

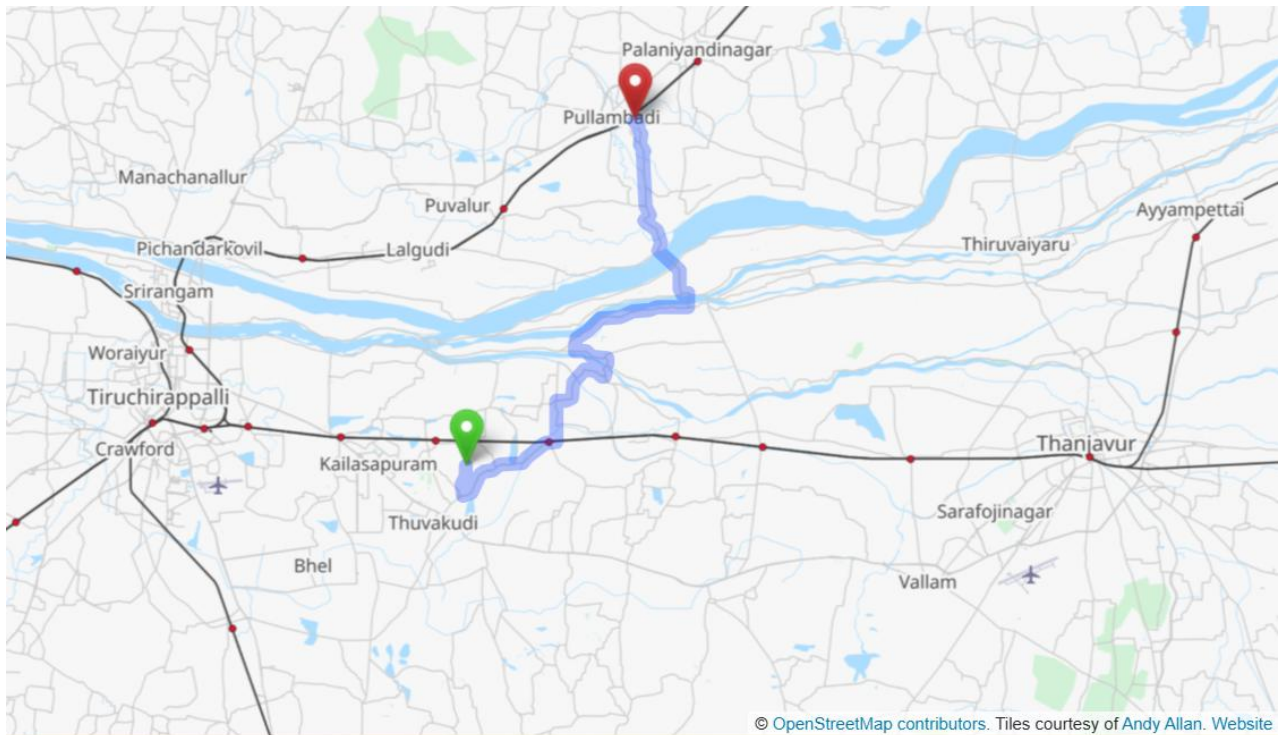
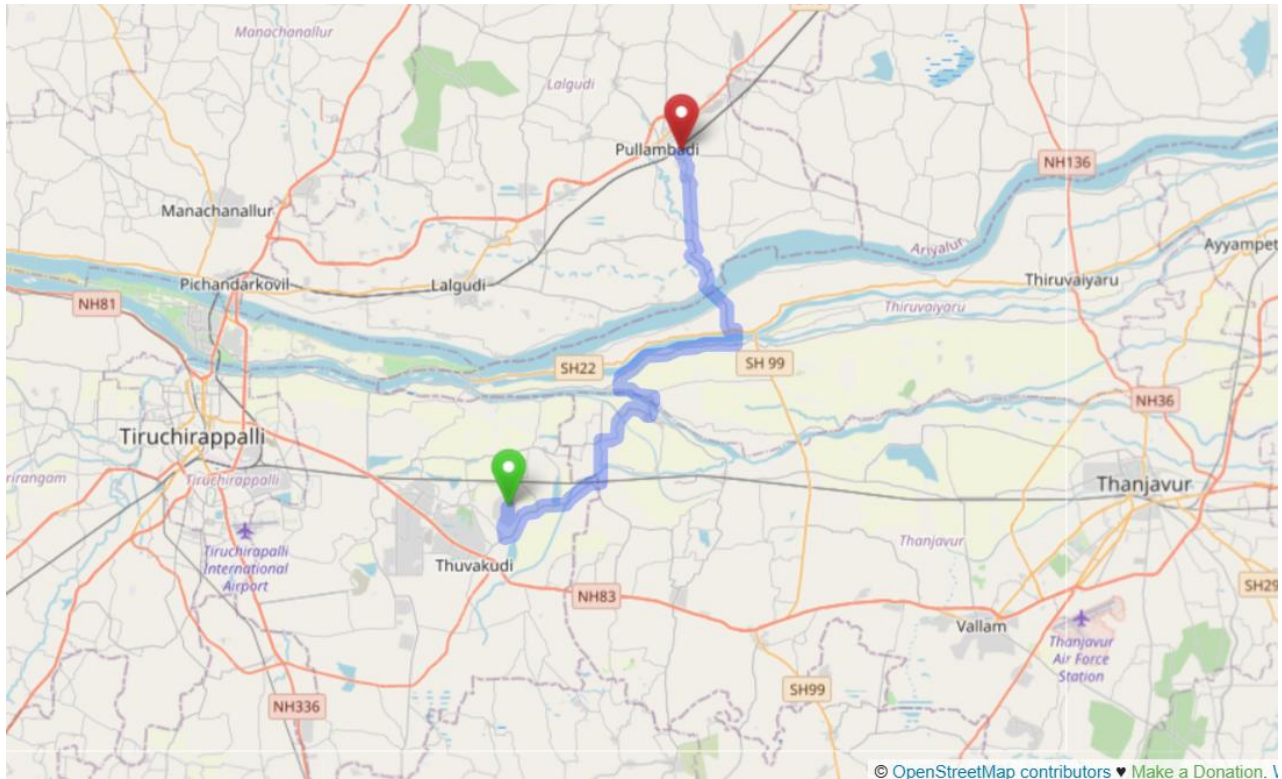


**IndianOil**

**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 R JANA AGENCY**  
**(10.938497 , 78.91885) TOTAL DISTANCE – 53.7 KM**



**ALARP/JRM/TNSO/SR JANA AGENCY**

# **JOURNEY RISK MANAGEMENT REPORT**

## **Welcome to the Journey Risk Management Study for R JANA AGENCY**

**Total distance: 53.7 km; Start with: (10.7753 , 78.8368), End with: (10.938497 , 78.91885)**

### **❖ Route Safety Analysis Report**

#### **1. Overview of the Route Map**

The route from Trichy Terminal (T.N) TO R JANA AGENCY-Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Head south on SIDCO to Indian oil Storage, At Jude Digital Studios, continue onto Thuvakudi toSIDCO& Indian oil Storage, Follow NH 83, NH 38 and NH 81, Drive to MDR608 in Venkatachalapuram, and Total distance from Trichy Terminal To R JANA AGENCY is 53.7 km for heavy,vehicles carrying hazardous materials.

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

**Weather Conditions:** Trichy Terminal (T.N) To R JANA AGENCY 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.

# JOURNEY RISK MANAGEMENT REPORT

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

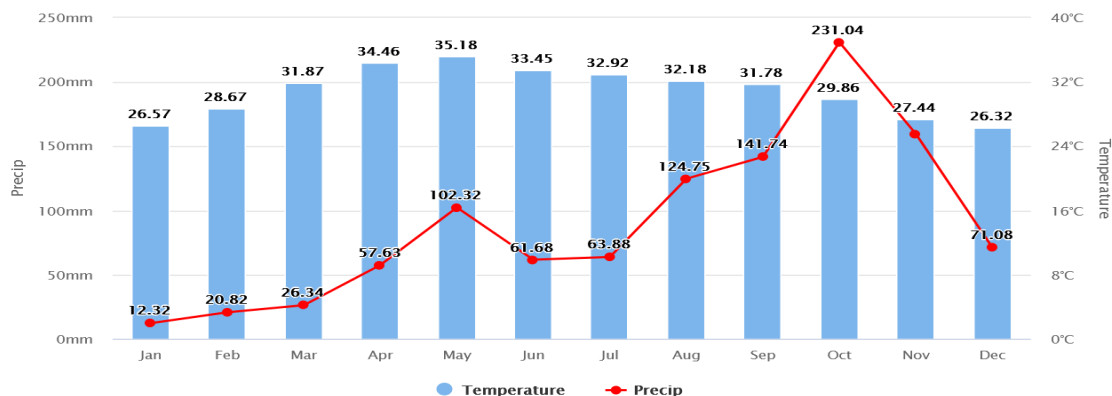
## Weather-Related Hazards: Trichy Terminal (T.N) To R JANA AGENCY

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 R JANA AGENCY 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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## **JOURNEY RISK MANAGEMENT REPORT**

Typically, Trichy Terminal (T.N) To R JANA AGENCY 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:**

- Womens SIDCO Industrial Park
- Malar Mahal
- P.selvamani Madhu's Mahal
- State Institute Of Hotel Management and Catering Technology
- National Institute of Technology Tiruchirappalli
- Govt Polytechnic
- Krishna Engineering Co Private Limited
- SESHASAYEE INSTITUTE OF TECHNOLOGY
- PSP OIL MILL (ORGANIC CRUSHED EDIBLE OIL,)

### **❖ 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 Vallam. Exit from NH 83, 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/Thanjavur - Pattukkottai Rd, Turn left onto Pappanadu Rd/Pappanadu -Madukkur Rd.

**Alternative Route 2 -)** Take SIDCO to Indian oil Storage to NH 83, Continue on NH 83. Take Vallam Rd and Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd to Pappanadu Rd/Pappanadu-Madukkur Rd,

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## **JOURNEY RISK MANAGEMENT REPORT**

Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd.

### **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:** Womens SIDCO Industrial Park, Malar Mahal, P. selvamani Madhu's Mahal, State Institute Of Hotel Management and Catering Technology, National Institute of Technology Tiruchirappalli, Govt Polytechnic, Krishna Engineering Co Private Limited, SESHASAYEE INSTITUTE OF TECHNOLOGY, PSP OIL MILL (ORGANIC CRUSHED EDIBLE OIL,).
- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, National Institute of Technology Tiruchirappalli, Govt Polytechnic, SESHASAYEE INSTITUTE OF TECHNOLOGY, Institute of Agriculture, TNAU.
- **Hospital:** - Dr Kamali's Home Clinic, Meenakshi Hospital, Sivapreethi Hospital, Sugulaya Varmakalai Treatment Center.
- **Gas Station:** Jagdish filling station, 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.

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## **JOURNEY RISK MANAGEMENT REPORT**

- **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:**  
Womens SIDCO Industrial Park,Malar Mahal,P.selvamani Madhu's Mahal,State Institute Of Hotel Management and Catering Technology,National Institute of Technology Tiruchirappalli,Govt Polytechnic,Krishna Engineering Co Private Limited,SESHASAYEE INSTITUTE OF TECHNOLOGY,PSP OIL MILL (ORGANIC CRUSHED EDIBLE OIL,). 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**

# JOURNEY RISK MANAGEMENT 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 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>			



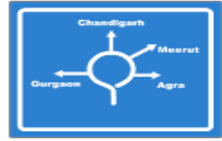
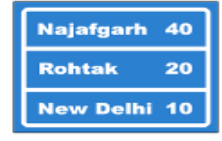
















## JOURNEY RISK MANAGEMENT REPORT

### 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>

# JOURNEY RISK MANAGEMENT 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 R JANA AGENCY 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 REPORT

- **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

## JOURNEY RISK MANAGEMENT REPORT

Sharp turn	Medium	10.717137481731783, 78.95400634061058	18.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.724822618517969, 78.9767159328364	20.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.729882461351261, 79.00023354091847	23.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.730894419758593, 79.01997459879757	25.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.730388440978299, 79.02701271508492	26.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.72785853437635, 79.03593910647373	27.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.727084939556493, 79.06554150725997	30.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.723822902909419, 79.06929459251997	31.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.72091540581739, 79.06756239932304	31.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.721908212843593, 79.07066591213419	32.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.715809489668976, 79.06922241780342	32.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.887181547655278, 78.76530903742895	33.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.886479913753597, 78.77133119465272	34.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.889186206839419, 78.77929269064343	35.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.890288763639541, 78.78776453894127	36.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.896001947468296, 78.79337841467152	37.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.906125038337622, 78.79725709220546	38.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.907728664685097, 78.80123784020083	39 KM	20km/hr TO 30 Km/Hr

## JOURNEY RISK MANAGEMENT REPORT

Sharp turn	Medium	10.908430248492369, 78.83655421985202	42.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.907227532380592, 78.84247430661436	43.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.91434353213912, 78.85492690425629	45.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.925167542674744, 78.85809108856029	46.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.926169745913759, 78.86370496393836	47.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.924265556866464, 78.87401408054174	48.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.936692675932377, 78.89738821748767	51.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.938797217058465, 78.90055240179167	51.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.940581311177203, 78.90408046434668	52.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.940104324037351, 78.90702763198205	52.4 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.938912552421439, 78.91382507544337	53.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.938644403147572, 78.91664722830899	53.5 KM	20km/hr TO 30 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



## JOURNEY RISK MANAGEMENT REPORT

Elevation Change	Descent	Low	10.993921 , 78.326323	-9.28m	-6.28%	40 km/hr to 50 km/hr
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**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO R JANA AGENCY (10.938497 , 78.91885) TOTAL DISTANCE – 53.7 KM KM**



**10.769073692604486, 78.83720120889187**

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## JOURNEY RISK MANAGEMENT REPORT



10.764113439530249, 78.83446118711721



10.758209570013967, 78.83344387884853

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## JOURNEY RISK MANAGEMENT REPORT



10.751314343624747, 78.82530656733346



10.75126610223314, 78.82518044583597

ALARP/JRM/TNSO/SR JANA AGENCY



## JOURNEY RISK MANAGEMENT REPORT



**10.749591316479634, 78.83018387464983**



**10.739318685033433, 78.8379420178455**

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## JOURNEY RISK MANAGEMENT REPORT



10.735064036857814, 78.86553394452655

ALARP/JRM/TNSO/SR JANA AGENCY

## JOURNEY RISK MANAGEMENT REPORT



10.72580557887016, 79.0641504304304



10.721070762434657, 79.06770763454654

ALARP/JRM/TNSO/SR JANA AGENCY



## JOURNEY RISK MANAGEMENT REPORT



10.721721269051843, 79.07032492179873



10.912617894813858, 78.85386478221768

ALARP/JRM/TNSO/SR JANA AGENCY

## JOURNEY RISK MANAGEMENT REPORT



10.881184094659934, 78.93131297403818

ALARP/JRM/TNSO/SR JANA AGENCY



## JOURNEY RISK MANAGEMENT REPORT



10.886048738432937, 78.92972861827272



10.933054356011237, 78.92180698972663

ALARP/JRM/TNSO/SR JANA AGENCY



## JOURNEY RISK MANAGEMENT REPORT



10.937724687051567, 78.92044910367179



10.93822821145242, 78.91853466855144

ALARP/JRM/TNSO/SR JANA AGENCY