

**ROADWAY IMPACT FEES**  
DEPARTMENT OF PUBLIC WORKS  
COUNTY OF MARIN  
JUNE 2003

Cost Basis for the Fee

The Marin County Department of Public Works is responsible for the repair and maintenance of 421 miles of roadway pavement. The pavement condition index, or PCI, is a measurement of pavement grade or condition and ranges from zero (worst) to 100 (best). Presently, the average PCI of the County's Street Network is 59. An optimal PCI is in the low to mid 80's.

With the County's projected budget over the next five years, the condition of the network is projected to deteriorate from a PCI of 59 (fair) to a PCI of 47 (poor). A significant portion of the network currently suffers from load-related distresses. In addition, there is a significant backlog of several million dollars in maintenance. In order to correct these deficiencies, a cost-effective funding, maintenance and rehabilitation strategy must be implemented. In 2002, the County Board of Supervisors commissioned Nichols Consulting Engineers to perform a study of the County's pavement management program. Using the Metropolitan Transportation Commission's (MTC) Pavement Management System budget needs module, the study concluded that maintenance needs over the next five years were estimated at \$88.8 million. If the County follows the strategy recommended by the study, the average network PCI would increase to 83. The results of the budget needs analysis done by the study are summarized in the following table:

| Year                      | 2003 | 2004 | 2005 | 2006 | 2007 |
|---------------------------|------|------|------|------|------|
| PCI w/ Treatment          | 72   | 73   | 76   | 81   | 83   |
| PCI w/out Treatment       | 57   | 54   | 51   | 48   | 45   |
| Budget Needs (\$ million) | 30.1 | 12.0 | 16.8 | 19.3 | 10.6 |

The County's primary sources of ongoing revenue for road repairs are gas tax and highway users' tax. In 2003-04, it is estimated that the County will receive approximately \$7 million from these sources. Another source of funding is the State requirement that a "Maintenance of Effort" be paid annually by the County general fund in the amount of \$750,000. This level of funding of \$7,750,000 annually provides for only minimum maintenance services and does not provide sufficient funding to arrest the ongoing decline in the average PCI of our road network. Assuming that the County will spend \$2.5 million on pavement maintenance over the next five years (\$500,000/year). At this funding level, the condition of the network will be decline in five years to a PCI of 47 (poor). The amount of the deferred maintenance will increase from its current amount of \$29.5 million to \$92.9 million. This backlog will continue to accumulate if additional funding cannot be allocated. The following table summarizes the results of this scenario.

| Year                              | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|-----------------------------------|------|------|------|------|------|-------|
| Budget (\$ million)               | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 2.5   |
| Deferred Maintenance (\$ million) | 29.6 | 38.2 | 54.8 | 76.0 | 92.9 |       |
| PCI                               | 58   | 56   | 53   | 50   | 47   |       |

If we follow the budget recommended in the Nichols report (\$88.8 million over the next 5 years), 81% of the County's road network will fall into the "good" condition category and virtually eliminate streets in the "very poor" and "poor" condition category. In addition, the backlog of work will be eliminated. The network PCI would increase to 83 from its current level of 59. Additional benefits would be fewer citizen complaints and more cost-effective expenditures of maintenance funds. The following table is the summary of their recommendation.

| Year                                | 2003 | 2004 | 2005 | 2006 | 2007 | Total |
|-------------------------------------|------|------|------|------|------|-------|
| Budget (\$ million)                 | 30.1 | 12.0 | 16.8 | 19.3 | 10.6 | 88.8  |
| Rehabilitation (\$ million)         | 29.5 | 11.8 | 16.6 | 18.8 | 8.6  | 85.3  |
| Preventive Maintenance (\$ million) | 0.6  | 0.2  | 0.2  | 0.5  | 2.0  | 3.5   |
| Deferred Maintenance (\$ million)   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |       |
| PCI                                 | 72   | 73   | 76   | 81   | 83   |       |

If we look at a 10-year program to get to a "good" condition category (PCI range of 70-85), it is estimated that we would need an average annual budget of \$10 million.

### Impact of Truck Traffic

Studies have shown that truck traffic causes considerably more damage to streets than passenger vehicles, and that truck traffic accounts for up to 60% of the damage to the streets. Several references and citations regarding the impact of heavy truck traffic on local roads have been found. Among these, are:

- UC Berkeley Institute of Transportation Studies, Pavement Research Center
- The University of California Transportation Center
- University of California, Davis, Institute of Transportation Studies, Pavement Research Center (in conjunction with California Department of Transportation, CalTrans)
- Kansas Department of Transportation, K-TRANS Research Program
- Urban Renaissance Institute, Toronto, Canada
- Illinois Department of Transportation

The studies cite the impact and cost of heavy truck traffic on various road types. They state that, compared to passenger vehicles, truck traffic is from 29,000 to 160,000 times more damaging to roads, depending on the size of the truck. The Kansas Department of Transportation estimates the incremental increase of additional truck traffic on local roads to be 48%, using the Chow network model. More locally, the Town of Tiburon commissioned its Town Engineer in 1999 to estimate the impact of additional construction truck traffic on its local roads. He estimated that approximately 45% of regular street damage and deterioration within the Town is attributable to vehicles used in the course of construction. Generally, the causes of street damage and/or deterioration can be divided as follows:

|                                 |     |
|---------------------------------|-----|
| Natural Elements                | 20% |
| Age                             | 20% |
| Non-construction activities     | 15% |
| Construction related activities | 45% |

The total valuation of building permits issued by the County in fiscal year 2000-01 was approximately \$110 million; in 2001-02 it was approximately \$65 million. This year, the Building Inspection Department estimates the number to be around \$90 million. It appears appropriate that a formula be developed using improvement valuation as the primary factor in

determining a street impact fee. The fee mechanism that is developed must also be relatively straightforward so that it does not result in an administrative burden to either the person paying the fee or the County. A permit fee of 1.00% of improvement valuation using an average annual building permit valuation of \$80 million would generate \$800,000 per year. This estimate includes a fee exemption for permits valued at \$5,000 or less which is estimated to be approximately 10% of the estimated annual improvement valuation of \$80 million.

For example, a permit for a new single family home with a construction cost of \$600,000 would have a road impact fee of \$6,000. A \$150,000 building addition would be charged a fee of \$1,500. A \$50,000 remodeling permit will be charged a fee if \$500.

Based on the research and citations indicated, and using the data developed in the Nichols Study and their recommended Pavement Management Program for the County of Marin over the next five years, the following Nexus analysis can be developed for three different scenarios:

### Nexus Analysis

|   | <u>Scenarios</u>                       |   |                                   |
|---|--|---|-----------------------------------|
|   | <u>To a PCI of 83<br/>Over 5 years</u> | <u>To a PCI of 75<br/>over 10 years</u> | <u>PCI of 70<br/>over 5 years</u> |
| 1. Ave. annual cost to maintain County roads  | \$16,000,000                           | \$10,000,000                            | \$ 6,000,000                      |
| 2. Annual gas tax fund revenue for road repair  | (\$ 3,220,000)                         | (\$ 3,220,000)                          | (\$ 3,220,000)                    |
| 3. Annual hwy. users' tax revenue   | <u>(\$ 1,480,000)</u>                  | <u>(\$ 1,480,000)</u>                   | <u>(\$ 1,480,000)</u>             |
| 4. SUBTOTAL – Funding Shortfall   | \$11,300,000                           | \$ 5,300,000                            | \$ 1,300,000                      |
| 5. Incremental truck impact on local roads based on Chow Network Model (48% of annual maint.):  | \$ 7,680,000                           | \$ 4,800,000                            | \$ 2,880,000                      |
| 6. Construction truck impact on County roads based on Town of Tiburon's 45% model (45% of incr. impact):  | \$ 3,456,000                           | \$ 2,160,000                            | \$ 1,296,000                      |
| 7. Estimated annual revenue raised by Road Impact Fee, based on additional truck and heavy vehicle impacts created by discretionary construction on County roads: | <u>(\$ 800,000)</u>                    | <u>(\$ 800,000)</u>                     | <u>(\$ 800,000)</u>               |
| 8. Remaining annual unmet funding need based on incremental truck and heavy vehicle impacts   | \$ 2,656,000                           | \$ 1,360,000                            | \$ 496,000                        |
| 9. Total annual unmet funding need:<br>(Ave. annual cost of maintenance from line 1 less estimated annual Road Impact Fee, gas tax and highway user tax revenues) | \$10,500,000                           | \$ 4,500,000                            | \$ 500,000                        |

The above analysis shows the direct incremental impact of trucks and heavy vehicles on County roads using the stated criteria in determining that impact.