

BLACKSTRAP ROAD - COUNCIL REQUEST

At its September 23 meeting the Council requested cost data to compare the staff recommendation of a 28 foot road cross section to two other scenarios. The scenarios are:

1. 22 feet cross section:

Staff instructions to TY Lin: Provide all-inclusive cost estimate for a full depth reclaim of the 4 miles of Blackstrap that MaineDOT controls at current road width. This means that only expanded shoulder width comes from narrowing travel lanes to 10.5 feet. Exclude drainage features, reclaim work only. Add bicycle striping and signage for 'designating for shared access.'

2. 32 feet cross section:

Staff instructions to TY Lin: Confirm or provide all-inclusive cost estimate for a full depth reclaim of the 4 miles of Blackstrap that MaineDOT controls with 5 feet shoulders (i.e. official bike lane). This is 1.5 feet on either side beyond current recommendation. The prior work seems to suggest that the additional cost is \$800,000. Our sense is that \$800,000 sounds low. Please make sure that your estimate includes right-of-way acquisitions using eminent domain process, ditch creations and/or relocations, and/or new closed drainage systems, pole relocations, tree removal, and all blasting associated with the widening.

TY LIN QUESTIONS/STAFF CLARIFICATION

TY Lin had several questions for staff clarification.

For item 1)

TY Lin: Is your intent to obtain a price to reclaim the existing 22' of pavement and stripe it at 21', and do nothing, aside from adding surface course gravel to the existing gravel shoulders to bring them to grade?

Town staff: Yes

TY Lin: And with this, you do not want any additional cost for ditching or pipes and hope to stay inside of existing ROW?

Town staff: Yes, but we also want to know what the long term implication of such a treatment is.

For Item 2)

TY Lin: Because this is an Easement Highway of 4 Rods, and the poles reside within the highway easement, any relocation necessary should come at the expense of the utility companies as outlined in the Utility Accommodation Rules and should therefore not affect the project budget. Is this still something you would like a cost estimate for?

Town staff: Shawn is correct about pole relocation. That is at the expense of the utilities. I think we were trying to capture 'all costs', meaning that pole relocation leads to tree clearing, which has a cost that could be associated with 'the project'.

COST DATA PROVIDED/STAFF CAUTION

Below is a narrative from TY Lin along with two cost spreadsheets.

Improvements costs for the various options are estimated as follows:

- 22 feet cross section: 10.5 feet travel lanes, no shoulder = \$3,758,832
- 28 feet cross section: 10.5 feet travel lanes, 3.5 feet shoulders = \$6,916,118 (staff recommendation)
- 32 feet cross section: 10.5 feet travel lanes, 5 feet shoulders = \$7,718,935

Note: Staff is concerned that for the 5 feet wide shoulder option (32 feet cross section) the blasting numbers appear to be very low. Staff notes that they do not appear to reflect the cost associated with widening the road, blasting for ditches, drainage systems, side slopes, etc. Staff also thinks the ROW costs are not proportionally accurate between the 3-foot and the 5-foot shoulders. Staff understands that this is a planning-level estimate, which could be off by a fair percentage amount.

ESTIMATES FOR THE 4.2 MILES OF STATE AID ROAD (EXCLUDING THE 0.8 MILES INSIDE THE COMPACT)

22' (11' lanes)

28' (11' and 3')

32' (11' and 5')

Pavement Work			
pavement @ 4"	0.54 T/LF	\$115 per ton	\$62
FDR	2.5 SY/LF	\$20 per SY	\$50
Variable Gravel @ 4"	0.27 CY/LF	\$40 per CY	\$11
			\$123
		SAY	\$125 per LF
4.2 miles =	22176 ft		\$2,772,000
Drainage Work			
Ditch	Assume none *		
Swale w/ UD			
Curb w/ UD			
			\$0
ROW	Assume none		
			\$0
Tree Clearing	Assume none		
			\$0
Blasting	Assume none		
			\$0

0.69 T/LF	\$115 per ton		\$79
3.1 SY/LF	\$20 per SY		\$62
0.35 CY/LF	\$40 per CY		\$14
			\$155
		SAY	\$157 per LF
4.2 miles =	22176 ft		\$3,481,632
20,000 LF	\$15 per LF		\$300,000
8450 LF	\$35 per LF		\$295,750
15850 LF	\$55 per LF		\$871,750
			\$1,467,500
Assume	Approx 135 parcels @ \$750/parcel		\$101,250
Assume	4' wide on each side equals 4 AC @ \$7500/AC		\$30,000
Assume	100 CY @ \$200/CY		\$20,000

0.78 T/LF	\$115 per ton		\$90
3.7 SY/LF	\$20 per SY		\$74
0.4 CY/LF	\$40 per CY		\$16
			\$180
		SAY	\$180 per LF
4.2 miles =	22176 ft		\$3,991,680
20,000 LF	\$15 per LF		\$300,000
8450 LF	\$35 per LF		\$295,750
15850 LF	\$55 per LF		\$871,750
			\$1,467,500
Assume	Approx 135 parcels at \$950/parcel		\$128,250
Assume	6' wide on each side equals 6 AC @ \$7500/AC		\$45,000
Assume	300CY @ \$200/CY		\$60,000

		Subtotal	\$2,772,000
Contingency	20%		\$554,400
		Total	\$3,326,400
PE	5%		\$166,320
CE	8%		\$266,112
		Grand Total	\$3,758,832

		Subtotal	\$5,100,382
			\$1,020,076
		Total	\$6,120,458
			\$306,023
			\$489,637
		Grand Total	\$6,916,118

		Subtotal	\$5,692,430
			\$1,138,486
		Total	\$6,830,916
			\$341,546
			\$546,473
		Grand Total	\$7,718,935

* Some drainage work in the form of re-establishing ditches and addressing culverts will likely be necessary to freely drain existing subgrade. If such work does not occur as necessary, saturated sub-surface soils will likely cause premature failure of pavement structure. This drainage work may then cause some ROW acquisition in the form of new/updated drainage easements

30 YR ANALYSIS FOR THE 4.2 MILES OF STATE AID ROAD (EXCLUDING THE 0.8 MILES INSIDE THE COMPACT)

22' (11' lanes)

28' (11' and 3')

32' (11' and 5')

	22' (11' lanes)	28' (11' and 3')	32' (11' and 5')
Initial Treatment Design Life Initial Cost	Full Depth Reclamation 12 years \$3,758,832		\$6,916,118
Subsequent Treatment Design Life Cost (adjusted for inflation)	Structural Overlay 10 years \$1,200,000 (\$200k/mile x 4.2 miles at 2020 prices inflated to 2032)	\$1,500,000 (\$250k/mile x 4.2 miles at 2020 prices inflated to 2032)	\$1,700,000 (\$285k/mile x 4.2 miles at 2020 prices inflated to 2032)
Subsequent Treatment Design Life Cost (adjusted for inflation)	Structural Overlay 10 years \$1,290,000 (\$200k/mile x 4.2 miles at 2020 prices inflated to 2042 w/ 20% life cost remaining)	\$1,612,000 (\$250k/mile x 4.2 miles at 2020 prices inflated to 2042 w/ 20% life cost remaining)	\$1,840,000 (\$285k/mile x 4.2 miles at 2020 prices inflated to 2042 w/ 20% life cost remaining)
	\$6,248,832 Total Life Cycle Cost	\$10,028,118 Total Life Cycle Cost	\$11,258,935 Total Life Cycle Cost