

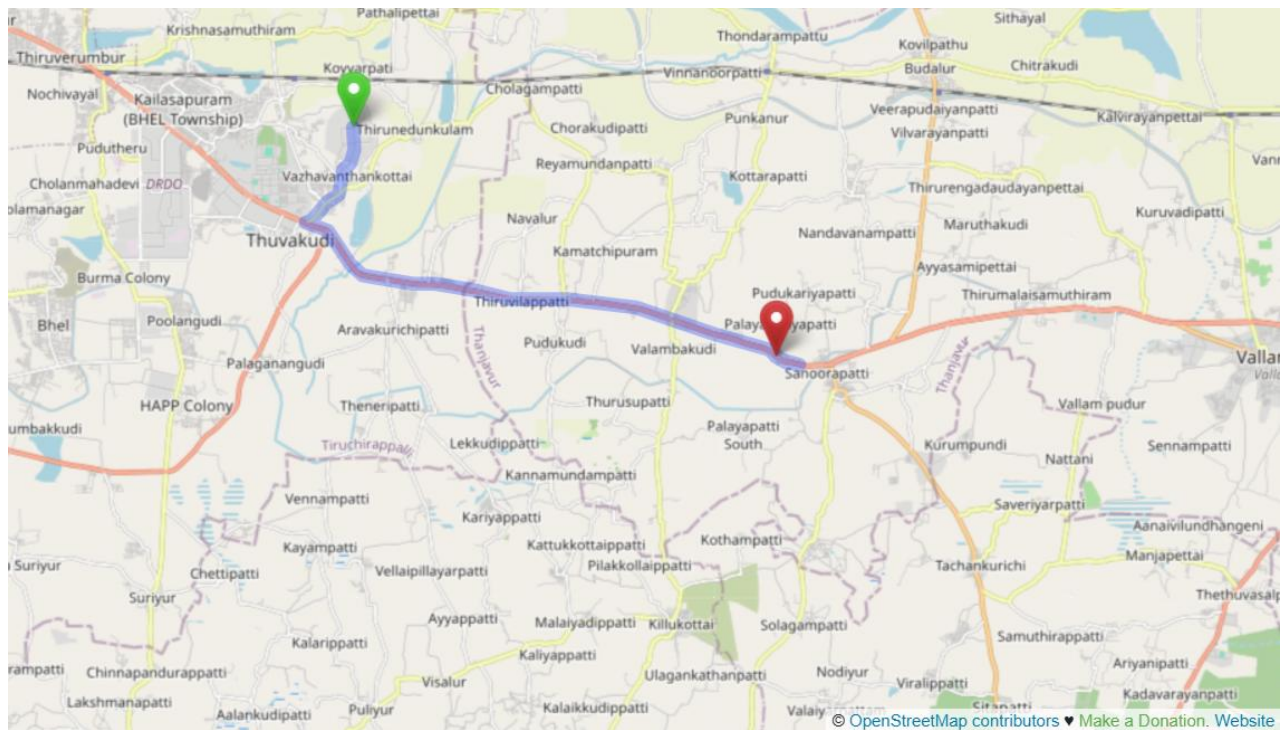
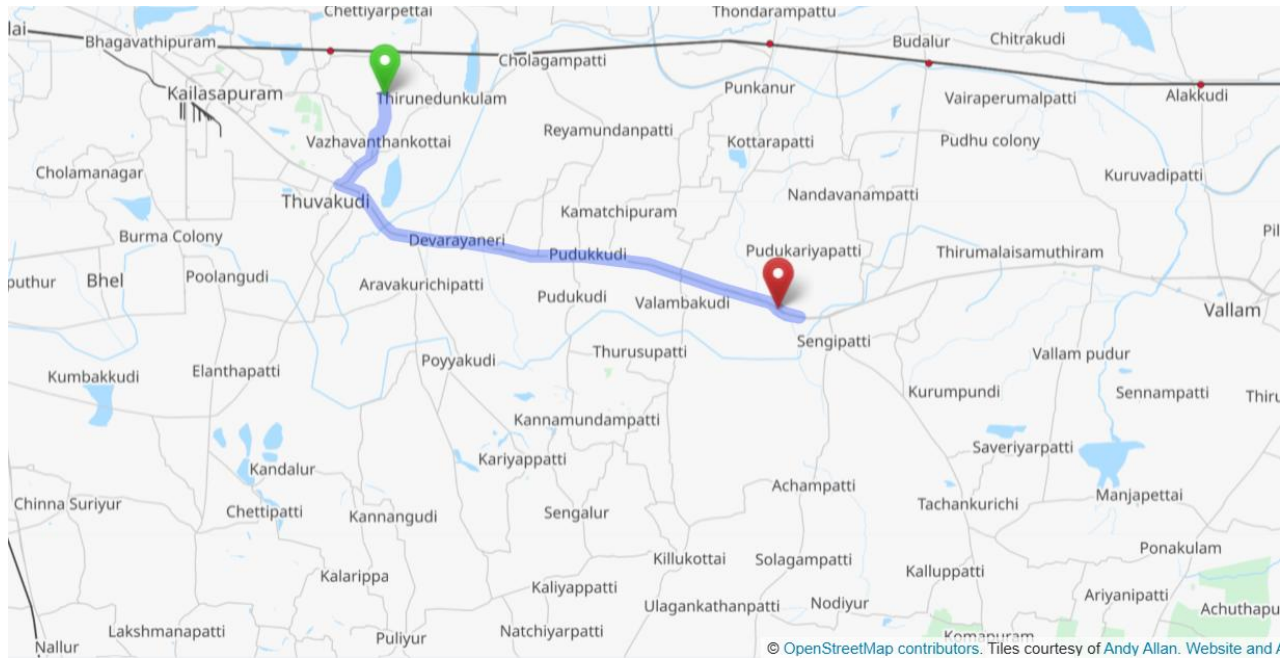


IndianOil

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 UNIT II (10.7188864 , 78.9408006) TOTAL DISTANCE – 18.2 KM KM



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Welcome to the Journey Risk Management Study for SREE BAGAVATHI AGENCIES UNIT II

Total distance: 82.3 km; Start with: (10.7753 , 78.8368), End with: (10.7188864 , 78.9408006)

❖ Route Safety Analysis Report

1. Overview of the Route Map

The route from Trichy Terminal (T.N) TO SREE BAGAVATHI AGENCIES UNIT II-Head south on SIDCO to Indian oil Storage, Turn right at M. J. Agencies, At Jude Digital Studios, continue onto Thuvakudi to SIDCO & Indian oil Storage, Turn left at the petrol pump, and Total distance from Trichy Terminal To SREE BAGAVATHI AGENCIES UNIT II is 18.2 km for heavy vehicles carrying hazardous materials.

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To SREE BAGAVATHI AGENCIES UNIT II 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.

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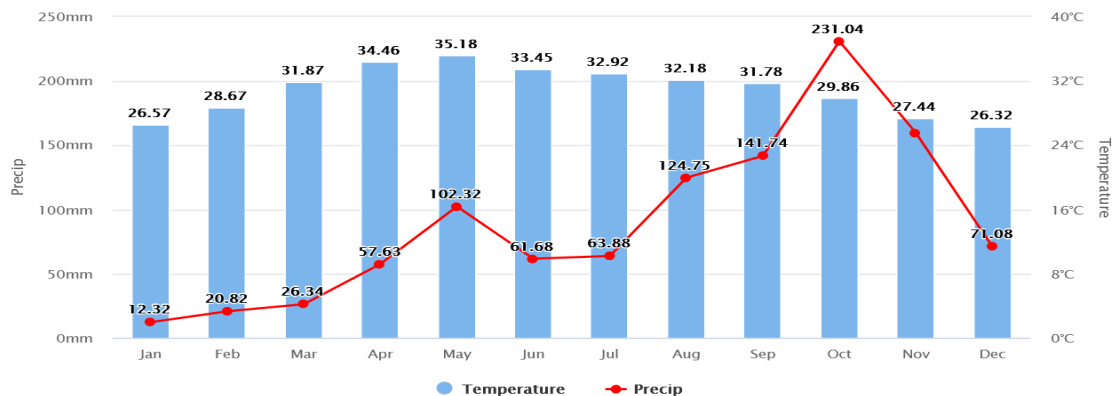
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	33.0 (91.4)	38.0 (100.4)	41.0 (105.8)	43.0 (109.4)	43.0 (109.4)	42.0 (107.6)	40.0 (104.0)	39.0 (102.2)	38.0 (100.4)	37.0 (98.6)	34.0 (93.2)	33.0 (91.4)	43.0 (109.4)
Average high °C (°F)	30.27 (86.49)	32.88 (91.18)	36.0 (96.8)	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

Weather-Related Hazards: Trichy Terminal (T.N) To SREE BAGAVATHI AGENCIES UNIT II 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 UNIT II 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:

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Typically, Trichy Terminal (T.N) To SREE BAGAVATHI AGENCIES UNIT II peak traffic hours are from 9:00 AM to 11:00 AM and 4:00 PM to 8:00 PM on weekdays.

Congestion-Prone Areas:

- TIRUCHY PUBLIC SCHOOL
- Wonder World Theme Park
- Vasantha Virundhu Pure Veg
- Tool Fab Engineering Industries Ltd. (Unit 2)

❖ 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 to SIDCO & Indian oil Storage, Turn left at the petrol pump

Alternative Route 2-) Take SIDCO to Indian oil Storage to NH 83, Follow NH 83 to Sanoorapatti, Turn left onto NH 83, Make a U-turn, Drive 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

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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:** TIRUCHY PUBLIC SCHOOL, Wonder World Theme Park,,Ponnaiyah Ramajayam Institute of Science & Technology.
- **Educational institutions:** Arasu Education - Jcb Institute in Trichy, Chanakya share market training Institute, Adaikalamatha Institute of Teacher Education, National Institute of Food Technology, Entrepreneurship and.
- **Hospital:** - Dr Kamali's Home Clinic, Meenakshi Hospital, Sivapreethi Hospital, Sugalaya Varmakalai Treatment Center.
- **Gas Station:**Jagdish filling station, Nayara Petrol Pump Nayara Petrol Pump,Indianoil S.Ashok kumar, BPCL Masiya Fuels,Gayatri Agency .
- **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:**
TIRUCHY PUBLIC SCHOOL ,Wonder World Theme Park, Ponnaiyah Ramajayam Institute of Science & Technology, Blossom Bluebells Academy School (CBSE Syllabus),Dr.M.S. Swaminathan Agricultural College and Research Institute, ECK MMA School. areas like have quicker response

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times (10- 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>			



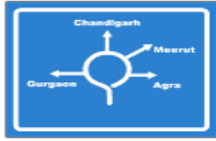

















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Cautionary signs

 <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 UNIT II 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 KM	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	10.749451955814655, 78.83046376176118	3.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.739322086318483, 78.83809834927386	5.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.73638358720799, 78.85765706064745	7.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.732981078965743, 78.87520874109956	9.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.732865083664377, 78.88929730997383	10.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.730622499591515, 78.90775412216747	12.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.720904924338443, 78.93805787452602	16.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.71823691532396, 78.94246547130157	17 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.71690507655357, 78.94798176089265	17.6 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.717137481731783, 78.95400634061058	18.3 KM	20km/hr TO 30 Km/Hr
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- **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

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SREE BAGAVATHI
AGENCIES UNIT II (10.718864 , 78.9408006) TOTAL DISTANCE – 18.2 KM KM**

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10.769073692604486, 78.83720120889187



10.764113439530249, 78.83446118711721

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10.758209570013967, 78.83344387884853



10.751314343624747, 78.82530656733346

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10.75126610223314, 78.82518044583597



10.749591316479634, 78.83018387464983

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10.739318685033433, 78.8379420178455



10.735064036857814, 78.86553394452655

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10.72580557887016, 79.0641504304304



10.721070762434657, 79.06770763454654

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10.721721269051843, 79.07032492179873



10.715856047911897, 79.06925965827192

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10.645338366462365, 79.2350894341454



10.61312680226564, 79.255443411729

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