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.778706032251119, 78.92753502867215	15.4 KM	20km/hr TO 30 Km/Hr

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Sharp turn	High	10.781513568408371, 78.93845656821199	16.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.784621881453281, 78.93917106145291	16.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.78793069552816, 78.93957934330487	17.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.786627227719114, 78.9541754205803	18.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.787128562182195, 78.96428039641623	20 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.788231495058978, 78.96907770817671	20.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.790637880019954, 78.9787744021607	21.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.796215074753821, 78.97810993581493	22.3 KM	10km/hr TO 15 Km/Hr

• Risk Assessment - Elevation Changes

Risk Type	Specific Risk	Risk Level	Coordination	Elevation Change	Gradient	Recommendation Speed
Elevation Change	Descent	Low	10.7753, 78.8368	-3.02m	-2.96 %	40 km/hr to 50 km/hr
Elevation Change	Descent	Low	10.993921 , 78.326323	-9.28m	-6.28%	40 km/hr to 50 km/hr

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10.769073692604486, 78.83720120889187



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10.764113439530249, 78.83446118711721



10.758209570013967, 78.83344387884853



10.751314343624747, 78.82530656733346

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10.75126610223314, 78.82518044583597



10.772124385490397, 78.84826338360074

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10.771759270576034, 78.85011015462665



10.77462582198835, 78.85870545987017

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10.77536176344786, 78.86483695486659



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