
Manuals of Accident Data and In-depth Accident Data Management

1. Definitions and information about road accidents.

1.1 Basic definition

Road accident

Road Safety Directorate has given the definition of "Road accident" as a road accident that occurs between 00.01 - 24.00 each day only in the case of death and/or with any injured people who have been admitted to hospital and it is the accident caused by the use of the following vehicles for traffic or transportation: private cars, taxis, motorcycles, motorized tricycles, pickup trucks, vans, regular and non-regular route buses, all types of trucks, two-wheeled bicycles, Agricultural machinery, any machinery disguised from agricultural engines, Skylab cars. "Road accident" also refers to the accident caused by the train colliding with private cars as well as other types of cars.

Accident information

Accident information is used to report facts about accidents. How accurate the facts are depends on the reporters or the data recorders. Accident information is a valuable asset for the entire system of road safety procedures. In order for the accident reporters or recorders to record accident data correctly, the recorders need to understand the meaning of each part of information, the purpose of collection, and the benefit to the public. (Road Safety Directorate)

Death

The Ministry of Public Health defines "Death" as the death from a road accident from the time of accident to 30 days after the accident. It also refers to the death at the scene, during hospital delivery, at the emergency room, admitted cases that die within 24 hours at the patient's building and die in the patient's building after 24 hours up to 30 days after the accident, and the case of requesting to go back and die at home. All age groups are counted.

The Department of Disaster Prevention and Mitigation has defined "Death" as the death from a road accident at the scene of the accident and death in the hospital from 00.01-24.00 every day.

Injury

According to Road Safety Directorate, "injury" is defined as a person injured from a road accident and a person injured and admitted in a hospital

In-depth Crash Investigation

Cautiously checking and paying attention to every detail of all contributing factors that will reinforce the accident will provide a good description of the sequence of events that are based on good basis and true facts. (River, 1995), which has the process as shown in **Figure 1-1**.

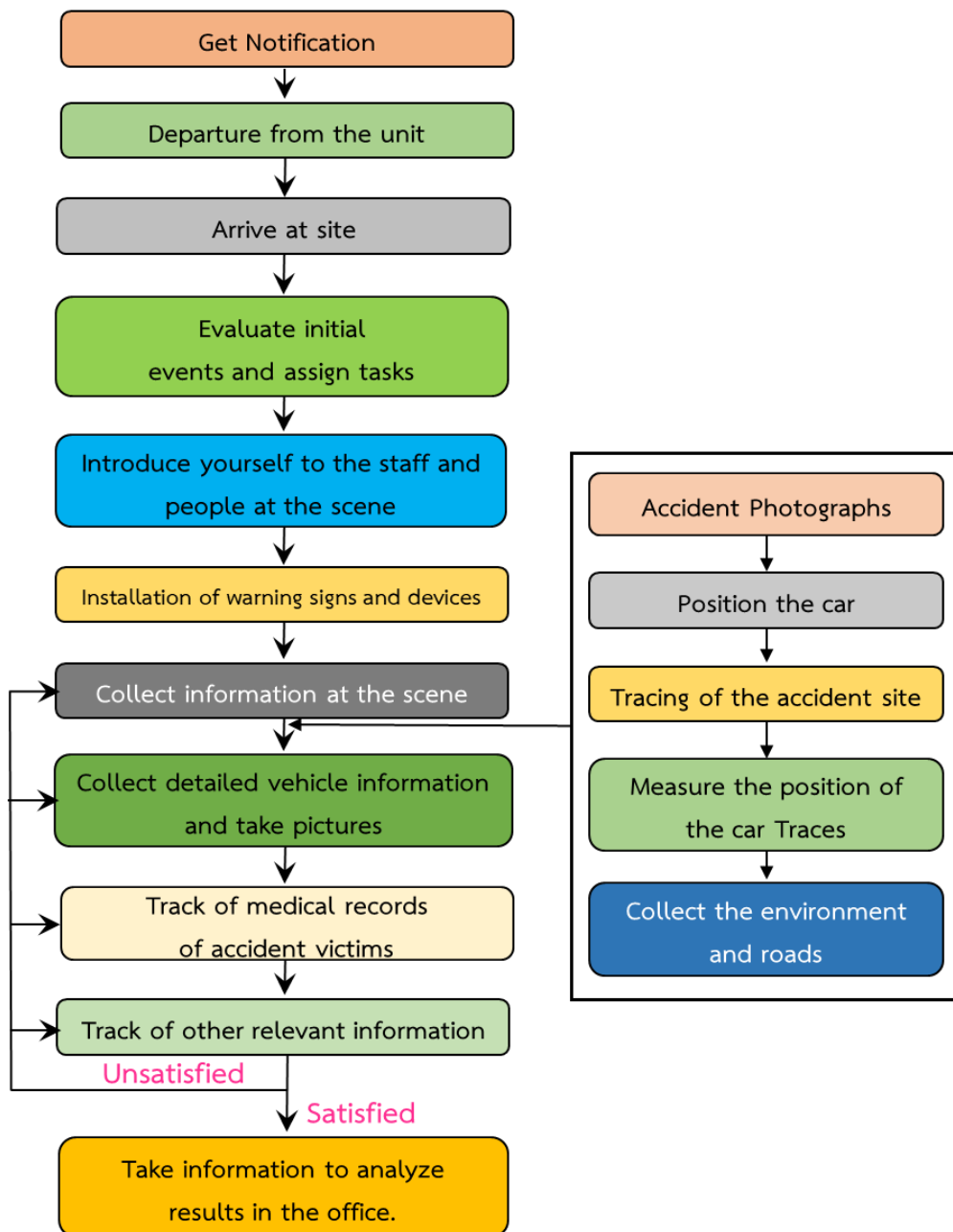


Figure 1-1 In-depth Crash Investigation

Road Safety Audit

This official road safety audit by a qualified independent auditor reviews the project or the existing road, the project under construction, or even those in the process of design. The investigators will report the potential for accidents and the safety in the use of

the project and the road. (Pichai Thaniananont, Peerapan Tanaboom and Lamduan Srikodda, 2005).

1.2 Information related to road accidents

Basic information about road accidents can be divided into 4 main groups.

1) General accident information

General accident information focuses on providing users with insight into the place and time of the accident, the cause and reason of the accident, and the process of accident. This group of data is considered as the main data in accident records.

2) Accident information about roads and surroundings

Accident information about roads and surroundings is important for identifying the factors that contribute to the accident and the severity of the accident. Sometimes, despite a degree of expertise of the driver and a car which is in good condition, driving through dangerous roads or risk areas and surrounding can lead to accidents and losses. Therefore, gathering accident information about roads and surroundings is vital in order that the root causes of the problem are addressed with appropriate solutions.

3) Accident information about the victim

Accident information about the victim, especially the severity or danger of accidents, is needed for setting the criteria of sequencing the importance of each accident. In addition, the risky behavior of the victims directly affecting the accident or the severity of the accident needs to be understood as this will lead to the prevention and correction of such risk behaviors.

4) Accident information about the vehicles

Accident information about the vehicles is used to segment vehicles at risk for each type of accidents. It is imperative that measures to prevent accidents and violence be taken to suit different types of car users who are at risk for different accidents.

2. The concept of integrating road accident data in Thailand

In Thailand, the information about the country's road accidents has been recorded by many relevant agencies as shown in table 2-1. The Table 2-2 compares the data recorded in each database categorized by the relevant administrators.

Figure 2-1 Brief details of road accident database in Thailand

Affiliation	Department	Database	Brief Description
Ministry of Transport	Office of the Permanent Secretary for Defense	Vehicle Accident Reporting System (TRAMS)	This is an integrated system of accident information on the road network of the Ministry of Transport.
	Department of Highways	Department of Highways	This is an integrated system of accident information on the road network of the Department of Highways.
	Department of Rural Roads	Roadside Accident Reporting System (ARMS)	The system integrates accident information on the road network of the Department of Rural Roads.
Royal Thai Police	Royal Thai Police	POLIS (Police Information System)	An information system that records traffic accident cases as part of the system.
		Road Accident Investigation (RAI)	Road Accident Records from In-Depth Accident Investigation (Currently not in use)
Ministry of the Interior	Local Registration Office / District	Death certificate	Death registration system with death registration with the local registry / district.
	Department of Disaster Prevention and Mitigation	Road Accident Reporting System (e-Report)	This is a system to store and report road accident information. To implement measures to resolve road accidents.

Figure 2-1 Brief details of road accident database in Thailand (continued)

Affiliation	Department	Database	Brief Description
Ministry of Public Health	National Institute of Emergency Medicine	Information Technology for Emergency Medical System (ITEMS)	Emergency medical information system. Support for emergency medical services. Can help patients timely. Compliance with standards. It can manage resources appropriately.
	Department of Epidemiology	Injury Surveillance (IS)	It is a database for surveillance and development of injury and referral systems of hospitals, centers and hospitals with Sentinel system.
	Hospital Center and University Hospital at Trauma Center	Trauma registry System	The system records the injured. In hospitals, centers and hospitals, the Trauma Center has developed a system of trauma registry to improve the service system.
Ministry of Public Health	General Communicable Disease Center	Health Information and Health Promotion Information System (43 Files)	It is a system for collecting information on access to health services and promoting health and disease prevention at health service units.
	Department of Epidemiology	Traumatic Injury System 19 causes	19 causes of patients treated in hospitals under the Ministry of Public Health. Analyze trends, injury problems, and plan revisions.
	National Health Security Office	Emergency Response Online (EMCO)	It is the information system of the National Health Security Office. Use for recording medical records for emergency medical services. 3 Health insurance fund. (Health insurance, social security)
Insurance	Central Victim Protection Co., Ltd.	E-Claim System	The system is used for the claim. Help victims to use insurance. According to the Motor Vehicle Accident Victims Act
		Thai RSC System	Systematic reporting of data recorded in the E-Claim system.

Source: Action plan on information for road safety (<http://k4ds.psu.ac.th/rsis/contact>)

Figure 2-1 Brief details of road accident database in Thailand (continued)

Affiliation	Department	Database	Brief Description
Others		Road Safety Information System (RSIS)	It is a system that links the database of death and injury from 3 databases, including death information and causes from the Ministry of Interior and Public Health. Traffic lawsuit from the National Telecommunications Commission and claim data from the Central Business

Source: Action plan on information for road safety (<http://k4ds.psu.ac.th/rsis/contact>)

Figure 2-2 Comparison of road accident data recorded in each database, as categorized by the relevant administrators

Data logging details	Related Agencies (Record forms)									
	NPB	Public Health			Communications				NPV	DDPM
		Hospital	National Institute for Emergency Medicine	Disease Not Communicable	DOH	DRR	EXAT	DLT		
1. Date of the incident	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. location coordinates	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓
3. Accident characteristics	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗
4. Locale	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓
5. Damage details										
-person	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
-asset	✓	✗	✗	✓	✓	✓	✓	✗	✗	✓
6. Cause of accident										
-person	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓
-vehicle	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓
-Road and environment	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓
7. Severity of accident	✓	✗	✓	✓	✗	✗	✗	✓	✗	✗

Figure 2-2 Comparison of road accident data recorded in each database, as categorized by the relevant administrators (continued)

Data logging details	Related Agencies (Record forms)									
	NPB	Public Health			Communications				RPV	DDPM
		Hospital	National Institute for Emergency Medicine	Disease Not Communicable	DOH	DRR	EXAT	DLT		
8. Information about the accident										
-General information of accident victims.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
-Occupational accident	✓	✓	X	✓	X	✓	X	X	X	X
-Number of casualties / deaths	✓	X	X	✓	✓	✓	✓	✓	X	✓
-Injury characteristics	✓	✓	✓	✓	X	✓	X	X	✓	X
-Use of safety equipment	✓	✓	X	✓	✓	X	✓	✓	X	✓
-Violation of Traffic Act	✓	✓	X	✓	✓	✓	✓	✓	X	✓
9. Information about the vehicle.										
Type/number of vehicles affected	✓	✓	✓	✓	✓	✓	✓	✓	X	✓
Diagram showing the accident.	✓	X	X	✓	✓	✓	✓	✓	X	X

Figure 2-2 Comparison of road accident data recorded in each database, as categorized by the relevant administrators (continued)

Data logging details	Related Agencies (Record forms)									
	NPB	Public Health			Communications				RPV	DDPM
		Hospital	National Institute for Emergency Medicine	Disease Not Communicable	DOH	DRR	EXAT	DLT		
10. Road and environment information										
– Physical characteristics of the road	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓
– Traffic Control System	✓	✗	✗	✓	✓	✓	✓	✓	✗	✗
– Traces of road damage	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗
– Brakes or slides	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
– Weather information / road at the scene	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓
11.Incident Code	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗
12. Record the incident details	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗

Remark :

- NPB : Nation Police Bureau
- DOH : Department of Highways
- DRR : Department of Rural Roads
- EXAT : Expressway Authority of Thailand
- DLT : Department of Land Transport
- RPV : Road Accident Victims Protection Company Limited
- DDPM : Department of Disaster Prevention and Mitigation

3. Accident & In-depth Crash Database

The database above should be integrated in order to achieve data integration. However, there are still many obstacles in data integration between agencies. This study, therefore, presents the concept of integrating road accident data in Thailand as shown in Figure 3-1; the host unit should possess a computer system that can link the accident database with both the basic accident information (from existing agencies) and in-depth crash information from the accident investigation unit (this can either be a brand new agency or the existing agency). The information can be sent via the website or smartphone.

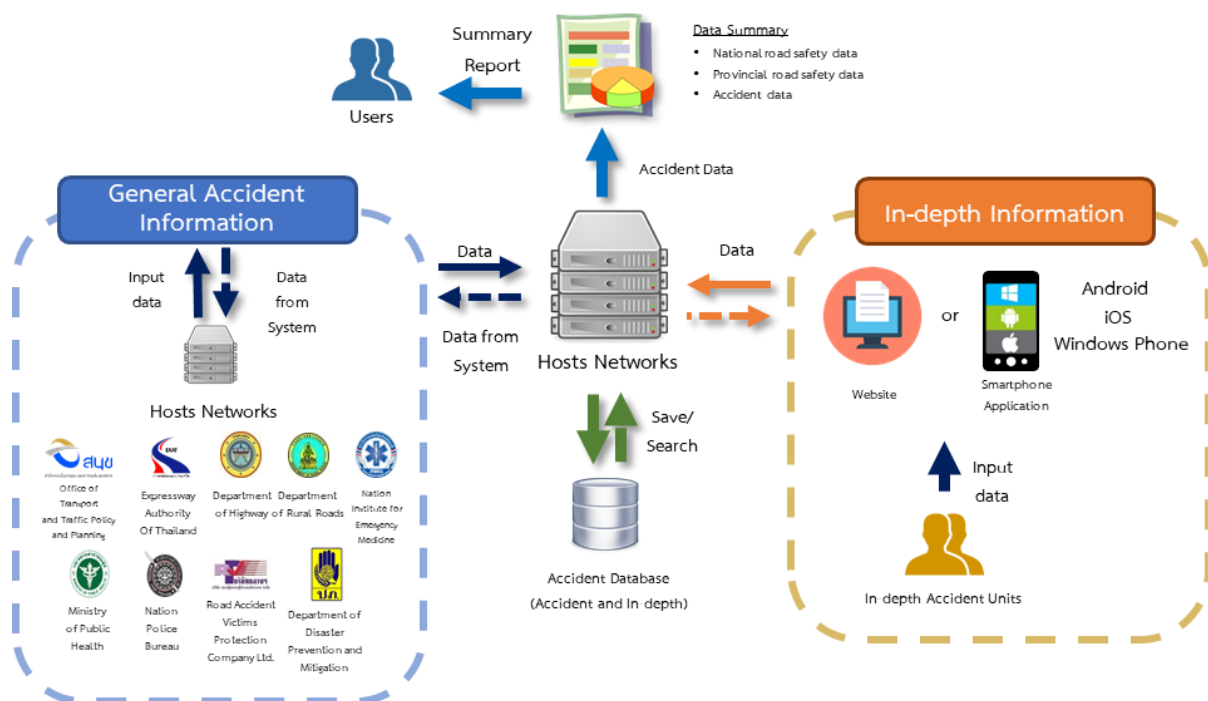


Figure 3-1 Conceptual framework for integrating road accident data in Thailand

To achieve the above framework, this study presents the prototype of road accident database management, as shown in Figure 3-2, consisting of two main parts: importing and reporting data. The data is divided into 3 parts:

- 1) National road safety data;
- 2) Provincial road safety data and
- 3) Accident data. (Basic information and In-depth information)

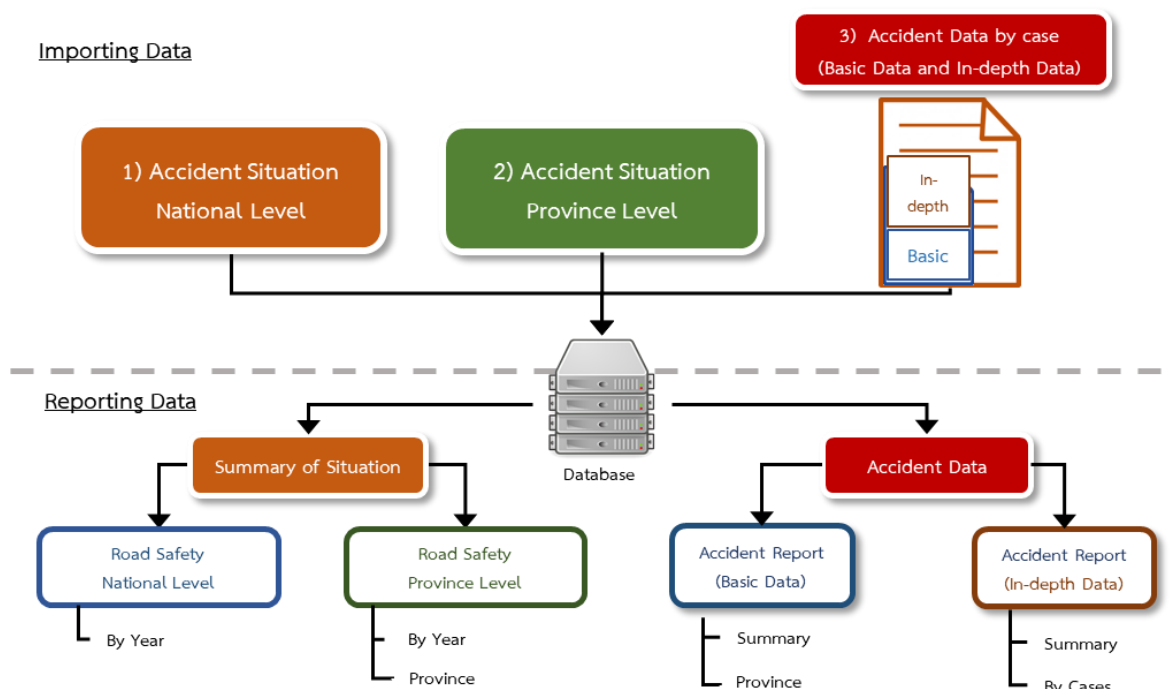


Figure 3-2 Road Traffic Database Management Structure

Coordination for road traffic accidents by local authorities (Provincial and District Level) can be conducted using the information coordination guidelines shown in Figure 3-3. The main authorities are the Office of Disaster Prevention and Mitigation, Provincial Police, Provincial Public Health Office, The Highway Administration, The Office of Rural Roads, Provincial Transportation Authority, and the Provincial Road Accident, Victims Protection, and the Central Company.

Gathering and exchanging data is comprised of 3 parts: 1) Crash data such as the number of cases and accidents, the number of deaths and the number of injured/disabled persons, etc. 2) Exposure data such as the amount of population, the number of visitors, the volume of petrol sold, the volume of traffic, road length, the number of vehicles, driving licenses number etc. And 3) road safety measures data such as numbers of hours or numbers of road safety measures, and the rates of helmet and seat belt worn and so on.



Figure 3-3 Coordination approach for road accident information from local agencies.

4. Use of Road Accident Database in Thailand

The Thai Road Accident Database has been developed based on the concepts presented in the previous section. This database can be used through the website <https://www.safetyotp.com>

The main screen is shown in Figure 4-1A. which consists of 2 parts:

- 1) Accident record
- 2) Accident report

When entering the accident record screen (Figure 4-1B), you will find three subsections for the record:

- 1) National road safety information
- 2) Road safety situation
- 3) Accident information

Similarly, when accessing the accident reporting screen (Figure 4-1C), you will find three subsections for the report. The data includes:

- 1) National Road Safety Summary
- 2) Provincial Road Safety Summary

3) Summary of each accident



A) The main screen



B) The recording screen



C) The viewing screen

Figure 4-1 The screen of Road Traffic Accident Database of Thailand

When accessing the accident record screen, you will see 1) National Road Safety Situation Record (Figure 4-2 A.) and 2) Provincial Road Safety Situation Information Form (Figure 4-2 B.) The summary of each accident is shown in Figure 4-3.

In a similar manner, data reports will report all data (national, provincial, and individual accident level) that the user has recorded in the database. The users can export data reports in digital format such as PDF.

The Manual for Road Accident Database Program in Thailand has been detailed in the Manual for Road Accident and In-depth accident management.

The image displays two side-by-side screenshots of a web-based accident data management system. Both screens feature a header with a Thai flag and a user profile section. The left screen (A) is titled 'ผู้ใช้งานที่ปลอดภัย' (Safe User) and includes sections for 'การบันทึกข้อมูล' (Data Recording) and 'การวิเคราะห์ข้อมูล' (Data Analysis). The right screen (B) is titled 'ผู้ใช้งานที่ปลอดภัย' (Safe User) and includes sections for 'การบันทึกข้อมูล' (Data Recording) and 'การวิเคราะห์ข้อมูล' (Data Analysis). Both screens contain various input fields, dropdown menus, and checkboxes for recording accident data.

A) National information recording screen B) Provincial information recording screen

Figure 4-2 A screenshot from the road accident database for Thailand



A) The main screen of the record for each accent

[illegible]

C) Road information	D) Vehicle information	E) Victim information
<p>1. Road type</p> <p>2. Road width</p> <p>3. Road surface</p> <p>4. Road condition</p> <p>5. Road lighting</p> <p>6. Road markings</p> <p>7. Road signs</p> <p>8. Road works</p> <p>9. Road weather</p> <p>10. Road temperature</p> <p>11. Road humidity</p> <p>12. Road air quality</p> <p>13. Road noise</p> <p>14. Road vibration</p> <p>15. Road safety</p>	<p>1. Vehicle type</p> <p>2. Vehicle make</p> <p>3. Vehicle model</p> <p>4. Vehicle year</p> <p>5. Vehicle color</p> <p>6. Vehicle weight</p> <p>7. Vehicle height</p> <p>8. Vehicle length</p> <p>9. Vehicle width</p> <p>10. Vehicle wheelbase</p> <p>11. Vehicle wheel offset</p> <p>12. Vehicle wheel size</p> <p>13. Vehicle tire type</p> <p>14. Vehicle tire pressure</p> <p>15. Vehicle tire tread</p> <p>16. Vehicle tire wear</p> <p>17. Vehicle tire condition</p> <p>18. Vehicle tire age</p> <p>19. Vehicle tire brand</p> <p>20. Vehicle tire size</p> <p>21. Vehicle tire speed</p> <p>22. Vehicle tire temperature</p> <p>23. Vehicle tire humidity</p> <p>24. Vehicle tire air quality</p> <p>25. Vehicle tire noise</p> <p>26. Vehicle tire vibration</p> <p>27. Vehicle tire safety</p>	<p>1. Victim name</p> <p>2. Victim age</p> <p>3. Victim gender</p> <p>4. Victim height</p> <p>5. Victim weight</p> <p>6. Victim build</p> <p>7. Victim hair color</p> <p>8. Victim hair style</p> <p>9. Victim eye color</p> <p>10. Victim eye shape</p> <p>11. Victim nose shape</p> <p>12. Victim mouth shape</p> <p>13. Victim chin shape</p> <p>14. Victim jawline</p> <p>15. Victim neck</p> <p>16. Victim shoulders</p> <p>17. Victim arms</p> <p>18. Victim hands</p> <p>19. Victim legs</p> <p>20. Victim feet</p> <p>21. Victim skin tone</p> <p>22. Victim skin texture</p> <p>23. Victim skin condition</p> <p>24. Victim skin age</p> <p>25. Victim skin brand</p> <p>26. Victim skin size</p> <p>27. Victim skin speed</p> <p>28. Victim skin temperature</p> <p>29. Victim skin humidity</p> <p>30. Victim skin air quality</p> <p>31. Victim skin noise</p> <p>32. Victim skin vibration</p> <p>33. Victim skin safety</p>

Figure 4-3 The Screen of accidental data recording

The road accident database of Thailand developed and presented in this study aims to integrate information and collaboration of road safety agencies.

As there are many involved parties, clear definition of responsibilities for each agency should be in place. This is essential in order to set clear permissions and to prevent confusion in the integration of information between agencies responsible for recording data in the Road Accident Database of Thailand as shown in Table 4-1. However, the main responsible agencies presented in Table 4-1 are subject to change as appropriate.

Table 4-1 Summary of the agencies responsible for the road accident database of Thailand

Information	Agency responsible
National Road safety situation	Department of Disaster Prevention and Mitigation
Provincial Road safety situation	Provincial Disaster Prevention and Mitigation Office
Accident	
● Basic data	Police/Rescue Unit
● Victim information (In-dept)	Accident Investigation/Provincial Health Office
● Vehicle information (In-dept)	Provincial accident/ transportation investigation
● Road info (In-dept)	Accident Investigation /Highway/Rural Roads / Local Government

5. Identifying points or hazard zones

Information from the Thai Road Accident Database can be applied to identify the locations or dangerous areas. Hazard Identification Criteria are as follows.

- Number of accidents or accident frequency (or the number of road accidents per 1 unit) over a specified period (e.g. 3 times per year) without considering the amount of exposure.

- Accident rate that is considered at a given time. This method takes into account the amount of exposure that the accident rate can be defined as follows.
 - The accident rate at the intersection is the number of accidents per vehicle entering one million intersections.
 - Road accidents rate is the number of accidents per one million vehicles - km. The number and the accident rate exceeds the Cutoff point
- Critical values obtained from analyzing the accidents from all other areas are sometimes referred to as the Rate Quality Control (RQC), which determines whether the rate of accidents at any given point is significantly higher than the rate (pre-derived) from other points with similar characteristics.
- Potential Accident Reduction: This method compares the number of accidents at that point. (From accident history) to the Expected Accident Experience, calculated from the nature and traffic at that point. The criteria are to select the spots or areas that will reduce accidents as much as possible. If the number of accidents (from history) can be reduced to the expected value, this will be the same as RQC that used frequency or number of accidents instead of accident rate (Rate)
- Sequencing the spots according to Accident Severity: The number of accidents will be sorted in order of severity and then created as an Index to be used in identifying points or hazard areas.
- The processes in identifying points or hazard areas can be summarized as in Figure 5-1.

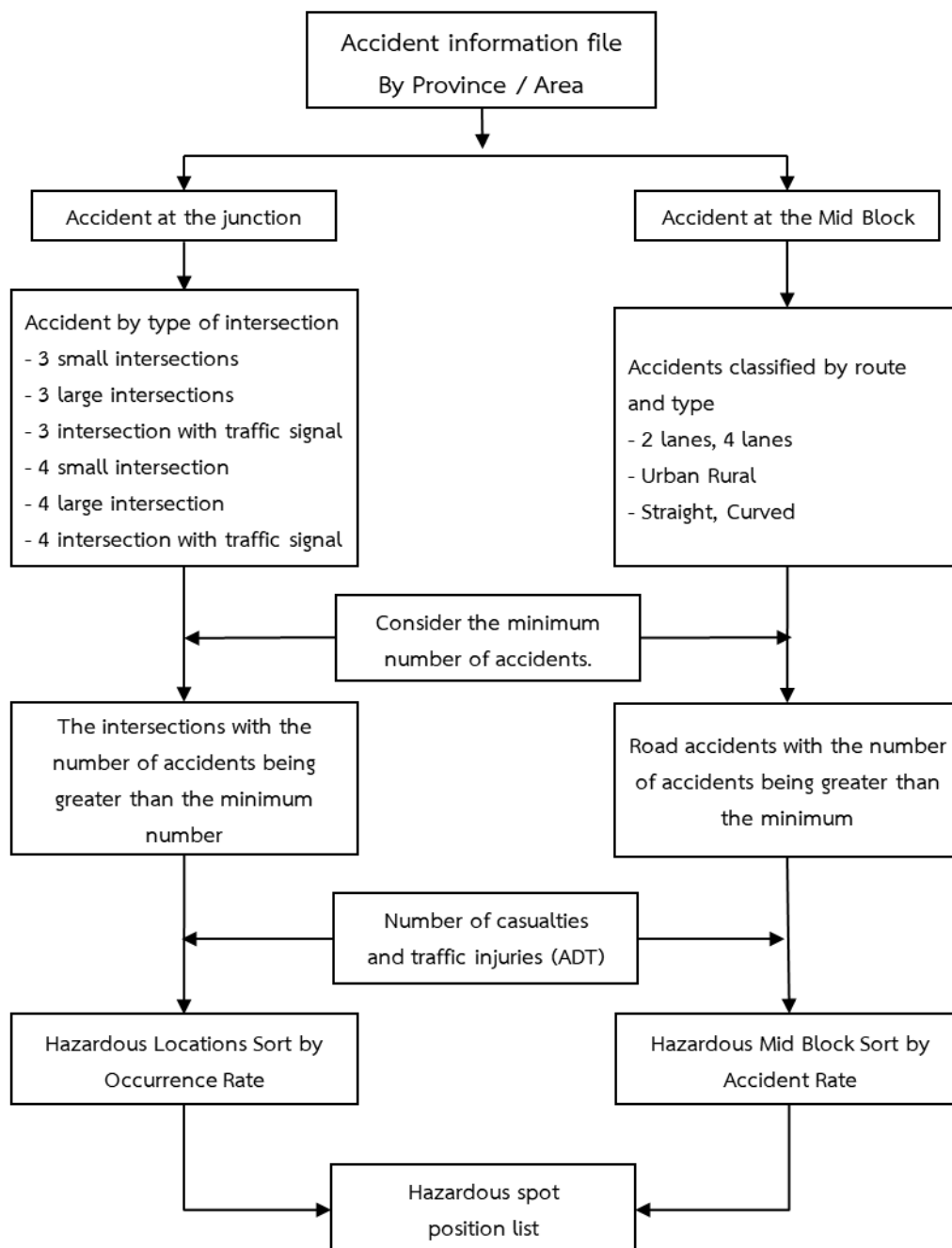


Figure 5-1 Point/hazard identification process

6. Solutions to Point / Hazard area issues

Resolving hazardous areas may be possible with the 3E measures, which include: Law enforcement, Education, and Engineering. This can be done in a number of ways:

- 1) Pre-crash prevention
- 2) Avoidance / reduction of collisions

3) Post-Crash relief. The measures can be divided into 9 groups as shown in Haddon Matrix Table in Figure 6-1.

Figure 6-1 Haddon Matrix

	Person	Car	Roads and surroundings
(Pre-Crash)	<u>Law enforcement</u> <u>/Education and Public Relations</u> <ul style="list-style-type: none"> - Do not drive while intoxicated - Do not drive over speed - Do not drive with risky behavior - Do not overload (don't exceed the capacity that will be obstacles to stop or slow down) 	<u>Insure that the car is suitable for running on the highway.</u> <ul style="list-style-type: none"> - Check the car regularly - Raise the standard of the car and control the conversion of buses and trucks - Enhance vehicle visibility: Install reflective materials, turn on headlights while driving 	<u>Make roads safer.</u> <ul style="list-style-type: none"> - Road safety checks - Fix dangerous points - Traffic management such as taking traffic calming measures - Have adequate traffic control equipment
(During-Crash)	<u>Use safety accessories.</u> <ul style="list-style-type: none"> - Wearing a helmet or the seat belt properly - Have children sit in safe children's car seats 	<u>Have adequate safety equipment.</u> <ul style="list-style-type: none"> - Install airbags or have a safe cabin structure - Install the baffle and the rear of the truck 	<u>Reduce roadside hazards.</u> <ul style="list-style-type: none"> - Roadside objects are made of non-hazardous materials such as plastic navigation. The post that is easy to fall after collision, etc. - Install/Repair Bumper Equipment (Barrier) - Installation of Crash Cushion
(Post-Crash)	<u>First aid, moving and saving the patients quickly and appropriately</u>	<u>Can move/assist the victim</u> <ul style="list-style-type: none"> - Emergency door - There are lifesaving accessories in the car 	<u>Access to help the injured</u> <ul style="list-style-type: none"> - Easy access to emergency and rescue areas

The measures presented in Table 6-1 are just examples. The choice of accident-corrective measures in practice requires discretion and experience to adopt measures that have proved successful in other areas with similar situations. Factors determining the choice of accident resolution measures (Ogden, 1996) include

- Technical feasibility: Whether measures proposed are solutions to the accident problem which has been diagnosed. Is there any academic basis that the measures will be successful in reducing accidents?
- Economic efficiency: Whether measures are more likely to breakeven and provide more benefits than costs.
- Affordability: Whether the investment is in the budget.
- Acceptability: Whether measures address issues that have been diagnosed and whether it is a measure that the community can understand.
- Practical: When applying the measures, will there be a violation? And whether the measures can work without too much enforcement.

7. Accident Information Management in Pilot and Model Cities

Prepare accident management manual. From the process of data collection, processing, analysis of accident data and depth of accident data. To lead to the set of measures to solve the accident. The study team will have to propose a pilot province to handle accident data in at least 5 pilot provinces. The pilot project of the two provinces. To develop effective accident resolution measures to reduce road accidents. And to implement the master plan to reduce road accidents in the Ministry of Transport in 10 years. And the plan to reduce road accidents of the Ministry of Transport from 2018 to 2020.

Priority will be given to the provinces. The study team will consider other factors that are important to the decision making in implementing the accident prevention plan. Such factors, such as

- The availability of agencies and the private sector to get to work to achieve tangible results continue. There may be additional elements, such as the province where the accident or accident investigation project works. The province has potential in terms of personnel. equipment Cooperation network

- Ability to provide budget and project management needs of the people. And the support from the government, etc., which will increase the rating weight to assemble the order.

The criteria used in the selection were provincial readiness and importance. Violence of road accidents, the frequency of the incident, and the severity of traffic problems and risk of death.

Based on the criteria set for the pilot project. Accident data management in at least 5 model city provinces is Khon Kaen, Nakhon Ratchasima, Songkhla, Chiangmai, and Chonburi Province. The province is navigable in two provinces is Songkhla and Khon Kaen. To implement the master plan for reducing road accidents and the plan to reduce road accidents in the province.

7.1 Objectives



Pilot City

- To collect road accident information and road safety situation in the province.
- To study road safety activities of relevant agencies in the province.
- To study and analyze gaps in road safety measures and propose road safety measures in the provinces.
- To apply in-depth accident investigation process in the province. To find the cause of the actual accident and lead to suggestions for further corrective measures.
- To develop a roadmap and master plan for road safety in the province.



Model City

- To collect road accident information and road safety situation in the province.
- To study road safety activities of relevant agencies in the province.
- To study and propose road safety measures in the province.

7.2 Scope of the work

➤ Pilot City

- Road safety situation in the province Study and collect data on road accidents in the province. During normal and festive periods.
- Road Safety Operations in the Province It provides an overview of the road safety activities of the network partners in the province.
- Road Safety Measures in the provinces a summary of road safety measures implemented in the province. During normal and festive periods.
- Intensive Accident Investigation To find the cause of the actual accident and propose measures to correct and prevent road accidents. Including the development of accident database as a central database.
- Analysis of road safety measures in the province. And brainstorming on road safety work in the province. Analysis of weaknesses, strengths, opportunities and thread about road safety including suggestions on the management of road accidents at the provincial level.
- The development of a road accident reduction master plan and action plan to reduce road accidents.

➤ Model City

- Road Safety Situation in the Province Study and collect data on road accidents in the province. During normal and festive periods.
- Road Safety Operations in Provinces It provides an overview of the road safety activities of the network partners in the province.
- Road Safety Measures in the Provinces A summary of road safety measures implemented in the province. During normal and festive periods.
- Transfer of knowledge about accident and accident recordings.
- Analysis of road safety measures in the province. And brainstorming on road safety work in the province. Analysis of weaknesses, strengths,

opportunities and thread about road safety including suggestions on the management of road accidents at the provincial level.

7.3 Procedure

➤ Pilot City

- **Review of Road Safety Measures in the Provinces** to study the various actions to prevent road accidents from various agencies, including measures to reduce road accidents.
- **In-depth Accident Investigation (AIU)** is the only way to determine the cause of a real accident. Accurately and scientifically, it leads to suggestions for measures to prevent and correct road accidents and the database system used to record accident and road accidents in depth to use as a central database accessible to all agencies.
- **Knowledge transfer in database system**, it is a training to transfer knowledge about accident and accident recordings to related agencies. To use as a central database for accident records.
- **Gap Analysis** of safety measures Analyze defects or issues related to the implementation of road safety in various areas. From the relevant agencies in the province by organizing Focus Group meetings of relevant agencies and SWOT Analysis of road safety measures in the provinces.
- Set up Vision, objectives, goals, after analyzing the strengths, weaknesses and problems of provincial security measures. By integrating the cooperation between various agencies in the province. This leads to vision, objectives, goals, and leads to strategic planning.
- SWOT analysis leads to the formation of a provincial strategy.

Provincial Master Plan and Action Plan at Provincial Level

4 cases of accident investigation in Khon Kaen and 4 cases in Songkhla province to identify the cause of the accident. In-depth accident investigation is the only way to know the cause of a real accident. An in-depth accident investigation method has been applied, ranging from the notification process to the causal analysis process. This will lead to suggestions for preventive measures and correct them further.

The roadmap to reduce road accidents in two pilot provinces will be developed in line with the strategic framework of the Ministry of Transport's 10-year road accident mitigation

master plan, consisting of five pillars; Pillar 1) Road Safety Management Pillar 2) Safer Roads and Mobility, Pillar 3) Safer Vehicles, Pillar 4) Safer Road Users, Pillar 5) Post-crash response by strategic issues under the Decade of Safety Framework

Based on gap analysis on safety measures. In the pilot provinces, vision, goals, objectives, strategies, master plans and action plans to reduce road accidents can be formulated. The details are as follows The roadmap to reduce road accidents is in line with the strategy. The pilot projects can be summarized as follows show in table 7-1 and table 7-2

Table 7-1 Summary of Master Plan for Road Accident Reduction in Khon Kaen province

Strategy	Plans	Projects	Agencies	Budget (Baht)	Years (A.D.)		
					2018	2019	2020
Strategy 1 Road Safety Management	1.1 Establish central organization specifically overseeing national road safety.	1.1.1 Road Safety Organization Establishment Project	RAVP	3,500,000	2,500,000	500,000	500,000
	1.2 Promote in-depth accident investigation.						
Strategy 2 Safer Roads and Mobility	2.1 Clearly classify hierarchy of roads network.	1.2.1 In-depth Accident Investigation Project	DOH/DRR	12,000,000	4,000,000	4,000,000	4,000,000
		2.1.1 Traffic Management in Community Areas Project	NPB	10,000,000	5,000,000	2,500,000	2,500,000
		2.1.2 Promotion of Technologies for Traffic Management Project	HP/NPB	30,000,000	10,000,000	10,000,000	10,000,000
	2.2 Improve risky and black spots systematically.	2.2.1 Road Safety Audit Project	DOH/DRR	9,000,000	3,000,000	3,000,000	3,000,000
		2.2.2 Black Spots Analysis and Correction Project	DOH/DRR	30,000,000	10,000,000	10,000,000	10,000,000
	2.3 Management roadside accidents systematically.	2.3.1 Study Project for Roadside Hazard Management	DOH/DRR	21,600,000	7,200,000	7,200,000	7,200,000
		3.1.1 Existing Vehicle Audit and Screening Project	DLT	8,200,000	3,200,000	2,500,000	2,500,000
Strategy 3 Safer Vehicles	3.2 Enhance proper use of vehicles and safety devices.	3.2.1 Strong Law Enforcement on using incorrect truck type Project	DLT	3,000,000	1,000,000	1,000,000	1,000,000
		3.2.2 Development of Laws and Rules about Excessive Passenger Transport Project	DLT	3,000,000	1,000,000	1,000,000	1,000,000
	4.1 Develop driving license testing standards.	3.2.3 Development of Laws and Rules about Overload Transport Project	DOH/DRR	6,000,000	2,000,000	2,000,000	2,000,000
		4.1.1 Study Project for Granting Driving Licenses Guidelines for VRUs	DLT	7,500,000	2,500,000	2,500,000	2,500,000
Strategy 4 Safer Road Users	4.2 Enhance providing education to drivers, riders, passengers, and other road users.	4.2.1 Driving School Standard Audit Project	DLT	4,500,000	1,500,000	1,500,000	1,500,000
		4.3.1 Promotion and Integration of Systematic Checkpoints Installation in Collaboration with the Police and Communities Project	DLT	3,000,000	1,000,000	1,000,000	1,000,000
	4.4 Promote safer drivers of public passenger and goods transport.	4.4.1 Truck Drivers' Roles and Behaviors Monitoring Project	DLT	6,000,000	2,000,000	2,000,000	2,000,000
		5.1.1 Traffic Incident Management Project	HP/NPB/Rescue	6,000,000	2,000,000	2,000,000	2,000,000
Strategy 5 Post-crash Response	5.1 Develop access to accident scenes for Emergency Medical System.	Total Budget			57,900,000	52,700,000	52,700,000

Table 7-2 Summary of Master Plan for Road Accident Reduction in Songkhla province

Strategy	Plans	Projects	Agencies	Budget (Baht)	Years (A.D.)		
					2018	2019	2020
Strategy 1 Road Safety Management	1.1 Establish central organization specifically overseeing national road safety.	1.1.1 Road Safety Organization Establishment Project	RAVP	3,500,000	2,500,000	500,000	500,000
	1.2 Promote in-depth accident investigation.	1.2.1 In-depth Accident Investigation Project	DOH/DRR	12,000,000	4,000,000	4,000,000	4,000,000
Strategy 2 Safer Roads and Mobility	2.1 Clearly classify hierarchy of roads network.	2.1.1 Traffic Management in Community Areas Project	NPB	20,000,000	10,000,000	5,000,000	5,000,000
		2.1.2 Promotion of Technologies for Traffic Management Project	HP/NPB	10,000,000	5,000,000	2,500,000	2,500,000
	2.2 Improve risky and black spots systematically.	2.2.1 Road Safety Audit Project	DOH/DRR	4,500,000	1,500,000	1,500,000	1,500,000
		2.2.2 Black Spots Analysis and Correction Project	DOH/DRR	30,000,000	10,000,000	10,000,000	10,000,000
	2.3 Management roadside accidents systematically.	2.3.1 Study Project for Roadside Hazard Management	DOH/DRR	43,500,000	14,500,000	14,500,000	14,500,000
Strategy 3 Safer Vehicles	3.1 Audit and screen existing vehicles in the system to ensure ability to function in compliance with safety standards.	3.1.1 Existing Vehicle Audit and Screening Project	DLT	8,200,000	3,200,000	2,500,000	2,500,000
		3.2.1 Strong Law Enforcement on using incorrect truck type Project	DLT	3,000,000	1,000,000	1,000,000	1,000,000
	3.2 Enhance proper use of vehicles and safety devices.	3.2.2 Development of Laws and Rules about Excessive Passenger Transport Project	DLT	9,000,000	3,000,000	3,000,000	3,000,000
		3.2.3 Development of Laws and Rules about Overload Transport Project	DOH/DRR	6,000,000	2,000,000	2,000,000	2,000,000
Strategy 4 Safer Road Users	4.1 Develop driving license testing standards.	4.1.1 Study Project for Granting Driving Licenses Guidelines for VRUs	DLT	5,000,000	2,000,000	1,500,000	1,500,000
	4.2 Enhance providing education to drivers, riders, passengers, and other road users.	4.2.1 Driving School Standard Audit Project	DLT	4,500,000	1,500,000	1,500,000	1,500,000
	4.3 Enforce laws to control risk behaviors systematically.	4.3.1 Promotion and Integration of Systematic Checkpoints Installation in Collaboration with the Police and Communities Project	DLT	3,000,000	1,000,000	1,000,000	1,000,000
		4.4.1 Truck Drivers' Roles and Behaviors Monitoring Project	DLT	6,000,000	2,000,000	2,000,000	2,000,000
Strategy 5 Post-crash Response	5.1 Develop access to accident scenes for Emergency Medical System.	5.1.1 Traffic Incident Management Project	HP/NPB/Rescue	6,000,000	2,000,000	2,000,000	2,000,000
		Total Budget		174,200,000	65,200,000	54,500,000	54,500,000