

## H-Charts Q&A

---

1. **What is an H-Chart?** An H-Chart is a bar-chart display of historical, current, and future pavement maintenance and rehabilitation projects for any piece of pavement in any route across California. It clearly lays out a plan for 10 or more years into the future, based on current condition, previous work and potential projects assuming a certain funding scenario.
2. **How could the H-Chart be used?** The H-Chart is used to plan potential pavement preservation and rehabilitation projects for a future time horizon.
3. **Why it was created ?** It was created to quickly evaluate what potential pavement projects should be considered for an entire route, in a county. Several Districts used similar type of charts in practice. The H-chart introduced here automated the generation process, and standardized the chart format statewide.
4. **Where does it fit in the big picture of pavement management and Pavem?** The H-Chart answers the basic questions of pavement management: when and where should rehabilitation and maintenance projects be considered.
5. **What are project selection scenarios (work plans)?** A project selection scenario, or work plan is the list of projects that are selected for a certain time horizon, say 10 years. The projects selected may be programmed, under-construction, or scenario-recommended. The scenario-recommended projects are in fact the projects recommended by a Pavem scenario run. A scenario refers to a specific funding allocation plan. As each Pavem run is associated with a specific funding allocation plan, a Pavem run may also be referred to as a scenario run. Scenarios are established by evaluating, with Pavem, the statewide allocation for maintenance and rehabilitation funding across the state.
6. **What is a master scenario?** While there are an infinite number of scenarios that could be run, the master scenario is based on the funding available for the 10-year SHOPP and 5-Year Maintenance Plan. The master scenario is based on the amount of money allocated.
7. **What is the process to get new scenarios into the H-Chart application?** Users can run their own scenarios in Pavem at any time. Also, the Headquarters Pavement Program would be happy to help Districts run scenarios.
8. **What is the source of data displayed in the H-Chart?** There are 3 files used to display data in the H-Chart: project history, scenario run results, and county odometer reference systems. Scenario run results include both programmed and scenario-recommended projects. An H-chart needs to be updated to reflect different scenario run results.
9. **Can you explain the coarse grouping process?** The H-Charts are generated based on coarse segmentation in Pavem. Pavem runs every 26.4 feet of pavement through a decision tree to determine a level of distress. These tiny sections are then aggregated together to create potential projects for each lane. Since Caltrans does not generally do lane based projects, these projects are grouped based on pavement type, and across all lanes, and then through the years, to make



## Pavement Program – Division of Maintenance

potential project “segments.” Segments are the optimal length to do projects based on the aggregation of all the tiny distresses at all levels along the route and county.

10. **How are projects recommended by PaveM?** PaveM evaluates system needs based on decision trees, which include performance thresholds. For example, wheelpath cracking exceeds 10% will trigger CAPM or rehabilitation needs. Future year performance are determined using performance models, which consider factors such as traffic and environmental loading and pavement age. Projects are prioritized based on quasi-benefit cost analysis.
11. **Can you describe how the average IRI is calculated?** The average IRI is the average IRI of all 26.4-foot sections in a length.
12. **How is the distress level calculated?** Distress is based on a combination of IRI and cracking.
13. **What are the levels of distress?** Basically red-yellow-green. For asphalt, Red is greater than 30% alligator cracking, Yellow is between 10% and 20% and Green is less than 10%. For concrete, the Red is segments with third stage cracking greater than 3%, Yellow is between 1.5% and 3 % and Green is less than 1.5%. An additional class is labeled blue, which is no cracking, but has an IRI above 170 in/mi which is considered a bad ride.
14. **What are the pavement types?** Pavements are either concrete or asphalt. A concrete pavement that has an overlay thicker than 0.25’ is considered asphalt pavement.
15. Any lane specific issues that need clarifying. <<Is every section left and right? I could not find a both-direction route >>
16. Explain each item in the Legend << I think they are self explanatory. >>
17. **How can the H-Chart be edited?** The H-Chart is an Excel file that can be modified as any Excel file can be.
18. **There is a project, which I know was built, that is missing. What do I do?** PaveM is built from files loaded from districts, Office Engineer, and Project Resourcing and Schedule Management (PRSM) system. It is quite possible that a project is missing or has wrong data. Please let us know and we can correct it.
19. **How can users suggest modifications?** Call Zhongren Wang at 916.274.6177
20. **How to report a bug?** Call Zhongren Wang at 916.274.6177