



RON GALPERIN
CONTROLLER

September 17, 2015

Honorable Eric Garcetti, Mayor
Honorable Michael Feuer, City Attorney
Honorable Members of the Los Angeles City Council

Re: Audit of the City's Change Order Management Process

Dear Colleagues:

From 2011 to 2014, the City of Los Angeles incurred costs of \$5.5 billion to outside contractors for construction projects that were originally expected to cost \$4.9 billion.

I asked for an audit to determine if the City's extra costs were in line with those experienced by other cities and by private builders. I also wanted to know if practices in use elsewhere could help the City reduce its exposure to cost overruns in the future.

Some cost overruns in construction projects are commonplace and even unavoidable. Extra costs are reflected in change orders, which are typically acknowledgements that costs have gone up because construction conditions have changed. Changes are most commonly attributed to unexpected field conditions, such as encounters with unmapped utility lines when building in urban centers, or errors or ambiguities in plans. That was the case in the majority change orders we examined.

A Mixed Picture

Change orders can occur in bulk if the owner of a project is in a rush. That was a key factor in one of the more than 30 projects we examined--construction of the new Tom Bradley International Terminal at city-owned Los Angeles International Airport. Construction got ahead of planning on that project--which was examined in this office's "Audit of the Los Angeles World Airports' Capital Development Program." City officials designed the terminal on the fly and pushed for completion on an accelerated schedule. Costs for the project ballooned from an originally contracted \$621 million to more than \$1 billion.

Change orders on the Bradley Terminal project alone accounted for two-thirds of all change order costs the City experienced in the three most recent years studied, and had a dramatic impact on comparative measures of the City's overall performance.

Counting results from that project, the City paid 12.2% more than it originally contracted for--substantially higher than the 5% to 10% range that our outside auditor, KPMG, reported many other U.S. cities and private builders' experience.

Not counting cost overruns from that project, of course, makes the City's record look better. Without it, the City spent \$187 million on change orders, representing 4.3% of the value of original contracts.

Best Practices

Regardless of how these results are viewed, we believe the City has room to improve how it manages the change order process. For starters, the City can do a better job of assessing the degree to which it is willing to assume risk for additional charges before a project begins. Some risks can be mitigated depending upon which of several project delivery methods the City chooses. For example, if the City uses a design-bid-build approach (in which it obtains separate bids for design and construction) costs tend to be more predictable, assuming designs don't change and unforeseen conditions are not encountered. But speed suffers because the construction contractor cannot begin until the design contractor finishes. On the other hand, if the City uses a design-build approach (entrusting both design and construction to a single contractor) it gives up more control, but can proceed more swiftly.

KPMG, the consultant hired to perform our audit, examined change order practices of all four City agencies that manage large-scale construction projects and compared them with industry best practices. The agencies are the Bureau of Engineering of the Department of Public Works, which manages construction for City Council-controlled departments, and the City's three proprietary departments: the Port of Los Angeles, Los Angeles World Airports and the Department of Water and Power, which was separated, for the purposes of the audit, into water and power segments.

Auditors looked in detail at a sample of 90 change orders worth \$90.18 million. They found that in 54 of them, worth \$32.9 million, City departments did not follow what auditors said were best practices. Although obtaining independent estimates of what changes should cost can sometimes delay a project, auditors said agencies did not make sufficient use of independent estimates. Nor did they keep sufficient records of their cost negotiations with contractors. Auditors also found that, for the sample of change orders they examined, best practices did not always result in the lowest costs.

The audit found that while the Bureau of Engineering (BOE) had the most effective controls, it was third among City departments in percentage of change order costs. BOE-sampled projects showed cost overruns attributable to change orders of 3.95% of the original value of the projects. At the Port of Los Angeles, auditors found cost overruns of .5% of original contract prices. The power division of the Department of Water and Power had cost overruns of 3.19%, while the department's water division had cost overruns of 9.3%. Los Angeles World Airports had cost overruns of 27.78%--although, if change orders attributable to the Bradley Terminal had been omitted, airport cost overruns would have fallen to 7.16%.

Recommendations:

For the City to do better financially as a major builder, it should standardize certain practices in use elsewhere, including its approach to:

- **Assessing Risk** -- Departments should carefully evaluate risks of cost-overruns as they balance trade-offs such as how much control they are willing to cede in return for speed.
- **Agreeing on Pricing** -- Departments should use independent experts to estimate costs, maintain detailed records of their change order-cost negotiations with contractors and make a habit of clearly referencing the sources they used and assumptions they made in arriving at how much changes should cost.
- **Collaborating With Other Departments** -- The City should establish a committee to promote interdepartmental sharing of lessons learned regarding change order management best practices.
- **Increasing Accountability** -- The City should direct contracting departments to develop a dashboard for reporting and tracking change orders using standard formats and content.

Predicting how much the City could save if its departments uniformly employed best practices such as these is necessarily inexact. But given the large scope of City contracting, it seems likely that the City could save millions of dollars per year.

KPMG's experience elsewhere suggests that employment of best practices usually results in project owners shaving 5% to 10% from change order cost estimates prepared by contractors.

If the City of Los Angeles had been able to shave just 1% or 2% from its final change order costs during the three-year period we studied, the City would have saved between \$6 million and \$12 million.

We thank the City's Bureau of Engineering, the Port of Los Angeles, Los Angeles World Airports and the Department of Water and Power for their cooperation in this audit.

Respectfully Submitted,



Ron Galperin
CITY CONTROLLER