

5 DEVELOPMENT OF THE PREFERRED ALTERNATIVE

The previous section concluded that a TBM bored rail tunnel was the preferred alternative based on costs, risk and schedule. Further consideration is given here to improving the construction schedule and reducing costs.

5.1 Schedule

An option for reducing the construction duration was addressed. This was to change the work week from five to seven days and to use an additional TBM to allow concurrent tunnelling from both sides of the Strait.

The use of a second TBM will only be possible if sufficient power supply is available to serve the Labrador site. The TBM is likely to have a total connected power of about 4000 kW although the demand will be less than this. The recent introduction of variable frequency drives on TBMs may also reduce this requirement somewhat. In any event, power on the Labrador side would not be available under the current isolated grid arrangement. Thus a dedicated power plant would have to be provided by the construction contractor for this purpose unless additional power becomes available in the interim. This has been assumed in the cost estimate.

The resulting schedule is shown in Figure 5.1. The reduction in the schedule is 52 months from the previous 180 months. This assumes that 50% of the tunnelling work will be completed from Newfoundland and 50% from Labrador. This is unlikely to actually occur as one side will always advance farther than the other. This effect will likely offer some further schedule reduction but is beyond the level of detail required for this analysis. The reduction in the schedule, over one TBM, is 22 months.

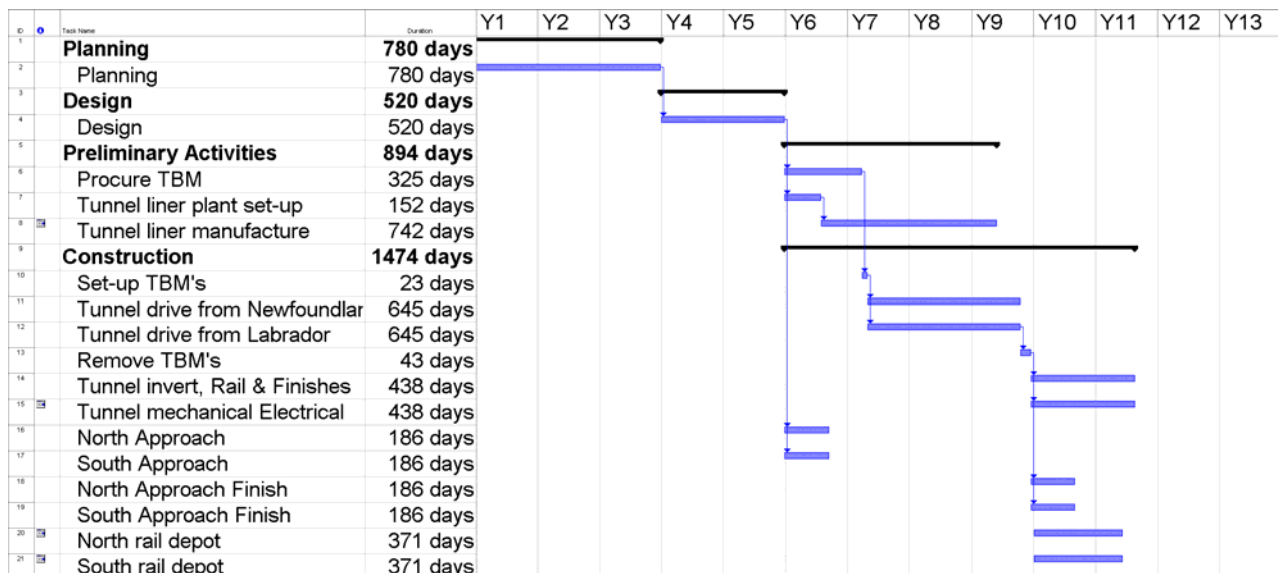


Figure 5.1 Project Schedule for the Preferred Option
Using Seven Day Work Week & Two TBM's

5.2 Cost Comparison

Table 5.1 provides the adjusted costs for the previously described option refinements.

Table 5.1 Costs for Preferred Option Refinements

Option	Construction Cost	Annual Operating Cost	Risk Level	Project Duration (Years)
1 TBM (5 day week)	1,144	7.64	Moderate	12.5 years
2 TBM's (7 day week)	1,184	7.64	Moderate	10.7 years

The overall development cost for the 2 TBM arrangement includes an allowance for the installation of HVDC cables, escalation, and IDC (Interest During Construction). Including the HVDC cable cost of \$77 million brings the construction cost to \$1261 million in 2004 dollars. In Section 8.2, escalation is shown to be \$266 million and IDC, \$258 million. The total development cost and the cost to finance is thus \$1708 million.