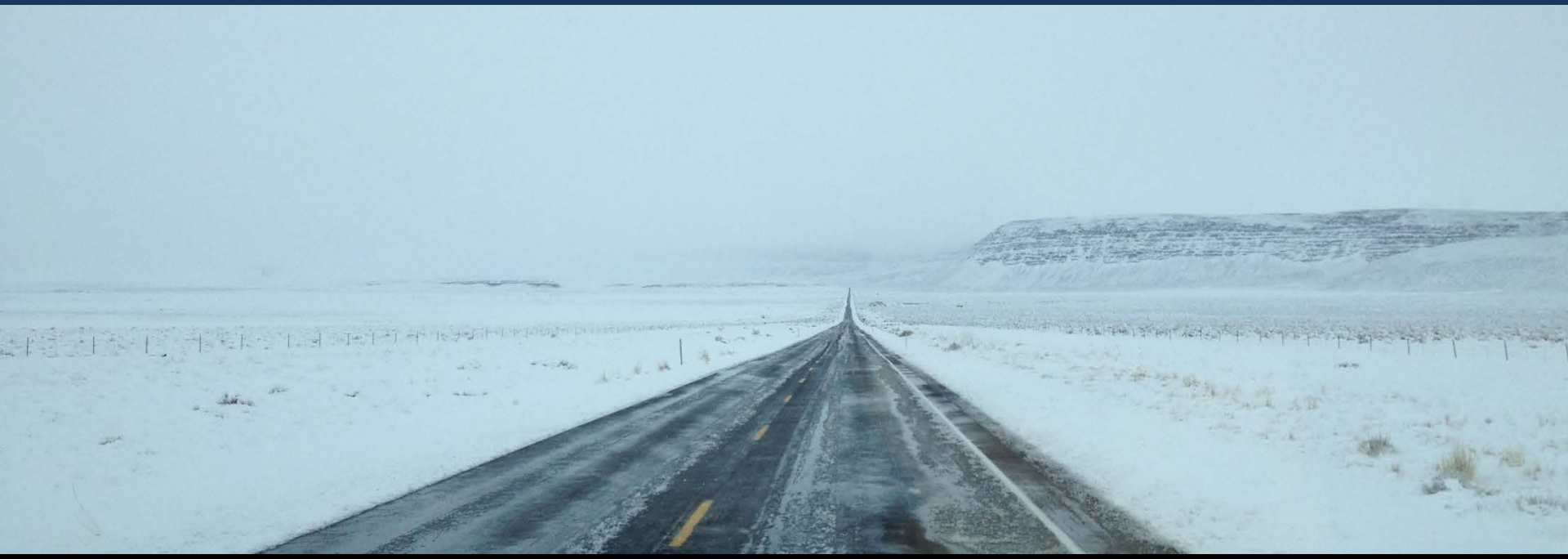
US 395 iCTB

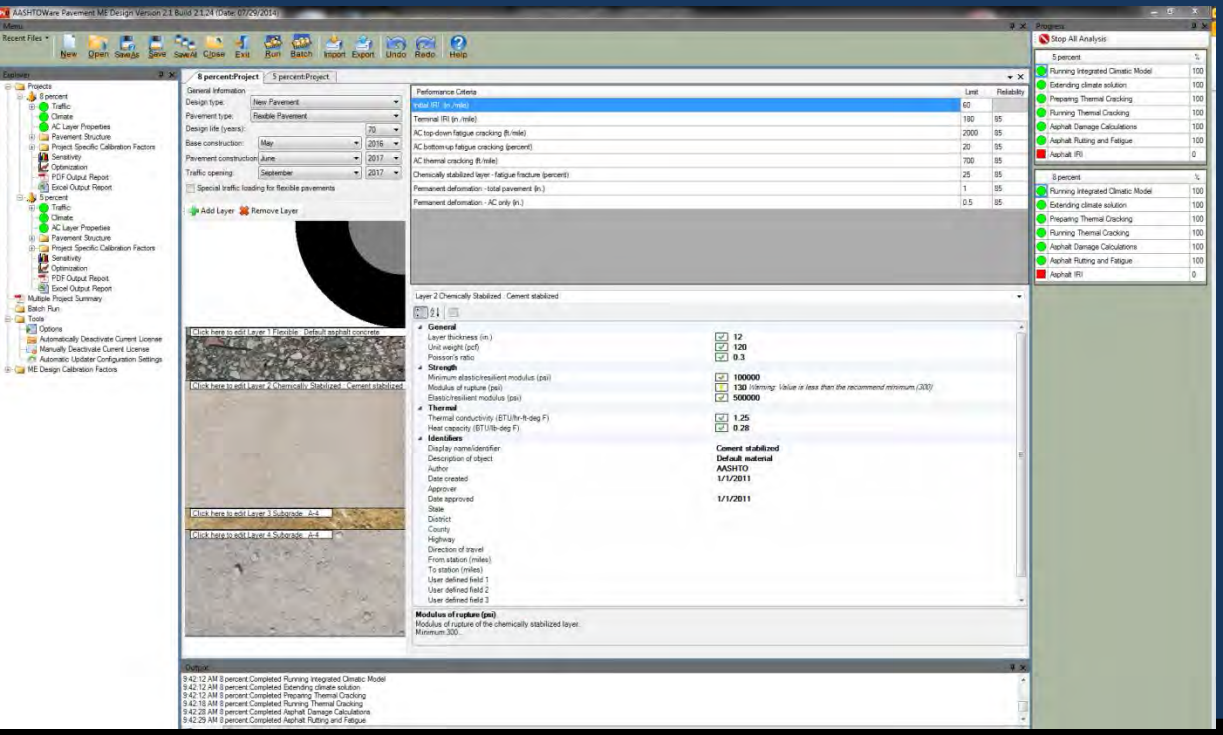


Modes of Failure

- Thermal Cracking
- Block Cracking
- Fatigue Cracking
- Stripping

...[all modes, broken, full depth fatigue]

…and only several inches of poor aggregate base



Pavement Design Alternatives

- Inlay / Overlay
- Rebuild
- iCTB

iCTB

- “in-place Cement Treated Base”
- Works well with marginal base materials
- Requires only thinner ACP over the top
- Costs similar to a 2” overlay for the iCTB alone

iCTB Mix Design

- Compact with “old” method
- Performed by ODOT to manage risks

iCTB Mix Design

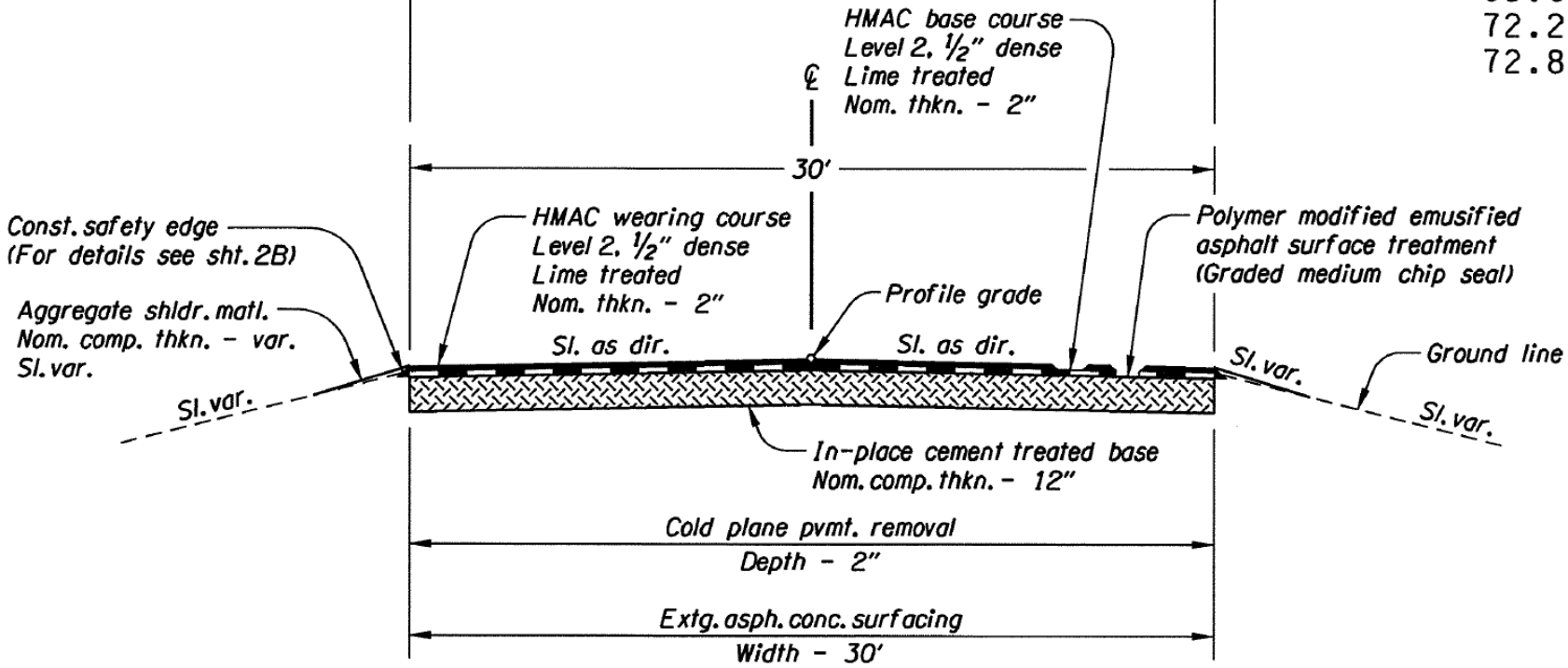
- *Vary cement from 3% to 8%*
- *Vary moisture above and below optimum*
- *Vary amount of "RAP"*
- Compare actual density vs. standard proctor density
- Compare percent fines vs compressive strength
- Compare gradation vs compressive strength
- Compare plasticity vs compressive strength

Mix Design

- All but 2”–4” of ACP
- 8% cement to allow for traffic on iCTB
- (Later Changed to 5% cement w/o traffic on iCTB)

To 65.28
To 72.56

64.7
64.8
65.0
72.2
72.8



MP. 61.50 To MP. 73.25

Construction

The designed construction sequence was to:

ICTB Chip Seal Cure 3 days

24 hour flag 3 Days (Friday, Saturday, and Sunday)

Monday swap lanes and match prior week's work.

Repeat cycle to complete the 24 mile section.

At some point the Contractor would start paving

base lift , then top lift.

Cost Reduction Proposal

- Eliminate Chip Seal but pave a Base Lift
- Increasing the mix price for the project from $14.50 to $21.50 per ton
- $200,000.00 in Project Savings .
- The $200,000 would be split between the Contractor and the State.
- The Construction Sequence was not addressed.

In original bid several items stood out

	OMP	Next 3 Bids	Quantity
•Flaggers	$0.01 /hr	$ 50.00/hr	6640 HR
•Pilot Cars	$0.01/hr	$ 65.00/hr	2230 HR
•Cement in iCTB	$0.01/ton	$ 151.33/ton	18,620 TON
•iCTB 12 inches	$7.77/SY	$ 2.90/SY	430,890 SY
•Tack Coat	$0.01/ton	$ 636.67/ton	220 TON

Original Contract	**$13,268,136.25**
<u>Proposed Project Savings</u>	**$ 200,000.00**
State Portion	**$ 100,000.00**

Original Contract	**$13,268,136.25**
<u>Proposed Project Savings</u>	**$ 200,000.00**
State Portion	**$ 67,300.00**

The way we saw it

Original Contract	**$13,268,136.25**

Savings to the Project

Eliminate Chip Seal	**$ 854,920.00**
Eliminate Tack Coat	**$ 60,000.00**
Reduce Cement 3%	**$ 900,000.00**
Total Savings	**1,814,920.00**
Charge 1/3rd more	**$ 654,010.00**
	$2,468,930.00

Original Contract $13,268,136.25

<u>Savings to the State</u> $ 67,300.00

<u>Savings to the Project & Additional costs</u>

$ 2,468,930.00

NO

Meeting in Salem
Airport Road

NEGOTIATIONS

Split $2,009,773.72

Construction Sequence

2015/07/13

930
2015/07/13

2015/07/13

2015/07/23

cmi
930
2015/07/13

RENTCO
RENTCO
800-836-4308
RENTCO
2015/07/13

140H
2015/07/13

INGERSOLL-RAND
2015/07/13

2015/07/13

Oregon
Mainline Paving
18
HOT
BenhCat
CRC
50D
2015/07/13

2015/07/16

08/13/2015 13:31

ON/OFF
MODE
1.9%
RANGE
RESET
SMARTLEVEL®
2015/07/21

Things to think about

2015/10/31

2015/08/12