

Accident Narrative

At about 10:00 PM, on 14 July 2013, there is a report of car crash accident at Pathumwilai Intersection across Pathumthani City Hall in Pathumthani City. The car was reported to be crash into a light pole in the raised median. Based on the evidences, the left side of the car hit into the median street light pole. The car driver was only one casualty and he has only minor injury.

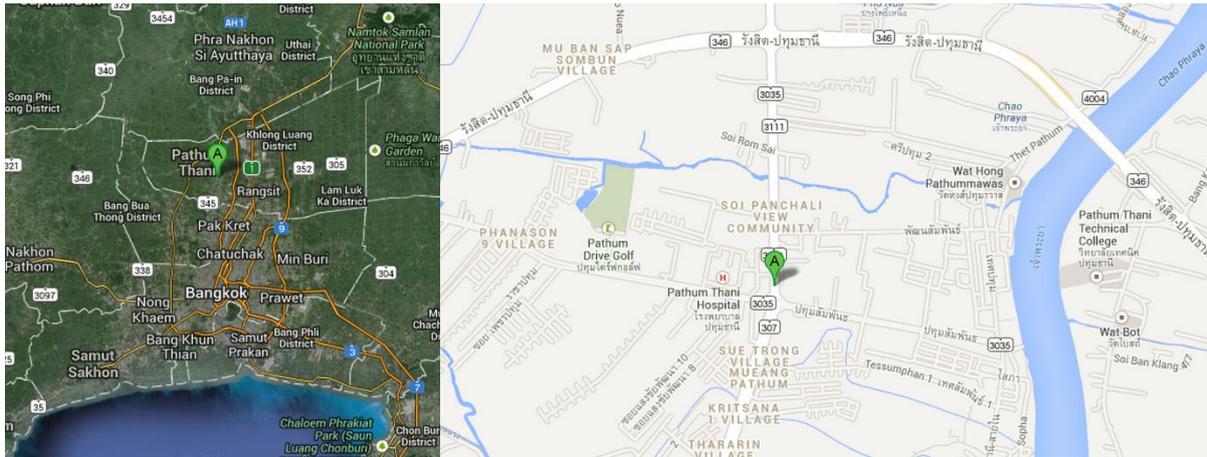


Figure 1 Map showing the location of crash site

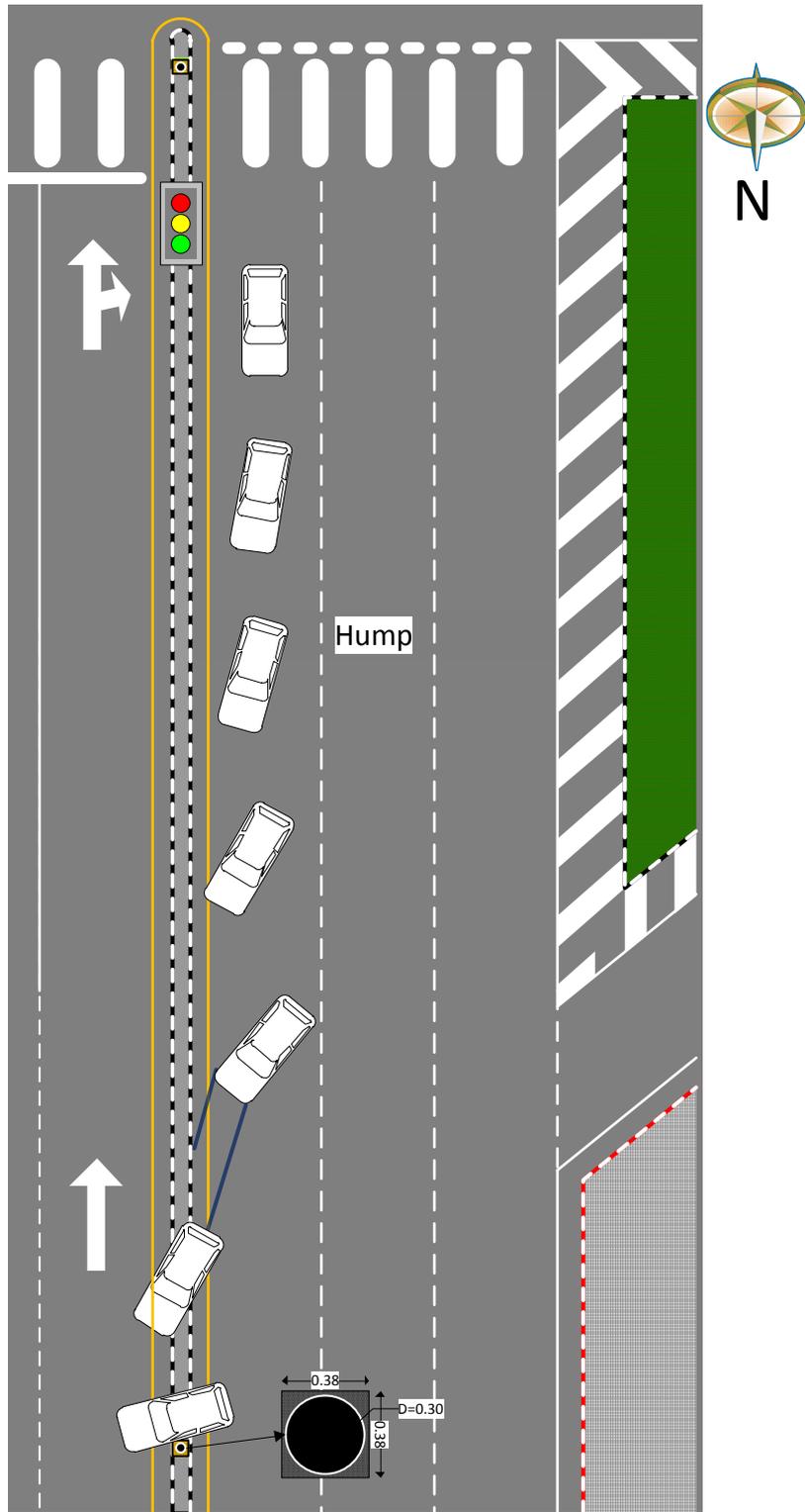


Figure 2 Schematic of Accident Scene

Vehicle Information

This accident was a crash from pick-up (V1) hitting into the street light pole. The pick-up has registration number of กรุงเทพมหานคร 1714 Bangkok. It is Chevrolet Aveo LT 1.4AT 2007 model with 1,399 cc gasoline engine, 4 pistons, 16 valves, automatic transmission and rear-wheel driving. It has dimension of 4,310x1,717x1,505mm with wheel base of 2,480mm and gross weight of 1,120kg. In front is a single seats equipped with 3-points seat belt and air bag in both seats while rear seats is equipped with 3-points seat belt in left and right seat with a 2-points seat belt for middle seat. After the investigation, it was found that the every wheels and tires were change to the bigger size than vehicle's standard. From the standard, the wheel should be in 185/55 R15 size but they were changed according to the table 1.

Table 1 Tires Detail of V1

| Location | Damage | Manufacture | Tire Name | Year | Size | Load Index & Speed Symbol | Pressure (psi) |
|----------|--------|-------------|-------------|------|------------------|---------------------------|----------------|
| 1R | Yes | Aurora | Radial H107 | N/A | 195/55R15 85H | Max Load 515kg | 5.2 |
| 1L | No | | | 4410 | | | 4.4 |
| 2R | | | | N/A | | | 4.6 |
| 2L | | | | 4510 | | | 4.4 |

Vehicle Damages

The pickup had a massive damage on its left part as shown in figure 3 to 5. Left part of car was deformed up from the frame of the left door to the front left passenger seat. Also, front part of the car was bent back due to the force of impact. Front left wheel swayed outside from its axle and front right wheel tire was burst. In contrast, right side of the car received only a minor damage due to the structural deformation from its left side. Rear right door can still be opened. TRAC evaluated the Collision Deformation Code (CDC) for V1 as 10LP1AE3.



Figure 3 Vehicle Damage (Left Side)



Figure 4 Vehicle Damage (Right Side)



Figure 5 Vehicle Damage (Front and Rear)

No deformation was observed in street light pole, only some scratches were found. One retention bolt at the base of the pole is missing. The most noticeable damage was both lamps had been broken after the crash.



Figure 6 Vehicle damage at crash scene
Source: INN News

Highway Information

The accident occurred on the north approach of Pathumwilai Intersection which located in the center of Pathumthani City. Pathumwilai Intersection is a traffic control intersection which three roads are joined; Highway No.311 on north approach with 4 lanes in approach, Highway No.3035 on east-west approach with 3 lanes in each approach and Highway No. 307 on south approach with 3 lanes in approach. Separated left turn lane is available in every approach.

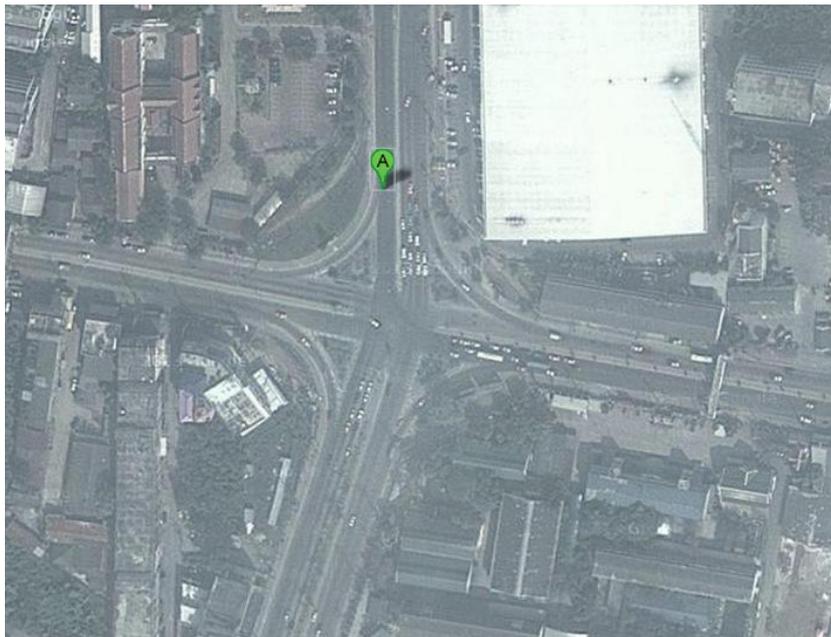


Figure 7 Satellite image of intersection

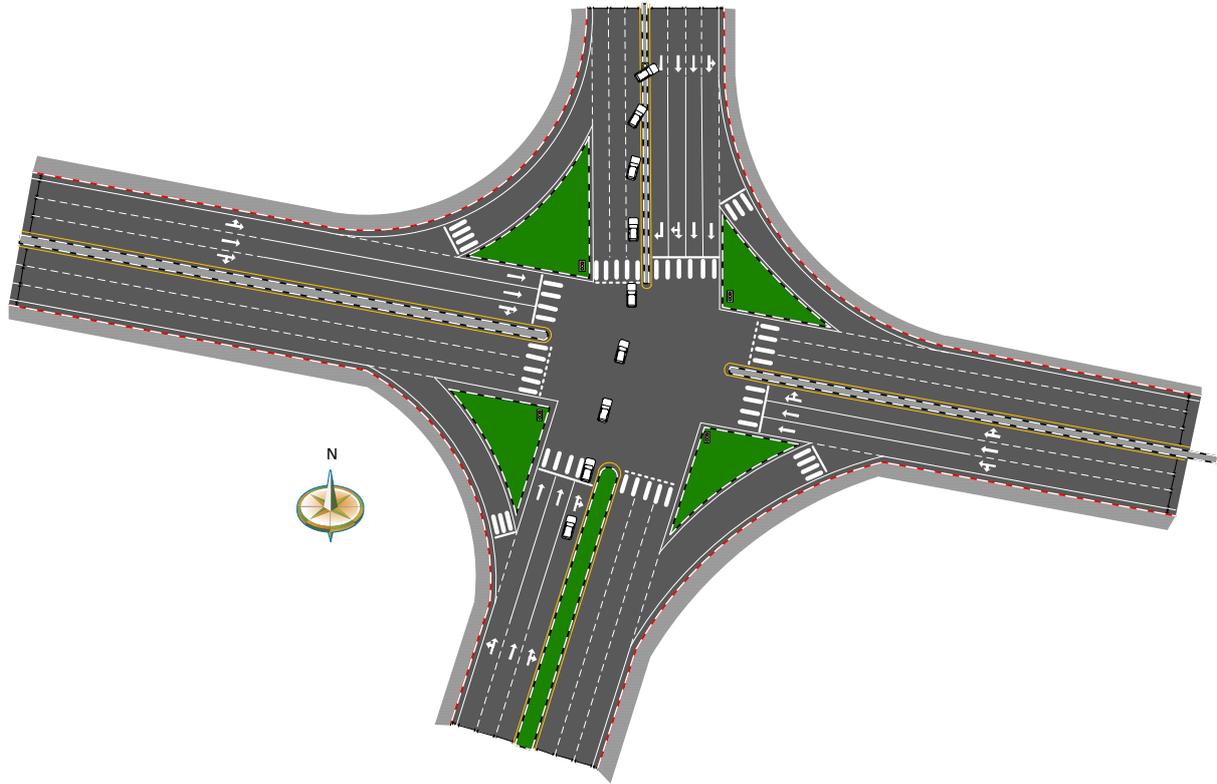


Figure 3 Schematic plan of road geometry

Physical Evidence

The surrounding area of Pathumwilai Intersection can be considered as a downtown area of Pathumthani Province. Across accident scene, there is a Pathumthani Government Center on the west, Tesco Lotus Supermarket on the east and surround with many important places including Pathumthani Hospital, Pathumwilai School and entrance to Fresh Market on the east. Therefore, heavy traffic volume can be observed throughout the day time. According to the investigation, a distortion in pavement surface was found before the crash site. Also, 5-meters length yaw mark and a scratch were observed in the raised median.



Figure 9 Crash scene (Northward)

Driver Information

The car driver is 35 years old male from Khonkhan. According to the information from his friends, the driver lives and works at Pathumthani so he must be familiar to the road in this area. The car belongs to the driver directly but the driver still has to pay for its installment to Ayutthaya Capital Auto Lease Co.,Ltd. According to the information from the police, no influence from alcohol had been observed by the police after the crash.

Injury Information

There was only one driver who on board at the time of the crash. Since the impact was in the left compartment of the car, the right side had almost no damage from the impact. Thus, the driver who drove on the right seat had just only minor injury. According to injury information from hospital, only a laceration wound in eyelid, scratches in cheek and some bruise in his chest from the impact.

Accident Contributing Factors

Red light running

According to police officer, the car was driving from southern part of the city by Highway No.307 up north. Approaching the intersection, the car was given the red light but decide to running red light. At the moment, another car was coming from the west approach which was given a green light. The driver executed evasive maneuver to avoid that car coming from his left but he lost his control and crash into a street light.

Uneven pavement surface

Before reaching the resting point of the crash, a distortion of pavement surface can be observed. According to information from the locals, that area used to be a small canal but had been filled for street widening and distortion in settlement produce uneven road surface. Suspect that the car can lose its control when running across a hump.



Figure 10 Pavement distortion before reaching crash area

Speed

According to evidence such as skid mark and the deformation of the car, TARC can perform a reconstruction analysis. An impact speed of 45kph has been given from an analysis. It is suspected that the car probably drove at higher speed than an impact speed. However, the car can lost its speed due to the impact between front-right wheel to the curb and the sliding of the car on the median before hitting the pole. Although, just an impact speed of 45kph could create a large deformation because a structure on the side of the car should be weaker compare to its front or rear structure.

Significant Factors

TARC determined that the probable cause of the 130715-01 crash occurrence was due to the red light running. Suspect that the driver had to avoid the approach vehicle from red light approach. Also, small humps due to an uneven settlement can be one of the factors. In this case, TARC suspect that the car lost its control before crash from many evidence such as yaw mark, scratch at the median from sliding and damage on the front-right wheel. When the car lost its control, suspect the front-right wheel hit the first impact to the median. The drag force drove the front-left wheel up across the median and sent the left part of the car crash into the street pole.