

JOURNEY RISK MANAGEMENT REPORT

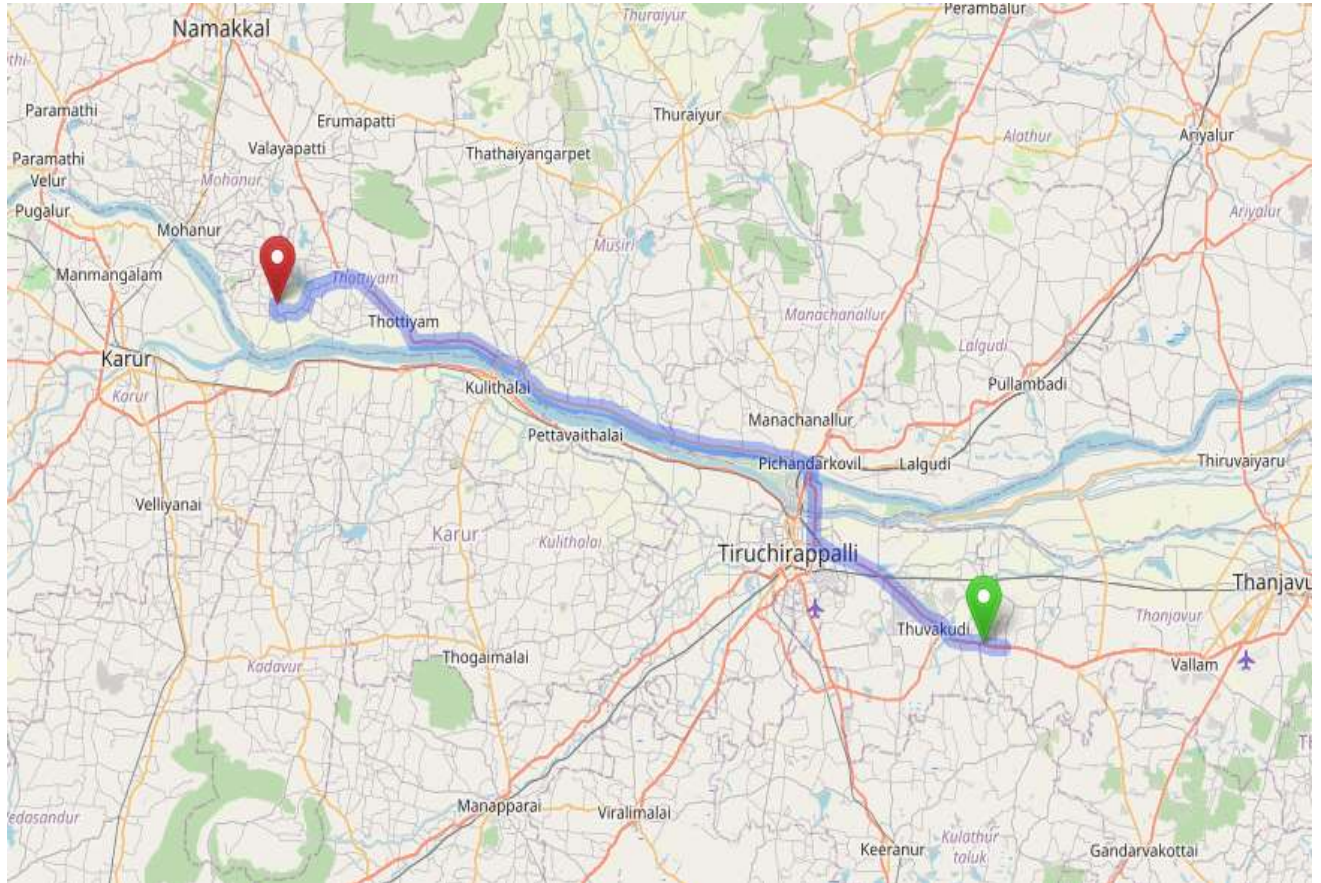


WELCOME TO JOURNEY
RISK MANAGEMENT (JRM)
STUDY USING ARTIFICIAL
INTELLIGENCE (AI)
FOR IOCL TRICHY
TERMINAL

ALARP/JRM/TNSO/APS FUEL

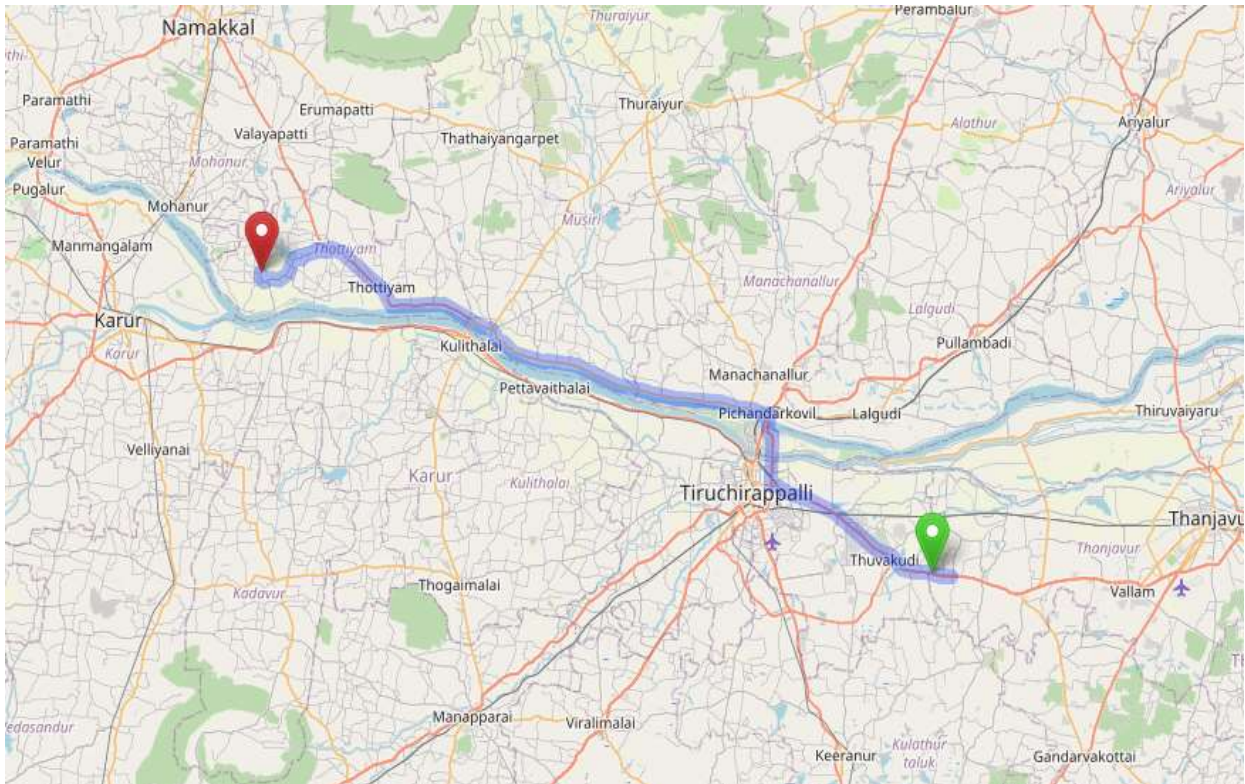
JOURNEY RISK MANAGEMENT REPORT

IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO APSFUEL SERVICES
(11.001681, 78.218687) TOTAL DISTANCE – 85.6 KM



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Welcome to the Journey Risk Management Study for APSFUEL SERVICES

Total distance: 85.6 km; start with: (10.7753, 78.8368), End with: (11.001681, 78.218687)

- **Route Safety Analysis Report**

1. Overview of the Route Map

Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Tiruchirappalli Follow NH 83 and NH 81 to MDR1002 in Kulithalai R.F, Continue on MDR1002. Drive to Kulithalai - Manapparai Rd in Sivayam North Destination Will be There and Total distance from Trichy Terminal to APSFUEL SERVICES IS 85.6 KM.

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Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To APSFUEL SERVICES 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

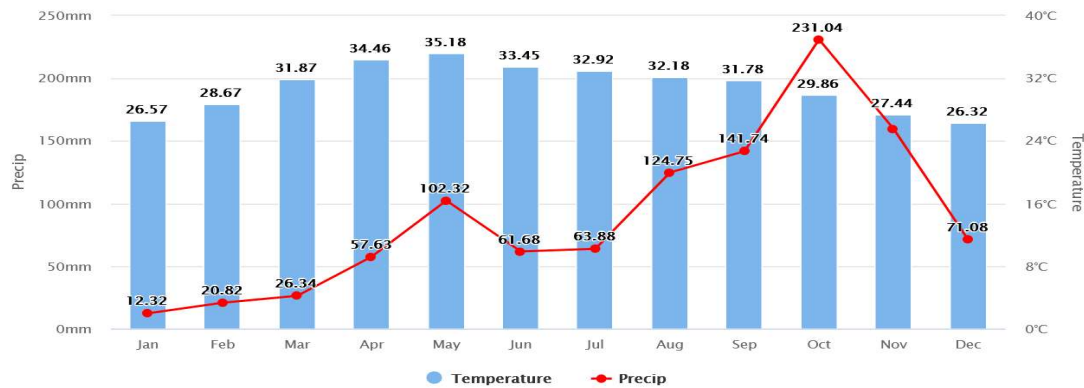
Weather-Related Hazards: Trichy Terminal (T.N) To APSFUEL SERVICES providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

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

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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 APSFUEL SERVICES 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:

- SURYA Two Wheeler
- Sanjeevi Nagar
- Sasi Lubes
- Annamar Coconut Nursing
- Mahalakshmi iyyangar
- Hindu Grave Yard
- Sri Maaruthi Temple

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- **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- Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Tiruchirappalli Follow NH 83 and NH 81 to MDR1002 in Kulithalai R.F, Continue on MDR1002. Drive to Kulithalai - Manapparai Rd in Sivayam North Destination Will be on the Right and Total distance from Trichy Terminal to APSFUEL SERVICES IS 85.6 KM.

Alternative Route 2 :- Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Tiruchirappalli Follow NH 83 and NH 81 to MDR1002 in Kulithalai R.F, Continue on MDR1002. Drive to Kulithalai - Manapparai Rd in Sivayam North Destination Will be on Right.

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.

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❖ Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** SURYA Two Wheeler, Sanjeevi Nagar, Sasi Lubes, Annamar Coconut Nursing, Mahalakshmi iyyangar, Hindu Grave Yard, Sri Maaruthi Temple
- **Educational institutions:** Arasu Education - Jcb Institute in Trichy, Gnanam School of Business, ITI College. Anna mar Coconut Nursing
- **Hospital:** - Medical Centre, Krishna Home Clinic, AYUSH MULTISPECIALITY HOSPITAL.
- **Gas Station:** SP Petroleum (HPCL), HP PETROL PUMP - M/S. A.V.R. PETROL BUNK, Indian Oil, BPCL Petrol Pump
- **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.

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- **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:** SURYA Two Wheeler, Sanjeevi Nagar, Sasi Lubes, Annamar Coconut Nursing, Mahalakshmi iyyangar, Hindu Grave Yard, Sri Maaruthi Temple .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.

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- 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 ands</p>			

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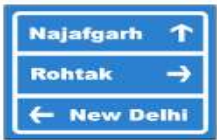

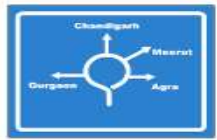
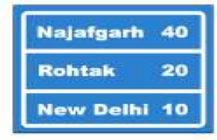
















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Cautionary signs

 <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 APSFUEL SERVICES 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	10.749451955814655, 78.83046376176118	3.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.741610640579689, 78.82718594844422	4.8 km	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.734287918634735, 78.82046183804047	5.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.713512709090521, 78.80911996491783	8.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.706666925588681, 78.80782375086409	9.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.699582172344776, 78.80004646577926	10.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.691462364523247, 78.79064891388968	11.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.813351843891734, 78.71223714451301	18.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.813044156410967, 78.71241403943267	21.0 KM	10km/hr TO 15 Km/Hr

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Sharp turn	High	10.800749766623497, 78.69061919238506	22.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.812217194079434, 78.71269279325928	25 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.79146585075504, 78.65214467185146	27.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.795075382135192, 78.65316537651717	28.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.808190602343569, 78.6318958498383	31.0 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.897516772316559, 78.52258683095134	35.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.90920171973463, 78.46655876646147	50.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.897711525737385, 78.44513918711343	53.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.885300566847897, 78.44077714861449	55.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.879865259930142, 78.41705688593999	57.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.972596529534508, 78.34432479956948	67.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.98706193800959, 78.33767959651172	69.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.987002734153235, 78.25583244796955	79.4 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.998342109811691, 78.23780162295563	82.4 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.993491699583373, 78.2198543936655	84.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.996961100485652, 78.21858757008684	85.1KM	20km/hr TO 30 Km/Hr

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**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO APSFUEL SERVICES
CO (11.001681 , 78.218687) TOTAL DISTANCE – 85.6 KM**



10.769073692604486, 78.83720120889187

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10.764113439530249, 78.83446118711721



10.758209570013967, 78.83344387884853

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10.75739191738154, 78.83409461405188

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10.75126610223314, 78.82518044583597



10.75028318292191, 78.82795244340517

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10.749185832475025, 78.830459022258

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10.66061597511672, 78.78654572646798



10.642196979947212, 78.78752451242383

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10.605815072546143, 78.78221028938971



10.59057338373165, 78.7823247876881

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10.586671064628458, 78.77752261226252



10.389384108854301, 78.7984169777083

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10.389316629105315, 78.79939517326633



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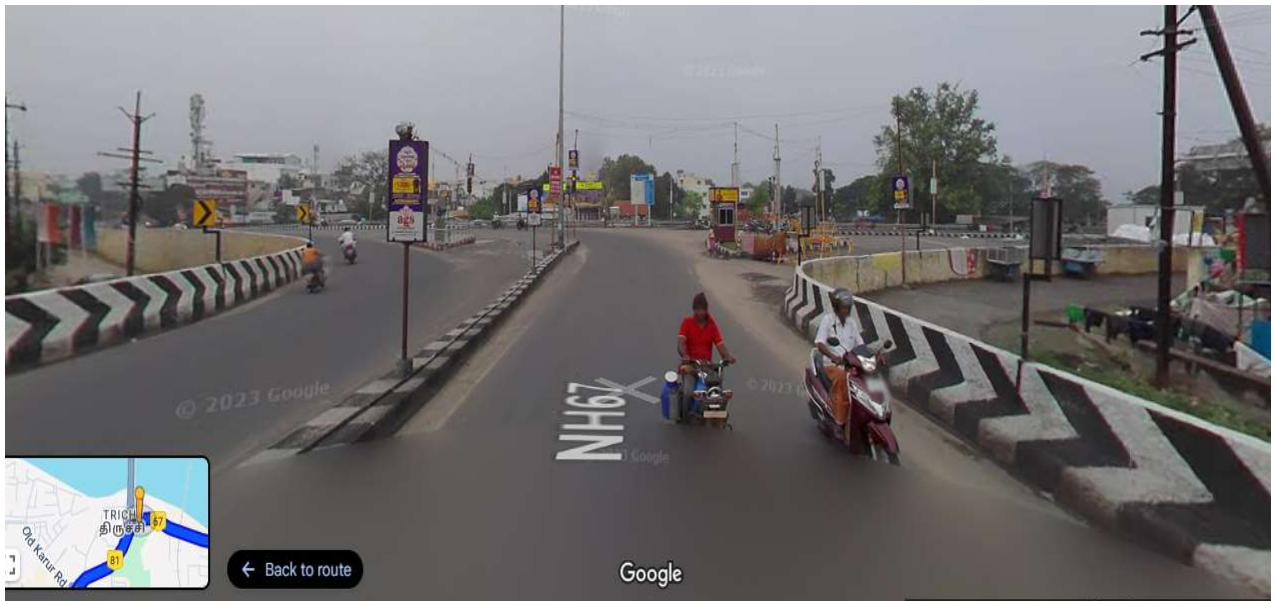
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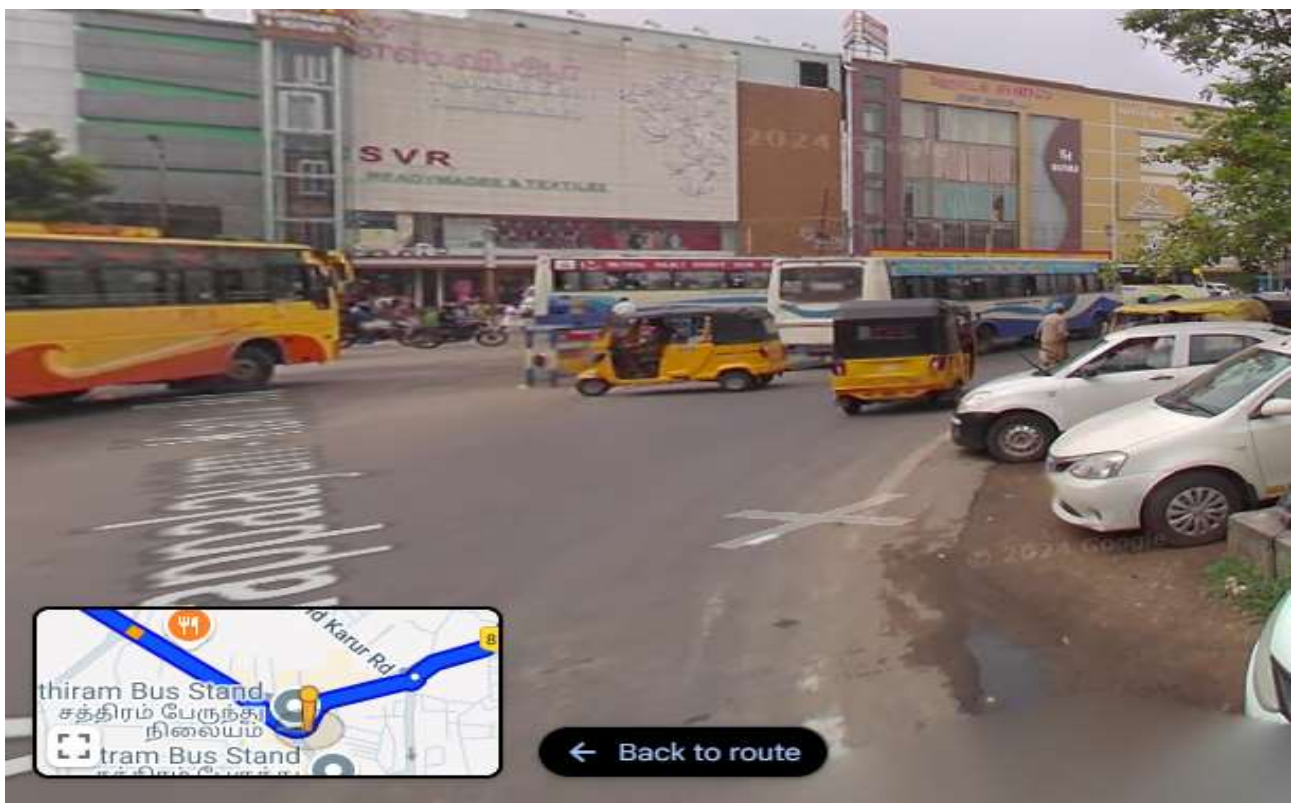
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10.833060776881181, 78.6926014118113

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