

Street Talk

Refining Projections for Upcoming Bay Area Pavement Needs

by Theresa Romell

As many of you know, MTC has begun the process of updating its revenue shortfall estimates for local streets and roads maintenance and rehabilitation in the Bay Area. The projections are being made both for MTC's 2004 Regional Transportation Plan (RTP) as well as for a new edition of our *Pothole Report*, the last one of which was published in 2000. Shortfall estimates will cover both a five-year and a 25-year time frame.

The last major projection effort was conducted for MTC's 2001 Regional Transportation Plan. At that time, many jurisdictions felt that the amounts listed for their jurisdictions' "total pavement need" were significantly underestimated. And they were concerned that, as a result, they would not get their fair share of the funding pie, since the distribution of discretionary federal and state revenues is based on the shortfall figures.

Better Data

In response to these concerns, MTC decided to take a look at how we could improve our projection process. We found that one of the most critical factors in estimating the amount of money required to maintain a jurisdiction's pavements at an acceptable condition level was the cost of the treatments each jurisdiction listed in their pavement management program (PMP) software. We noted that many of the databases submitted by jurisdictions still contained the software's "default" treatment costs, which do not accurately mirror today's costs.

Another problem that we noticed is that many of the treatment decision trees that our users had constructed in their PMP databases did not reflect recommended practices for maintaining streets and roads. For example, many jurisdictions elected to do nothing for streets with a pavement condition index (PCI) above 70, whereas the recommended treatment is to apply preventative maintenance treatments in order to avoid far greater costs down the line.



The variation in the jurisdictions' treatment unit costs and decision trees in the PMP databases resulted in a total cost figure that, in many cases, did not reflect current costs, or, worse, deferred needed repairs.

Better Projections

Because individual jurisdictions input their own database unit treatment costs and decision trees, MTC felt that we needed to go back to the jurisdictions to get updated information with which to do our projections. With the help of Bay Area congestion management agencies and transportation authorities, nearly every jurisdiction in the Bay Area submitted updated information to MTC. The cooperation was unprecedented. While it was time-consuming, this effort has provided us with the most accurate information to date for producing our shortfall estimates.

continued on page 4

Inside:

- *Managing on a Shoestring Budget* page 2
- *Upcoming Events* page 2
- *P-TAP Recap* page 3
- *Software News and Information* page 4
- *User Support* page 4
- *Naming Contest* page 4

User Week Highlights

March 10

- Tech Transfer Seminar on Pavement Maintenance Strategies

March 12

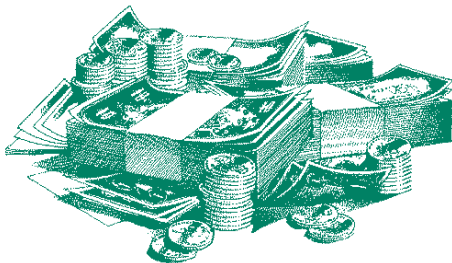
- Workshop for PMP Champions

See "Upcoming Events" for details.

Managing on a Shoestring Budget

by Wes Wells and Theresa Romell

If your city or county is facing a backlog of millions of dollars for roadway repair and maintenance, you can take comfort in the fact that your jurisdiction is not alone in its predicament. Shortfall estimates produced for MTC's 2001 *Regional Transportation Plan* (RTP) indicate that funding for repair and maintenance of local streets and roads through the year 2025 will fall short by at least \$3 billion. Estimates currently being worked on for the 2004 RTP indicate that the shortfall will increase significantly by next year, as pavement repair treatment costs go up and the amount the state has budgeted for transportation goes down.



So what is a city or county to do when its pavement management program (PMP) software produces a maintenance needs estimate that exceeds available revenues by a factor of anywhere from two to 10? And when, as in the current budget crisis in California, anticipated revenue (such as Proposition 42 funds) may be diverted or suspended indefinitely.

While there is no easy fix, there are some things that a city or county public works department can do in order to make sure that local road dollars are being stretched as far as possible. By strategically applying the funds that are available, city and county staff may be able to at least keep the condition of their road network from declining further.

Here are 10 ways that your jurisdiction can make those scarce dollars have their greatest impact.

1. Implement an ongoing pavement management program and know how to use it.

- Understand the impact of key user pro-

gram inputs (decision tree construction, treatment unit costs, pavement condition index break-points, etc.).

- Utilize engineering judgment for determining the best maintenance practices.

2. Manage trenching.

- Link trenching activity to scheduled rehab treatments.

3. Determine your jurisdiction's five-year pavement needs, existing revenues and budget shortfall.

4. Determine the impact of varying five-year revenue levels.

- For example:
 - * A \$20 million budget = a backlog growing from \$70 million to \$100 million and a drop in pavement condition index (PCI) from 51 to 40
 - * A \$40 million budget would allow the jurisdiction to "break even" — hold the PCI at 51 and the backlog at \$70 million.

5. Ensure that your jurisdiction's decisionmakers understand the current situation and alternative strategy choices.

6. Move to a project-level analysis:

- Take a closer look at the network level output from your PMP and apply engineering know-how and practical measures to formulate a repair strategy.
- Perform preventive maintenance and moderate repairs as a first priority.
- Juggle what is left between "Band-Aid" repairs and reconstruction projects. In some cases, a spot repair on a portion of a street will yield significant savings over reconstructing the entire street.
- Determine which roads should be reconstruction projects, based on criteria that include the life-extension value of reconstructing the road, the importance of the roadway and the size of your jurisdiction's budget shortfall.

7. Establish a life-cycle repair strategy for major street segments.

- MTC typically recommends moving toward expending about \$20,000 annually per mile of pavement.

8. Develop a multiyear pavement repair budget and program.

- List each street segment needing repair by the type of repair required, when the repair will be needed, and the cost of the repair.

9. Look for additional revenue sources.

- Explore other areas of your jurisdiction's budget for possible road funding.
- Develop a more aggressive grants process to score more state and federal funds for your jurisdiction.
- Look into new sources of funds, such as local assessment districts, Proposition 42, special grants, etc.

10. Monitor and track performance.

Upcoming Events

Unless otherwise indicated, all events listed will be held at the MetroCenter, 101 – 8th Street, Oakland (near the Lake Merritt BART station).

March 2003

Technology Transfer Seminar: Pavement Maintenance Strategies
Monday, March 10 Auditorium
9 a.m. to 12 noon

General User Meeting
Monday, March 10 Auditorium
1 p.m. to 4 p.m.

New User Training
Wednesday, March 12 Room 171
9 a.m. to 4 p.m.

User Training: PMP Champions Workshop
Wednesday, March 12
9 a.m. to 4 p.m.
Lakeview Room
1999 Harrison¹, Suite 1700, Oakland

Distress Identification Training
Thursday, March 13 Auditorium
9 a.m. to 4 p.m.

Computer Training Workshop: Basic Skills
Friday, March 14
9 a.m. to 4 p.m.
Alameda County Conference Center²
Fremont Room
125 – 12th Street, Oakland

¹four blocks from 19th Street BART

²four blocks from Lake Merritt BART

P-TAP Recap

by John Hoang

Two and a half million dollars — that's how much money MTC will have disbursed to local Bay Area jurisdictions through its Pavement Management Technical Assistance Program (P-TAP) over five rounds of grant allocations in the program's nearly five years of existence. In addition to the sum made available by MTC, 11.47 percent in required matching funds from local jurisdictions will have added another \$287,000 towards P-TAP projects over this same period.

As we near the five-year mark, it seems appropriate to look back at how P-TAP came into being and what the program has achieved since its inception.

Filling a Need

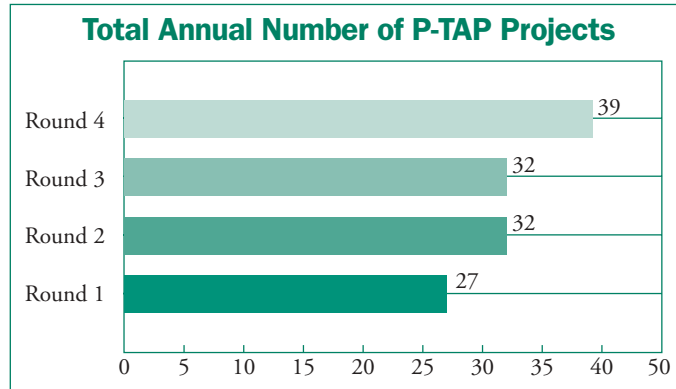
In 1997, MTC surveyed Bay Area cities and counties to find out to what extent they were utilizing pavement management systems. (Pavement management systems allow jurisdictions to maintain their pavements cost-effectively, and to advocate for adequate funding based on documented needs.)

MTC's survey found that:

- Out of 109 jurisdictions, 75 had purchased the MTC pavement management program (PMP) software, but only 43 were using the program on a regular basis, while the remaining 32 had purchased the software, but had not updated the data for at least three years; and
- Of the remaining 34 jurisdictions, 15 were using non-MTC software and 11 did not use any system at all. (There was no information on eight of the jurisdictions.)

MTC discovered that the primary reason jurisdictions were unable to establish and/or maintain a pavement management system (PMS) was the limited resources available to the jurisdictions. These included staffing shortages/turn-overs/lack of experience and

lack of funding. The survey results indicated to MTC that it needed to get more deeply involved in helping local jurisdictions manage their roadways.



MTC also came to the conclusion that, unless jurisdictions had the resources to regularly use a PMS and keep it up to date, they would not realize the benefits the system has to offer.

P-TAP Gets Under Way

In 1999, MTC established P-TAP, which provides the services of pre-qualified consultants to assist local jurisdictions in implementing or maintaining a PMS. Initial estimates indicated that about 60 small- to medium-sized jurisdictions — those with less than 150 centerline miles of pavement — would benefit from P-TAP at the outset.

Since MTC contracts with consultants directly, local jurisdictions' staff do not need to bear the burden of the administrative aspects of the project — selecting consultants and dealing with contracts, invoices, payments, etc. This leaves jurisdictions' staff more time to work with the consultants to define project objectives and tasks, and track progress.

During the first two years of the program, P-TAP effectively addressed its initial goal of establishing and updating PMS software for smaller jurisdictions. In the third and fourth rounds of funding, this primary focus continued, but eligibility was expanded to include larger cities and counties, and the program began to fund other

PMS-related projects. These included projects to establish links between MTC's PMP and geographic information systems base maps, projects to convert data from another PMS to the MTC PMP, a PMS evaluation project, and a “plans, specification and estimates” project for pavement rehabilitation design. Through P-TAP, MTC has been able to promote awareness of pavement maintenance needs throughout the Bay Area as well as get a more accurate picture of the region's streets and roads pavement maintenance needs.

The Numbers Add Up

The first four rounds of P-TAP have generated a total of 130 individual projects, assisting 91 different jurisdictions. Twenty-nine jurisdictions have received more than one round of P-TAP funds. In addition to the P-TAP grants and local funding match, jurisdictions that received P-TAP funds added another \$240,000 of their own money in order to achieve their individual project-specific objectives. This represents a 12 percent boost to total program funding. The willingness of cities and counties to invest additional funds toward PMS projects indicates that the region has bought into the idea that a PMS can make a significant difference.

Round Five Deadlines

For the fifth round of P-TAP, MTC has allocated \$500,000 to the program. Project solicitation letters and applications were mailed out to all 109 Bay Area jurisdictions in February.

Applications for P-TAP Round 5 must be received by MTC by the end of March. Projects are selected and assigned at the end of April and commence in May.

For more information about P-TAP, contact John Hoang at 510.817.3210, or at <jhoang@mtc.ca.gov>.

Software News and Information

by Sui Tan

Status of Version 8.0

We have finished beta testing our pavement management program (PMP) Version 8.0, and are currently performing beta testing on the Event-Based Analysis module. This feature will allow users to display, change and delete all data entries for each pavement management section, including inventory, inspection and maintenance and rehabilitation (M&R) data.

Once this testing is completed, we will add the new Event-Based feature to Version 8.0 and then release the whole as one package. We're aiming for the summer of 2003 for the release.

Design of the Project Selection module also has begun. The new feature will allow users to designate portions of the road network for running project-specific scenarios to customize their maintenance program. An example of this would be to package a \$300,000 slurry seal program for years 2004 and 2005 in certain neighborhoods. The program will perform scenario analysis on selected and non-selected sections for each year. All selected sections will be funded first, followed by non-selected sections, if funds are still available.

Data Migration Update

Those of you who attended the November 2002 Data Migration Workshop know that the Audit Program will not be able to find all errors in your PMP version 7.5 database. We have since discovered that "reserve" characters, such as '>&'<%', that exist in text fields have been problematic to the SQL Server and the Version 8.0 database. Selection criteria will not work if these characters are present in the selected fields. Users should change these characters to other characters or letters prior to migration.

PMS Version 7.5 Software Bugs

- **Known Issue:** Pavement condition index (PCI) calculated from M&R is reported as "inspected PCI."
- The problem stemmed from the



conversion of older databases from Version 5.x to Version 7.x. The solution for unmatched PCI History and M&R History records was to report them as "Visual Inspections." Since there are few records of this type, the impact on the overall network condition is not significant. The only fix for this problem will be in Version 8.0. With Event-Based Analysis, users can go back and deactivate events after the M&R event that is recorded as an inspection, put in the M&R, run calculations, and reactivate the appropriate events. This will bring the M&R History and PCI History records back to the way they should be.

- **Known Issue:** When printing the Scenarios-Projected PCI report, user gets blank pages or pages with few lines of data.



Unfortunately, there is no fix to this formatting problem, due to a dynamic link library (DLL) conflict in the software. However, in Version 8.0. this will become a non-issue.

Refining Projections for Pavement Needs

continued from front page

Using the updated data, MTC will make recommendations on unit costs and a "standard" decision tree model to use for estimating total regional pavement needs. Local jurisdictions should carefully review MTC-recommended standards so that a balance can be reached between standardizing procedures and costs for regional consistency and tailoring them to suit local situations.

Already, preliminary calculations show that the total need for pavement maintenance and rehabilitation for the upcoming year will be almost double what was indicated in the *2001 Regional Transportation Plan*.

MTC's PMS User Support

In the Bay Area

Alameda, Contra Costa and San Francisco counties:

- John Hoang
510.817.3210
jhoang@mtc.ca.gov

Marin, Napa, Solano, and Sonoma counties:

- Theresa Romell
510.817.3243
tromell@mtc.ca.gov

San Mateo and Santa Clara counties:

- Sui Tan
510.817.3250
stan@mtc.ca.gov

Outside the Bay Area

- Nichols Consulting Engineers
831.469.3507
Monday-Friday 8 a.m.-5 p.m. PST

MTC PMS Web site:

www.mtcpsms.org

Naming Contest!!

Help us select a new name for Version 8.0! If your entry is the winner, you will get a free copy of the new software — and recognition at our July awards ceremony!

Send your ideas to Sui Tan at <stan@mtc.ca.gov> or call him at

510.817.3250

by March 31, 2003.

Street Talk



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