Road Billiton is one of several roads in the city of Surabaya, which often happens during rush hour traffic jams or (peak hour). The presence of General Fuel Filling Station (Gas Station) located adjacent to the junction between Jalan and Jalan Sumbawa, Sulawesi Billiton gave little effect on the density of roads Billiton. Hence this study has the objective analysis to determine how much influence the gas station on the traffic density around the year 2009 (now) until the year 2014.

To perform the calculation of volume and capacity that is used to determine the degree of saturation at each road segment is used as a reference MKJI. To know the growth of vehicles from year 2009 until 2014 used linear regression analysis. While the delay is used to obtain large Poisson probability formula. And for analysis of the FIFO queue discipline used queue (First In First Out) queuing model assumed is M / M / 1. Survey carried out, namely on Monday, Wednesday, and Saturday by taking the time during rush hour (in the morning (6:00 a.m. to 09:00), afternoon (12:00 to 14:00) and evening (16:00 to 7:00 p.m.).

The study found that in 2009 the number of degree of saturation on the road Billiton amounted to 1143, the road for 0,089 Sumbawa, Sulawesi road - towards 0,644 and on the road Gubeng Sulawesi – Raya Kertajaya direction for 0,468. While the
five-year forecast of the future or in the year 2014 for the value of the degree of saturation for the road Billiton for 1,729, 0,122 road Sumbawa, Sulawesi road - direction Gubeng 0920, and for the Celebes road - direction Raya Kertajaya 0705. Under the terms of a reduction in 1997, urban road ratio V/C of 0.75. So in year 2009 and year 2014 road Billiton and Sulawesi are not eligible ratio of urban roads. Probability of vehicles that will come out of a gas station in 2009 with a gap based on field observations is of 6.2 seconds for vehicles coming out of the gas station and headed towards the highway Gubeng 12.08 seconds for the vehicle as it headed toward Gubeng Kertajaya. For the year 2009 the probability values obtained for 25% for vehicles heading for the Raya Kertajaya and Gubeng is moving towards 12%. And for the projection of 5 (five) years or in the year 2014 obtained the following results that came out of the vehicle is moving towards highway Pom Kertajaya gasoline amounted to 34% and for those heading towards Gubeng amounted to 17%. For the number of vehicles entering the gas station is at 2%. Lane weaving required a lane in the year 2009 and the second lane in 2014. According to Hobbs FD 1995 for areas with the volume of vehicles weaving max 1000 pcu / h is 75 meters. In field conditions there are three lanes and weaving along the length 80 meters. In queuing analysis obtained in the year 2009 for the queue happens to light vehicles as a vehicle for a motorcycle and get as many as two vehicles waiting in the system. And 2014 for light vehicles and there is a vehicle for a motorcycle there are three queues are waiting in the system.

Keyword : Peak Hour, Delay, Linear regression