ABSTRACT

The purpose of this project is to recommend improvement to reduce Time to Repair (TTR), reduce breakdown maintenance or repairs in expressway lighting system. First of all, the study in maintenance concept is the need in order to know how we choose significant repairs.

Today, there are many concepts in maintenance. To achieve the goal of the project, it not only repairs when a machine breaks down, but also does the preventive action, which is known as Preventive Maintenance. Then develop to Total Productive Maintenance (TPM).

The significant repairs are chosen by the multiplication of TTR and the effect factor. Pareto is used to prioritize the repairs. And again Pareto chooses the major causes for the two significant repairs. One is 'All lighting in one supply pillar is black out'. The other is 'One lamp of expressway lighting is black out'.

To reduce the first significant repairs, it is to eliminate the repairs that cause about 80% to ΣTTR of the first repair group. There are 4 causes, too high voltage from MEA or PEA supply, no electricity on control circuit, photo sensors don't work, and operator forgetting. To eliminate 4 causes is to eliminate 80% of ΣTTR of 'All lighting in one supply pillar is black out'. And methods to reduce ΣTTR are suggested.

And to reduce or eliminate the second significant repairs is to implement early replacement for the lamp replacement which needs to find the optimum operation which is not only the effectiveness of the expressway lighting, but also minimizes the cost of maintenance.

Furthermore, to eliminate the remaining causes and to implement autonomous maintenance program is essential for TPM.