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## Strategic Investments in Rail Versus Trucks for Short Haul Transportation of Munitions at Iowa Army Ammunition Plant

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**Abstract:** The combination of declining ammunition requirements, decreased budgets available for maintenance and strategic investments, and an increasingly capable commercial sector has challenged the operational sustainability of the Government Owned Government Operated (GOGO) and Government Owned Contractor Operated (GOCO) facilities. Conducting sound analysis to support resource expenditures is critical in that smart tradeoffs must be made between financial and strategic investments.

This research focuses on developing an investment strategy for short haul operations at the Iowa Army Ammunition Plant (IAAAP). Specifically, we will develop a rationalization for IAAAP that can be used by the broader GOGO/GOCO community to recommend processes improvements, infrastructure and other strategic investments to improve the operational effectiveness of the facility with a focus of rail versus trucks for short haul operations.

An important component of good decisions is to capture the total value proposition. This not only provides a means to capture to total value of competing alternatives but also allows for articulating and measuring the value proposition. For this project we chose to use a value modeling approach to multi-objective decision analysis combined with a total ownership cost model over a 50-year life cycle. By analyzing six alternatives (combinations of no, partial, and total upgrade of the rail system with no and some road upgrades) the transition to solely trucks produced the cheapest annual costs. However, this alternative has provided the least value. Leadership must make decide whether the investment in partial rail upgrades warrants the increased strategic value to the Department of Defense at IAAAP.

**Keywords:** Iowa Army Ammunition Plant, Short Haul Transportation, Life Cycle Costs, Value Modeling