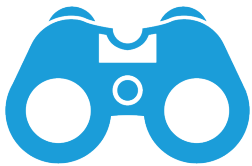


INTRODUCTION

Unmanned Aerial Systems (UAS), or drones, are multi-use aircraft controlled from the ground by a licensed operator. They can be used in nearly all aspects of highway transportation—they replace boots on the ground, increase accuracy, speed up data collection, and provide access to hard-to-reach locations. Here’s a look at a NJ DOT research study that compared the relative benefits of using UAS versus visual inspections methods for the structural inspection of 244 of its high mast light poles.

Traditional Inspection

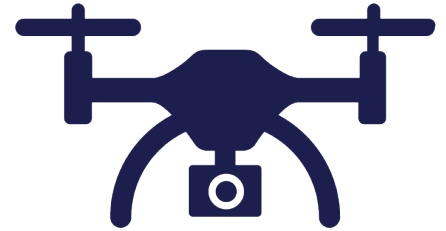


1 Initial inspection with binoculars



2 Secondary inspection with bucket truck if potential defect is found






UAS Inspection



1 Initial inspection with UAS

2 NO SECONDARY INSPECTIONS

BENEFITS VS. COSTS (\$)

CRITERIA	BUCKET TRUCKS (all initial inspections)	TRADITIONAL	UAS
 Time (labor hours)	3,312	1,264 - 1,552	1,476
 Cost	\$477,022	\$167,600 - \$177,667	\$186,025
 Safety	\$2,162 per pole requiring a lane closure	\$2,162 per pole requiring a lane closure	\$0
 Efficiency	\$1,736 per pole requiring a lane closure	\$1,736 per pole requiring a lane closure	\$0
 Total Cost	\$500,410	\$190,988 - \$201,055	\$186,025

ADDITIONAL BENEFITS

The UAS approach offers additional benefits that could be quantified, such as:

HIGHER QUALITY PHOTOGRAPHS for documentation and analysis

Fewer **SAFETY RISKS**, lower **VEHICLE EMISSIONS**, and less **TIME**—no driving to secondary inspections

Eliminate safety and traffic impacts of a **SHOULDER CLOSURE**—no secondary inspections

Reduced **INJURY EXPOSURE** to workers (both in work zones and in bucket trucks)

