

## TIOGA TERMINAL COST MODEL

The Tioga Group Inc.'s Terminal Cost Model estimates the short- and long-term unit operating costs of an intermodal rail terminal. The model was originally developed to assist terminal operating companies and has also been used by ports and terminal owners. It can quickly evaluate a variety of operating scenarios. Inputs to the model provide for realistic operating and activity scenarios. Outputs from the model include the unit operating costs and the productivity of the various labor classifications and capital assets. The model provides for annualized land and capital costs and other expenses that may be borne directly by the landlord as well as operating costs borne by a contracted operator.

### Tioga Terminal Model Sample Output

- **Volume and Schedule Information.**

The model produces a unit price based on average volume and productivity information, and a projected weekly operating schedule.

Cost Category	Case 1	Case 2	Case 3	Comments and Cost Factors
Volume	26,000	52,000	135,200	
Mangement	1	2	4	
Lift Labor	4	6	10	\$ 20/Hour
Clerical Labor	3	5	8	\$ 15/Hour
Mechanical Labor	1	2	4	\$ 25/Hour
Lift Machines	1	2	4	Side loaders, Mixed new/used
Yard Tractors	2	4	9	Mixed new/used
Switch Engine	1	1	1	Owner function (could be contractor)
Crews	1	2	2	Shifts per day
Acres	70	70	70	Purchase total acreage at start
Land	\$ 17,500,000	\$ 17,500,000	\$ 17,500,000	\$250,000 per acre
Construction	\$ 6,500,000	\$ 13,000,000	\$ 33,800,000	\$500K per acre and 2000 lifts per acre
<b>Estimates</b>				
Contractor's Lift Rate	\$ 23.77	\$ 22.70	\$ 19.71	
Gate Cost per Lift	\$ 9.24	\$ 6.16	\$ 7.37	
Owner Operating Cost	\$ 15.47	\$ 14.35	\$ 5.98	Mainly the switch engine
Annual Facility Cost	\$ 26.37	\$ 26.37	\$ 26.37	Construction
Annual Land Cost	\$ 67.31	\$ 33.65	\$ 12.94	Return on land
Total Annual Cost per Lift	\$ 142.16	\$ 103.23	\$ 72.37	
<b>Average Operating Cost per Lift</b>	<b>\$ 48.49</b>	<b>\$ 43.21</b>	<b>\$ 33.06</b>	

- **Labor Costs.** The model calculates the average hourly cost of labor including fringes based on the specific provisions of the labor contract and the seniority profile of the work force.
- **Productivity.** The model accepts detailed industrial engineering data regarding the terminal's specific equipment, configuration, and operating schedule. For projected terminals lacking detailed data, Tioga applies standard data for typical equipment and design features.
- **Equipment and Fuel Costs.** This model accepts specific new and used equipment costs based on the age and condition of individual lift machines, yard tractors, and other equipment operated by the terminal contractor. Maintenance costs are calculated based on typical preventive maintenance practices and labor costs as described above. Fuel costs are calculated based on local fuel cost and specific equipment usage rates.
- **Other Operating Costs.** Other operating costs such as utilities, security, ordinary terminal maintenance, terminal operator's profit, etc., are included based on typical industry operating practices.
- **Capital Costs.** Tioga's model expresses facility and other large capital costs as unit costs based on expected life, volume and interest rate.