

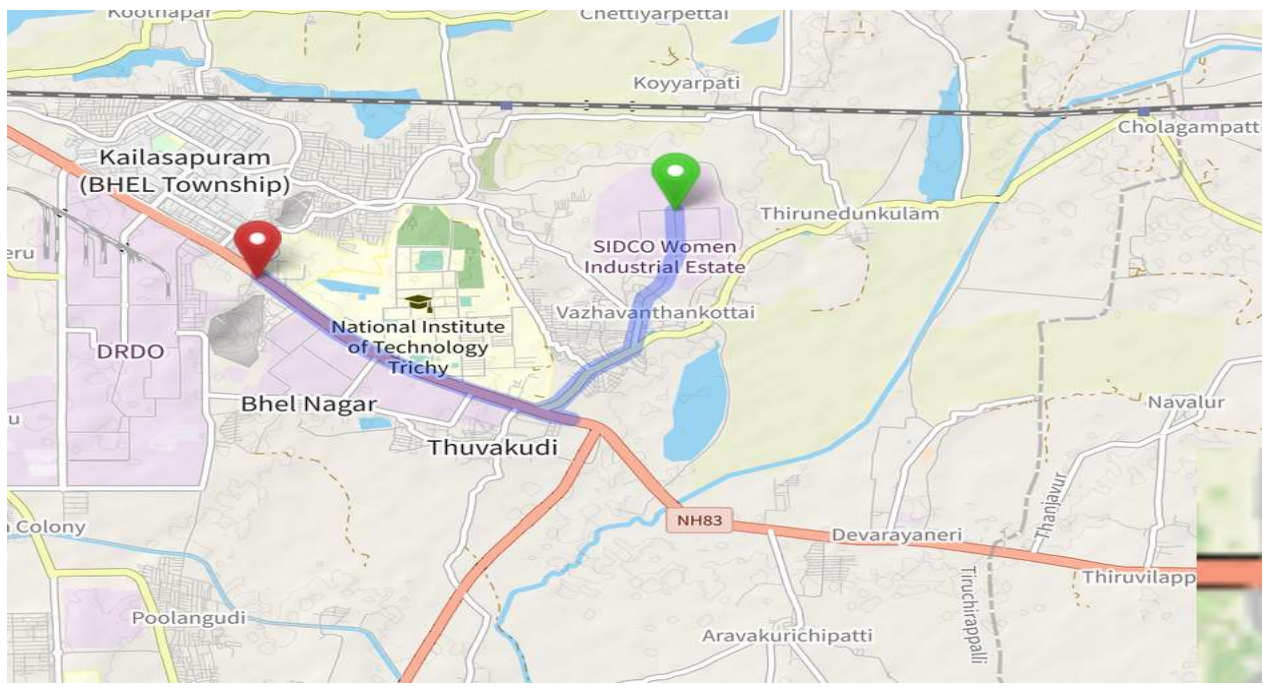
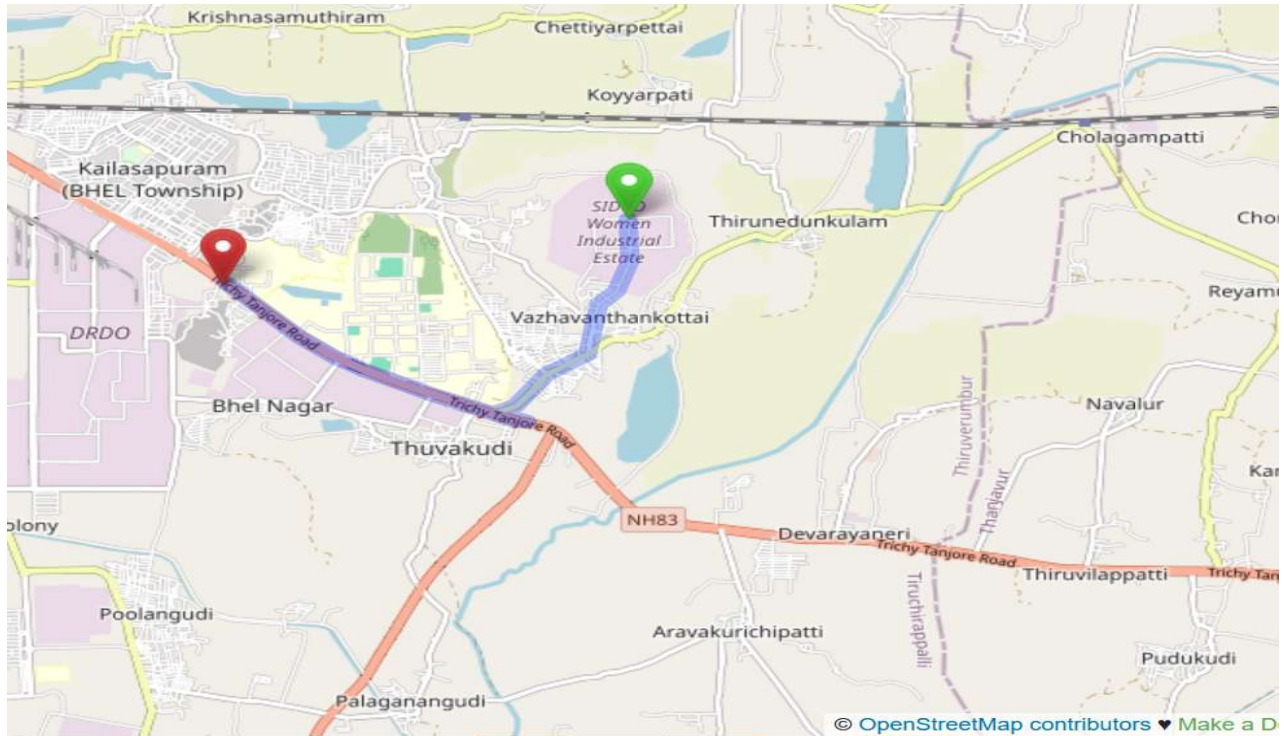


**IndianOil**

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

## JOURNEY RISK MANAGEMENT STUDY REPORT

### **IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO DJP FUELS (10.7659 , 78.80141), TOTAL DISTANCE -07 KM**



## Welcome to the Journey Risk Management Study for DJP FUELS

**Total distance: 07 km; Start with: (10.7753, 78.8368), End with: (10.7659 , 78.80141)**

### ❖ Route Safety Analysis Report

#### 1. Overview of the Route Map

The route from Trichy Terminal (T.N) To DJP Fuels . The route passes through several key points including Thuakundi, Thircy – Tanjore Road, Thanjavur Road, Total distance from Trichy Terminal To DJP Fuels is 07 km for heavy vehicles carrying hazardous materials.

### Typical Weather Conditions and Potential Weather-Related Hazards

**Weather Conditions:** Trichy Terminal (T.N) To DJP Fuels 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



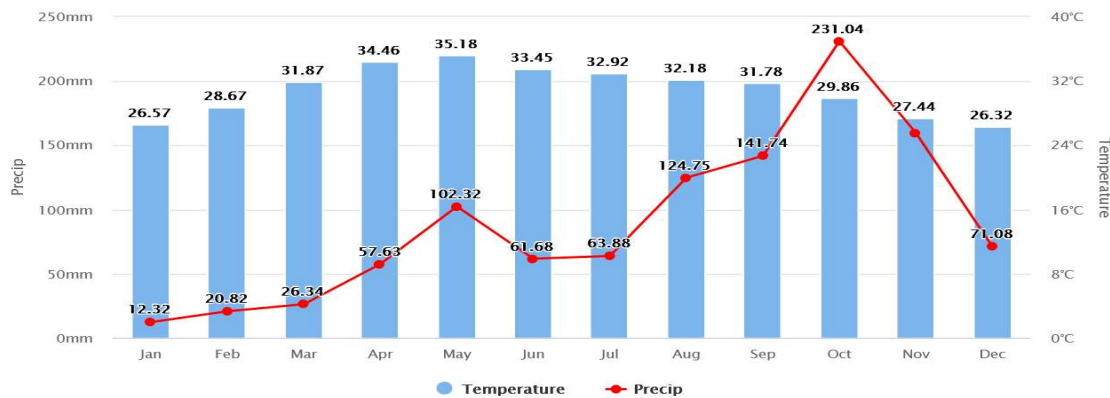
## JOURNEY RISK MANAGEMENT STUDY REPORT

**Weather-Related Hazards:** Trichy Terminal (T.N) To DJP Fuels 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 DJP Fuels 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 DJP Fuels peak traffic hours are from 8:00 AM to 11:00 AM and 5:00 PM to 8:00 PM on weekdays.

### **Congestion-Prone Areas:**

- Green and Clean Technology solution
- GOPI VELKANASINC SHOP
- Bismi Briyani
- Sri Muthumari Amman Thirukovil
- Ajs Maligai
- Sengipatti
- Aishwarya Medical Centre
- Taj Auto Diesel Works
- Sengipatti Bus Stop
- Pandian's Organic Farm
- Parvatham Dental Clinic
- Vinayakar temple

## JOURNEY RISK MANAGEMENT STUDY REPORT

- Government Hospital
- Thiru Muthiah Physio Clinic

### ❖ **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:** SIDCO Industrial Estate Valavanthankottai, NH 83,

**Alternative Route 2:** NIL

### ❖ **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, NIT Trichy.
- **Educational institutions:** - Many colleges, universities and school in between Trichy Terminal (T.N) To DJP Fuels I.E Trichy High School, Girls Senior Secondary School .
- **Hospital:** - Government Hospital Alangudi, Noble Hospital,
- **Gas Station:** - NIL

## JOURNEY RISK MANAGEMENT STUDY REPORT

**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, Bismi Briyani, NIT Tichy

- Congested areas may experience delays (up to 10-20 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**














# JOURNEY RISK MANAGEMENT STUDY REPORT

## 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

















## JOURNEY RISK MANAGEMENT STUDY REPORT

 <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>			



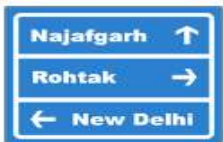


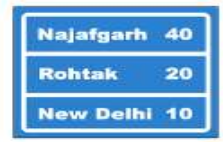
















## JOURNEY RISK MANAGEMENT STUDY REPORT

### Cautionary signs

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

## JOURNEY RISK MANAGEMENT STUDY REPORT

### 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 DJP Fuels 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.

## JOURNEY RISK MANAGEMENT STUDY REPORT

### ❖ Risk Assessment - Sharp Turns

<b>Risk Type</b>	<b>Risk Level</b>	<b>Coordination</b>	<b>Distance From Start</b>	<b>Recommendation Speed</b>
Sharp turn	Medium	10.769008535749057, 78.83723765484662	300 M	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.765497799294907, 78.83604620042777	700 M	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.764009578128617, 78.83419636244746	950 M	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.758028485487644, 78.8334001457567	1.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.756122556562806, 78.83055889901199	2.0 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.751420920596344, 78.82521649200099	2.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.739011461069182, 78.83858885050212	4.9 KM	20km/hr TO 30 Km/Hr

### ❖ Risk Assessment - Elevation Changes

<b>Risk Type</b>	<b>Specific Risk</b>	<b>Risk Level</b>	<b>Coordination</b>	<b>Elevation Change</b>	<b>Gradient</b>	<b>Recommendation Speed</b>
Elevation Change	Descent	Low	10.7753, 78.8368	.035m	-0.96 %	40 km/hr to 50 km/hr
Elevation Change	Descent	Low	10.7659 , 78.80141	.038m	-0.98%	40 km/hr to 50 km/hr

<b>Sr No</b>	<b>Location</b>	<b>Lat, lon.</b>
1	Hall/Hotel	10.757627679523425, 78.83287045929539

## JOURNEY RISK MANAGEMENT STUDY REPORT

2	OLD Burma Colony	10.75810448259808, 78.83342945889828
3	School/College	10.751940259658717, 78.824855152166
4	School/College	10.751244043943656, 78.82964545444308
5	Bank	10.749935829138195, 78.8268757083185
6	Toll Plaza	10.739223590189045, 78.82491390378034
7	Hotel/Restaurant	10.701444574062581, 78.73129207330703
8	School/College	10.703678000471413, 78.73189375630369

### ❖ SHARP TURN PICTURE FOR TRICHY TERMINAL TO DJP FUELS



**SHARP TURN IMAGE START FROM TRICHY TERMINAL**



## JOURNEY RISK MANAGEMENT STUDY REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI. 10.765497799294907, 78.83604620042777**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI. 10.756122556562806, 78.83055889901199**

## JOURNEY RISK MANAGEMENT STUDY REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI. 10.739011461069182, 78.83858885050212**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI. 10.720753025938777, 78.96377618938521**