



HINDUSTAN PETROLEUM CORPORATION

Journey Risk Management Division

Powered by Route Analytics Pro - AI Intelligence Platform

COMPREHENSIVE JOURNEY RISK MANAGEMENT ANALYSIS REPORT

ROUTE ANALYSIS DETAILS

Supply Location: MEERUT DEPOT

Destination: MOTI FILLING STATION(0041025372)

Total Distance: 131 km

Estimated Duration: 2 hours 27 mins

Analysis Date: June 25, 2025

Report Generated: 09:59 PM

COMPREHENSIVE ROUTE OVERVIEW & STATISTICS

ROUTE INFORMATION

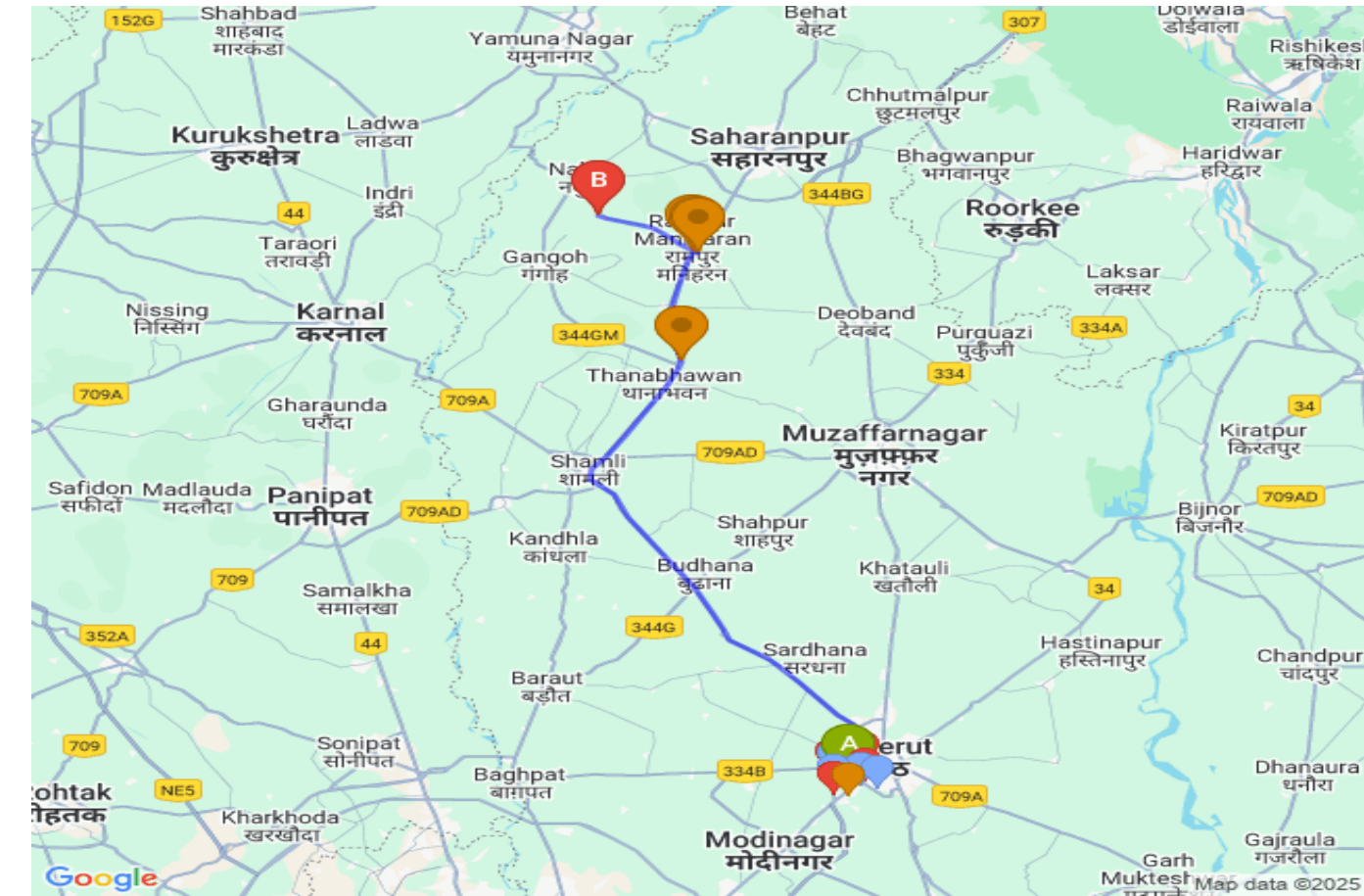
Supply Location	MEERUT DEPOT
Destination	MOTI FILLING STATION(0041025372)
Distance	131 km
Duration	2 hours 27 mins
Major Highways	NH-344, NH-709
Terrain	Rural Plains

ROUTE ANALYSIS STATISTICS

Sharp Turns Detected	15
Critical Turns (>=70 deg)	7
Major Highways	2
Highway Length	15.08 km

APPROVED ROUTE MAP

Comprehensive route visualization showing start/end points, critical turns, emergency services, highway junctions, and potential hazards.



MAP LEGEND

A	Route Start Point	B	Route End Point
T#	Critical Sharp Turns	H	Hospitals
P	Police Stations	F	Fire Stations
G	Gas Stations	S	Schools/Education
*	Highway Junctions		

KEY SAFETY MEASURES & REGULATORY COMPLIANCE

Speed Limits	NH: 60 km/h; Rural: 25-30 km/h
Night Driving	Prohibited: 00:00-06:00 hrs
Rest Breaks	Mandatory 15 min every 2 hours; Schedule: 06:00-18:00 hrs
Vehicle Compliance	Check brakes, tires, lights, high-speed
Permits & Documents	Carry valid transport permits, Hazardous
VTS	VTS device shall be functional (Mandatory for NH routes)

Ensure all regulatory requirements are met before journey commencement. Route includes major highways: NH-344, NH-709. Rural terrain requires attention to livestock and agricultural vehicles. Speed limits may vary based on local regulations and road conditions.

HIGH-RISK ZONES & KEY RISK POINTS

Type	From Start	From End	Coordinates	Risk Level	Speed Limit	Driver Action
Sharp Turn #1	96.4 km	14.4 km	29.79971, 77.46206	Critical	10 km/h	Stop, check vis
Sharp Turn #2	96.5 km	14.1 km	29.80005, 77.45864	Critical	10 km/h	Stop, check vis
Sharp Turn #3	96.5 km	14.1 km	29.80005, 77.45864	Critical	10 km/h	Stop, check vis
Sharp Turn #4	96.7 km	14.1 km	29.80176, 77.45924	Critical	10 km/h	Stop, check vis
Sharp Turn #5	96.7 km	14.1 km	29.80176, 77.45924	Critical	10 km/h	Stop, check vis
Sharp Turn #6	97.1 km	13.6 km	29.80464, 77.45467	Critical	10 km/h	Stop, check vis
Sharp Turn #7	78.1 km	28.1 km	29.62532, 77.43918	High	20 km/h	Slow down, caut
Blind Spot #1	2.2 km	104.4 km	28.96025, 77.63995	Medium	30 km/h	Use horn, stay
Blind Spot #2	106.1 km	0.5 km	29.86096, 77.33386	Medium	30 km/h	Use horn, stay
Wildlife Sanctu	45.7 km	62.3 km	29.30456, 77.42177	Critical	Normal	Follow environm
Communication D	0.0 km	106.1 km	28.94966, 77.65908	High	--	Use alternative
Communication D	5.3 km	100.8 km	28.99594, 77.64593	High	--	Use alternative

RISK SUMMARY: 13 high-risk zones identified

SEASONAL ROAD CONDITIONS & TRAFFIC PATTERNS

Season/Condition	Critical Stretches	Typical Challenges	Driver Caution
Summer	NH-344 (29.3, 77.5 to 29.	High temperatures -> vehicle ov	Pre-check cooling systems, car
Summer	NH-709 (29.4, 77.4 to 29.	High temperatures -> vehicle ov	Pre-check cooling systems, car
Summer	Rural plains section (28.	Extreme heat exposure, limited	Plan travel during cooler hour
Monsoon	NH-344 (29.3, 77.5 to 29.	Waterlogging, reduced visibili	Slow down, use wipers, headlig
Monsoon	NH-709 (29.4, 77.4 to 29.	Waterlogging, reduced visibili	Slow down, use wipers, headlig
Schools	Dewan Public School Inter	Children crossing, school vehi	Slow down, watch for pedestria
Schools	Bhai Joga Singh Public Sc	Children crossing, school vehi	Slow down, watch for pedestria
Schools	METRO PUBLIC SCHOOL (28.9	Children crossing, school vehi	Slow down, watch for pedestria
Toll Plazas	NH-344 - Estimated toll p	Buildup of queues during peak	Plan breaks before toll, ensur
Toll Plazas	NH-709 - Estimated toll p	Buildup of queues during peak	Plan breaks before toll, ensur

SEASONAL ANALYSIS: 10 conditions identified for route

ENVIRONMENTAL & LOCAL CONSIDERATIONS

Zone / Area	Location	Coordinates	Located On/Near	Environmental Risk
Eco-sensitive Zone	Pollution Sensitiv	28.9, 77.7	NH-344 near eco-se	Increased wildlife moveme
Eco-sensitive Zone	Wildlife Sanctuary	29.3, 77.4	NH-344 near eco-se	Increased wildlife moveme
School Zone	Dewan Public Schoo	28.9, 77.7	Near NH-344	Pedestrian activity, redu
School Zone	Bhai Joga Singh Pu	28.9, 77.7	Near NH-344	Pedestrian activity, redu
School Zone	METRO PUBLIC SCHOO	28.9, 77.7	Near NH-344	Pedestrian activity, redu
School Zone	PRESIDENCY PUBLIC	28.9, 77.7	Near NH-344	Pedestrian activity, redu
Market Area	Commercial zone 1	28.9, 77.7	City centre area,	High foot traffic, unpred
Market Area	Commercial zone 2	29.3, 77.5	City centre area,	High foot traffic, unpred
Market Area	Commercial zone 3	29.4, 77.3	City centre area,	High foot traffic, unpred

ENVIRONMENTAL SUMMARY: 9 zones requiring special attention

NOTES - GENERAL ENVIRONMENTAL & LOCAL DRIVING GUIDELINES FOR PETROL

Aspect	Guidelines / Actions
Eco-sensitive Areas	Drive slowly, avoid honking unnecessarily, do not stop for breaks or cleaning in these areas.
Waterbody Crossings	Inspect for leaks before entering bridges, no refuelling or repairs on or near bridges.
School & Market Areas	Maintain speed limits (25-30 km/h), stay alert for children and pedestrians, avoid peak school/market hours.
Festivals & Local Events	Expect road diversions or closures, confirm route with local authorities or control room.
Littering & Pollution Prevention	Never discard trash or spill fuel; carry spill kits and clean-up materials as per SOP.
Noise & Cultural Sensitivity	Avoid honking in populated areas and during religious or cultural gatherings.
Local Road Regulations	Follow local traffic signage and any state-specific restrictions for hazardous cargo.
Coordination with Locals	Be courteous to local communities; stop only at designated points for rest, food, or refuelling.

Note: These guidelines are mandatory for all petroleum tanker operations. Compliance ensures safety and environmental protection.

DEFENSIVE DRIVING & DRIVER WELL-BEING

Checklist Item	Detailed Guidelines / Actions
Maintain safe distance, use indicators	Keep a minimum 3-second following distance from the vehicle ahead, adjust for heavy loads; always signal turns or lane changes well in advance.
Stay hydrated: carry water bottles	Carry at least 2 liters of drinking water. Avoid dehydration, especially in summer. Drink at rest stops every 1-2 hours.
Avoid heavy/oily meals before journey	Eat light, balanced meals to avoid drowsiness and discomfort. Avoid spicy, fried, or heavy foods before and during the trip.
Get at least 8 hours of sleep before starting	A good night's sleep is essential to reduce fatigue and maintain focus. Never start a trip when tired or drowsy.
Wear weather-appropriate protective gear	Use sun protection (caps, sunglasses) in summer; layered clothing in winter; always wear safety shoes and reflective vests.
Control speed based on road conditions	Adjust speed for weather, road curves, and heavy vehicle braking distances. Never exceed posted speed limits.
Plan rest breaks every 3 hours	Stop for at least 30 minutes to stretch, refresh, and check vehicle condition. Avoid continuous driving for more than 3 hours.
Defensive driving mindset	Stay calm, anticipate road users' actions, avoid aggression. Use mirrors frequently and watch for potential hazards ahead.
Emergency readiness	Keep fire extinguisher, first-aid kit, and communication device within easy reach. Be aware of nearest emergency services along the route.

Note: These guidelines are mandatory for all petroleum tanker operations. Compliance ensures safety and environmental protection.

SHARP TURNS ANALYSIS WITH DUAL VISUAL EVIDENCE

Total Sharp Turns Detected	15
Extreme Danger Turns (>=90 deg)	6
High-Risk Blind Spots (80-90 deg)	0
Sharp Danger Zones (70-80 deg)	1
Moderate Risk Turns (45-70 deg)	8
Most Dangerous Turn Angle	180.0 deg
Average Turn Angle	88.4 deg
Street View Images Available	7
Satellite Images Available	7
Route Map Images Available	1
Total Visual Evidence Files	15

[OK] VISUAL EVIDENCE STATUS: EXCELLENT VISUAL EVIDENCE (14 images)

TURN CLASSIFICATION SYSTEM

Angle Range	Classification	Risk Level	Max Speed	Safety Requirement
>=90 deg	EXTREME BLIND S	CRITICAL	15 km/h	Full stop may be requ
80-90 de	HIGH-RISK BLIND	EXTREME	20 km/h	Extreme caution requi
70-80 de	BLIND SPOT	HIGH	25 km/h	High caution required
60-70 de	HIGH-ANGLE TURN	MEDIUM	30 km/h	Moderate caution requ
45-60 de	SHARP TURN	LOW	40 km/h	Normal caution requir

CRITICAL TURNS WITH DUAL VISUAL EVIDENCE ANALYSIS

CRITICAL TURN #1: 180.0 deg - EXTREME BLIND SPOT - CRITICAL RISK

GPS Coordinates	29.799710, 77.462060
Turn Angle	180.0 deg (Deviation from straight path)
Risk Classification	EXTREME BLIND SPOT - CRITICAL Risk Level
Recommended Maximum Speed	15 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	1 images available
Satellite Images	1 images available
Total Visual Evidence	2 images for analysis

VISUAL EVIDENCE FOR TURN #1:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_1_h0.jpg
Size: 8.6 KB
GPS: 29.7997, 77.4621

ROAD ANALYSIS:
* Turn angle: 180.0 degrees
* Visibility: Limited due to sharp curve
* Hazard level: CRITICAL
* Max speed: 15 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_1.png
Size: 317.6 KB
GPS: 29.7997, 77.4621

AERIAL ANALYSIS:
* Turn geometry: 180.0 deg curve
* Road curvature: Sharp bend visible
* Terrain context: Aerial perspective
* Traffic flow impact: Potential bottleneck

CRITICAL TURN #2: 159.6 deg - EXTREME BLIND SPOT - CRITICAL RISK

GPS Coordinates	29.800050, 77.458640
Turn Angle	159.6 deg (Deviation from straight path)
Risk Classification	EXTREME BLIND SPOT - CRITICAL Risk Level
Recommended Maximum Speed	15 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	2 images available
Satellite Images	2 images available
Total Visual Evidence	4 images for analysis

VISUAL EVIDENCE FOR TURN #2:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_2_h0.jpg
Size: 59.0 KB
GPS: 29.8000, 77.4586

- ROAD ANALYSIS:
- * Turn angle: 159.6 degrees
 - * Visibility: Limited due to sharp curve
 - * Hazard level: CRITICAL
 - * Max speed: 15 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_2.png
Size: 308.2 KB
GPS: 29.8000, 77.4586

- AERIAL ANALYSIS:
- * Turn geometry: 159.6 deg curve
 - * Road curvature: Sharp bend visible
 - * Terrain context: Aerial perspective
 - * Traffic flow impact: Potential bottleneck

CRITICAL TURN #3: 159.6 deg - EXTREME BLIND SPOT - CRITICAL RISK

GPS Coordinates	29.800050, 77.458640
Turn Angle	159.6 deg (Deviation from straight path)
Risk Classification	EXTREME BLIND SPOT - CRITICAL Risk Level
Recommended Maximum Speed	15 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	2 images available
Satellite Images	2 images available
Total Visual Evidence	4 images for analysis

VISUAL EVIDENCE FOR TURN #3:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_2_h0.jpg
Size: 59.0 KB
GPS: 29.8000, 77.4586

- ROAD ANALYSIS:
- * Turn angle: 159.6 degrees
 - * Visibility: Limited due to sharp curve
 - * Hazard level: CRITICAL
 - * Max speed: 15 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_2.png
Size: 308.2 KB
GPS: 29.8000, 77.4586

- AERIAL ANALYSIS:
- * Turn geometry: 159.6 deg curve
 - * Road curvature: Sharp bend visible
 - * Terrain context: Aerial perspective
 - * Traffic flow impact: Potential bottleneck

CRITICAL TURN #4: 113.0 deg - EXTREME BLIND SPOT - CRITICAL RISK

GPS Coordinates	29.801760, 77.459240
Turn Angle	113.0 deg (Deviation from straight path)
Risk Classification	EXTREME BLIND SPOT - CRITICAL Risk Level
Recommended Maximum Speed	15 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	2 images available
Satellite Images	2 images available
Total Visual Evidence	4 images for analysis

VISUAL EVIDENCE FOR TURN #4:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_4_h0.jpg
Size: 59.5 KB
GPS: 29.8018, 77.4592

- ROAD ANALYSIS:
- * Turn angle: 113.0 degrees
 - * Visibility: Limited due to sharp curve
 - * Hazard level: CRITICAL
 - * Max speed: 15 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_4.png
Size: 342.8 KB
GPS: 29.8018, 77.4592

- AERIAL ANALYSIS:
- * Turn geometry: 113.0 deg curve
 - * Road curvature: Sharp bend visible
 - * Terrain context: Aerial perspective
 - * Traffic flow impact: Potential bottleneck

CRITICAL TURN #5: 113.0 deg - EXTREME BLIND SPOT - CRITICAL RISK

GPS Coordinates	29.801760, 77.459240
Turn Angle	113.0 deg (Deviation from straight path)
Risk Classification	EXTREME BLIND SPOT - CRITICAL Risk Level
Recommended Maximum Speed	15 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	2 images available
Satellite Images	2 images available
Total Visual Evidence	4 images for analysis

VISUAL EVIDENCE FOR TURN #5:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_4_h0.jpg
Size: 59.5 KB
GPS: 29.8018, 77.4592

- ROAD ANALYSIS:
- * Turn angle: 113.0 degrees
 - * Visibility: Limited due to sharp curve
 - * Hazard level: CRITICAL
 - * Max speed: 15 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_4.png
Size: 342.8 KB
GPS: 29.8018, 77.4592

- AERIAL ANALYSIS:
- * Turn geometry: 113.0 deg curve
 - * Road curvature: Sharp bend visible
 - * Terrain context: Aerial perspective
 - * Traffic flow impact: Potential bottleneck

CRITICAL TURN #6: 97.4 deg - EXTREME BLIND SPOT - CRITICAL RISK

GPS Coordinates	29.804640, 77.454670
Turn Angle	97.4 deg (Deviation from straight path)
Risk Classification	EXTREME BLIND SPOT - CRITICAL Risk Level
Recommended Maximum Speed	15 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	1 images available
Satellite Images	1 images available
Total Visual Evidence	2 images for analysis

VISUAL EVIDENCE FOR TURN #6:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_6_h0.jpg
Size: 48.4 KB
GPS: 29.8046, 77.4547

- ROAD ANALYSIS:
- * Turn angle: 97.4 degrees
 - * Visibility: Limited due to sharp curve
 - * Hazard level: CRITICAL
 - * Max speed: 15 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_6.png
Size: 353.5 KB
GPS: 29.8046, 77.4547

- AERIAL ANALYSIS:
- * Turn geometry: 97.4 deg curve
 - * Road curvature: Sharp bend visible
 - * Terrain context: Aerial perspective
 - * Traffic flow impact: Potential bottleneck

CRITICAL TURN #7: 75.7 deg - BLIND SPOT - HIGH RISK

GPS Coordinates	29.625320, 77.439180
Turn Angle	75.7 deg (Deviation from straight path)
Risk Classification	BLIND SPOT - HIGH Risk Level
Recommended Maximum Speed	25 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	1 images available
Satellite Images	1 images available
Total Visual Evidence	2 images for analysis

VISUAL EVIDENCE FOR TURN #7:

STREET VIEW ANALYSIS:



STREET VIEW DATA:
File: streetview_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_7_h0.jpg
Size: 50.9 KB
GPS: 29.6253, 77.4392

- ROAD ANALYSIS:
- * Turn angle: 75.7 degrees
 - * Visibility: Limited due to sharp curve
 - * Hazard level: HIGH
 - * Max speed: 25 km/h

SATELLITE VIEW ANALYSIS:



SATELLITE VIEW DATA:
File: satellite_af7c8826-2d03-4239-aceb-0c329bbf2064_turn_7.png
Size: 299.5 KB
GPS: 29.6253, 77.4392

- AERIAL ANALYSIS:
- * Turn geometry: 75.7 deg curve
 - * Road curvature: Sharp bend visible
 - * Terrain context: Aerial perspective
 - * Traffic flow impact: Potential bottleneck

CRITICAL TURN #8: 68.3 deg - HIGH-ANGLE TURN - MEDIUM RISK

GPS Coordinates	28.960250, 77.639950
Turn Angle	68.3 deg (Deviation from straight path)
Risk Classification	HIGH-ANGLE TURN - MEDIUM Risk Level
Recommended Maximum Speed	30 km/h
Safety Distance Required	Minimum 50m approach visibility
Driver Action Required	Reduce speed, check mirrors, signal early
Street View Images	0 images available
Satellite Images	0 images available
Total Visual Evidence	0 images for analysis

No visual evidence available for Turn #8

Images may be available at nearby coordinates: 28.9602, 77.6399

COMPREHENSIVE POINTS OF INTEREST ANALYSIS

Total POIs Identified	119
Emergency Services	44
Essential Services	25
Other Services	50
Coverage Score	100/100
Service Availability Rating	EXCELLENT

SERVICE AVAILABILITY: EXCELLENT SERVICE COVERAGE (100/100)

MEDICAL FACILITIES - Emergency Healthcare Services (25 found) - CRITICAL

#	Facility Name	Location/Address	Distance	Notes
1	Sanjeevani Yoga An	Unnamed Road, Surya P	Along ro	Emergenc
2	Chhatrapati Shivaj	Swami Vivekanand Subh	Along ro	Emergenc
3	Dr Lal PathLabs -	Shop No 17, Khana Pla	Along ro	Emergenc
4	Kalka Dental Colle	near Partapur Flyover	Along ro	Emergenc
5	Davki Nandan Hospi	Devkinandan hospital,	Along ro	Emergenc
6	kailashi super spe	C-2 Shardhapuri Phase	Along ro	Emergenc
7	Hans Multispeciali	512, Sardhana Road, O	Along ro	Emergenc
8	Prakash Hospital	1/108, Dantal Jatoli	Along ro	Emergenc
9	Omnibus Healthcare	1H, NH58, Ansal City,	Along ro	Emergenc
10	G.M. Modi Hospital	3P75+J72, Modipuram,	Along ro	Emergenc
11	Government Hospita	4GMR+XV2	Along ro	Emergenc
12	Community health c	4GMR+QWG, Meerut	Along ro	Emergenc
13	medical store	4GWP+9HQ, Dahar	Along ro	Emergenc
14	Aadi Medical Store	Jasar Sultannagar	Along ro	Emergenc
15	Panwar Medical Sto	5G49+MVV, Gotka	Along ro	Emergenc
16	Seva Charitable Ho	Muzaffarnagar Road, p	Along ro	Emergenc
17	life line clinic	2, Budhana	Along ro	Emergenc
18	Dr aatma ram eye h	Baraut Road, Budhana	Along ro	Emergenc
19	Rafikan Physio Cli	satheri road, Budhana	Along ro	Emergenc
20	Ayushman arogye ma	6FJP+C6R, Kurthal	Along ro	Emergenc
21	Get Well Hospital	Karnal - Shamli Road,	Along ro	Emergenc
22	Ayushman Arogya Ma	C83X+279, Kabraut	Along ro	Emergenc
23	bansal hospital	C83Q+V9C, Jhal	Along ro	Emergenc
24	Ayushman arogya ma	C83P+4PW, Jhal	Along ro	Emergenc
25	Arvind I owner	C9F9+XQJ, Kudana	Along ro	Emergenc

LAW ENFORCEMENT - Security & Emergency Response (18 found) - CRITICAL

#	Facility Name	Location/Address	Distance	Notes
1	Nauchandi Police S	Mohsin Bagh, Manzoor	Along ro	
2	Shatabdi Nagar Pol	WMPG+W37, Shatabdi Na	Along ro	
3	Police Choki Shubh	XJ5Q+9R6, NH58, Meeru	Along ro	
4	Pari Chowk	WJPR+VG3, Pari Chowk,	Along ro	
5	Police Choki VedVy	XJ7R+37V, NH58, Ved V	Along ro	
6	Police chawki	2MMF+C6W, Unnamed Roa	Along ro	
7	Police Station, Ka	B30 Sardhana Road, Ka	Along ro	
8	Police Chowki kasb	1/126, Shradha Puri R	Along ro	
9	Police Choki	2PP4+QH4, Krishna Nag	Along ro	
10	Police post Modipu	Bus Station, 2PX4+JVG	Along ro	
11	Police check post	4HP8+GG5, Karnal - Me	Along ro	
12	Police Station Sar	4GMR+54G	Along ro	
13	Diwan ji	4GR9+GX, Jasar Sultan	Along ro	
14	Police Station	7FR9+29Q, Budhana	Along ro	
15	Bai wala police st	7F54+GM5, Budhana Roa	Along ro	
16	Police chunki	7CMP+WW3, Vigyana	Along ro	
17	????? ???? ??????	7FRG+6H8, MDR 22W, Bu	Along ro	
18	Police Chowki Lank	99F9+GCP, National Hi	Along ro	

FIRE & RESCUE - Emergency Response Services (1 found) - CRITICAL

#	Facility Name	Location/Address	Distance	Notes
1	Fire Station Parta	WMC5+X9P, Sector 2, M	Along ro	

FUEL STATIONS - Vehicle Refueling Points (25 found) - ESSENTIAL

#	Facility Name	Location/Address	Distance	Notes
1	IndianOil	Rithani, Delhi - Meer	Along ro	Fuel
2	cng pump meerut	WMJ5+6X6, Block 4A, S	Along ro	Fuel
3	Hindustan Petroleu	Ground Floor, Crossin	Along ro	Fuel
4	Allen Oil	WMG5+4FP, Sector 2, M	Along ro	Fuel
5	Raj Service Statio	Bhoor Baral, NH 58, M	Along ro	Fuel
6	IndianOil	Sardhana Road, Kanker	Along ro	Fuel
7	Nayara Filling Sta	279/1, Shradha Puri R	Along ro	Fuel
8	IndianOil	Ground Floor,NH 58, H	Along ro	Fuel
9	IndianOil	Roorkee Road, Vivek V	Along ro	Fuel
10	IndianOil	Ground Floor, Roorkee	Along ro	Fuel
11	RDML Energy Servic	Bhuni Crossing Binoli	Along ro	Fuel
12	Petrol Pump	Meerut	Along ro	Fuel
13	Shiv Kailash Fuel	Meerut Karnal, Nation	Along ro	Fuel
14	Hindustan Petroleu	Khasra No 29 NH 709A,	Along ro	Fuel
15	IndianOil	Ground Floor, Julhera	Along ro	Fuel
16	Hindustan Petroleu	Ground Floor, Baraut	Along ro	Fuel
17	Hp Petrol Pump - M	Budhana Bagar	Along ro	Fuel
18	IndianOil	Ground Floor, Budhana	Along ro	Fuel
19	Shaheed Rizwan gas	7FM5+8FG, Budhana Bag	Along ro	Fuel
20	Manya Garg	Budhana-Muzaffarnagar	Along ro	Fuel
21	IndianOil	Ground Floor, Shamli	Along ro	Fuel
22	HP Petrol Pump - G	C84X+9WF, Kabraut	Along ro	Fuel
23	My Eco Energy	India	Along ro	Fuel
24	HPCL Petrol Pump-	NH709A, Meerut, to, K	Along ro	Fuel
25	BPCL petrol pump M	Kudana Road, Shamli	Along ro	Fuel

EDUCATIONAL INSTITUTIONS - Speed Limit Zones (40 km/h) (25 found) - AWARENESS

#	Facility Name	Location/Address	Distance	Notes
1	Dewan Public Schoo	143, Delhi Road, Phas	Along ro	40 km/h
2	Bhai Joga Singh Pu	WMXM+H76, Surya Palac	Along ro	40 km/h
3	METRO PUBLIC SCHOO	Shatabdi Nagar, Ritha	Along ro	40 km/h
4	PRESIDENCY PUBLIC	WMPF+Q99, Delhi Road,	Along ro	40 km/h
5	SHEMROCK Smart Lea	Pocket B, NS-2, Shata	Along ro	40 km/h
6	St. Francis' Conve	Sardhana Road, Kanker	Along ro	40 km/h
7	St Mary's Academy	2M4X+H44, Cariappa Rd	Along ro	40 km/h
8	K.D. International	National Highway 58,	Along ro	40 km/h
9	J.P. International	opposite grand opera,	Along ro	40 km/h
10	American Kidz Play	Ark city D Block, Lax	Along ro	40 km/h
11	J.N.Public School	5GGW+WXW, Meerut	Along ro	40 km/h
12	Chaudhary Amar Sin	4HQ6+VMQ, Gotka	Along ro	40 km/h
13	Kadam Public Schoo	Bhooni Chauraha, Sham	Along ro	40 km/h
14	Guljaridrishi	4HP8+GG3, Road, Ranch	Along ro	40 km/h
15	saraswati shishu m	4GWP+HM9, Dahar	Along ro	40 km/h
16	Balwanti Devi Kany	Baraut, Budhana Road,	Along ro	40 km/h
17	Shaheed Rizwan Tya	7CFV+CGF, State Highw	Along ro	40 km/h
18	Maples Academy	7CPV+2C2, Kandhla - B	Along ro	40 km/h
19	RASHTRIYA INTER CO	7FQ9+4F3, teacher col	Along ro	40 km/h
20	Indian Public Scho	7CJ7+WM3, Jaula	Along ro	40 km/h
21	Vedantam Public Sc	Kudana Main Road, Jam	Along ro	40 km/h
22	BrainZone Junior H	Karnal - Meerut Road,	Along ro	40 km/h
23	KVM High School Ka	C942+XFG, Karnal - Me	Along ro	40 km/h
24	UPS BARLA JAT COMP	C89X+RXW, Barla Jatt	Along ro	40 km/h
25	Sahib,s home	C83Q+8WP, Jhal	Along ro	40 km/h

FOOD & REST - Meal Stops & Driver Rest Areas (25 found) - CONVENIENCE

#	Facility Name	Location/Address	Distance	Notes
1	Hotel Bravura Gold	Delhi Roorkee, Bypass	Along ro	
2	CROWN Hotel & Rest	Ved Vyas Puri -Phase	Along ro	
3	Domino's Pizza S	Shop No. 7A, Upper Gr	Along ro	
4	KFC	Sports Goods Complex,	Along ro	
5	SF Food Pure Veg P	3rd Floor, Food Court	Along ro	
6	Biggies Restaurant	NH-58, NH58, Meerut	Along ro	
7	Meera's Bistro Amo	2MF8+M9, Kanker Khera	Along ro	
8	Anupam Fast Food C	2PX4+HRP, Meerut Bypa	Along ro	
9	Aangan restaurant	160, opposite Hotel D	Along ro	
10	Veera deluxe Resta	2MQ8+9Q5, Sardhana By	Along ro	
11	Sunny restaurant	4HQ7+R7X, Bhuni	Along ro	
12	Fauji Restaurant &	4HP8+83G, Bhuni Chowk	Along ro	
13	CHAUDHARY DHABA	4HP9+XJJ, Sardhana -	Along ro	
14	Akki fast food	India	Along ro	
15	Green Vatika Resta	4HQC+5GH, Sardhana -	Along ro	
16	Ashok Maggie Point	Ashok Maggie Point, B	Along ro	
17	Mahadev Maggie Poi	Karnal - Meerut Road,	Along ro	
18	Sadda Adda	Baiwala chowk, Budhan	Along ro	
19	VINAYAK ENTERPRISE	near Baiwala, Baraut	Along ro	
20	Madhav Dhaba No.	India	Along ro	
21	Mid-Way Point Fami	NH 709A, Karnal - Mee	Along ro	
22	Amritsari Truck Dh	C87W+F9F, Shamli	Along ro	
23	Highway family dha	C87W+R5G, Barla Jatt	Along ro	
24	Shiva pure vegetar	Village and post, Kab	Along ro	
25	hotel midway guest	C82X+W83, Kabraut	Along ro	

CRITICAL SERVICE GAPS IDENTIFIED

* No critical service gaps identified - Good service coverage along route

COMPREHENSIVE NETWORK COVERAGE ANALYSIS

Analysis Points Tested	20
Overall Coverage Score	57.0/100
Coverage Status	MODERATE
Dead Zones Identified	3
Poor Coverage Areas	4
Good Coverage Areas	35.0%
Network Reliability Rating	LOW

NETWORK RELIABILITY: MODERATE (57.0/100)

SIGNAL QUALITY DISTRIBUTION ANALYSIS

Signal Quality Level	Points Count	Route %	Status
No Signal (Dead Zone)	3	15.0%	Critical
Fair Signal (2-3 bar)	6	30.0%	Good
Poor Signal (1-2 bar)	4	20.0%	Attentio
Good Signal (3-4 bar)	4	20.0%	Good
Excellent Signal (4-	3	15.0%	Good

CRITICAL COMMUNICATION PROBLEMS (7 areas)

DEAD ZONES - NO CELLULAR SERVICE (3 locations):

Zone #	GPS Coordinates	Impact Level	Recommendation
1	28.9497, 77.6591	CRITICAL	Use satellite phone or emerg
2	28.9959, 77.6459	CRITICAL	Use satellite phone or emerg
3	29.7682, 77.4412	CRITICAL	Use satellite phone or emerg

POOR COVERAGE AREAS (4 locations):

Area #	GPS Coordinates	Signal Level	Recommendation
1	29.1456, 77.5534	WEAK	Download offline maps, carry
2	29.1900, 77.4955	WEAK	Download offline maps, carry
3	29.8073, 77.4475	WEAK	Download offline maps, carry
4	29.8417, 77.3956	WEAK	Download offline maps, carry

NETWORK COVERAGE RECOMMENDATIONS

1. Route has 3 dead zones - consider satellite communication device
2. Multiple poor coverage areas - download offline maps before travel
3. Inform someone of your route and expected arrival time

EMERGENCY COMMUNICATION PLAN

- * Download offline maps before travel (Google Maps, Maps.me)
- * Inform someone of your route and expected arrival time
- * Carry a satellite communication device for dead zones
- * Keep emergency numbers saved: 112 (Emergency), 100 (Police), 108 (Ambulance)
- * Consider two-way radios for convoy travel
- * Identify nearest towers and repeater locations along route

COMPREHENSIVE WEATHER CONDITIONS ANALYSIS

Weather Analysis Points	10
Average Temperature	32.7 deg C
Temperature Range	32.1 deg C to 33.5 deg C
Average Humidity	52.1%
Average Wind Speed	2.9 km/h
Weather Conditions Detected	2 different types
Weather Risk Assessment	LOW

TEMPERATURE STATUS: MODERATE TEMPERATURE CONDITIONS (32.7 deg C)

WEATHER CONDITIONS BREAKDOWN

Weather Condition	Frequency	Route %	Risk Level	Driver Impact
Clouds	7	70.0%	MODERATE	Reduced visibility, lower
Clear	3	30.0%	LOW	Good driving conditions

WEATHER-BASED VEHICLE PREPARATION

- * Standard vehicle maintenance check recommended
- * Ensure all fluid levels are adequate
- * Check tire condition and pressure
- * Verify all lights are functioning properly

COMPREHENSIVE REGULATORY COMPLIANCE ANALYSIS

COMPLIANCE STATUS: NEEDS ATTENTION (Score: 70/100)

VEHICLE & ROUTE COMPLIANCE DETAILS

Vehicle Type	Heavy Goods Vehicle
Vehicle Category	Heavy Goods Vehicle
Vehicle Weight Classification	18,000 kg
AIS-140 GPS Tracking Required	YES (Mandatory)
Route Origin	Unnamed Road, Oil Industry Terminals, Partapur, Me
Route Destination	V85H+WR5, Saharanpur Rd, Ambehata Dehat, Ambheta,
Total Route Distance	131 km
Estimated Travel Duration	2 hours 27 mins
Interstate Travel	NO

MANDATORY COMPLIANCE REQUIREMENTS

Requirement Category	Compliance Status	Action Required
Valid Driving Licens	REQUIRED	Verify license category matc
Vehicle Registration	REQUIRED	Ensure current registration
Vehicle Insurance	REQUIRED	Valid comprehensive insuranc
Route Permits	CONDITIONAL	Required for interstate/heav
AIS-140 GPS Device	REQUIRED	Install certified GPS tracki
Driving Time Limits	REQUIRED	Maximum 10 hours continuous
Vehicle Fitness Cert	REQUIRED	Valid pollution and fitness
Driver Medical Certi	REQUIRED	Valid medical fitness certif

COMPLIANCE ISSUES REQUIRING IMMEDIATE ATTENTION (2)

- 1. AIS-140 GPS tracking device required - Address before travel
- 2. Heavy vehicle - weight restrictions may apply - Address before travel

APPLICABLE REGULATORY FRAMEWORK

- * Motor Vehicles Act, 1988 - Vehicle registration and licensing requirements
- * Central Motor Vehicles Rules, 1989 - Technical specifications and safety
- * AIS-140 Standards - GPS tracking and panic button requirements
- * Road Transport and Safety Policy (RTSP) - Driver working hours
- * Interstate Transport Permits - Required for commercial interstate travel
- * Pollution Control Board Norms - Emission standards compliance
- * Goods and Services Tax (GST) - Tax compliance for commercial transport
- * Road Safety and Transport Authority - State-specific requirements

COMPLIANCE RECOMMENDATIONS

- 1. Ensure all vehicle documents are current and accessible
- 2. Verify driver license category matches vehicle type
- 3. Check route-specific permits and restrictions
- 4. Install AIS-140 compliant GPS tracking device

NON-COMPLIANCE PENALTIES & CONSEQUENCES

- * Driving without valid license: Fine up to Rs 5,000 + imprisonment
- * Vehicle without registration: Fine up to Rs 10,000 + vehicle seizure
- * No insurance: Fine up to Rs 2,000 + vehicle seizure
- * AIS-140 non-compliance: Permit cancellation + heavy fines
- * Overloading violations: Fine Rs 20,000 + per excess ton
- * Driving time violations: License suspension + fines
- * Interstate without permits: Vehicle seizure + penalty
- * Environmental violations: Fine up to Rs 10,000 + registration cancellation

COMPREHENSIVE ELEVATION & TERRAIN ANALYSIS

Data Source	Google Elevation API (Live Data)
Total Analysis Points	20 coordinates
Minimum Elevation	244.9 meters above sea level
Maximum Elevation	284.0 meters above sea level
Average Elevation	264.0 meters above sea level
Total Elevation Range	39.1 meters
Terrain Classification	PLAINS
Driving Difficulty Level	LOW
Fuel Consumption Impact	LOW - Minimal impact on fuel consumption
Significant Changes Detected	0 elevation changes > 50m

TERRAIN ASSESSMENT: PLAINS TERRAIN - EASY CONDITIONS

ELEVATION-BASED DRIVING CHALLENGES

- * Minimal elevation changes with flat terrain
- * Normal fuel consumption expected
- * Standard vehicle performance throughout
- * No significant gradient-related challenges

ELEVATION-SPECIFIC VEHICLE PREPARATION

- * Standard vehicle maintenance check sufficient
- * Normal fuel planning adequate
- * Standard tire and brake inspection

FUEL CONSUMPTION IMPACT ANALYSIS

- * Normal fuel consumption expected
- * Standard fuel planning adequate
- * Total ascent sections identified: 0
- * Total descent sections identified: 0

COMPREHENSIVE TRAFFIC ANALYSIS

Route Segments Analyzed	10
Overall Traffic Score	97.5/100
Traffic Condition	EXCELLENT
Average Travel Time Index	1.03
Average Current Speed	50.7 km/h
Average Free Flow Speed	51.8 km/h
Heavy Traffic Segments	0
Moderate Traffic Segments	0
Free Flow Segments	9
Worst Congestion Areas	0.0% of route

TRAFFIC STATUS: EXCELLENT TRAFFIC CONDITIONS (97.5/100)

TRAFFIC-BASED RECOMMENDATIONS

- 1. Check current traffic conditions before departure
- 2. Consider public transportation alternatives for heavily congested routes
- 3. Plan rest stops during low-traffic segments

COMPREHENSIVE ROAD QUALITY & SURFACE CONDITIONS

Total Analysis Points	21
Road Quality Issues Detected	21
Critical Condition Areas	2
High Risk Areas	19
Medium Risk Areas	0
API Sources Used	google_roads, mapbox
Analysis Confidence	Medium
Overall Road Quality Score	3.8/10

ROAD QUALITY STATUS: POOR ROAD CONDITIONS (3.8/10)

IDENTIFIED ROAD QUALITY ISSUES (21 locations)

Location (GPS)	Issue Type	Severity	Speed Limit	Description
28.9497, 77.6	Critical Co	Critical	30 km/h	Critical road conditi
28.9959, 77.6	Poor Surfac	Critical	30 km/h	Critical road conditi
29.0382, 77.6	Minor Issue	High	40 km/h	Poor road surface con
29.0892, 77.6	Minor Issue	High	40 km/h	Poor road surface con
29.1456, 77.5	Poor Surfac	High	40 km/h	Poor road surface con
29.1900, 77.4	Minor Issue	High	40 km/h	Poor road surface con
29.2587, 77.4	Minor Issue	High	40 km/h	Poor road surface con
29.3313, 77.4	Poor Surfac	High	40 km/h	Poor road surface con
29.4109, 77.3	Poor Surfac	High	40 km/h	Poor road surface con
29.4514, 77.3	Poor Surfac	High	40 km/h	Poor road surface con

VEHICLE-SPECIFIC ROAD QUALITY RECOMMENDATIONS

- * Heavy vehicles: Reduce speed by 20% in areas with road quality scores below 6/10
- * Check tire pressure more frequently when traveling through poor surface areas
- * Increase following distance by 50% in road quality risk zones
- * Plan additional maintenance checks after routes with multiple road quality issues
- * Consider alternative routes for high-value or sensitive cargo in critical condition areas
- * Carry emergency repair kit for tire damage in poor road surface zones

COMPREHENSIVE ENVIRONMENTAL RISK ASSESSMENT

Total Analysis Points	7
Eco-Sensitive Zones	2
Air Quality Risk Areas	0
Weather Hazard Zones	5
Seasonal Risk Areas	0
Overall Environmental Score	3.0/10
Primary Risk Level	High
API Sources Used	OpenWeather, Visual Crossing, Tomorrow.io, Google Places

ENVIRONMENTAL STATUS: CRITICAL ENVIRONMENTAL RISKS (3.0/10)

ENVIRONMENTAL RISKS IDENTIFIED (7 locations)

Risk Type	GPS Location	Severity	Category	Description
Pollution S	28.9497, 77.6	Medium	Ecologic	
Wildlife Sa	29.3046, 77.4	Critical	Ecologic	
Poor Visibi	28.9497, 77.6	High	Weather	Reduced visibility co
Poor Visibi	29.0099, 77.6	High	Weather	Reduced visibility co
Poor Visibi	29.0613, 77.6	High	Weather	Reduced visibility co
Poor Visibi	29.1442, 77.5	High	Weather	Reduced visibility co
Poor Visibi	29.2017, 77.4	High	Weather	Reduced visibility co

ENVIRONMENTAL COMPLIANCE & BEST PRACTICES

- * Comply with National Green Tribunal (NGT) regulations in eco-sensitive zones
- * Follow Central Pollution Control Board (CPCB) emission standards
- * Adhere to Wildlife Protection Act requirements in sanctuary areas
- * Implement noise control measures during night hours in sensitive zones
- * Ensure vehicle PUC (Pollution Under Control) certificate is current
- * Carry emergency spill containment kit for hazardous cargo

COMPREHENSIVE EMERGENCY PREPAREDNESS ANALYSIS

EMERGENCY PREPAREDNESS: EXCELLENT PREPAREDNESS (Score: 100/100)

EMERGENCY SERVICES AVAILABILITY ASSESSMENT

Medical Facilities (Hospitals)	20 facilities identified
Law Enforcement (Police)	20 stations identified
Fire & Rescue Services	4 stations identified
Emergency Clinics	20 clinics identified
Pharmacies (24hr)	20 pharmacies identified
Communication Reliability	100%
Coverage Gaps	0 areas
Overall Service Coverage	EXCELLENT

CRITICAL EMERGENCY CONTACT NUMBERS - MEMORIZE OR SAVE

Emergency Service	Contact Number	When to Call	Response Type
National Emerge	112	Any life-threateni	Police/Fire/Medica
Police Emergenc	100	Crime, accidents,	Law enforcement
Fire Services	101	Fire, rescue, hazm	Fire & rescue team
Medical Emergen	108	Medical emergencie	Ambulance service
Highway Patrol	1033	Highway accidents,	Traffic police
Tourist Helplin	1363	Tourist emergencie	Tourist support
Women Helpline	1091	Women in distress,	Women safety
Disaster Manage	1078	Natural disasters,	Disaster response

EMERGENCY FACILITIES ALONG ROUTE WITH CONTACT DETAILS

MEDICAL FACILITIES (40 identified):

#	Facility Name	Address	Phone Number	Distance
1	G.M. Modi Hospit	3P75+J72, Modipu	0121 257 5597	Along rout
2	Jindal Hospital	Eves Crossing, H	0121 400 0444	Along rout
3	Siddhi Vinayaka	Opp. Medical Col	092580 63686	Along rout
4	Eye Hospital Nur	Meerut, K-1252,	0121 276 0991	Along rout
5	Kalka Dental Col	By Pass, near Pa	093191 80111	Along rout
6	Meerut Kidney Ho	Surya Nagar, Pra	0121 267 2022	Along rout
7	PGI	2P25+QVG, Medha		Along rout
8	Madhu Nursing Ho	Nai Sarak, Secto	091051 07070	Along rout
9	Meerut	Meerut, Uttar Pr		Along rout
10	Krome	Delhi Rd, opposi	075002 44525	Along rout

POLICE STATIONS (20 identified):

#	Police Station	Address	Phone Number	Distance
1	Nauchandi Police	Mohsin Bagh, Man	073472 59199	Along rout
2	Police Chowki L-	near, Budhana Rd	094577 53092	Along rout
3	Lalkurti Police	Mall Road, 2P35+	0121 264 2610	Along rout
4	HP Petrol Pump	XP7R+CPP, Ramgar		Along rout
5	Shatabdi Nagar P	WMPG+W37, Shatab		Along rout
6	Police Choki Shu	XJ5Q+9R6, NH58,		Along rout
7	Pari Chowk	Pari Chowk, NRI		Along rout
8	Police Choki Ved	XJ7R+37V, NH58,		Along rout

FIRE STATIONS (4 identified):

#	Fire Station	Address	Phone Number	Distance
1	Fire Station Par	WMC5+X9P, Sector		Along rout
2	Fire station pol	693, Subhash Nag		Along rout

3	Police fire stat	7GQ2+PP5, Budhan		Along rout
4	Fire Station Sha	C8W6+8Q6, Shamli		Along rout

COMPREHENSIVE EMERGENCY PREPAREDNESS CHECKLIST

- ☐ First aid kit with bandages, antiseptic, pain relievers, emergency medications
- ☐ Emergency contact numbers saved in phone and written backup copy
- ☐ Vehicle emergency kit - tools, spare tire, jumper cables, tow rope
- ☐ Emergency water supply (minimum 2 liters per person for 24 hours)
- ☐ Non-perishable emergency food (energy bars, nuts, dried fruits)
- ☐ Flashlight with extra batteries or hand-crank/solar powered model
- ☐ Emergency blanket, warm clothing, and weatherproof gear
- ☐ Portable phone charger/power bank with multiple cables
- ☐ Emergency cash in small denominations (ATMs may be unavailable)
- ☐ Vehicle documents in waterproof container (registration, insurance)
- ☐ Road atlas or offline maps as backup to GPS navigation
- ☐ Emergency whistle, signal mirror, or flares for signaling help
- ☐ Multi-tool or knife, duct tape, and basic repair supplies
- ☐ Personal medications for at least 3 days
- ☐ Important documents (ID, medical info, emergency contacts)
- ☐ Fire extinguisher (small vehicle type) and basic safety equipment

EMERGENCY RESPONSE ACTION PLAN

- ASSESS THE SITUATION - Ensure personal safety first, then assess severity
- CALL FOR HELP - Dial appropriate emergency number (112 for general emergencies)
- PROVIDE LOCATION - Give precise GPS coordinates or landmark descriptions
- STAY CALM - Speak clearly and provide requested information to operators
- FOLLOW INSTRUCTIONS - Emergency operators are trained to guide you
- SIGNAL FOR HELP - Use emergency signals if phone coverage is unavailable
- STAY WITH VEHICLE - Unless immediate danger, stay near your vehicle
- CONSERVE RESOURCES - Ration water, food, and phone battery if stranded
- MAINTAIN COMMUNICATION - Update emergency contacts on your status
- DOCUMENT INCIDENT - Take photos/notes for insurance and authorities