Statistical Analysis and Predictive Models for Expenditures in NY Municipalities

**Executive Summary:**

**Introduction:** Generally, construction companies have numerous aspects in estimating the cost of each new housing project. To estimate the cost of each housing project, expenditures play an important role in increasing or decreasing the cost. For example, higher expenditure would result in an increase in cost of construction. Therefore, the property owners would have to seek for higher funding to fulfill the project. On the other hand, while expenditure decreases, properties owner could spend the reimburse the expenses elsewhere. In addition, knowing the expenditures would also help construction manager to order supplies in a proper manger. If expenditure decreases, then the supplies would also be less in quantity or cheaper in quality. Numerous questions were proposed in favor of these issues such as 1) What variables causes the fluctuation of expenditure? 2) What is the best predictive model that could predict expenditures? 3) How can we validate and implement the model? 3) Is there any improvement to the future models? To answer these questions, this analysis will take a deep dive into the data exploratory analysis, model development process using linear regression, and diagnostics analysis. With the answered questions, construction workers and properties owner would have a better understanding of their expenditures when starting a new project to avoid over or under estimating their budgets.

**Methods**

**Exploratory Data Analysis**

**Statistical Analysis**

**Conclusion**