

# STATE OF COLORADO

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**DEPARTMENT OF TRANSPORTATION**

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**DATE:** November 8, 2013  
**TO:** Transportation Commission  
**FROM:** Joshua Laipply, Bridge Engineer  
**SUBJECT:** RAMP Asset Management Bridge Update

**Background Information**

The Transportation Commission approved funding RAMP asset management for the Bridge program in the amount of \$33 million for 2014. Staff Bridge has been working with numerous consultants and the regions in order to identify the best investment of the dollars on preventative maintenance. This is the most robust preventative maintenance program for bridges that CDOT has ever performed.

Staff Bridge identified two primary investment categories for preventative maintenance that would prevent known deterioration modes. The two actions are replacement of leaking bridge joints and sealing (waterproofing) bridge decks that are not currently sealed or where the seal has failed. CDOT estimates these actions to add 15 years and 20 years of additional life respectively.

Candidates for preventative maintenance had to meet multiple criteria to provide best investment of the dollars. Among the criteria were that all structural components on the bridge had an anticipated life that exceeded the life of the maintenance action, typically a minimum of 20 years.

**Benefits**

The RAMP asset management bridge investment will extend the lives of approximately 141 bridges, in 27 counties throughout the state. Staff Bridge's deterioration model estimates over 2,000 years of life will be added to our bridge network. The cost of the preventative maintenance work averages \$14.50 per square foot of bridge deck versus a conservative total replacement cost of \$600 per square foot of bridge deck.

*See Attached List of Structures*

# RAMP Asset Management Projects

November 8, 2013

## Bridge Preventative Maintenance

CDOT Bridge ID	County	Road Carried	Feature Intersected	Work	Life Extended	
<b>REGION 1</b>	F-17-JK	ADAMS	I-225	US-40	Repair Joints & Seal Deck	15 Years
	F-17-AX	ARAPAHOE	Alameda Ave. to I-225 SB	I-225	Repair Joints & Seal Deck	15 Years
	F-17-DZ	ARAPAHOE	I-225 SB to Alameda Ave.	I-225	Repair Joints & Seal Deck	15 Years
	F-17-IW	ARAPAHOE	I-225 NB	2nd Ave.	Repair Joints & Seal Deck	15 Years
	F-17-IX	ARAPAHOE	I-225 SB	2nd Ave.	Repair Joints & Seal Deck	15 Years
	F-17-JA	ARAPAHOE	I-225	13th Avenue Bike Path	Repair Joints & Seal Deck	15 Years
	F-17-KL	ARAPAHOE	Mississippi Ave.	I-225	Repair Joints & Seal Deck	15 Years
	F-17-LU	ARAPAHOE	I-225 NB	SH30 (6th Ave.)	Repair Joints & Seal Deck	15 Years
	F-17-LV	ARAPAHOE	I-225 SB	SH30 (6th Ave.)	Repair Joints & Seal Deck	15 Years
	F-14-G	CLEAR CREEK	SH-103	Clear Creek	Repair Joints & Seal Deck	15 Years
	F-17-FJ	DENVER	Belleview to NB I-25 Ramp	I-25 NB to I-225 EB	Repair Joints & Seal Deck	15 Years
	F-17-MQ	DENVER	I-25	University Blvd.	Repair Joints & Seal Deck	15 Years
	F-17-NB	DENVER	I-25 NB Ramp	I-25 NB Off Ramp	Repair Joints & Seal Deck	15 Years
	F-17-NJ	DENVER	I-25	University Blvd.	Repair Joints & Seal Deck	15 Years
	F-17-OC	DENVER	SH2 (Colorado Blvd.)	I-25	Repair Joints & Seal Deck	15 Years
	F-17-OT	DENVER	US285 (Hampden Ave.)	I-25	Repair Joints & Seal Deck	15 Years
	E-17-RR	DENVER	I-70 EB Ramp	I-70 EB to Pena Blvd.	Repair Joints & Seal Deck	15 Years
	E-17-RS	DENVER	I-70 WB Ramp	Pena Blvd. Ramp	Repair Joints & Seal Deck	15 Years
	E-17-RT	DENVER	Pena Blvd.	I-70	Repair Joints & Seal Deck	15 Years
	E-17-RV	DENVER	Pena Blvd. NB	Pena Blvd. to I-70 EB Ramp	Repair Joints & Seal Deck	15 Years
F-16-JX	DENVER	US-40	I-25; Platte River; RR	Repair Joints & Seal Deck	15 Years	
<b>REGION 2</b>	J-18-J	EL PASO	I 25 ML SBND	SAND CREEK	Repair Joints & Seal Deck	15 Years
	J-18-L	EL PASO	I 25 ML SBND	DRAW	Repair Joints & Seal Deck	15 Years
	I-17-GK	EL PASO	I 25 ML NBND	PINE CREEK	Repair Joints & Seal Deck	15 Years
	I-17-GV	EL PASO	I 25 ML SBND	PINE CREEK	Seal Deck	20 Years
	I-17-HF	EL PASO	I 25 ML SBND	COTTONWOOD CREEK	Seal Deck	20 Years
	I-17-NM	EL PASO	I 25 SBND RAMP	MONUMENT CREEK	Repair Joints & Seal Deck	15 Years
	I-17-NN	EL PASO	I 25 ML SBND	MONUMENT CREEK	Repair Joints & Seal Deck	15 Years
	I-17-NO	EL PASO	I 25 ML NBND	MONUMENT CREEK	Seal Deck	20 Years
	I-17-NP	EL PASO	I 25 NBND RAMP	MONUMENT CREEK	Seal Deck	20 Years
	I-17-NQ	EL PASO	I 25 ML SBND	NEVADA AVE.	Seal Deck	20 Years
	I-17-NR	EL PASO	I 25 ML NBND	NEVADA AVE.	Seal Deck	20 Years
	H-17-BB	EL PASO	I 25 Ramp	DIRTY WOMAN CREEK R	Repair Joints & Seal Deck	15 Years
	H-17-CZ	EL PASO	SH 105 ML	I 25 ML	Seal Deck	20 Years
	I-17-GN	EL PASO	US 24 ML	WILLIAMS CANYON, RDWY	Repair Joints & Seal Deck	15 Years
	I-17-MG	EL PASO	I25 ML	CHEYENNE CREK	Seal Deck	20 Years
	I-17-MJ	EL PASO	SH 21B ML	KETTLE CREEK	Repair Joints & Seal Deck	15 Years
	I-17-NU	EL PASO	SH 21B ML	PINE CREEK	Seal Deck	20 Years
	J-18-BM	EL PASO	SH 16 ML	I 25 ML	Seal Deck	20 Years
	J-18-BN	EL PASO	SH 16 ML	FOUNTAIN CREEK	Seal Deck	20 Years
	J-18-Q	EL PASO	US 85 ML	I25 ML	Repair Joints & Seal Deck	15 Years
	I-17-GY	EL PASO	I 25 ML SBND	COTTONWOOD CREEK	Spray Conc. Sealer	5 Years
	I-17-MH	EL PASO	I25 ML	CHEYENNE CREEK	Spray Conc. Sealer	5 Years
	I-17-FJ	EL PASO	I25 ML	CHEYENNE CREEK/ NEVADA AVE	Spray Conc. Sealer	5 Years
	N-17-B	HUERFANO	I 25 ML SBND	MISSOURI CREEK	Repair Joints & Seal Deck	15 Years
	N-20-H	LAS ANIMAS	US 350 ML	DRAW	Seal Deck	20 Years
	K-18-CD	PUEBLO	I 25 ML NBND	YOUNG HOLLOW	Repair Joints & Seal Deck	15 Years
	L-17-CF	PUEBLO	SH 96 ML	ROCK CREEK	Seal Deck	20 Years
	<b>REGION 3</b>	F-11-AS	EAGLE	I 70 ML EBND	BLACK GORE CREEK	Repair Joints
F-11-AW		EAGLE	I 70 ML EBND	HILLSIDE	Repair Joints	15 Years
F-11-AP		EAGLE	I 70 ML WBND	TIMBER CREEK	Repair Joints	15 Years
F-05-K		GARFIELD	I 70 ML EBND	COLORADO RIVER	Repair Joints & Seal Deck	15 Years
F-05-M		GARFIELD	I 70 ML WBND	US 6 ML	Repair Joints & Seal Deck	15 Years
F-05-N		GARFIELD	I 70 ML EBND	US 6 ML	Repair Joints & Seal Deck	15 Years
F-05-I		GARFIELD	I 70 ML EBND	UP RR	Repair Joints & Seal Deck	15 Years
F-05-J		GARFIELD	I 70 ML WBND	UP RR	Repair Joints & Seal Deck	15 Years
F-05-O		GARFIELD	I 70 ML WBND	SH 13 ML	Repair Joints & Seal Deck	15 Years
F-05-P		GARFIELD	I 70 ML EBND	SH 13 ML	Repair Joints & Seal Deck	15 Years
F-06-AA	GARFIELD	I 70 ML EBND	DRY CREEK	Repair Joints & Seal Deck	15 Years	

# RAMP Asset Management Projects

November 8, 2013

## Bridge Preventative Maintenance

REGION 3	F-06-AB	GARFIELD	I 70 ML WBND	DRY CREEK	Repair Joints & Seal Deck	15 Years
	F-06-AD	GARFIELD	I 70 ML EBND	MAMM CREEK	Repair Joints & Seal Deck	15 Years
	F-06-AE	GARFIELD	I 70 ML WBND	MAMM CREEK	Repair Joints & Seal Deck	15 Years
	F-06-AF	GARFIELD	RAMP TO I 70 WBND	MAMM CREEK R	Seal Deck	20 Years
	F-06-Y	GARFIELD	I 70 ML EBND	COLORADO RIVER	Repair Joints	15 Years
	F-06-Z	GARFIELD	I 70 ML WBND	COLORADO RIVER	Repair Joints	15 Years
	F-06-O	GARFIELD	I 70 ML WBND	ELK CREEK	Repair Joints & Seal Deck	15 Years
	F-06-P	GARFIELD	I 70 ML EBND	ELK CREEK	Repair Joints & Seal Deck	15 Years
	F-08-BH	GARFIELD	I 70 ML WBND	FRENCH CREEK	Seal Deck	20 Years
	F-08-AL	GARFIELD	I 70 ML EBND	COLORADO RIVER	Seal Deck	20 Years
	H-02-EA	MESA	SH 340 ML	MONUMENT CANYON CREEK	Seal Deck	20 Years
	H-02-GA	MESA	SH 340 ML	COLORADO RIVER	Repair Joints & Seal Deck	15 Years
	H-02-B	MESA	I 70 BUSINESS RT	LEACH CREEK	Repair Joints	15 Years
	H-03-BG	MESA	I 70 BUSINESS EBND	HIGHLINE CANAL	Seal Deck	20 Years
	H-03-BI	MESA	I 70 BUSINESS WBND	HIGHLINE CANAL	Seal Deck	20 Years
	H-03-X	MESA	I 70 BUSINESS RT	GRAND VALLEY CANAL	Repair Joints	15 Years
	H-03-BP	MESA	I 70 ML WBND	COLORADO RIVER	Repair Joints	15 Years
	H-03-BR	MESA	I 70 ML WBND	COLORADO RIVER	Repair Joints	15 Years
	H-03-BS	MESA	I 70 ML EBND	COLORADO RIVER	Repair Joints	15 Years
	C-06-R	MOFFAT	SH 13 ML	RR SPUR	Seal Deck	20 Years
	D-02-A	RIO BLANCO	SH 64 ML	SPRING CREEK	Repair Joints & Seal Deck	15 Years
D-02-B	RIO BLANCO	SH 64 ML	FLETCHERS GULCH	Seal Deck	20 Years	
D-02-F	RIO BLANCO	SH 64 ML	HAMMOND DRAW	Seal Deck	20 Years	
C-09-AS	ROUTT	US 40 ML	MT WERNER ROAD	Seal Deck	20 Years	
F-12-S	SUMMIT	I 70 ML EBND	US 6 ML	Repair Joints & Seal Deck	15 Years	
REGION 4	D-16-DF	BOULDER	SH 157 ML	SH 119 ML	Repair Joints & Seal Deck	15 Years
	D-16-DJ	BOULDER	SH 157 NBND	FOUR MILE CANYON CREEK	Repair Joints & Seal Deck	15 Years
	D-16-DK	BOULDER	SH 157 SBND	FOUR MILE CANYON CREEK	Repair Joints & Seal Deck	15 Years
	E-16-PN	BOULDER	US 287 ML	COAL CREEK	Repair Joints & Seal Deck	15 Years
	A-17-AX	LARIMER	I 25 ML SBND	N.POUDRE DITCH,SAND CRK	Repair Joints & Seal Deck	15 Years
	B-16-AN	LARIMER	SH 1 ML	BOX ELDER CREEK	Seal Deck	20 Years
	B-16-BS	LARIMER	I 25 ML SBND	LARIMER COUNTY CANAL	Repair Joints & Seal Deck	15 Years
	B-16-DP	LARIMER	I 25 ML NBND	LARIMER COUNTY CANAL	Repair Joints & Seal Deck	15 Years
	B-16-FI	LARIMER	I 25 ML SBND	WINDSOR RES,CANAL DITCH	Repair Joints & Seal Deck	15 Years
	B-16-EA	LARIMER	I 25 ML NBND	WINDSOR RES,CANAL DITCH	Repair Joints & Seal Deck	15 Years
	B-17-BB	LARIMER	I 25 ML SBND	CACHE LA POUUDRE RIVER	Repair Joints & Seal Deck	15 Years
	B-17-DI	LARIMER	I 25 ML NBND	CACHE LA POUUDRE RIVER	Repair Joints & Seal Deck	15 Years
	C-17-ES	LARIMER	I 25 ML NBND	CROSSROADS BLVD.	Repair Joints & Seal Deck	15 Years
	C-17-BL	LARIMER	I 25 ML SBND	BIG THOMPSON RIVER	Repair Joints & Seal Deck	15 Years
	C-17-BM	LARIMER	I 25 ML NBND	BIG THOMPSON RIVER	Repair Joints & Seal Deck	15 Years
	C-17-DG	LARIMER	I 25 ML SBND	SH 402 ML	Repair Joints & Seal Deck	15 Years
	C-17-DD	LARIMER	I 25 ML NBND	SH 402 ML	Seal Deck	20 Years
	C-17-EE	LARIMER	I 25 ML SBND	COUNTY ROAD 16	Repair Joints & Seal Deck	15 Years
	C-17-EI	LARIMER	I 25 ML NBND	COUNTY ROAD 16	Repair Joints & Seal Deck	15 Years
	B-16-FX	LARIMER	FT COLLINS EXP WAY	LARIMER COUNTY CANAL	Repair Joints & Seal Deck	15 Years
	B-17-DS	LARIMER	I25 ML+FRONTAGE RD	WINDSOR RES,CANAL	Spray Conc. Sealer	5 Years
	C-17-CI	LARIMER	I 25 ML NB+SB+SR	GREELEY-LOVELAND DITCH	Spray Conc. Sealer	5 Years
	G-22-BG	LINCOLN	I 70 ML EBND	LAKE CREEK	Spray Conc. Sealer	5 Years
	G-22-BT	LINCOLN	I 70 ML WBND	US 24 ML	Spray Conc. Sealer	5 Years
	A-25-D	LOGAN	I 76 ML WBND	COUNTY ROAD 67	Repair Joints & Seal Deck	15 Years
	A-25-I	LOGAN	I 76 ML EBND	COUNTY ROAD 67	Repair Joints & Seal Deck	15 Years
	A-25-J	LOGAN	I 76 ML WBND	SH 55 ML	Repair Joints & Seal Deck	15 Years
	A-25-K	LOGAN	I 76 ML EBND	SH 55 ML	Repair Joints & Seal Deck	15 Years
	A-26-AW	LOGAN	I 76 ML WBND	SONNENBERG CROSSING	Repair Joints & Seal Deck	15 Years
	A-26-J	LOGAN	I 76 ML WBND	CO.RD 93 RED LION ROAD	Repair Joints & Seal Deck	15 Years
	B-24-I	LOGAN	I 76 ML WBND	COUNTY ROAD 55	Repair Joints & Seal Deck	15 Years
	B-24-J	LOGAN	I 76 ML EBND	COUNTY ROAD 55	Repair Joints & Seal Deck	15 Years
	C-21-BM	MORGAN	RAMP TO I 76	I 76 ML R	Repair Joints & Seal Deck	15 Years
A-28-Q	SEDGWICK	I 76 ML WBND	US 385 ML	Repair Joints & Seal Deck	15 Years	
A-28-R	SEDGWICK	I 76 ML EBND	US 385 ML	Repair Joints & Seal Deck	15 Years	
C-17-BR	WELD	I 25 ML SBND	SH 60 ML	Seal Deck	20 Years	

# RAMP Asset Management Projects

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## Bridge Preventative Maintenance

	C-17-BQ	WELD	I 25 ML NBND	SH 60 ML	Repair Joints & Seal Deck	15 Years
	C-17-DH	WELD	I 25 ML SBND	COUNTY ROAD 46	Repair Joints & Seal Deck	15 Years
	C-17-DY	WELD	I 25 ML NBND	COUNTY ROAD 46	Repair Joints & Seal Deck	15 Years
	C-17-A	WELD	I 25 ML SBND	LITTLE THOMPSON RIVER	Repair Joints & Seal Deck	15 Years
	C-17-N	WELD	I 25 ML NBND	LITTLE THOMPSON RIVER	Repair Joints & Seal Deck	15 Years
	D-17-CY	WELD	I 25 ML SBND	COUNTY ROAD 32	Repair Joints & Seal Deck	15 Years
	D-17-CZ	WELD	I 25 ML NBND	COUNTY ROAD 32	Seal Deck	20 Years
	D-18-BJ	WELD	I 76 ML WBND	COUNTY ROAD 53	Repair Joints & Seal Deck	15 Years
	C-18-ED	WELD	US 34 ML WBND	SOUTH PLATTE RIVER	Spray Conc. Sealer	5 Years
REGION 5	O-13-T	ALAMOSA	SH 368 ML	EMPIRE IRRIGATION CANAL	Repair Joints & Seal Deck	15 Years
	P-12-G	CONEJOS	SH 17 ML	BR. OF CONEJOS RIVER	Repair Joints & Seal Deck	15 Years
	P-12-U	CONEJOS	SH 17 ML	CONEJOS RIVER	Repair Joints & Seal Deck	15 Years
	P-12-A	CONEJOS	US 285 ML	CONEJOS RIV.OVERFLOW	Repair Joints & Seal Deck	15 Years
	P-12-B	CONEJOS	US 285 ML	CONEJOS RIVER	Repair Joints & Seal Deck	15 Years
	M-08-H	MINERAL	SH 149 ML	CLEAR CREEK	Repair Joints	15 Years
	M-09-B	MINERAL	SH 149 ML	RIO GRANDE	Repair Joints & Seal Deck	15 Years
	O-02-E	MONTEZUMA	SH 145 ML	DOLORES RIVER	Repair Joints & Seal Deck	15 Years
	P-02-A	MONTEZUMA	IRR# US 491 ML	MANCOS RIVER	Repair Joints & Seal Deck	15 Years
	P-02-B	MONTEZUMA	IRR# US 491 ML	INDIAN CREEK	Repair Joints & Seal Deck	15 Years
	N-10-W	RIO GRANDE	SH 149 ML	NORTH FORK RIO GRANDE	Repair Joints	15 Years
	N-10-V	RIO GRANDE	US 160 ML	S FK RIO GRANDE RIVER	Repair Joints & Seal Deck	15 Years

# **RAMP Asset Management**

*Bridge Preventative Maintenance*

- *10 Consultants*
- *\$30 Million*
- *Construction*  
*Spring 2014*

141 Bridges  
27 Counties  
2,170 Years

