BUSINESS CASE	
Proposed Project	Deep Learning Dataset Augmentation for Detecting Rare Material in Waste Management Collection.
Date Produced	Sept 16, 2021
Background	A report commissioned by Environment and Climate Change Canada, which has a goal of eliminating plastic waste in Canada, established that only 9% of plastic waste is collected and recycled. The report recommended, among other changers, that there would need to be a significant increase in the number of recycling facilities and investments in this industry. Prairie Robotics Inc. is an Artificial Intelligence company offering solutions for waste management object classification. Machine Learning is used to identify and classify contaminants found in waste bins. Prairie Robotics has partnered with multiple Western Canadian municipalities and waste management companies to reduce recycling contaminants in residential collection programs. Rare and Severe Contaminants in the recycling collection stream pose significant risk to operators and result in substantial financial costs. Incidents such as propane tanks or batteries inadvertently placed in waste bins can cause fires or explosions in either the collection vehicle or at material recovery facilities (MRF). A report on fires at MRFs in Canada and the US estimated there were more than 1800 fires at facilities in 2020. These fires cost the industry 1.8 Billion annually and in 2020, resulted in 23 injuries and 3 fatalities.
Business Need/ Opportunity	Events such as propane tanks or batteries in waste bins are rare, however they are important to detect as they can pose immediate risks to employees and the public. Not only are these incidents extremely costly, they can be deadly. By developing a method of detecting rare and severe contaminants, the waste management industry can take preventative action to remove contaminants safely. This can reduce costs, prevent injuries and save lives.
Options	Perform the Project
Cost-Benefit Analysis	

Recommendation