



Arizona Department of Transportation

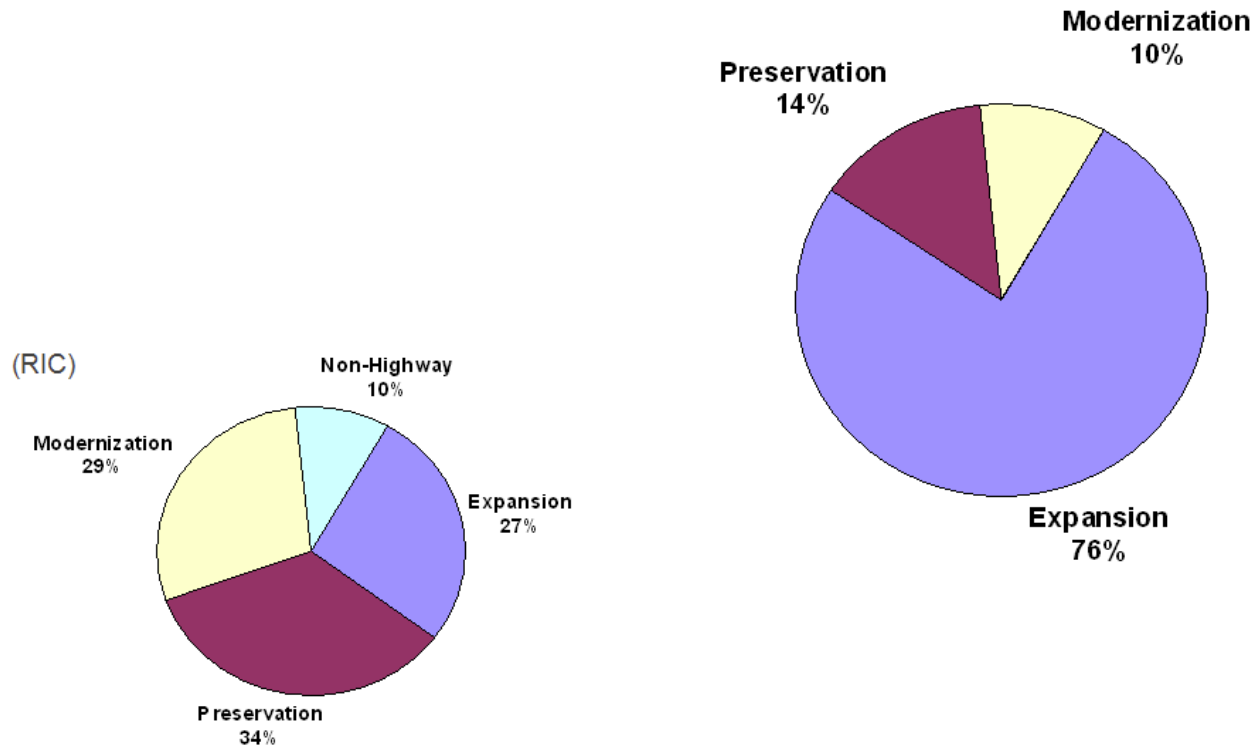
Bill Hurguy P.E.
Mafiz Mian P.E.



Success & Challenge on long-range plan

- ADOT policy makers focused on preservation- preserving integrity of existing system

The RIC compared to 2006 – 2010 ADOT Highway Spending



Success & Challenge on modernization

- We focused on modernization –replacing PMS & pavement testing equipments

Pavement Management Data & SODA Calculations

File Print Descriptions About

Route Performance Data Soda Most Recent Soda History Pavement History Traffic Data Esal's

	A	RTE	SFX	Dir	MP	Crk 2008	Crk 2009	Crk 2010	Crk 2011	Ptch 2008	Ptch 2009	Ptch 2010	Ptch 2011	Ftsh 2008	Ftsh 2009	Ftsh 2010	Ftsh 2011	Frcr 2008	Frcr 2009	Frcr 2010	Frcr 2011	Ride 2008	Ride 2009	Ride 2010	Ride 2011	Rut 2008	Rut 2009	Rut 2010	Rut 2011	MntCs 2008	MntCs 2009	MntCs 2010	
	I	10		E	100	0	1	1		0	0	0		4	3.5	3.5						62	68	74		0.3	0.25	0.26		54			
	I	10		E	101	0	1	1		0	0	0		4	4	4						56	62	72		0.32	0.1	0.15		54			
	I	10		E	102	0	0	0		0	0	0		4	4	4						61	63			0.33	0.01	0.18		54			
	I	10		E	103	0	0	0		0	0	0		4	4	4						52	66			0.15	0.05	0.11		54			
	I	10		E	104	0	0	0		0	0	0		4	4	4						64	62	62		0.16	0.18	0.02		54			
	I	10		E	105	1	1	1		0	0	0		4	4	4						62	73	71		0.23	0.17	0.09		35			
	I	10		E	106	4	4	4		0	0	0		4	4	4						93	99	109		0.07	0.03	0.04		5896			
	I	10		E	107																	118	121	133		0.02	0	0.01		122			
	I	10		E	108																	122	94	128		0.08	0.02	0.06		122			
	I	10		E	109	0	0	0		0	0	0		3.5	3.5	3.5						57	62	77		0.13	0.07	0.16		119			
	I	10		E	110	0	0	0		0	0	0		4	4	4						63	62	69		0.2	0.1	0.13		116			
	I	10		E	111	0	0	0		0	0	0		4	4	4						64	60	60		0.22	0.01	0.14		116			
Averages																																	
						Crk 2008	Crk 2009	Crk 2010	Crk 2011	Ptch 2008	Ptch 2009	Ptch 2010	Ptch 2011	Ftsh 2008	Ftsh 2009	Ftsh 2010	Ftsh 2011	Frcr 2008	Frcr 2009	Frcr 2010	Frcr 2011	Ride 2008	Ride 2009	Ride 2010	Ride 2011	Rut 2008	Rut 2009	Rut 2010	Rut 2011	MntCst 2008	MntCst 2009	MntCst 2010	MntCst 2011
						1	2	2		0	0	0		3.8...	3.8...	3.8...						60	65	71		0.14...	0.07...	0.08...		144			

Distress Data from PMS

Start | Inboxes - Microsoft... | ADOT Monogram... | Text Pavement P... | Microsoft PowerP... | My Documents | Pavement Man... | Project Request ... | 1:47 PM



Success & Challenge on modernization

- PMS may be used as decision processing & decision making tool
- PMS may have decision tree like this-

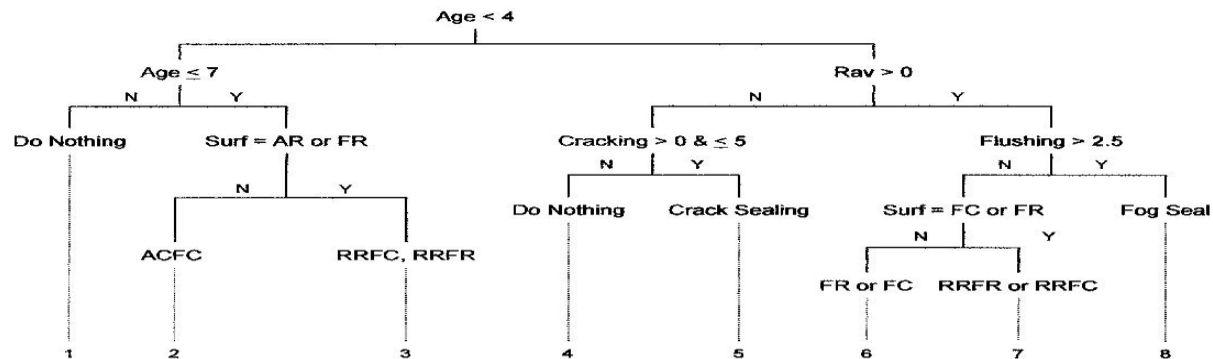


Figure 5.25: Preventive Maintenance DT for Interstate Routes AC Pavements

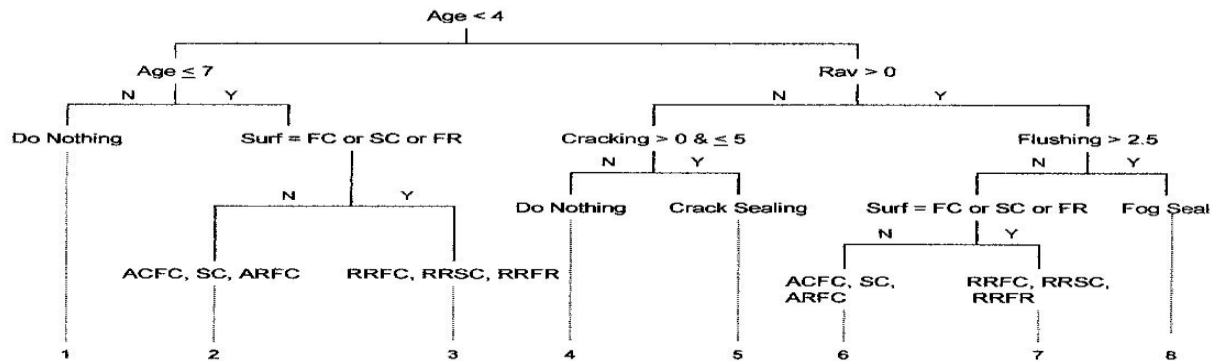


Figure 5.26: Preventive Maintenance DT for Non-Interstate Routes AC Pavements



Success & Challenge on the ground

- **Micro-Surfacing** (CQS-1hP, 4% polymer solids), **Slurry Seal** (QS-P or CQS-P, 2% polymer solid) & Polymer Modified Asphalt Rubber **Crack Sealant** perform well.
- Continue to work to apply best practice & to control quality for **Chip Seal** (CRS-2P). A bit Challenging.
- We could not find or settle on multi-source polymerized emulsion to use for **fog/flush coat**.
- **Friction course** performs well. But we need to do maintenance more than we would like.



Any Question ?



Washington State DOT

Pavement Preservation Update

David Luhr

Pavement Management Engineer

WSDOT Materials Laboratory



WSDOT Perspective on Preservation

- Desire to have well-integrated management of maintenance and capital programs
- Have implemented some data sharing between maintenance and pavement management systems
- Have implemented “cross-over” capital funding of some maintenance activities

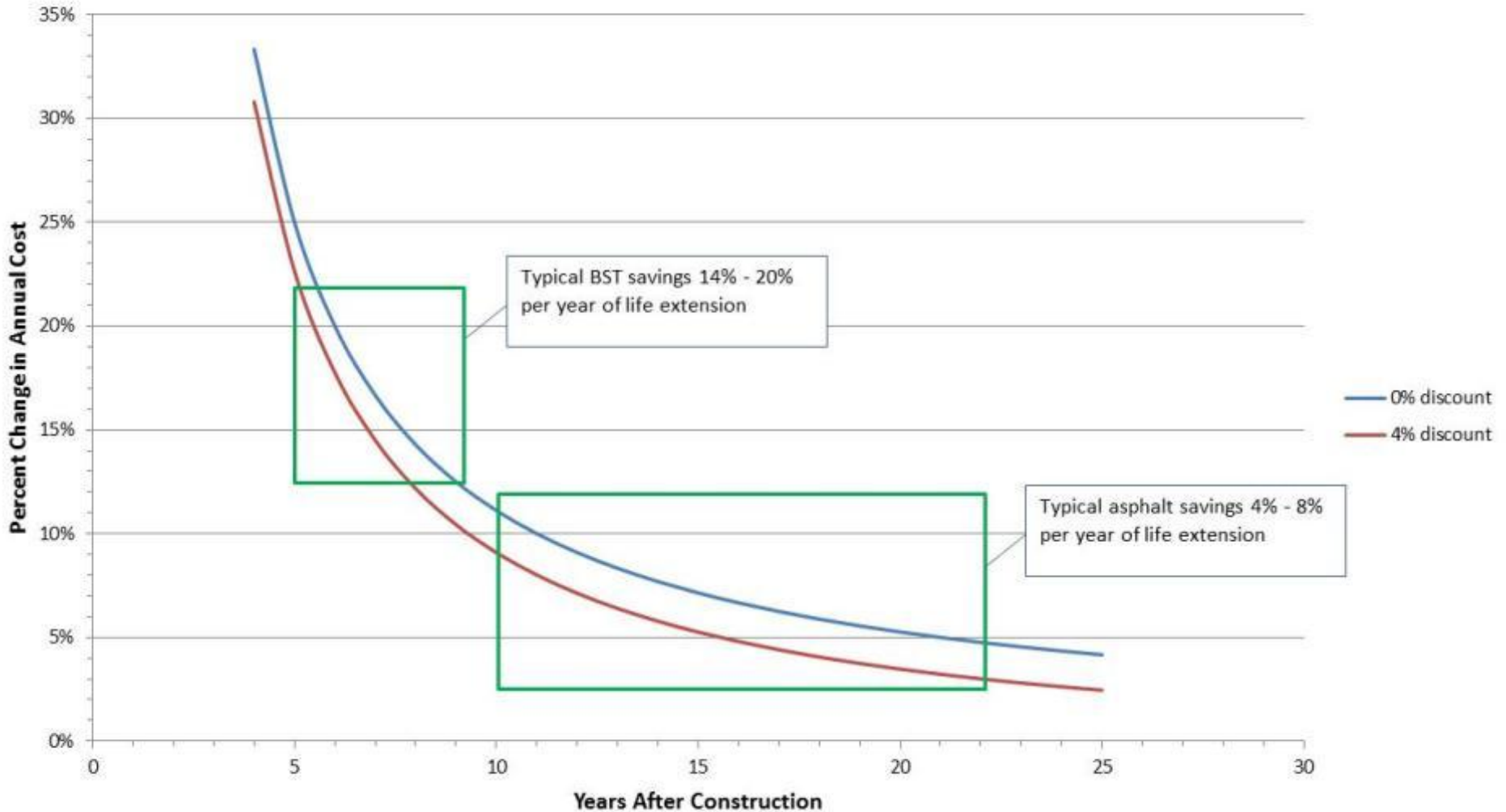


Evaluation of Total Annual Cost

- Historical Cost of Pavement Service
 - Equivalent Uniform Annual Cost (EUAC)
(\$ / lane-mile year spent)
- Expected Cost of Future Pavement Rehab
 - EUAC (\$ / lane-mile year gained)



Percent Change in Annual Cost per 1 Year Extension in Life



Preservation Funding

Maint. Budget

- Preventive: repair early distress, prevent rapid deterioration
- Reduce Emergent Needs: reduce failures expected in next 2 years
- Emergent Needs: failures requiring immediate remedy

??

- Hold for Rehab: keep section together for expected rehab project

Capital Budget

- Push Rehab Out: fix small segments to push rehab out 2-4 years
- Rehab: planned rehab project
- Reconstruct: planned reconstruction project



New Research Project

- Determining Expected Life and Best Practices for Pavement Maintenance Treatments
 - First year of multi-year effort
 - Developing experimental design for maintenance test sections

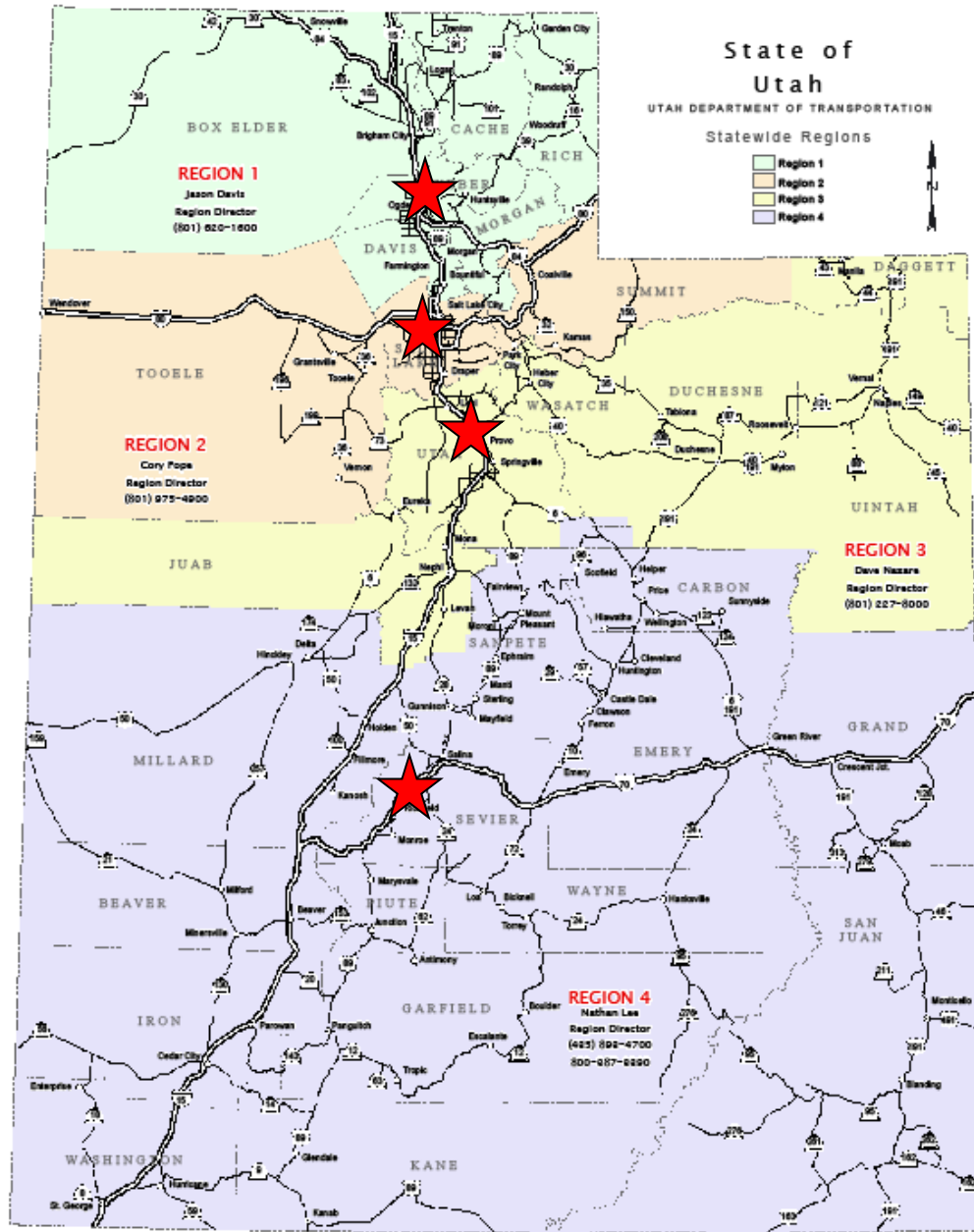


UDOT's Pavement Preservation Direction

Rocky Mountain West Pavement Preservation Partnership
August 27, 2012

Presented by: **Lloyd Neeley**
 Dave Holmgren



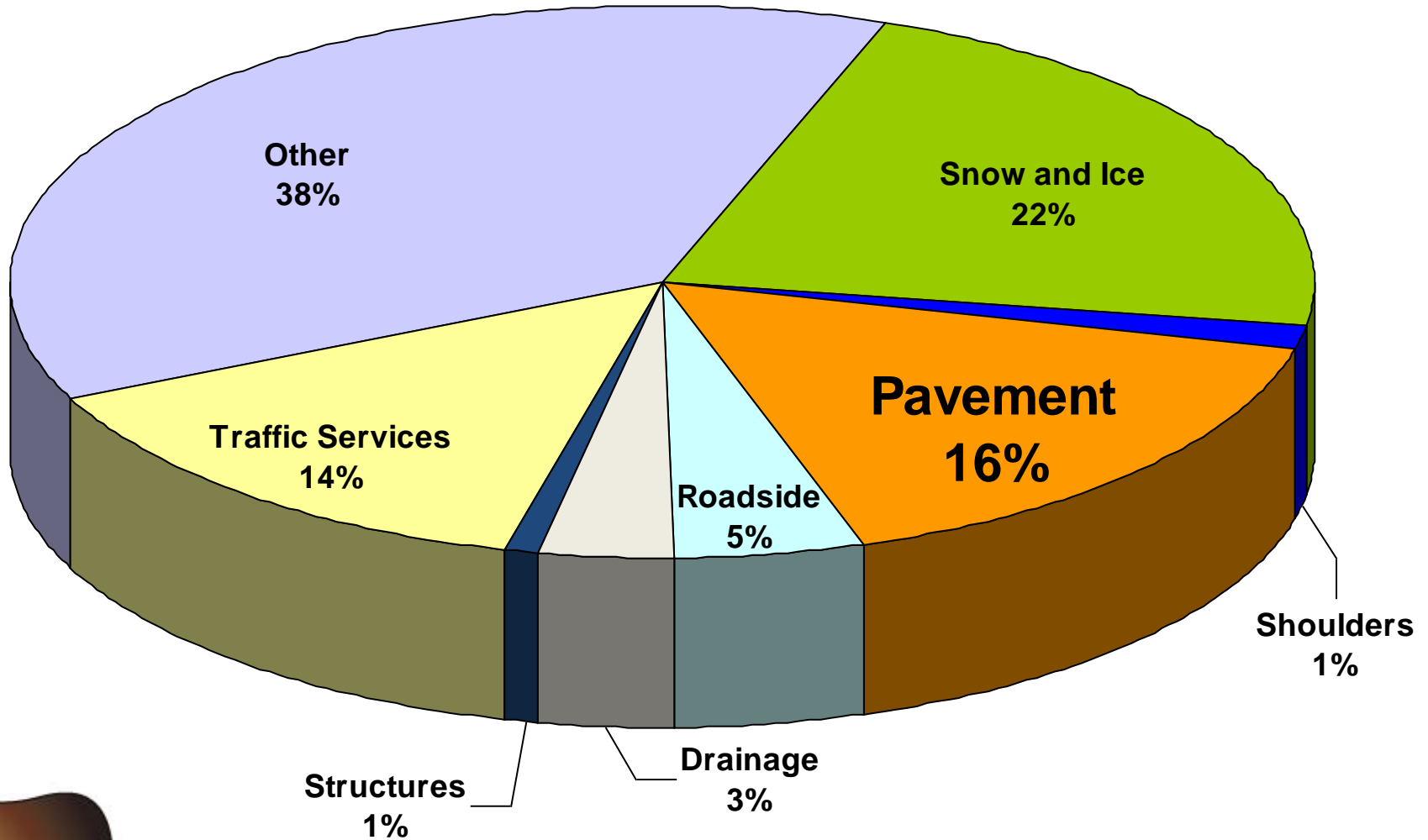


UDOT Facts

- 1,750 total employees
 - 700 Trans Tech employees
- 5,860 miles of road
- 16,520 lane miles
- 24,700 surface areas
- Central Office
- 8 Districts within 4 Regions
- 4 Region PMEs
- 85 maintenance stations statewide

Maintenance Budget FY-2013

\$106,284,400

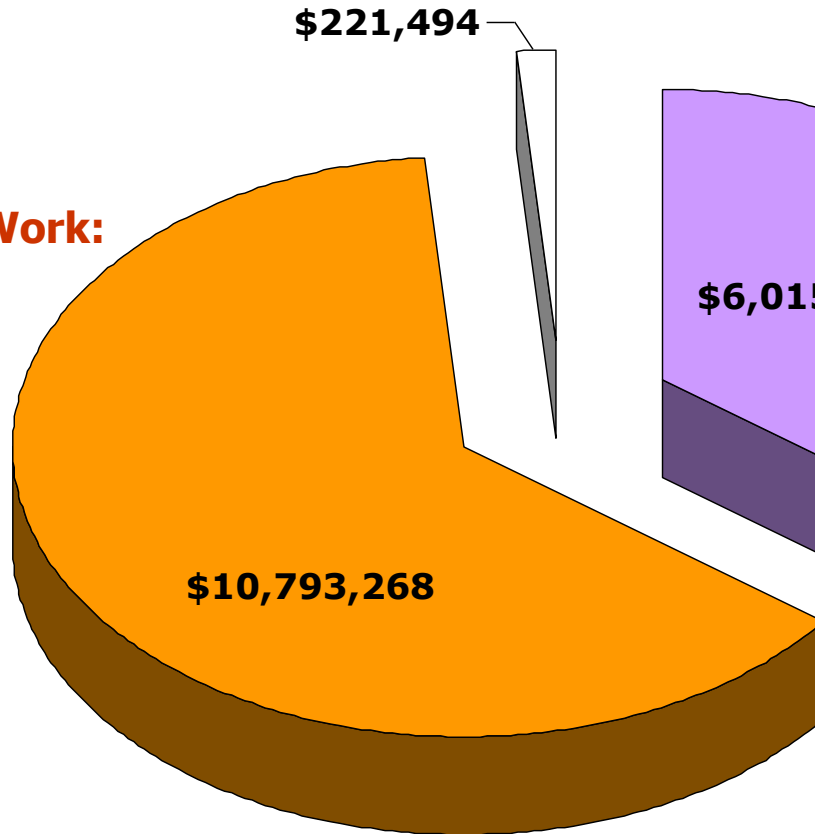


State Forces Pavement Maintenance Budget FY-2013

Total Budget:
\$17,029,783

Preventive Work:

Chip Seal
Flush Coat
Rejuvenation
Etc.



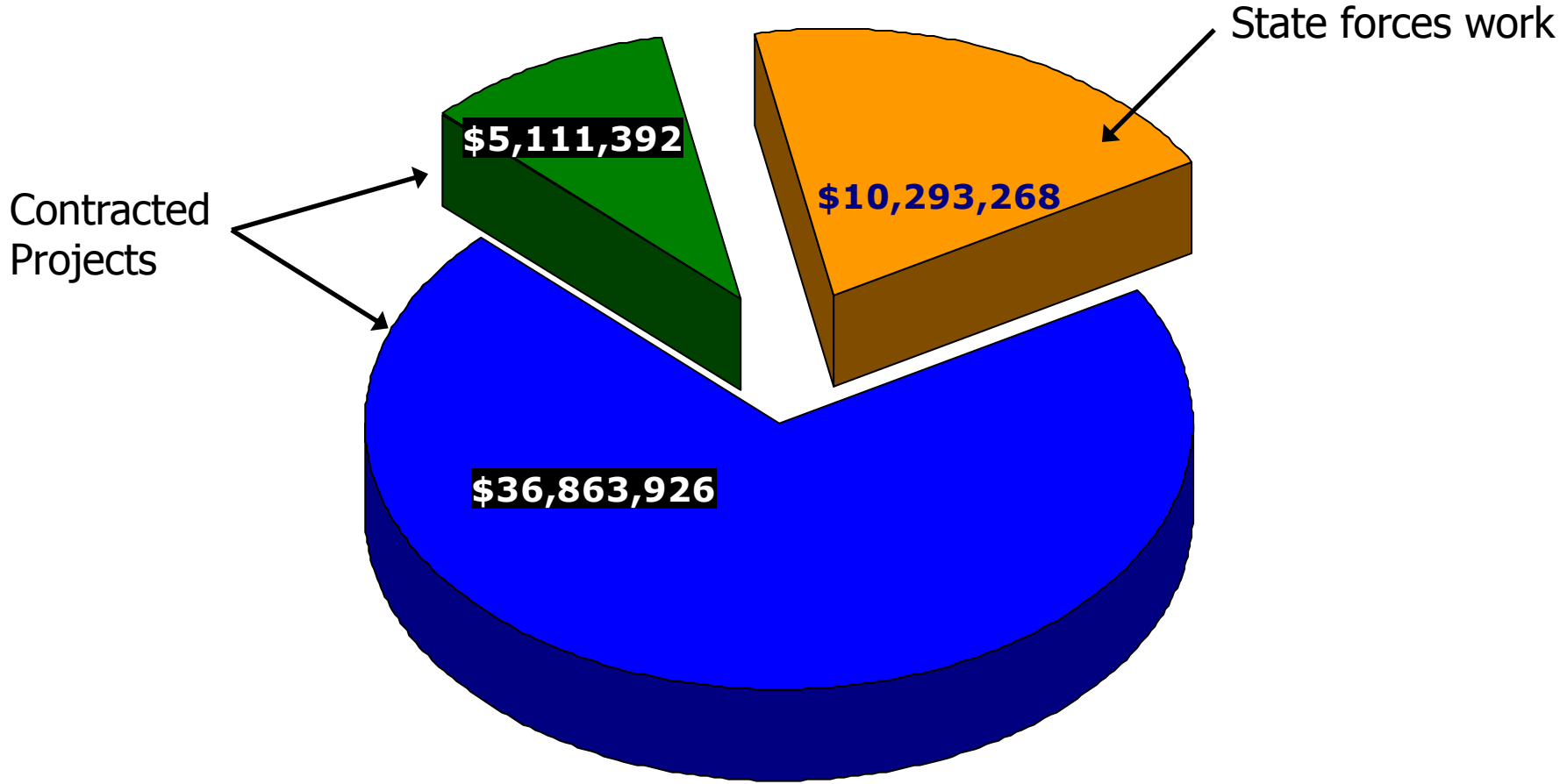
Reactive Work:

Pothole patching
Crack Sealing
Base Repairs
Surface Repairs
Etc.

■ Reactive Activities ■ Preventive Activities □ Concrete



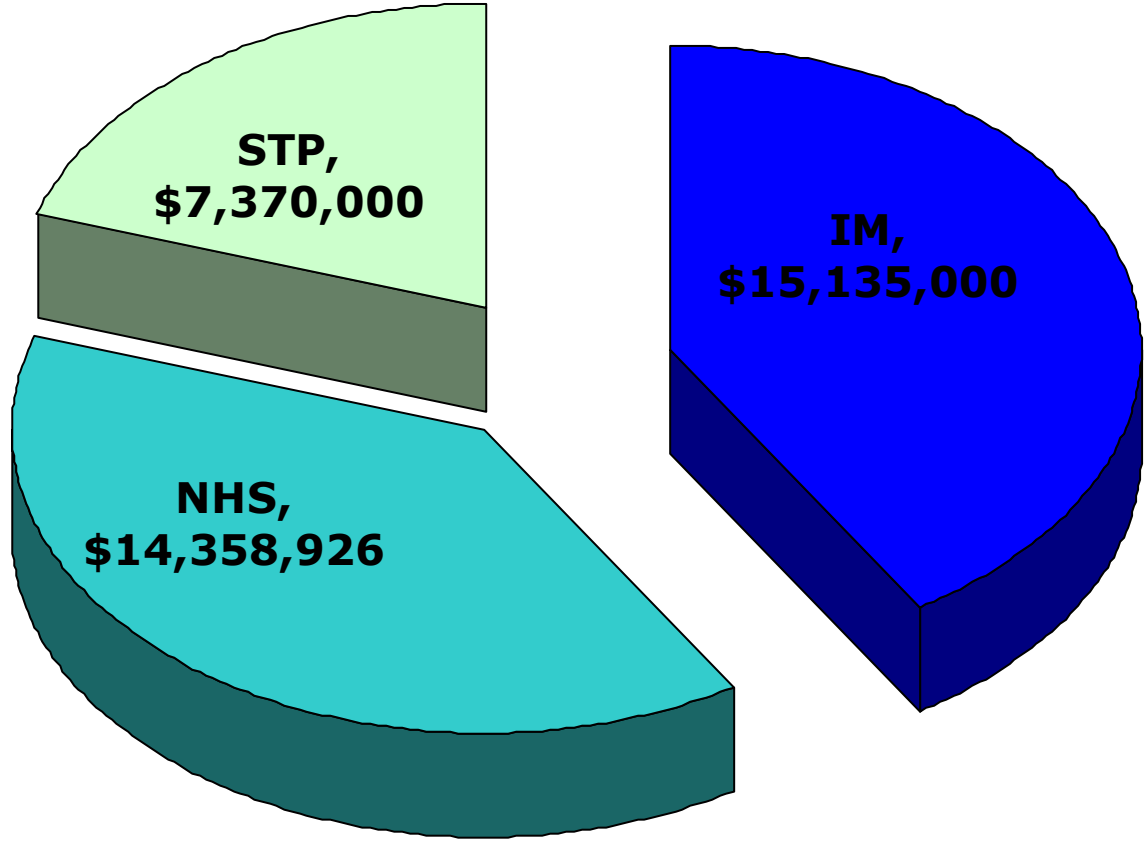
Total Preventive Maintenance Budget FY-2013



Total Budget:
~\$52.3M



Federal Aid Funds (~\$36.9 M)



■ IM ■ NHS ■ STP



UDOT's Tiered Pavement Funding Strategy

- Interstate
 - Goal: Ride Index of Fair or better on 100% of Roadway Sections
 - Eligible for Preventive and Rehabilitative Funding
- Level 1 (AADT > 2000 and/or AADTT > 500)
 - Goal: Ride Index of Fair or better on 100% of Roadway Sections
 - Eligible for Preventive and Rehabilitative Funding
- Level 2 (AADT < 2000 and AADTT < 500)
 - Goal: There isn't one!
 - NOT Eligible for Preventive and Rehabilitative Funding
 - Scheduled to receive a Chip Seal Coat every 10 years



Roadway Categories

Interstate (green)

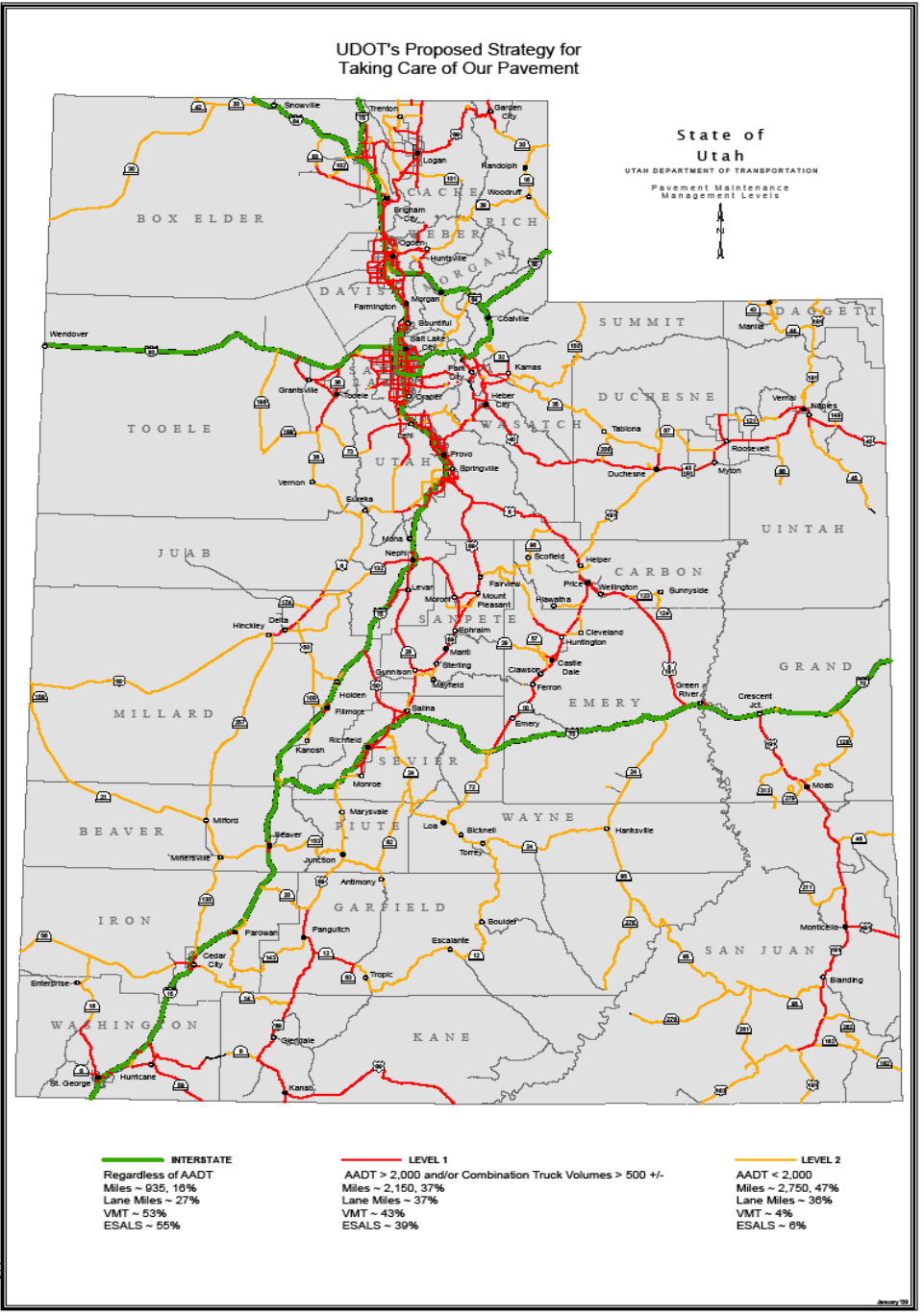
Regardless of AADT
 Miles ~ 935, 16%
 Lane Miles ~ 27%
 VMT ~ 53%
 Combo Truck VMT ~ 63%

Level 1 (red)

AADT > 2,000 and/or AADTT > 500
 Miles ~ 2,150, 37%
 Lane Miles ~ 43%
 VMT ~ 43%
 Combo Truck VMT ~ 32%

Level 2 (orange)

AADT < 2,000
 Miles ~ 2,750, 47%
 Lane Miles ~ 36%
 VMT ~ 4%
 Combo Truck VMT ~ 5%



Preservation Treatments

- Chip Seal
 - Low Volume Roads. Has been used on high volume roads with few turning movements.
- Microseal
 - High Volume Urban Roads.
- Bonded Wearing Course (Novachip)
 - High Volume Roads. Adds structure. Has been used on top of concrete.
- Stone Matrix Asphalt (SMA)
 - High Truck Volume Roads. Adds structure. Helps prevent rutting.
- Open Graded Seal Coat (OGSC)
 - High Volume roads. Adds structure. Not used as much due to problems with ravelling.

