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# EVALUATION OF HARDWARE CONDITIONS AND PREDICTION OF LIFE REMAINING WITH THE PAVEMENT CONDITION INDEX (PCI) METHOD AND AASHTO METHOD

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## ABSTRACT

Road infrastructure that is burdened by high and repetitive traffic volumes will cause a decrease in road quality. To anticipate this, it is necessary to do prevention by maintaining the road. Road maintenance should be carried out regularly or periodically to keep the pavement criteria in good condition during its service life until the design period. To determine whether at present or in the future, the road is still in good condition, therefore it is known how much damage to road conditions that occurred on the flexible pavement on the Padjajaran Yogyakarta road section at Sta 00 + 000-00 + 1000 using the pavement condition index (PCI) method and AASHTO. The PCI and AASHTO methods use the IRI, SDI, LHR and CBR values. Where the results show the value of the pavement condition is classified as good with a PCI value of 93 and the prediction of remaining road life that can be used by the AASHTO method is 93% and it is still a suitable road.
*Keyword : PCI, AASHTO*

## BACKGORUND

Roads are a very supportive infrastructure for the needs of the community, road damage can have an impact on social and economic conditions, especially on land transportation facilities. The impact on road construction is a change in the shape of the road surface in the form of potholes, rutting, cracks and grains (ravelling) as well as edge scouring which causes road performance to decline. Comprehension of road infrastructure planning in an area starting from the pre-survey stage, technical planning and design, implementation of physical development to maintenance must be integral and inseparable according to current needs and prediction of future service life in order to maintain functional resilience.

## OBJECTIVE

The purpose of the research are This is to determine the types of road surface damage located on Jalan Padjajaran and to determine the level of road surface damage based on the Pavement Condition Index (PCI) Method and AASHTO Method also To find out how long the pavement conditions are and the remaining life available uses the Pavement Condition Index (PCI) Method and the AASHTO Method.

## THEORYTIES

Road hardness is a layer that is located above the subgrade which has obtained compaction to carry the traffic load then spreads the load, both horizontally and vertically and finally continues the subgrade load, so that the load on the subgrade does not exceed the allowable bearing capacity of the soil. . The pavement layer of a road consists of one or several layers of rock material and binder.

The important thing in the management of a road pavement system is the ability to determine a picture of the current condition of a road network, and predict its condition in the future. To predict pavement conditions properly, a scoring system for identification must be used. This system is a tool for appraisal personnel in assessing pavement damage. There are several systems for assessing the condition of the perimeter.

## METHODOLOGY

The location to be reviewed as the object of the case study in the research was carried out on the Padjajaran Road in Sleman Regency, Yogyakarta Special Region. The distance to be used for this research is around 1,000 m, the road is a national road.

## RESULT AND DISCUSSION

Following Table 1 is the calculation result of the pavement condition index (PCI) value for each unit on the Padjajaran (North Ringroad) Yogyakarta.

**Tabel 1** Result of PCI and Segmen Rating

| No | Sta (m) | Segmen | Direction | *PCI* | Condition |
|---|---|---|---|---|---|
| 1 | 0+100-0+200 | 1 | Jogja-Kaliurang | 91 | *Excellent* |
| 2 | 0+200-0+400 | 2 | Jogja-Kaliurang | 94 | *Excellent* |
| 3 | 0+400-0+600 | 3 | Jogja-Kaliurang | 100 | *Excellent* |
| 4 | 0+600-0+800 | 4 | Jogja-Kaliurang | 100 | *Excellent* |
| 5 | 0+800-0+1000 | 5 | Jogja-Kaliurang | 80 | *Very Good* |

## CONCLUSION

In good condition, the value of PCI = 93 with the lowest PCI value of 80 and the highest PCI value of 100. The most common type of damage found on pavement is patching with an area of 860 m². Determination of the type of road handling carried out by using the PCI value analysis of the visual conditions of the road required is routine maintenance, namely repairing road damage which is still classified as minor repairs, because it keeps the road in good and steady condition. From the plan age, the prediction of remaining road life according to the research that I use the AASHTO method is around 97%.

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