

**Optimal Track Maintenance Strategy Model Constructed by Considering Deterioration Level
of both Rail and Ballast**

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Through appropriate maintenance work, railway track irregularities must be kept at a satisfactory level with the minimum maintenance cost for a long term. Therefore, we have developed an optimal decision making model for track maintenance strategy such as tamping, rail grinding, rail replacement and ballast replacement schedule by considering the degradation level of both rail and ballast. In order to determine the economical strategies, the model was developed from the result of statistical model analyses by considering both the influence of track material deterioration on the interval time for tamping work and the effect derived from track material maintenance. By using the model, we can obtain the optimal track maintenance strategy. The output of the model indicates the sections for which maintenance must be executed.