EXECUTIVE SUMMARY
MAY 2010

The Engineering Division of the Public Services Department has recently completed an evaluation of approximately 273 lane miles of arterial streets for the City of Costa Mesa, and has updated the City's pavement database to reflect those sections of arterial streets which received some form of rehabilitation since the last update in 2008.

Staff has divided the arterial streets into 322 segments for ease of tracking their condition, maintenance requirements, pavement history, etc. Surface Distress (potholes, cracks and other pavement defects) information is collected on each street segment at one hundred (100) foot intervals.

The condition of each street segment is rated on a scale of "0" to "100" with 100 being the best rating. The result of surface distresses called the Pavement Condition Index (PCI) provides a basis for comparing the relative condition of each street segment. By comparing the calculated PCI for each segment against an established PCI for a roadway segment deemed acceptable (PCI= 89), staff is able to determine future rehabilitation needs based on cost effectiveness, and determine present status of the arterial streets in the system. In addition, projections are made to determine the effect a variety of funding scenarios have on the condition of the overall street system.

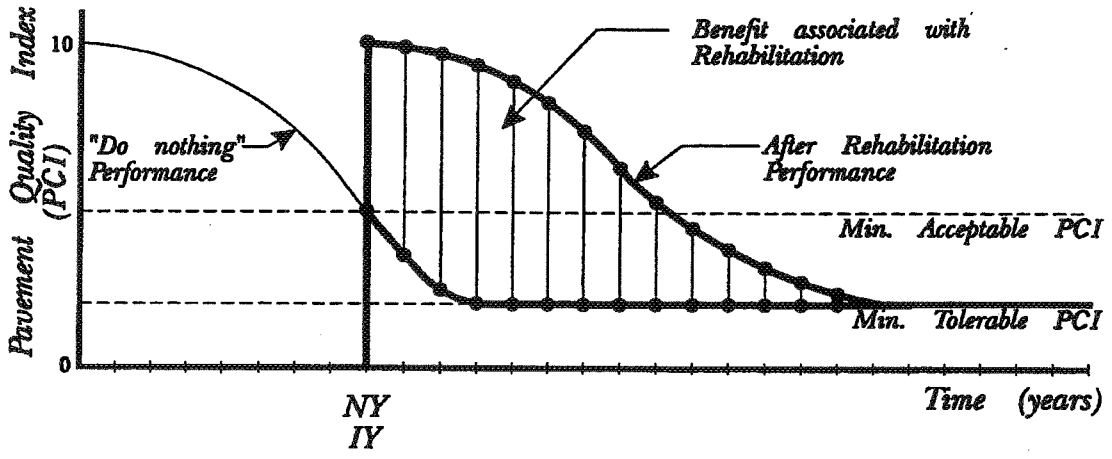
The Pavement Condition Index (PCI) threshold values

Quality	Index	Proposed Treatment
Very Good	90-100	None proposed
Good	84-89	Slurry Seal
Fair	73-83	Thin Overlay
Poor	60-72	Thick Overlay
Very Poor	0-59	Reconstruction

The City's pavement management software evaluates each deficient street segment by using a list of possible rehabilitation strategies with a unit cost assigned to each strategy. These strategies are used in the outcome branches at the bottom of decision trees. The decision trees utilized to select cost effective repair strategies are illustrated in the Parametric Data Report in Appendix G. Each street analyzed will fall into one of these branches based on the conditions tested in the decision tree. The rehabilitation strategies identified in each branch will repair the condition that caused the street segment to fall into that branch. If more than one strategy occurs in a branch, the most cost effective strategy will be selected.

The cost effectiveness of each rehabilitation project is calculated based on the benefit of implementing the improvement strategy divided by its cost.

The benefit of implementing the strategy is the "area" under the projected performance curve as shown on the figure below. This accounts for both the initial increase in PQI or service level and the extended life. Total benefit is derived by multiplying the "area" by the user miles on the street section (street length X AADT).



The final analysis involves applying the available budget to the needs and determining what project should proceed if sufficient funding is available to meet all the needs. The projects are selected on the basis of highest cost effectiveness ranking to ensure that greatest benefit will be derived for the funding available in each year.

The analysis of the collected data indicates that the majority of the City's arterial pavements are in a serviceable condition. A "needs driven" report (Appendix D) shows those streets with a PCI equal or lower than PCI of 89, which are currently in need of rehabilitation or reconstruction. It is estimated the City would have to spend a total of $82,517,322 in 2010 to address the arterial street rehabilitation requirements.

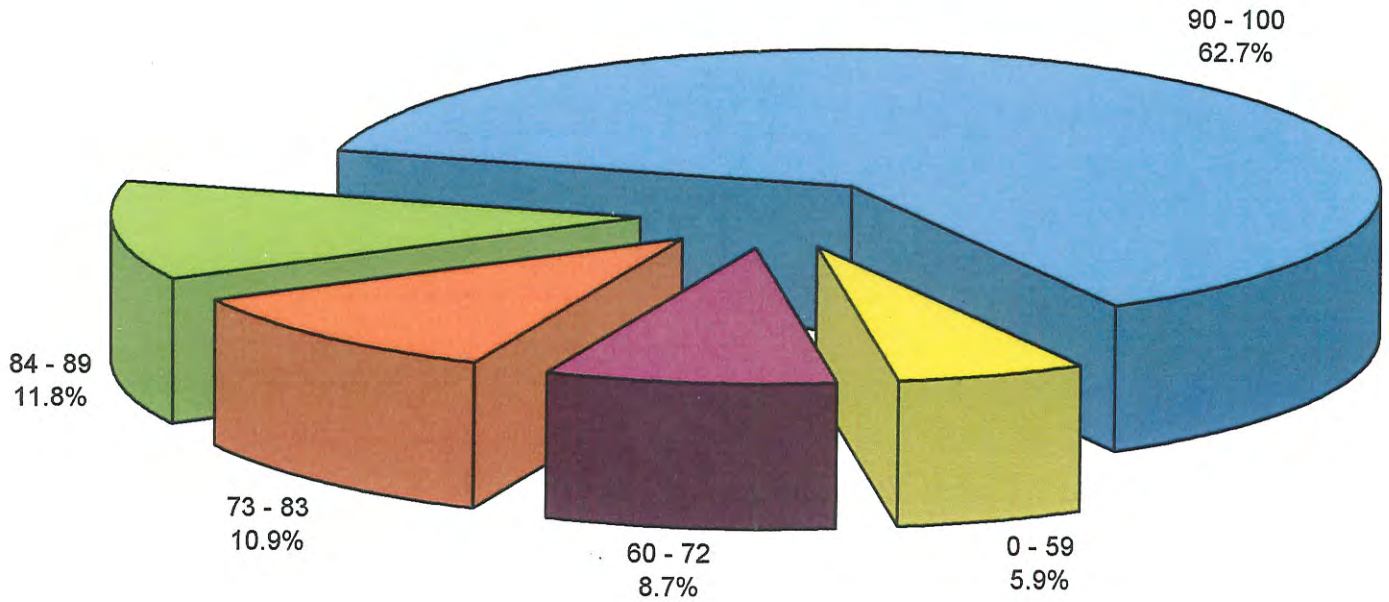
Included with this report are updated Geometric, Traffic and Structural data on the City's arterial streets. Appendices A, B, and C present these data.

Surface Distress Data is illustrated in Appendix E for each arterial street. The Surface Distress Data provides a useful reference, which shows what surface defects are present on each street segment. The rating includes both the severity (how wide are the cracks) and the extent (how much of the street is affected) for each distress. The individual ratings for each distress on a street segment are combined into an overall Surface Distress Index (SDI) for each section.

Using Performance Prediction models, the deterioration of each street segment is projected over the life of the street, starting from its present condition.

The point in time each street segment will need some form of rehabilitation can be determined by applying a minimum acceptable PCI or service level of 89. The year each street will reach this point can then be determined. The resulting Need Driven Rehabilitation Report for the next ten years is contained in Appendix D.

The City of Costa Mesa
2010 Pavement Condition Index (PCI)
First Year of Analysis: 2010



Pavement Information Table

PCI Range	0 - 59	60 - 72	73 - 83	84 - 89	90 - 100	Total
No. of Sections	19	28	35	38	202	322.0
% of Sections	5.9%	8.7%	10.9%	11.8%	62.7%	
Lane Miles	15.1	19.4	27.0	38.9	172.6	273.0
% of Lane Miles	5.5%	7.1%	9.9%	14.2%	63.2%	