

Hazard Identification and Risk Assessment in the Workplace Parking Yard

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Abstract: This manuscript has identified information related to Parking demand, available parking space, type and dimensions of vehicles using the parking facility, locations with potential safety issues with the guidance of the relevant standards. By the obtained data a safe layout of the parking system is designed, and the risk assessment has been carried out for the proposed design. This assessment adopts the Hazard Identification and Risk Assessment (HIRA) Technique to evaluate and identify the risk in the truck parking yard. This guidance helped to reduce the chances of unintended events and to maintain a safe workplace. The proposed practical solutions include improvements in the engineering design of the parking yard, administrative changes and physical work environment. The use of the HIRA technique is found very fit to be applied in the Truck parking yard of the cement industry. In addition to that, it may also be applied to other parking facilities of a similar kind.

Keywords: HIRA, Significant Risk, Non-Significant Risk, SOP, SMP, SWP, Management Programs, First Aid Case, Medical Treatment Case, Lost Workday Case, Restricted Work Case

Introduction :

The general purpose of this Risk assessment was to discover the causal elements in transport injuries, accidents and also to Outline the regions in which the intervention is probably powerful. This study also consists of a recommendation for trendy criminal obligations and information on safety and health control. This is followed through extra precise advice on controlling risk related to workplace transport, grouped into three most safe areas:

- Parking Yard (Design and Layout);
- Vehicle;
- Drivers;

Parking Yard: Covers the Design and the layout of the parking yard. It includes the pedestrian/vehicle routes (positioning maintenance), the zebra crossing points, lighting, and signage boards, information boards (with pictures), Parking stalls suitable clearance, etc. the main purpose of any design or secure site should be the segregation of motors from the pedestrians.

Vehicle: A safe vehicle covers figuring out and choosing the most appropriate automobile for the purpose, environment, the type of the persons who will be using it, and also how it will likely be maintained.

Drivers: This portion of the study covers the competence (individuals having relevant knowledge and experience or can benefit those through training) and behaviour of the individual who operates the vehicles.

The risk assessment is carried out in the truck yard parking facility to control the possible risk. It is all about identifying and taking sensible and proportionate measures to control the risks at the truck yard. The truck yard activities involving the vehicles are monitored over a reasonable period to develop a safe and clear figure of the vehicle and pedestrian traffic movements. The design of the safe truck yard parking facility is carried out with high consideration about the effect of any changes in how things are done. Generally, everything

reasonably practicable is being implemented on the design of the truck yard parking to protect the people from harm.

Methodology:

Hazard Identification and Risk Assessment (HIRA) is carried for identification of unwanted activities that may result in a hazard, the analysis of the risk of this undesirable occasion, that would arise and typically the estimation of its severity, importance, and the probability of dangerous consequences. The HIRA is being conducted as per the industry standards. The Ratings for the severity, exposure, the probability is fixed based on the predefined Risk Quantifying Data as shown in the fig.1.

Total Risk is Quantified by the Formula Below, Total Risk = Exposure (E)* Severity(S) * Probability(P)

It is extensively accepted in the enterprise is well known that the diverse techniques of hazard evaluation contribute significantly toward enhancements in safety. The following steps were followed while performing this HIRA technique,

1. Collecting basic knowledge about the safety issues in the parking area.
2. Hazard identification.
3. Risk Assessment.
4. Developing control measures.

Exposure:-		Severity:-		Probability:-	
Very rarely (less than one per year)	1	Minor (Injury without time/work restriction - FAC)	1	Virtually Impossible: only theoretical case (once in a lifetime)	0.2
Rarely (Few time per year)	1	Major (Injury with time/work restriction - MTC RWC)	4	Conceivable but improbable: once in a career (once in 20 Y)	0.5
Sometimes (once are twice) per month	2	Serious (Irreversible effect handicap-LWC)	7	Improbable/borderline case (1/10Y)	1
Now and then (Weekly)	3	Critical (One fatality, instantly or afterward)	15	Unusual: (once in 3y)	3
Frequently (Daily)	6	Disaster (more than one fatality, instantly or afterward)	40	Possible (once every six months)	6
Continuous (More than two times per day)	10			Can be expected (once per week)	10

Figure 1 Risk Quantifying data

HIRA - WORKSHEET

Sl.NO	Activity	HAZARDS / CONCERN	N/A/E EMS / OHS	EXISTING CONTROL MEASURE	RISK WITH EXISTING CONTROL R=E X S X P	ADDITIONAL CONTROLS	RESIDUAL RISK WITH ADDITIONAL CONTROL R=E X S X P	Priority
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					E	S	P	Total Risk		E	S	P	Total Risk	
1	Pedestrian movement	1.Collision with the moving vehicle.	A	OHS	3	4	10	120	<p>1. Pedestrians should be segregated from vehicle traffic through the provision of protective barriers, Hard barricades, and marked walkways, such means of segregation shall comply with the industrial standards.</p> <p>2. Zebra crossings to be developed near the entrance with speed breakers at a minimum distance of 8m on the opposite side of the traffic flow, such crossing shall be painted with suitable colours as specified in the industry standards.</p> <p>3. clearly visible ground markings signboards and mirrors shall be constructed at suitable locations.</p> <p>4. Traffic routes shall be constructed wide enough for safety where</p>	1	4	1	2	2

								separation is not practicable. 5. Adequate lighting shall be maintained all along the walkways and crossings. (Illumination level shall not be less than 20Lux) 6. Local lighting shall be additionally installed to ensure a good illumination level.					
2. Fall/slip/trip of persons due to water stagnation/material spillage.	N	OHS	1. Scheduled housekeeping is carried out regularly to collect the refuse and trashes along the walkways and parking area	1	1	3	3	1. Adequate drainage system with proper slope shall be provided in the plant areas to handle rainwater as well as firewater. 2. Provision for the trash collection system shall be made along the walkways. 3. Pedestrians are to be advised to put the refuses only in the trash collectors.	1	1	1	1	4
3. Struck by the unintended movement of the parked vehicle.	A	OHS	1. Instructed the drivers to get down, remove the ignition key and place the wheel chokers to the wheels once after parking.	1	4	3	1 2	1. Fixed concrete structures shall be raised in the rear edge of each parking stall along the side of the pedestrian movement to arrest the further movement of	1	4	1	4	4

								the vehicle. 2. All the vehicles shall be regularly inspected periodically to avoid abnormalities in the braking system. 3. Availability of adequate wheel chokers for the vehicle and the trailer to be ensured. 4. Traffic marshals shall monitor the same after being parked. 5. The drivers to be instructed repeatedly on the hazards of unintended movements.					
4. Hit with the fixed structures/obstructions/other vehicles.	A	OHS	1. Pedestrians are advised to pre-scan the moving path for any obstructions	1	1	3	3	1. Walkways shall comply with industry standards and shall be kept free from obstructions and other materials. 2. Proper lighting shall be maintained along the walkway and crossing. 3. The edges of those structures shall be marked with reflective surfaces.	1	1	1	1	4

	5.Lack of information/instruction to the Pedestrians	N	OHS	1. Training is being given to workmen (pedestrians) to look for vehicle movement while being inside the truck yard	1	4	3	1 2	1. Provide training to the pedestrians about the routes to be used, any specific hazards, about any other vehicles/Works on-site and other safe work practices. 2. Use adequate signage and other information/instruction boards to instruct the Pedestrians, such signage boards shall comply with Government standards (as used in Roads), such information/instructions shall be available in the local language and the language understandable to the majority of the Pedestrians.	1	4	1	2	4
	6.Poor conspicuity	N	OHS	1. Workmen are provided with high vision jackets.	1	4	3	1 2	1. Sudden change in the illumination level can be avoided by the installation of sound lighting systems. 2. Drivers are to be insisted to wear high vision jackets while entering the truck yard.	1	4	1	2	4

2	vehicle movement (Trucks/Bulkers)	1.Collision with moving/parked vehicles due to over speeding, operating in the wrong direction, drowsy driving, consumption of alcohol.		<ol style="list-style-type: none"> 1. Valid documents (vehicles and driver) are being checked while entering by security 2. Reverse horn for all vehicles ensured while entering inside the plant 3. Drivers are being instructed regularly to look for other vehicle movements. 	2	4	6	4 8	<ol style="list-style-type: none"> 1. All the vehicles shall be marked with the reflective tapes in all the sides for high conspicuity. 2. Fixed speed limit controls such as speed breakers, rumble strips shall be well-positioned and properly enforced with consideration of route layouts and usage. 3. The traffic route and parking stalls shall be separated by the colour of the markings, such markings should be reflective and maintained regularly. 4. the traffic routes shall be designed and constructed by avoiding steep slopes and blind corners. 5. Concave mirrors are to be installed at desired locations. 6. Drivers those who are not following the instructions/Violating the rules shall be fined. 	1	4	1	4	3
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	2.Collision with the fixed structures/ hit by the protruding materials transported.		1. Drivers are instructed to pre-scan the vehicle movement area for nay obstructions prior o entry 2. Vehicle inspection by using the 8-point checklist is being carried out.	2	4	6	4 8	1. The traffic routes shall be constructed away from the fixed structures/build ing, such Clearance distance shall comply with the industry standards. 2. The buildings/other fixed structures within the distance as mentioned in the standards shall be fitted with raised wheel stop edges. 3. The edges of those structures shall be marked with reflective surfaces. 4. Vehicle inspection to be carried out as per the industry Standards 5. Transportation of Protruding Material from the Vehicle shall comply with INDUSTRY standards with high consideration to Route, Type of vehicle/Material carried, Such transportation shall be assisted by the flagman.	1	4	1	4	3
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	3.Collision with Two wheelers/animals	N	OHS	<p>1. The two-wheeler parking area is situated in the safest location considering people moving to and from their vehicles.</p> <p>2. Two-wheeler riders are instructed to stick on with the speed limit of 20kmph and also instructed to wear a crash helmet, such helmets shall comply with legal standards.</p>	1	4	3	1 2	<p>1. Consider an allocated route for two-wheeler riders to the designated parking area. (Check for feasibility)</p> <p>2. Speed limit signages to be installed at desired locations.</p> <p>3. Securities shall ensure the parking area is free from animals periodically.</p>	1	4	1	2	4
	4. Reversing accidents.	A	OHS	<p>1. Drivers' valid documents are being checked for competency</p> <p>2. Horn/Reverse horn for all vehicles ensured while entering inside the plant using an 8-point checklist, such horns shall be audible for 30m</p>	2	4	6	4 8	<p>1. The traffic routes shall be constructed with high consideration of minimized reversing needs, clearly marked reversing areas, provision for larger reversing areas.</p> <p>2. Install barriers to prevent vehicles from entering pedestrian zones.</p> <p>3. Appoint traffic marshals to direct the drivers before reversing, such persons shall wear high visibility</p>	1	4	1	4	3

									clothing and their signals shall be seen by the drivers.					
	5.Fire hazard due to AFR/COAL transport vehicles	E	OHS	<p>1. The fire hydrants are installed at desired locations and being checked operability of those by the security team</p> <p>2. Fire extinguishers are also installed at desired locations and being checked as per schedule by the security team</p> <p>3. Availability of fire extinguishers is being ensured for all vehicles</p> <p>4.AFR/COAL transport vehicles are equipped with TREM Card (Transport Emergency Card), such cards shall contain all the information complying with hazardous waste management rules 1989.</p>	2	4	3	2 4	<p>1. All the AFR/COAL transport vehicles shall be maintained in a good repair, be painted in a unique colour for easy identification (to be communicated to transporters), parked in separate and specified parking areas only.</p> <p>2.AFR/COAL transport vehicles shall be fitted with spark arrestors in the exhausts at the time of entry to the yard. (to be communicated to transporters).</p> <p>3. All the hazardous waste materials shall be securely stored within the storage area of the vehicle.</p> <p>4. Drivers are trained in Defensive driving, TREM card reading, Transportation emergency handling, Use of PPE, Spill control and management.</p>	1	4	1	4	3

	6.Excess movement of vehicles	A	OHS	1.PA system available to call the vehicles for unloading/loading	3	4	3	3 6	1.Create a safe system of work and introduce traffic calming measures (Allow the number of vehicles according to the availability of parking space) 2. Impose sensible speed limits, Display directions and instructions clearly at suitable places.	1	4	1	4	3
	7.Lack of information/instruction to the drivers	N	OHS	1. Drivers are being instructed to look for other vehicles/ pedestrian movement while driving inside the yard	2	4	3	2 4	1. Use adequate signage and other information/instruction boards to instruct the drivers, such signage boards shall be complying with Government standards (as used in Roads), such information/instructions shall be available in the local language and the language understandable to the majority of the drivers. 2. Provide instructions to the drivers about a. Fundamentals of defensive driving; b. Journey management plan. c. Properties and hazards of	1	4	1	4	3

									material; d. Packaging, equipment loading and securing; e. Transport equipment; f. Filling and delivering liquid products; g. Fire Fighting and First Aid; h. Regulations and on-board documents; i. Maintenance of vehicles; and j. Emergency Response Plan for accidental release of hazardous material or vehicle collision. 3. Refresher training about safe work practices shall be periodically conducted to the drivers, minutes of the meeting shall be recorded.					
	8.Sharp Corners/Blind Spot	A	OHS	1. The concave mirror is installed at some locations (blind corners)	2	4	3	2 4	1. The traffic routes shall be designed and constructed by avoiding steep slopes, sharp corners, blind corners. 2.Where blind spots cannot be avoided to use concave mirrors. 3. Use a barrier to stop pedestrians walking into roadways.	1	4	1	4	3

									4.Ensure good visibility for the drivers and pedestrians by high visibility reflective jackets 5. Ensure adequate illumination for such areas					
	9.Toppling of the vehicle due to uneven surface/overloading	E	OHS	1. All Vehicles are loaded within the SWL. 2. The pavement/Roads are to be constructed with high consideration to the evenness	1	7	1	7	1. The transporters are to be instructed to maintain SWL for both Loading and Unloading Vehicles.	1	7	1	7	4
	10.Violence and aggression	A	OHS	1. Drivers are instructed to avoid verbal or physical conflict with other users.	2	4	1	8	1.Any such incident to be reported to the truck yard in-charge.	1	4	1	4	4
	11.Fatigue and tiredness	N	OHS	1. Drivers are instructed to report any issues that may affect their ability to operate the vehicle safely. 2. Restroom for drivers available	2	4	1	8	1. The duration of driving shall be limited as per the industry standard. The same shall be communicated to all transporters	1	4	1	4	4

3	Two-wheeler parking at the truck yard	1.Space constraints	N	OHS	1. Separate parking area provided for two-wheelers	6	4	1	2 4	1. Allow the number of vehicles according to the availability of parking space. 2. Two-wheeler riders are to be instructed to park in take-off mode with a centre stand and security to monitor the same 4. Only 50% of parking space to be utilized as per industry road safety standard	1	4	1	4	3
4	Tarpaulin covering for cement loaded trucks	1.Fall of persons from the height	A	OHS	1. Fall protection system provided for avoiding the fall incidents during tarpaulin covering activity.	3	7	3	6 3	1. An automatic tarpaulin covering system can be implemented (to be communicated to all transporters for necessary arrangements in trucks). 2.Effective usage of tarpaulin covering system to be monitored by traffic marshal and securities. 3.Periodical inspection of tarpaulin covering platform, lifeline, and safety harness to be carried out as per industry working at height standard.	2	7	1	1 4	3

5	Vehicle Routes	1.Material spillages/Dust/D ebris.	A	OHS	1. The traffic routes are free from obstructions/ spillage materials and kept clean always through good housekeeping.	6	4	1	2 4	1. Containers with sound construction shall be used to carry materials.	2	4	1	8	3
		2.Improper/ Inadequate Sign Post	N	OHS		1	4	3	1 2	1. Signs for the drivers and pedestrians in the workplace should be same as those used in the public Roads, such signage boards shall comply with Government standards(as used in Roads), such information/ins tructions shall be available in local language and the language understandable to the majority of the Pedestrians. 2. These signs should be well-positioned, Illuminated/Refl ective type. 3. Signage should be Cleaned and maintained so that it remains visible and effective. 4. The Signposts shall not obstruct the Pedestrian/vehi cle movement.	1	4	1	2	4

		3.Maintenance work in vehicle route	A	OHS	1. The drivers are instructed not to carry out maintenance activity in the traffic route and also advised to Exit their vehicle and call for assistance	1	4	1	4	1. All the vehicles entering the truck yard shall contain at least two warning triangles/Cones for an indication of the Breakdown vehicle. 2. The breakdown vehicle shall be stored off the traffic way.	1	4	1	2	4
6	Lighting	1.Poor illumination	A	OHS	1. Tower lights are installed for providing a good illumination level.	2	4	1	8	1. Adequate Tower lights should be installed at desired locations and ensure that any lighting does not reflect on the driver causing blind vision 2. Periodic inspection of lamps and illumination level to be ensured 3. Any lamps are not glowing, immediately concern person to be notified and get it rectified. 4. Local lighting should be provided in the walkways/Pedestrian crossings Wherever needed. 5. Periodic cleaning of lamps to be ensured.	1	4	1	4	4

2.Electric Hazards	A	OHS	1. The External Conductive surfaces are earthed through the earth pit to safely discharge the residual charges.	2	4	1	8	1.lototo system should be followed while carrying out the maintenance activity. 2. The resistance of the earth pit shall be checked during the peak summer; such resistance values shall be marked over the pit.	1	4	1	2	4
3.Poor Stability of the tower lights	A	OHS	1. The pole base is Attractively designed for sound stability.	1	4	1	4	1. The top of the concrete base pole should be finished in a slight concave in shape to avoid water pooling at the base of the light pole.	1	4	1	1	4
4.Unauthorized/ Improper Maintenance of the tower light	A	OHS	1. The drip line of the tower light always kept free from obstructions/ material storage. 2. The area under the drip line is segregated by the raised curb walls/Barricading. 3. Only competent persons are involved in maintenance activity.	1	4	1	4	1.PTW is to be obtained to carry out maintenance work. 2. Provide training to the Maintenance crew about the routes to be used, any specific hazards, about any other people on-site and other safe work practices. 3. Hard barriers shall be installed in the work location with clear signboards 4. Materials used for maintenance are to be stacked at desired locations and barricaded (not	1	4	1	2	4

									in truck movement way) 5. Road diversion signs to be installed at desired locations.						
7	Rising barriers at entrance and exits	1. Pedestrians may be struck, hit, hooked by the rising barriers and Vehicles may be struck by barriers.	A	OHS	1. The pedestrian path is routed away from the vicinity of the rising gate. 2. A trained person employed to operate the gate.	1	4	3	1 2	1. Rising gates shall be subjected to periodical inspection to ensure sound mechanical systems. 2. Security to monitor the personnel movement in the proper pathway and not through the raising barrier gate 3. An indication can be provided (sound and light) while the gate is dropping down to avoid the collision of people	1	4	1	2	4
		2. Electric Hazards	A	OHS	1. The gates are properly earthed to the ground to safely discharge the Residual electrical charges.	2	4	1	8	1. Rising gates shall be subjected to periodical inspection to ensure sound Electrical systems.	1	4	1	2	4
7	Emergency	1. Panic of drivers and other persons	A	OHS	Nil	1	4	1	4	1. Drivers' training to be included with emergency preparedness and response procedure 2. Emergency contact signages to be provided at desired locations	1	4	1	1	4

	2. Inaccessibility of fire Hydrants /Unavailability of the Hose in the reel box/integrity failure	N	OHS	1. Parking space is designed with high consideration of accessing fire hydrant systems and no parking stall is constructed in the space in front of the hydrant valves. 2. The hydrant system is always maintained above 700KPa/30 Mins	2	4	6	4 8	1. Drivers are advised not to park in front of the hydrant valves. 2. The availability of the hose in the reel box shall be ensured 24/7. 3.Additional control measures to be taken to prevent the theft of the hoses. 4. periodic inspection of the vicinity of all hydrants should be done to ensure that there are no obstructions impeding accessibility. 5. All the hoses shall be tested at least once in a year for the sound condition.	1	4	1	4	3
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Conclusions:

This report provides guidelines for employers on what they need to comply with the laws, standards, other safety measures and reduce the risk. This report will also be useful to all the organizations concerned about their parking lot safety and workplace safety. The suggestions from this report are important safety issues faced by the cement industry in which the assessment is carried out.

The following activities are to be carried out by the cement industry to fulfil Transport safety at the parking yard.

1. Routes: Routes used by the vehicles should be indicated by the lines drawn on the floor to inform pedestrians, as should walkways have designated for pedestrian use only. Route planning should take into consideration the path and ultimate destination of the pedestrian flow (e.g. Location of the security office, hostel, canteen, toilets, etc.), Adjacent structures.
2. Pedestrian and vehicle Separation: Pedestrians should be segregated from vehicle traffic through the provision of protective barriers (Hard barricades) and marked separate gangways.
3. Wheel arrestors: Fixed concrete structures shall be raised in the rear edge of each parking stall to arrest the unintended movement of the parked vehicle.

4. Traffic Management: Speed limit to be defined and speed limit boards to be installed at desired locations. Fixed speed limit controls such as speed breakers, rumble strips shall be well-positioned and properly enforced with consideration of route layouts and usage as it is an effective means of controlling site traffic.
5. Parking: Parking areas shall be grouped according to the type of the vehicles and such areas shall be marked and numbered to achieve First in first out (FIFO) systems. wheel chokers shall be used to park the vehicle.
6. Signage: Signboards are to be installed at required places and should be clear and unambiguous for both drivers and pedestrians. The signage post should be cleaned and maintained so that it remains visible and effective.
7. Lighting: Adequate lighting to be installed at required locations as it is important to assist the drivers to identify the pedestrians, vehicles and other fixed structures. Periodical inspection of lamps and good illumination levels to be ensured.
8. Conspicuity: Providing high visibility clothing can increase the conspicuity and assist drivers to detect the presence of pedestrians
9. Road crossings: Zebra crossing to be developed at locations where interaction between vehicle and man movement. Such crossings shall be maintained at suitable colours as specified in the standards.
10. Signalling: A traffic Marshal shall be deployed to guide drivers and make sure the reversing areas are free from obstructions/Pedestrians.
11. Sheeting: Vehicle-based sheeting system should be installed with integrated safety systems to avoid fall incidents during the tarpaulin covering/Removal activity. If possible, consider implementing an automatic tarpaulin covering system.
12. AFR Vehicles: All the AFR transport vehicles and its containers shall be maintained in a good repair, be painted in a unique colour for easy identification (to be communicated to transporters), parked in separate and specified parking areas only.
13. Training: pedestrians and drivers using the parking yard shall be trained on all possible safe work practices, such pieces of training shall be periodically conducted for enhancing their competence level and good behaviours.
14. Housekeeping: Parking yard routes shall be well maintained and) Free from obstructions and spillages) Free from damage to the surface) Free from dirt and dust
15. Road condition: Periodical inspection of road conditions by the civil team should be carried out and get it rectified if there are any abnormalities

Result & Discussion: The parking yard is classified into three zones for the risk assessment purpose. The Hazard matrix is drafted as per the classified zones with X marking Representing the Presence of the Hazard and the Risk score is mapped with the Hazards matrix Tabulation as shown in the table below (Zone Wise Hazard Matrix). The existing parking yard has several hazards associated with high-risk scores as mentioned in the table below. It can be mitigated by adopting the preventive measures as suggested in the HIRA Worksheet.

HAZARDS/CONCERNS	ZONE 1	ZONE 2	ZONE 3	Risk Score
The collision of the vehicle with pedestrians/workmen/securities.	X	X	X	120
The collision of the vehicles with other moving/parked vehicles	X	X	X	48
The collision of the vehicles with the raising barriers	X	X		12
The collision of the vehicles with the adjacent structures	X	X		48
The collision of the vehicles with two-wheelers.		X		12

Poor Road Condition	X	X	X	7
Poor Sewage system		X	X	12
The toppling of the vehicle	X	X	X	24
Operating the vehicles at over speed.	X	X	X	48
The collision of the vehicles with animals	X	X	X	12
Fall of materials from a height	X	X	X	63
Fall of persons from a height	X			63
Fall/Slip/Trip of persons due to water stagnation and material spillages	X	X		24
Struck by the unintended movement of the parked vehicle.	X	X	X	12
Sharp Corners/Blind spots.		X		24
Fire Hazard due to AFR/Coal Transport Vehicle.	X			24
Drivers involved in violence and aggression	X	X	X	8
Drivers experiencing fatigue and tiredness	X	X	X	8
Lack of information and instructions to drivers	X	X	X	24
Excess movement of the vehicles	X	X	X	36
Reversing accidents	X	X	X	48
Poor Conspicuity.	X	X	X	12
The collision of the transported protruding materials with the fixed structures.			X	48
Poor stability of the tower lights		X	X	4
Maintenance in the Traffic route	X	X	X	4
Unauthorized/ Improper Maintenance of the tower light		X	X	4
Electric Hazards	X	X	X	8
Panic of drivers and other persons in case of emergency.	X	X	X	4
Pedestrians Struck, hit, hooked by the rising barriers	X	X		3
The vehicle struck, hit, hooked by the rising barriers	X	X		12
Inaccessibility or unavailability of the Fire hydrants in case of emergency.	X	X	X	48
Poor illumination level.	X	X	X	8

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