

## Abstract

This project addresses the following questions:

- Is additive manufacturing a cost reducing option for the Marine Corps, compared to acquiring OEM items from the established supply chain?
- Among the additive manufacturing alternatives, is it more cost efficient for the Marine Corps to use Extrusion or CLIP?



1st Maintenance Battalion, EXMAN Trailer



Printed Helmet Mount

## Methods

This project conducts a Cost Benefit Analysis, which systematically examines the relative strengths and weaknesses of the established method of Extrusion, and the emerging technology of continuous liquid interface production (CLIP). This provides a decision making tool, which can be updated to reflect emerging data or command priorities.

## Results

The findings from the Cost Benefit Analysis show an advantage for Additive Manufacturing at the production level with a substantial edge given to CLIP in three of four scenarios.

Method	Extrusion	CLIP
Baseline	\$9,697,267.59	\$15,470,288.11
Sensitivity of Value of Time	\$4,037,667.94	\$6,414,928.67
Sensitivity of DDL	\$3,294,203.40	\$5,225,385.41
Equalization of Initial Investment	\$19,394,535.17	\$15,470,288.11

Results Table

## Recommendations

- The Marine Corps builds a data repository of (blockchained) printable files as quickly as accuracy allows.
- The Marine Corps continues to use the Fortus 250mc until the database reaches capacity, then moves to Carbon 3D or a similar technology and expands the capability across the Marine Corps.