

MEMORANDUM

DEPARTMENT OF TRANSPORTATION
 Materials and Geotechnical Branch
 4201 East Arkansas Avenue
 Denver, Colorado 80222-3406
 (303) 757-9249



DATE: December 22, 2003

TO: Tim Harris, Director of Staff Services

FROM: 
 Jay Goldbaum, Pavement Management and Design Program Manager

SUBJECT: Analysis of the Funds Used to Improve the Network Condition
 Polciy Memo 20

The purpose of this memorandum is to identify and request ratification for following information required in the Pavement Management Program:

- The appropriate total budget amounts that should be used by CDOT to estimate the future pavement condition,
- To identify the funds used for improvement to the surface condition from mobility projects, and
- To identify the essential costs related to the completion of resurfacing projects.

The appropriate pavement management budget available to directly impact the remaining service life is shown below. When forecasting for future condition in the Pavement Management model, the budget input is the revenues minus reactive maintenance and ADA funds. The other expenses shown have been programmed into the model's unit costs for the various treatments.

Table 1.
Pavement Management Budget

Category		Fiscal Year Budget (Inflated Dollars in Millions)			
		2005	2006	2007	2008
Revenues	Legislative Funding (7 th Pot) (a)	0.0	0.0	0.0	0.0
	Surface Treatment Program (STP) (b)	134.0	143.1	151.2	158.6
	LOS Surface Treatment Program (c)	23.6	24.4	25.2	26.0
	LOS Maintenance Program (c)	18.6	19.1	19.6	20.1
	Mobility Improvement Funds (d)	10.4	11.1	13.3	14.0
	Bicycle Shoulder Policy	0.0	0.0	0.0	0.0
Subtotal		186.6	197.7	209.3	218.7
Expenses	LOS Reactive Maintenance (e)	(37.2)	(38.3)	(39.4)	(40.6)
	17 % Construction Engineering and Indirect charges (f) (g)	(22.8)	(24.3)	(25.7)	(27.0)
	11% Essential Traffic and Safety Items (g) (h)	(14.7)	(15.7)	(16.6)	(17.4)
	4.6% for Preliminary Engineering (g) (h)	(6.2)	(6.6)	(7.0)	(7.3)
	1.0% Essential Bridge Items (g) (h)	(1.3)	(1.4)	(1.5)	(1.6)
	ADA Policy (i)	(1.0)	(1.0)	(1.0)	(1.0)
	Bicycle Shoulder Policy (j)	(0.0)	(0.0)	(0.0)	(0.0)
Total funds available for the Surface Condition		103.4	110.4	118.1	123.8

All values were based on December 2003 information.

Assumptions:

- (a) Reconstruction and system quality improvement projects.
- (b) Does not include funds for Regional allocation to maintenance LOS program.
- (c) Funds to the Level of Service (LOS) program in the Maintenance Management System.
- (d) Based upon a review of 28 projects constructed over the previous five years. The values shown are 18.0% of the total funds used for mobility improvement (See Table 2). After fiscal year 2008, it is estimated that the total funds for the mobility investment category would increase by 5% per year. This percentage will be re-evaluated every two years with the next evaluation in FY 06.
- (e) From Policy Memo 18 dated October 15, 2003, the Chief Engineer allocated \$5 million of FY 05 dollars from the LOS program to preventive maintenance.
- (f) The percentage is based on information received from the CDOT Center of Accounting reported for Federal Fiscal Year 2003.
- (g) These percentages are applied to available STP funds for projects and will be re-evaluated every two years with the next evaluation in FY 06.
- (h) Based upon a review of 42 surface treatment project constructed in 2003 (See attached). Essential traffic and safety items are found in Policy Memo 7 dated January 29, 2002.
- (i) From the Chief Engineer's meeting in September 2003, it was estimated that \$1 million of FY 05 dollars would be used from the STP for ADA purposes.
- (j) Funds for the bicycle shoulder policy (up to \$3.0 million) could come from the STP.

The next item identified and requesting ratification is the determination of the percent of funds from mobility projects used for improving the pavement condition. Mobility projects are defined as major widening or reconstruction projects that improve the flow of traffic. Table 2 indicates a random sample of 28 projects constructed from various funding sources such as 7th Pot, ORP, STP Metro, and CMAQ throughout the state over the last five years.

**Table 2
CDOT Statewide Mobility Improvement Projects**

Advertised Date	Region	Project Description	Project Number	Awarded Amount	HMA Pavement Cost	PCCP Pavement Cost
1999	4	SH 52 Interchange	IM 0253-142	\$12,347,191	\$1,148,579	
1999	4	Dearfield to weld County line	NH 0341-046	\$6,999,000	\$2,161,692	
2000	2	Trout Creek Rd. - East	STA 0242-026	\$6,721,599	\$1,197,261	
2000	1	Foxton Rd. to Eagle Cliff Rd.	NH 2854-068	\$21,100,930	\$869,510	\$4,957,622
2000	2	Woodmen Road Intchg.	IM 0252-310	\$28,950,000	\$1,057,767	\$2,825,439
2000	3	Snowmass Canyon	NHB 0821-052	\$93,398,000	\$4,103,239	
2000	3	SH 82, ABC to Buttermilk	SP 0821-053	\$11,366,680	\$1,394,200	
2000	4	SH 287 S/O SH 60 to SH 402	NHB 2873-104	\$8,759,790	\$344,046	\$2,381,481
2000	2	Powers/Platte Interchange	NH 0243-062	\$10,451,624	\$1,325,642	\$68,755
2001	3	Escalante - West	NH 0501-040	\$11,197,993	\$2,152,270	
2001	2	Nevada/Tejon	IM 0252-342	\$26,646,684	\$1,244,852	\$3,331,956
2001	4	SH 7 to WCR 16	IM 0253-151	\$53,544,870	\$3,185,787	\$14,622,657
2001	2	SH 85 / Fountain Interchange	IM 0851-002	\$9,391,327	\$327,557	\$1,115,849
2001	6	I-270 EXT. PHASE IV	C 2706-031	\$8,495,151	\$346,887	\$1,223,490
2001	2	US 24 - Divide East	NH 0242-031	\$5,315,496	\$1,411,962	
2002	3	North Delta	NH 0501-043	\$7,896,906	\$2,321,365	
2002	6	SH 6, 19TH TO CLEAR CREEK	STA C110-012	\$1,235,158	\$268,739	
2002	4	S/O LARIMER CR 6 TO S/O SH 60	NH 2873-114	\$26,485,660	\$1,126,281	\$5,329,914
2002	1	SH 119 - Black Hawk	STA 119A-046	\$6,837,444	\$253,530	
2002	2	Powers - B/G to SH83	STU R200-107	\$14,256,937	\$579,909	\$981,824
2002	6	I-225 & Iliff Ave. Interchange	NH 2254-064	\$8,094,501	\$406,110	\$1,336,056
2002	6	I-225 & 6th Ave. Interchange	IM 2254-065	\$12,361,748	\$369,160	\$2,443,236
2002	2	SH 16 Academy Blvd.	NH 0851-005	\$2,250,210	\$390,666	
2002	2	SH 67/US 24 Intersect. E&W	NH 0242-037	\$4,777,176	\$838,589	
2003	2	US50 Bridges	NH 0505-037	\$3,829,474	\$876,400	
2003	1	SH 85 - Sedalia	NH 0852-088	\$4,573,000	\$705,304	\$971,789
2003	2	E/o Peterson-e/o Constitution	NH 0243-067	\$3,978,972	\$1,892,322	
2003	2	SH 85-Main St. Intersection	NH 0851-006	\$4,083,941	\$736,542	
Total =				\$415,367,462	\$33,036,188	\$41,590,068

Based on the information found in Table 2, it was determined that 18.0% of the mobility improvement project funds improved the surface condition. The Office of Financial Management and Budget estimated that the future funds in the Mobility Investment Category used for Congestion Relief, STP Metro, and CMAQ will be as follows:

- Fiscal Year 2005 = \$57.6 Million
- Fiscal Year 2006 = \$61.5 Million
- Fiscal Year 2007 = \$74.0 Million
- Fiscal Year 2008 = \$77.6 Million

The last item identified and requesting ratification is the percent of Preliminary and Construction Engineering to be used for STP projects along with the percent of Essential items for Bridge, Traffic and Safety on STP projects. Based on a review of 42 surface treatment projects constructed in 2003, the following percentages were determined (See attached):

Preliminary Engineering = 4.6%
Essential Items for Traffic and Safety elements = 11.0%
Essential Items for Bridge elements = 1.0%

The Pavement Management Technical Committee agrees with information and is acceptable for use in the Pavement Management software to determine the long-term projection of the condition of the network. (See voting results attached).

I Concur: Laurie Reed 7/11/04
Date
Laurie Reed
Director of Financial Management and Budget

I Concur: Jennifer Finch 1-20-04
Date
Jennifer Finch
Director of the DTD

I Concur: Craig Siracusa 1/12/04
Date
Craig Siracusa
Chief Engineer

cc: T. Aschenbrener
RMEs
RPMs
J. Wallace (FHWA)

Items Requiring a Vote

ISSUE: *Shall the PMS model use the indicated information for the long-range projection?*

RESULTS:

	Member	Vote	Comments
Region 1	Janet Minter	Yes	
Region 1	Bob LaForce	Yes	
Region 2	Frank Walters	Yes	
Region 2	Richard Zamora	Yes	With clarification on budget inputs.
Region 3	Bob Heidelmeier	Yes	
Region 3	Dave Eller	Yes	With clarification of Mobility projects.
Region 4	Rose McDonald	Yes	
Region 4	Gary DeWitt	Yes	
Region 5	Mike McVaugh	Yes	
Region 5	Robert Shanks	Yes	
Region 6	Leela Rajasekar	Yes	
Region 6	Reza Akhavan	Yes	
HQ	Mike Keleman	Yes	
HQ	Jay Goldbaum	Yes	
DTD	Tamela Goorman	Yes	
FHWA	Jean Wallace		



2003 Essential Items