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The Audit Committee is chaired by the Auditor and consists of seven members. The Audit Committee assists the Auditor in his oversight responsibilities of the integrity of the City’s finances and operations, including the integrity of the City’s financial statements. The Audit Committee is structured in a manner that ensures the independent oversight of City operations, thereby enhancing citizen confidence and avoiding any appearance of a conflict of interest.

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Ms. Kim Day, Manager
Department of Aviation
City and County of Denver

Dear Ms. Day:

Attached is our Denver International Airport (DIA) Planning and Development Division performance audit. The purpose of the audit was to assess the effectiveness and efficiency of DIA’s Planning and Development Division (Division) with a specific focus on change order practices for construction projects including the impact change orders have on budgets and schedules.

A loose system of change order controls can result in an increase in the price of a contract without adequate justification or documentation. Allowing an initial low bid award, followed by a price increase, can make the contract price higher than other bid prices. Unfettered change orders can disproportionately approve work for select contractors, shrinking the pool of qualified bidders over time.

Our review identified a culture within the Division that permits inadequate change order practices resulting from a relaxed control structure. Additionally, we identified several areas of opportunity for enhanced internal controls surrounding change order business processes for the Division. We hope that our findings and recommendations presented in this report strengthen oversight of the Division and contracting process.

If you have any questions, please call Kip Memmott, Director of Audit Services, at 720-913-5000.

Sincerely,

Dennis J. Gallagher
Auditor

DJG/sm

cc: Honorable Michael Hancock, Mayor
Honorable Members of City Council
Members of Audit Committee
Ms. Cary Kennedy, Deputy Mayor, Chief Financial Officer

To promote open, accountable, efficient and effective government by performing impartial reviews and other audit services that provide objective and useful information to improve decision making by management and the people.
We will monitor and report on recommendations and progress towards their implementation.
To promote open, accountable, efficient and effective government by performing impartial reviews and other audit services that provide objective and useful information to improve decision making by management and the people.

We will monitor and report on recommendations and progress towards their implementation.
AUDITOR’S REPORT

We have completed an audit of the Denver International Airport (DIA) Planning and Development Division. The purpose of the audit was to assess the effectiveness and efficiency of DIA’s Planning and Development Division (Division) with regard to change order practices for construction projects including the impact change orders have on budgets and schedules.

This performance audit is authorized pursuant to the City and County of Denver Charter, Article V, Part 2, Section 1, General Powers and Duties of Auditor, and was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The audit revealed several weaknesses surrounding the Division’s contracting practices that can be improved. Specifically, we identified several internal control weaknesses that may be the result of a management culture within the Division that permits inadequate change order practices by failing to implement and enforce a proper control structure. We identified outdated policies and procedures, an inconsistent use of the Primavera project management system, an ineffective Change Review Board process, inadequate segregation of duties, and lack of change order root cause analysis. These weaknesses both hinder the Division’s ability to effectively and efficiently manage construction projects and inhibit transparency and accountability regarding Division contracting practices.

We extend our appreciation to Division staff and the personnel who assisted and cooperated with us during the audit.

Audit Services Division

Kip Memmott, MA, CGAP, CRMA
Director of Audit Services
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EXECUTIVE SUMMARY

Poor Internal Controls Governing Denver International Airport’s Planning and Development Division’s Change Order Practices Pose Substantive Risk

In 2012, the Denver International Airport (DIA) Planning and Development Division (Division) oversaw approximately $93 million worth of construction projects, which included oversight of the management, planning, design, and construction components for these projects.¹ There are several phases of a construction project, including contract procurement, project construction, and project close-out. Our audit focused on change order practices related to the project construction phase.

The Division can significantly enhance its internal control structure related to construction practices, specifically in the area of change order management. Substantive weaknesses identified by audit work indicated that the Division has a lax control environment for change order management, which has several negative effects that pose unnecessary risk to the City. Strengthening the control oversight structure is crucial for effective project management, transparency of expenditures, and maintaining a competitive marketplace for City projects. As such, the Division should take immediate action to establish an effective control structure for change order management.

An Inadequate Control Structure over the Change Order Process within the Division Has Several Negative Effects that Pose Substantive Risk to the City

Audit work identified the following negative impacts and potential risks stemming from the Division’s poor internal control structure over change order management.

Inappropriate Use of Change Orders Reduces Transparency and Circumvents City Contracting Rules – Audit work found that insufficient controls within the Division have resulted in the use of change orders for work unrelated to the original scope of work of a project in order to pay contractors timely when funds for the original project have been exhausted, to avoid long wait times to administer contracts through the normal contract process, and to keep work at DIA moving. While utilizing change orders for these reasons may save time and reduce overhead costs, the practice is not in accordance with industry best practices and circumvents the City’s contracting process.

Pursuant to Executive Order 8, city departments must adhere to the city’s formal contracting process for procuring services or equipment.² However, our review determined that Division management, when faced with a business need that meets the city’s criteria for initiating the formal contracting process, has at times decided to have the work completed through a change order to existing contracts. As a result, change

¹ Excluding the $544 million South Terminal Redevelopment Program. The DIA Planning and Development Division does not oversee this project.
² See Appendix A, Executive Order 8, Section C. Initiating Authority.
orders are included in projects that have no relevance to the original scope of work. Since many of these change orders are large in terms of cost and scope, they may also impact the project’s original budget and timeline. Further, when change orders are handled in this manner, the transparency of the work for both the original project and the work performed under the change order is reduced because the work is now combined into one project instead of separate contracts and appropriate oversight and approval requirements are bypassed. Additionally, failing to procure services in accordance with city contracting rules diminishes business competition for projects at DIA.

Audit work identified specific instances in which change orders were used inappropriately. For example, a change order was created for approximately $66,000 to pay a contractor for work that was completed on a separate on-call contract. This on-call contract had no relevance to the original project’s scope of work. In another instance, a change order for $650,000 was processed for a contract which was not related to the scope of work of the original project. Using change orders in this manner circumvents the City’s contracting process and is not aligned with industry best practices.

**Inappropriate Use of Change Orders Reduces Accountability and the Ability to Effectively Manage Projects** – Audit work found that Division change orders substantially increase project budgets. We reviewed five DIA construction projects, which included a review of twenty-nine change orders. Those change orders collectively increased the amount of the projects by more than $3.8 million. One of the project’s change orders increased the total project cost by 89 percent and another by 63 percent. Best practice indicates that change orders should not account for more than 20 percent of a project’s total cost. Affecting these budget increases without following city procurement requirements diminishes the ability of the Division to assess the adequacy of their project planning processes, particularly related to budgeting and project costs, and to hold Division personnel accountable for their project management performance. The accepted practice of commingling disparate projects into a single project is an indication of inefficient budgeting and project planning. However, the ability for Division management to assess the extent of inefficient project management practices, particularly related to budgeting, and to implement subsequent continuous improvement activities based on such assessments, is significantly inhibited by current practices. Project management is essential to ensure that all phases of a construction project are completed efficiently and as planned. However, our review determined that project management may not be effectively setting realistic contract amounts for projects at DIA. Further, the claim by Division management that the city’s formal contracting process takes too long and therefore, it is necessary to bypass it to keep projects moving also indicates possible project management issues in terms of project planning and scheduling.

**Inappropriate Use of Change Orders Increases the Risk of Fraud, Misuse, and Abuse** – The Division’s inappropriate change order practices places the City at risk for fraud, which is widely present within the construction industry. These practices may put contract terms at risk, since they may change the projects substantially. Organizations that monitor fraud
have reported that the construction industry frequently faces large instances of corruption, resulting in loss of revenue. Another local municipality was recently impacted by fraudulent construction contracting practices. The loose controls surrounding the change order practices of the Division provide an opportunity for fraud to occur, necessitating that the Division strengthen its control environment. While this risk for such fraud is exacerbated by this lax control environment, audit work did not identify any instances of fraud.

DIA’s Planning and Development Division Should Take Action to Implement a Comprehensive Control Structure for Construction Management

Based on our review of the various change orders, interviews with project managers, and discussions with Division management, it appears that the culture of the Division supports the inappropriate use of change orders to pay contractors timely when funds for the original project have been exhausted, to avoid perceived long wait times to process contracts, and to keep work at DIA moving. Despite sentiments that the contracting process is unreasonably long, DIA’s contract process is actually less extensive than that of other City agencies. Not only is the threshold for City Council approval $5 million as opposed to $500,000 for other city entities, the process typically takes about as long for DIA as for other departments and is less time than indicated by Division management.

The inappropriate use of change orders to circumvent the contracting process appears to be a product of the contracting culture and philosophy at DIA. We sought to determine what elements of the Division’s operating structure may be contributing to a culture that allows inappropriate use of change orders. Control failures or weaknesses were identified in four specific areas, which collectively place the City at risk for change order abuse, misconduct, and error. First, we determined that DIA does not have updated written policies and procedures needed for effective and efficient construction project management. By not having specific policies in place, Division management fosters an environment that supports circumventing the contracting process through the inappropriate use of change orders instead of creating separate contracts. Second, DIA is in the process of implementing Primavera, an automated contract management system. The system is not utilized consistently by all project managers, which limits management’s ability to oversee projects. Third, the Change Review Board process is ineffective and lacks proper segregation of duties. Fourth, Division management does not conduct a formal root cause analysis of change orders at the conclusion of each construction project, reducing opportunities to identify areas for improvement that can be applied to future projects.

Outdated Policies and Procedures – A majority of the Division’s policies and procedures were updated over seven years ago and in some instances last revised as far back as 1999. Furthermore, the previous change order approval template required additional signatures which included the Manager of Aviation, who is currently not included in the approval process, meaning an important level of oversight has been removed from the process. The section of the policies and procedures related to change orders provide a good explanation on how to incorporate required support documentation and changes
to the contract, but do not reflect current practices. Moreover, the policies and procedures do not specifically outline the criteria of how change orders should be used. For example, they do not specify whether change orders are required to be related to the original scope of work of the project.

**Primavera is Not Utilized Consistently** – Primavera is still in the process of being fully implemented and as a result not all project managers are including change order support documentation into the system. As new projects are assigned, project managers will be required to use Primavera. We questioned various project managers and Division management about the utilization of Primavera, and the results from these inquiries varied. A few project managers were familiar with Primavera and were starting to use it, while others were not. Division management indicated that the system is expected to be fully functioning soon and that all project managers will be required to utilize it.

During the review of a specific project, we were informed by Division personnel that change order documentation was maintained in Primavera. However, the support documentation was not in the system. Also, in comparing two reports, one from Primavera, there were inconsistencies indicating whether or not the project was complete. After further review and follow-up with the project manager, it was determined that the project status report in Primavera had not been updated to reflect that the tasks were completed. These inconsistencies in the data pose a risk to project management because the information may not be reliable. Further, Division management currently does not utilize a single system, repository or approach required for efficiently and consistently overseeing project management activities.

**Ineffective Change Review Board and Inadequate Segregation of Duties** – There is a lack of segregation of duties as it relates to the review and approval of change orders greater than $50,000. If a change order is greater than $50,000, the Deputy Manager of Aviation for Planning and Development and the Chairman of the Change Review Board (Board) are also responsible for reviewing and approving the change order. The Chairman of the Board is the same individual who is responsible for the initial review, thus, he is reviewing and approving his own approval.

Segregation of duties are established to prevent one individual from having the authority to review and approve his or her own work or approvals. Without established segregation of duties, management oversight and transparency are reduced and the opportunity for errors or misconduct increases.

After further review we found that the Board has not been in place for several years, and Division management is considering removing the review and approval of the Chairman of the Board. Removing the Board Chairman review and approval requirement does not improve or eliminate the identified risk, but rather reduces the intended internal control and oversight function of the Board.

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3 Primavera Enterprise Project Portfolio Management is an integrated project portfolio management solution comprising role-specific functionality.
4 All 2013 projects are managed within the Primavera Contract Management system. Therefore, once projects prior to 2013 that were not entered into Primavera Contract Management are complete, all projects will be managed in the system and it will be fully utilized.
Furthermore, testing identified two instances in which the Chairman of the Board’s signature was missing from change orders greater than $50,000, and in one instance a project manager signed for the DIA Assistant Deputy Manager of Aviation and the Chairman of the Board.

**Lack of Root Cause Analysis of Change Orders** – The Division does not conduct a formal analysis of change orders to identify possible project management issues. DIA has a Post Project Evaluation Form but it is not completed for every project. Analyzing core issues can determine underlying project concerns, which can be applied to future projects to enhance efficiency. Benchmarking indicated that change order analyses are regularly conducted by peer airports to identify the root causes of change orders.

In order to conduct a meaningful root cause analysis, comprehensive information is required. The information will provide the Division with a basis for project changes, which information can then be applied to improve the quality of future construction projects.
INTRODUCTION & BACKGROUND

Denver International Airport’s Planning and Development Division is Responsible for Managing Construction Projects

The Denver International Airport (DIA) Planning and Development Division (Division) oversees project management, planning, design, and construction of more than $93 million in projects at the airport, excluding the South Terminal Redevelopment Program. The life cycle of a capital construction project comprises the time a project is advertised to construction contractors for bidding to the time contract close out processes are completed and the project is ready for use.

At the initiation of the audit, the Division comprised five sections, which included Construction, Design and Structures, Environmental, Planning, and Project Controls and Energy Management. Each of the five sections has a specific area of responsibility.

- **Construction Section** – Responsible for project management, coordination and construction of airfield and roadway projects, and site development and survey
- **Design and Structures Section** – Responsible for the management of airport project design coordination, management, tenant development, and engineering standards for the airport
- **Environmental Section** – Responsible for overseeing all activities at DIA for compliance with environmental regulations
- **Planning Section** – Assists in identification, analysis of alternatives, and definition of new capital projects. This section also handles geographic information systems to assure the electronic Airport Layout Plan is kept current in accordance with FAA requirements. The Noise Office monitors noise and airport abatement, documents noise complaints, provides information and briefings to community groups and public officials, and supports national aviation noise research projects.
- **Project Controls and Energy Management Section** – Responsible for project scheduling and estimating, energy management records management, American Disabilities Act (ADA) compliance, management of the baggage handling system, and the Automated Guideway Transit System.

On March 8, 2013, the Manager of Aviation announced an organizational change of the Planning and Development Division, indicating that the Construction, Design and Structures, and Project Controls and Energy Management sections will be combined with the Division of Airport Infrastructure Maintenance to ensure a cradle to grave approach in building, maintaining, and managing assets. Accordingly, this new structure will provide more opportunities for employees within each section to gain exposure to the

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5 The DIA Planning and Development Division does not oversee this $544 million project.
6 2012 City and County of Denver Budget Book.
other areas and increase communication and coordination within the Division. This audit did not review the organizational structure, but rather focused on change orders that involved the Construction and Project Controls and Energy Management Sections.

**DIA Projects**

Contract procurement typically involves a number of actions, including defining the scope of work to be performed, obtaining a qualified vendor or contractor, preparing the contract, and submitting the contract for the appropriate levels of review and approval. Prior to bidding on City construction projects, every contractor is required to apply for and obtain prequalification status. The Prequalification Board helps evaluate prequalification applications and determines candidates’ prequalification status. The purpose for prequalifying contractors is to ensure that the contractors bidding on City projects have the experience, skills, financial resources, and integrity needed to perform the work. This is intended to allow for a more efficient bidding process.

**Contract process** – Once there is a need for a contract and budget is available, a contract request is made, which includes developing the scope of work. The Risk Management Office at DIA and the Division of Small Business Opportunity (DSBO) must be contacted prior to advertisement for bidding to ensure the insurance levels are appropriate and that the minority and women (M/WBE), disadvantaged business (DBE), and small business (SBE) goals are established. All construction contracts and professional design construction services contracts for any public facility area owned by the City must be reviewed for established M/WBE, DBE, and SBE goals.

Once all goals are established the project must be advertised for three days, excluding Sundays and holidays, in the City’s legal publication, giving all suppliers, consultants, vendors, and contractors equal opportunity to compete for and bid on City projects. All applicable requirements and necessary DSBO forms for bidding or proposing must be contained within the bid or proposal documents. A DSBO analyst attends the bid openings. The project manager must provide DSBO with a copy of the bids from the three lowest bidders to ensure all requirements are met. The lowest responsive bidder is usually awarded the contract.

Once a contract request has received all necessary pre-approvals, it is forwarded to the City Attorney’s Office for drafting of the contract. The initiating agency will review the draft for accuracy. The contract is processed through the City’s electronic signing process, which includes obtaining the contractors’ signature and approval of the Agency Manager and any other approving authority. Once signed by the contractor, approved by the initiating authority, and approved by City Council when the contract amount exceeds $5 million (for DIA contracts), four electronic signatures must be obtained:

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7 Rules for Prequalification of Construction Contractors, Section 2, General, Part 2.02(b): A contractor or joint venture must be prequalified if it is included as the proposed primary or lead construction contractor for a design-build City project with an estimated total dollar amount of $1,000,000 or more.

8 The Manager of General Services designates official publication(s) to be used for the official advertising of the City. These publications may use print, electronic, or other media.

9 See Appendix A – Executive Order 8, Section 3, Signatures Required by Charter.
Once the contract has been fully executed, a notice to proceed will be sent to the contractor and work may begin.

**On-call Contracts** – On-call contracts are proposed and awarded without a specific project or scope of work defined. Instead, they are categorized around a general type of anticipated work. On-call project work is initiated by a Task Order, which defines the scope of work or services to be provided and a price determined by a negotiated lump sum, time and material not to exceed the City’s estimate, or a competitive bid between two or more on-call contractors. On-call contracts reduce cost and time involved in bidding, provide a flexible streamlined procurement method to acquire construction related services, and lead to quick and efficient project completion.

**Specific Projects** – Two specific projects currently underway at DIA are the South Terminal Redevelopment Program (STRP) and FasTracks.\(^\text{10}\) STRP is located on the south end of the Jeppesen Terminal and started construction in 2011. STRP consists of three separate projects that include a public transit center (PTC), an airport hotel, and an open-air plaza. The PTC will connect downtown Denver’s Union Station to DIA through the Regional Transportation District’s (RTD’s) East Rail Line. The hotel will feature 500 rooms, a lobby bar, a business center, and conference space for meetings. The plaza will connect the PTC and hotel to the terminal and will include a large open area with retail opportunities and space for concerts and other public events. Additional parking facilities and spaces may be developed along the new transit line to accommodate the anticipated increase in public traffic. STRP is expected to create nearly 1,000 new jobs and generate approximately $2 million in annual tax revenues for the City’s General Fund.\(^\text{11}\)

As part of STRP, a commuter rail station will be constructed, which is part of RTD’s East Rail Line FasTracks program, and will connect downtown Denver’s Union Station to DIA. The East Rail Line is intended to provide convenient, reliable, and frequent transportation to and from the airport and be used by DIA employees and travelers.\(^\text{12}\)

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\(^{10}\) These projects are not overseen by the DIA Planning and Development Division.


\(^{12}\) The Department of Aviation’s South Terminal Redevelopment Program Performance Audit, January 2012, [http://www.denvergov.org/auditor](http://www.denvergov.org/auditor).
What is a Change Order?

A change order represents a change to a construction project and a subsequent change to the contract price, which becomes part of the original contract. Change orders are a way for the construction manager to obtain approval for excess work without having to amend the contract. There are six types of events that primarily trigger a change order:

- Unforeseen site conditions exist
- Material change in materials pricing
- Project owner changes the plans or plan specifications
- Planned materials are no longer available for sale
- Change in project deadlines requiring an extension in time
- A material mistake was noticed after the contracts were signed

DIA spends millions of dollars each year on construction projects. Contracts are often modified through change orders to extend the duration, scope, and cost of construction and architectural and engineering contracts to include new or expanded work and services.

In many cases, change orders respond to unforeseen conditions, imperfections in project design, owner-requested alterations, requests for additional work, and other elements not anticipated when the original contracts were signed. As a result, they can significantly increase project costs appropriately but unexpectedly.

Governance of Change Orders

DIA construction projects are governed by several rules and regulations, which include Executive Order 8, Standard Specifications for Construction 2011, and Rules for Prequalification of Construction Contractors. These rules and regulations were established to provide assistance to City agencies and create consistency in management of capital construction projects. These rules and regulations were also developed to protect the City and provide safeguards against wrongdoing.

Executive Order 8 – Provides that the following expenditure contracts must be approved by City Council.

1. Contracts that may require the City to expend $500,000 or more or sell personal property worth $500,000 or more, and amendments which cause the total contract to exceed that amount

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15 See Appendix A - Executive Order 8.
2. Change orders which cause a construction contract to equal or exceed $500,000

3. Exceptions for Denver International Airport: Contract for design or construction at the Airport do not require City Council approval unless they exceed $5 million

**Standard Specifications for Construction 2011 (Yellow Book)** – Holds that a fully executed change order is required to make a change order binding.

1. A change order is a written instrument, signed by the Agency Manager, other designated parties, and the contractor, that contains their agreement upon all of the following matters:
   a. The change(s), addition(s) or deletion(s) to the work
   b. The amount of the adjustment in the contract amount, if any
   c. The extent of the adjustment in the contract time or period of performance, if any

2. No change of contract time or contract amount, or any other change to the contract, shall be binding until the contract is modified by a fully executed change order

**Rules for Prequalification of Construction Contractors** – These rules ensure that companies bidding and proposing on major construction contracts led by the Department of Public Works or the Department of Aviation have the experience, skill, financial resources, and integrity needed to perform the type and size of work involved. Each Manager is required by the City Charter to award construction contracts only to responsible and qualified contractors. When bidders or proposers have been prequalified, less time is required for evaluation of each bid or proposal than if qualifications had to be determined after bids or proposals were submitted. A contractor prequalification system also provides consistency in defining contractor qualifications by each department and by the divisions within each department that manage construction projects.16

**DIA Planning and Development Division Project Management Systems**

Construction management involves many groups of people, representing different disciplines, from project managers, contract managers, and division managers to subcontractors, architects, engineers, suppliers, and owners. All of these groups seek to collaborate on a multitude of issues and changes while juggling multiple documents and contracts. Controlling a construction project’s plan, budget, forecast costs, and deliverables is vital to the success of a project. Accordingly, it is beneficial to utilize project management software to manage projects, and DIA has purchased the Primavera software system for this purpose. Primavera offers several advantages.

**Primavera Contract Management** – Provides visibility into contractor performance, enables timely payment for completed work to avoid claims, facilitates project team

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16 Rules for Prequalification of Construction Contractors, 
collaboration, and streamlines field communications and document administration. DIA is in the process of implementing this system and training project managers and contractors on how to use it.

**Primavera Scheduling** – Enables users to plan, schedule, and control complex projects, allocate best resources and track progress, and monitor and visualize project performance.

The build stage of Primavera was initiated approximately six years ago, and the Scheduling module was implemented in 2009. Implementation of Primavera Contract Management began in 2012. All DIA construction projects initiated in 2012 and going forward are entirely tracked in Primavera Contract Management. Projects prior to 2012 are being migrated into the system.
SCOPE

The scope of the audit included assessing the effectiveness and efficiency of the Division with regard to change order practices for construction projects including the impact change orders have on budgets and schedules. We excluded on-call contracts and Federal Aviation Administration (FAA) funded projects from this audit since another entity recently conducted an audit related to DIA’s on-call contracts, and continuous auditing is conducted by the FAA and Office of Inspector General on federally funded projects. Additionally, change orders related to STRP were not included in the scope of this audit.

OBJECTIVE

The objective of this audit was to evaluate how the Division manages change orders, including verification that change orders are necessary and administered properly. We also sought to determine whether the Division maintains the appropriate support documentation to verify that the appropriate approvals were obtained and that costs were reasonable.

METHODOLOGY

We utilized several methodologies to achieve the audit objective. These evidence gathering techniques included, but were not limited to:

- Conducting interviews with Division management and staff, including project managers
- Conducting interviews with DIA internal audit staff
- Reviewing internal and external audits related to construction project management
- Reviewing legal requirements related to managing construction projects, including the City’s Municipal Code and Charter, Executive Orders, Fiscal Accountability Rules, Yellow Book (formerly Orange Book), Prequalification Rules, and various process flow charts provided by the Division
- Reviewing policies and procedures and workflows
- Selecting and reviewing various construction projects, including associated change orders
- Comparing costs related to change orders to national construction estimator costs for reasonableness
- Conducting research related to construction fraud and deterrence
- Conducting on-site construction visits
• Reviewing various project status reports including monthly Capital Improvement Project reports
• Reviewing Primavera and other systems used to monitor and track construction progress
• Reviewing various change orders to determine if they were separated to avoid approval requirements
• Conducting benchmarking of change order practices at other airports\(^\text{17}\)

\(^{17}\) The following airports were contacted for benchmarking: Dallas/Fort Worth International Airport (DFW), Los Angeles International Airport (LAX), San Francisco International Airport (SFO), and Washington Dulles International Airport (IAD).
FINDING

Poor Internal Controls Governing Denver International Airport’s Planning and Development Division’s Change Order Practices Pose Substantive Risk

Construction projects comprise several phases. A project begins with defining and designing the project and is finalized when the City completes final accounting processes and the project becomes available for public use. Our audit focused on the construction phase of projects at Denver International Airport (DIA), specifically regarding change order practices. Change orders are a normal and expected part of construction projects and can occur for various reasons including unforeseen or unknown site conditions. Nevertheless, the use of change orders by DIA’s Planning and Development Division (Division) is at times inappropriate, not aligned with industry best practices and circumvents the City’s contracting process. The Division can significantly enhance its internal control structure related to change order management. Audit work indicated that the Division has a lax control environment for change order management, which has several negative effects that pose unnecessary risk to the City. Strengthening the control oversight structure is crucial for effective project management, transparency of expenditures, and maintaining a competitive marketplace for City projects. As such, the Division should take immediate action to establish an effective control structure for change order management.

An Inadequate Control Structure over the Change Order Process within the Division Has Several Negative Effects that Pose Substantive Risk to the City

While change orders are common in the construction industry, strong controls and oversight are essential to minimize the risk of improper and unjustified changes to project scope and budget. Audit work identified the following negative impacts and potential risks stemming from the Division’s poor internal control structure over change order management.

Inappropriate Use of Change Orders Reduces Transparency and Circumvents City Contracting Rules – Audit work found that insufficient controls within the Division have resulted in the use of change orders for work unrelated to the original scope of work of a project in order to pay contractors timely when funds for the original project have been exhausted, to avoid long perceived wait times to administer contracts through the normal contract process, and to keep work at DIA moving. Although utilizing change orders for these reasons may save time and reduce overhead costs, the practice is not in accordance with industry best practices and circumvents the City’s contracting process,
which requires initiation of a separate contract for work outside the scope of any existing project.

Our office has frequently reported that the City’s contracting process can be easily circumvented and, accordingly, needs improvement. For example, in our Public Works Contracting Process Performance Audit, issued in November 2011, we identified that change orders were used in three separate City projects to settle legal issues. This use of change orders bypassed City Council’s purview of reviewing and approving City settlements with third parties. Additionally, our Citywide Contract Procurement Performance Audit, issued in October 2009, revealed a lack of effective contracting policies and procedures and effective governance over the contract process. We found that City agencies had minimal guidance on how to accomplish critical contracting activities such as identifying the need for service, defining the scope of work, obtaining a qualified vendor, preparing the contract, and submitting the contract for appropriate levels of review and approval. These previously identified issues are examples of how weak oversight can lead to instances of circumventing the normal contracting process, which can negatively impact the City.

This audit revealed that contract practices at DIA exhibit many of the same issues identified in our previous contracting audits. Due to the magnitude of the airport’s construction projects, these issues pose significant risk to the City. Excluding the $544 million South Terminal Redevelopment Program which it does not oversee, the DIA Planning and Development Division has over $93 million in construction projects currently in progress. Failure to follow contracting best practices can result in opportunities for unjustified project budget increases, fraud, and abuse.

Specifically, we found that the Division when faced with a business need that meets the city’s criteria for initiating the formal contracting process has at times decided to have the work completed through a change order to existing contracts. This practice circumvents the City’s contracting process. When a change order is used instead of initiating a new contract, transparency of the project is reduced. Further, this practice is not aligned with industry best practice. Based on limited sampling, our fieldwork identified two such instances of inappropriate change order use.

First, a change order was created for approximately $66,000 to pay a contractor for work that was completed on a separate on-call contract. This on-call contract had no relevance to the original project’s scope of work. The change order in question was created for the Airport Office Building (AOB) Lobby.

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20 Pursuant to Executive Order 8 an on-call contract is an “agreement to provide services on an as-needed basis during the contract term. Work is typically commenced by written task order or work order. The work (or task) order sets forth the scope of the work or services (labor and approved materials) to be provided and a price determined by rates or unit costs agreed to in the on-call contract.” See Executive Order 8, page 18.
North Terminal and Tenant AHU Upgrades project for approximately $66,000 in order to pay the contractor for work that was completed on a separate on-call contract. The on-call contract was for the Maintenance Vehicle Bus Wash project. According to Division management, the original contractor hired to complete the Maintenance Vehicle Bus Wash project was replaced and funds allocated to the project were exhausted. The new contractor was already performing work at DIA on the AOB Lobby North Terminal and Tenant AHU Upgrades project. Rather than creating a new contract, Division personnel paid the replacement contractor through a change order to the AOB Lobby project for the work that would actually be performed on the Maintenance Vehicle Bus Wash project.

On a second project, a change order for $650,000 was created for work that was not related to the scope of work of the original project. The $650,000 change order was for the Hydronic System Optimization project. However, through interviews and testing, we found that the change order was essentially a contract for an HVAC unit for the AOB. Rather than initiate a new contract for the HVAC unit, Division personnel included the new HVAC project within an active project, in order to save time and possibly overhead costs. As a result, the new project was included as a change order with the Hydronic System Optimization project, despite the fact that the HVAC project had no connection to the Hydronic System Optimization project. Since this project amount was over $500,000, aside from DIA, it would have required City Council approval for other City agencies.

These examples illustrate noncompliance with the City’s established contracting requirements and do not reflect industry best practice, which indicates that all change orders should be directly related to the original scope of work of the project. We contacted several airports to inquire about their practices, and all respondents indicated that change orders are required to be relevant to the original scope of work of the project. Further, pursuant to Executive Order 8, once the initiating authority determines there is a need for a contract, it should be initiated through the contracting process. However, our review determined that Division management, when faced with the need for initiation of a new contract, has at times decided to have the work completed through a change order. As a result, change orders are included in projects that have no relevance to the original scope of work. Since many of these change orders are large, they may also impact the project’s original budget and timeline. Additionally, when change orders are handled in this manner, the transparency of the work for both the original project and the work performed under the change order is reduced because the work is now combined into one project instead of separate contracts and appropriate oversight and approval requirements are bypassed. Further, failing to procure services in accordance with city contracting rules diminishes business competition for projects at DIA.

In a memorandum issued to all agencies under the Mayor on January 3, 2012, the City Attorney outlined how “Denver owes a duty to its citizens to exercise a strong financial stewardship. It is the policy of the City and County of Denver to maintain a fair, open, and competitive market for the goods and services it purchases. This is not only important in order to maintain the quality of key government services and to minimize costs, but
also sets high ethical standard and promotes greater transparency. This directive reinforces the high ethical standards and transparency objectives for the City and County of Denver.

In addition to industry best practices and guidance from the City Attorney, the Standard Specification for Construction also provides guidance regarding contracting. However, based on our review of the Standard Specification for Construction 2011 version, the criteria for change orders are vague. For instance, the guidance defines a change order as a written instrument signed by the Manager, other designated parties, and the Contractor, that contains their agreement on any changes, additions, and deletions of Work; adjustment to the contract amount, or adjustment to the contract time or period of performance. There is no language within the Standard Specification for Construction 2011 version that specifically states change orders should be directly related to the original scope of work. Prior audits issued by our office recommended changes to improve this guidance to assist in managing construction projects. However, best practice indicates that change orders should be directly related to the original scope of work.

The Manager of Aviation should establish controls to ensure that the Division complies with City requirements and are in alignment with industry change order practices. These controls should prevent change orders from being created that are not related to the original scope of work or that circumvent the contract process. Change orders should only be used when it relates to the original scope of work and not for unrelated projects.

**Inappropriate Use of Change Orders Reduces Accountability and the Ability to Effectively Manage Projects** – Project Management is essential to ensure that all phases of a construction project are completed efficiently and as planned. Oversight of construction projects entails monitoring and inspecting work completed and then approving payments for that work. Government projects undergo additional scrutiny since they are paid with tax-payer dollars. Therefore, transparency and compliance with established rules and regulations are paramount. Further, effective project planning using project management principles increases the likelihood that projects will be completed at or under budget. However, recent changes to DIA projects indicate that project management may not be effectively determining airport construction project budgets.

For example, DIA recently went to City Council to request an increase of $44 million for the South Terminal Redevelopment Program (STRP). The project was originally budgeted at $650 million, but after various cost reductions the budget was adjusted to $500 million. After the most recent request, the project budget was increased by 8.8 percent to $544 million. The project is only in the early phases of construction, so additional budget increases may become necessary. Nevertheless, projects of this magnitude require effective planning including the anticipation of unforeseen factors, strong management oversight, and strong internal controls. Although DIA went to City Council to request additional funds for STRP, change order practices examined by this audit revealed that

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21 See Appendix B, Memorandum No. 8B.
at times, the Division uses change orders inappropriately, increasing project costs substantially.

The audit team reviewed five DIA construction projects, which included a review of twenty-nine change orders. The five projects were chosen based on the following attributes: number of change orders, project cost, project manager, and project type. Table 1 illustrates the total number of change orders, change order amounts, and the percentage increase to the projects due to change orders of the five contracts that were tested.

<table>
<thead>
<tr>
<th>Contract</th>
<th>Original Contract Amount</th>
<th>Number of Change Orders</th>
<th>Change Order Amount</th>
<th>Percentage Increase to Project Due to Change Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOB Lobby North Term &amp; Tenant AHU Upgrades</td>
<td>$2,835,495</td>
<td>15</td>
<td>$383,596</td>
<td>13.6%</td>
</tr>
<tr>
<td>Misc. Roadways/Parking Lots 2011</td>
<td>$2,249,756</td>
<td>8</td>
<td>$2,000,499</td>
<td>89.0%</td>
</tr>
<tr>
<td>Terminal Water Quality Pond</td>
<td>$1,307,081</td>
<td>4</td>
<td>$825,170</td>
<td>63.2%</td>
</tr>
<tr>
<td>Hydronic System Optimization</td>
<td>$7,382,465</td>
<td>1</td>
<td>$650,000</td>
<td>8.8%</td>
</tr>
<tr>
<td>VSCF Ductwork Improvements</td>
<td>$4,124,427</td>
<td>1</td>
<td>$13,747</td>
<td>.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$17,899,224</strong></td>
<td><strong>29</strong></td>
<td><strong>$3,873,012</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Project Spreadsheet Report, provided by DIA Planning and Development Division management as of December 14, 2012.

Of the contracts selected for review, change orders increased the collective amount of the projects by more than $3.8 million. Tables 2 and 3 highlight the individual change orders and amounts.23

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23 See Appendix C for additional change order tables.
### Table 2 – Change Order Amounts

<table>
<thead>
<tr>
<th>Contract</th>
<th>Original Contract Amount</th>
<th>Change Orders</th>
<th>Change Order Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOB Lobby North</td>
<td>$2,835,495</td>
<td>1</td>
<td>$82,717</td>
</tr>
<tr>
<td>Term &amp; Tenant AHU Upgrades</td>
<td></td>
<td>2</td>
<td>$108,817</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>($6,561)**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>$17,594</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>$38,497</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>($16,134)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>$10,114</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>$22,709</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>$18,247</td>
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<tr>
<td></td>
<td></td>
<td>11</td>
<td>$13,592</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>$66,374</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>$1,528</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>$2,096</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>$24,006</td>
</tr>
<tr>
<td><strong>Change Order Total</strong></td>
<td></td>
<td><strong>15</strong></td>
<td><strong>$383,596</strong></td>
</tr>
</tbody>
</table>

Source: Project Spreadsheet Report, provided by DIA Planning and Development Division management as of December 14, 2012. Note: * Represents that there was no monetary change to the scope of work, but rather a change to the number of days to complete the project. ** Represent change orders where credits were issued due to changes of the scope of work, such as a change in material or other changes to the scope of work.

### Table 3 – Change Order Amounts

<table>
<thead>
<tr>
<th>Contract</th>
<th>Original Contract Amount</th>
<th>Change Orders</th>
<th>Change Order Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misc.</td>
<td>$2,249,756</td>
<td>1</td>
<td>$205,241</td>
</tr>
<tr>
<td>Roadways/Parking Lots 2011</td>
<td></td>
<td>2</td>
<td>$229,862</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>$369,957</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>$14,927</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>$134,096</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>$8,468</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>$1,037,948</td>
</tr>
<tr>
<td><strong>Change Order Total</strong></td>
<td></td>
<td><strong>8</strong></td>
<td><strong>$2,000,499</strong></td>
</tr>
</tbody>
</table>

Source: Project Spreadsheet Report, provided by DIA Planning and Development Division management as of December 14, 2012. Note: * Represents that there was no monetary change to the scope of work, but rather a change to the number of days to complete the project.
As illustrated in Table 1, DIA processed large change orders that significantly increased the total costs of projects. The Misc. Roadways/Parking Lots 2011 project increased by 89 percent, or nearly $2 million, due to the project’s eight change orders. This increase was almost as much as the original contract amount. In addition, when this annual contract has neared the $5 million threshold based on original contract costs and cumulative change orders, DIA has avoided City Council approval by creating a new contract for miscellaneous roadway work for the following year. This is an example of circumventing the contracting process and results in a lack of transparency.

The Terminal Water Quality Pond project increased by 63 percent, or nearly $825,000, due to change orders. Best practice indicates that, in addition to guidance regarding scope of work, change orders collectively should not account for more than 20 percent of the original construction cost. These amounts far exceed the 20 percent threshold indicated as appropriate by best practice.

In addition to Change Order 8 in Table 3 for over $1 million, Appendix C highlights additional large change orders in the amounts of $650,000 and $736,994. If not monitored properly, budgets and schedules will be negatively impacted. Table 4 illustrates a breakdown of the change order amounts and percentage of those amounts.

<table>
<thead>
<tr>
<th>Change Order Amount</th>
<th>Number of Change Orders</th>
<th>Percentage of Change Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50K</td>
<td>16</td>
<td>59%</td>
</tr>
<tr>
<td>Between 50K – 100K</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td>Between 100K – 500K</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td>Greater than 500K</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Project Spreadsheet Report, provided by DIA Planning and Development Division management as of December 14, 2012.

Based on our review of these five construction projects and their associated change orders, approximately 41 percent were greater than $50,000, which is the threshold that requires an additional review and approval of the Deputy Manager of Planning and Development and the Chairman of the Change Review Board.

As indicated in the previous section of this Finding, some of the change orders we examined were not related to the original scope of work of the projects, reducing the transparency of both the original project and of the work conducted through the change order. Further, when project budgets can absorb additional costs ranging from approximately 60 to 90 percent of the original budget, accountability is reduced. Such practices are also an indication of inefficient budgeting and project planning. The ability for Division management to assess the extent of inefficient project management practices, particularly related to budgeting, and to implement subsequent continuous
improvement activities based on such assessments, is inhibited by current practices. Our review determined that project management may not be effectively setting realistic contract amounts for projects at DIA. Further, the claim by Division management that the city’s formal contracting process takes too long and therefore, it is necessary to bypass it to keep projects moving also indicates possible project management issues in terms of project planning and scheduling.

Inappropriate Use of Change Orders Increases the Risk of Fraud, Misuse, and Abuse – The Division’s inappropriate change order practices put the City at risk for fraud, which is widely present within the construction industry. These practices may put contract terms at risk, since they may change the projects substantially. Specifically, the Division’s ability to effectively plan and budget for construction projects will be impacted when large or an excessive number of change orders are processed, especially when they are not related to the original project or are a stand-alone contract. Weak controls and oversight of the change order process can significantly increase the risk of improper payments, waste, and abuse.

The 2012 Report to the Nations issued by the Association of Certified Fraud Examiners indicated that the construction industry was ranked third out of twenty-three victim organizations with a median loss of revenue totaling nearly $300,000 out of forty-seven cases, due to fraud. Within the construction industry 34 percent of the reported cases were related to corruption. The report also mentioned that research consistently reinforced the idea that occupational fraud schemes fall into three primary categories: corruption, asset misappropriation, and financial statement fraud schemes. A corruption scheme occurs when an employee misuses his or her influence in a business transaction in a way that violates his or her duty to the employer in order to gain a direct or indirect benefit. Examples of corruption include conflicts of interests, bribery, illegal gratuities, and economic extortion.24

Figure 1 identifies the occupational fraud and abuse classification system with a focus on corruption.

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In 2011 a major corruption scandal related to no-bid county contracts in Adams County, Colorado was reported. The scandal involved Adams County Public Works and a few sister paving companies. Company officials and county workers were accused of carrying out a scheme in which an estimated $1.8 million in road work was either overbilled or never performed. The scheme went on for years and cost Adams County tax-payers millions of dollars and resulted in the arrests and prosecution of multiple individuals.²⁵ Although we did not identify any instances of fraud in our testing, internal controls and management oversight are important functions that reduce opportunities for inappropriate activities such as corruption.

DIA’s Planning and Development Division Should Take Action to Implement a Comprehensive Control Structure for Construction Management

Based on our review of the various change orders, interviews with project managers, and discussions with Division management, it appears that the culture of the Division supports the inappropriate use of change orders to pay contractors timely when funds for the original project have been exhausted, to avoid perceived long wait times to process contracts, and to keep work at DIA moving.

Despite sentiments expressed by Division management that the contract process is unreasonably long, DIA’s contract process is actually less extensive than that of other City agencies. Executive Order 8 establishes the threshold for design or construction contracts requiring City Council approval at $5 million for DIA, as opposed to $500,000 for other agencies. This increase was made to meet the needs of DIA’s multiple continuous projects and to reduce project delays. However, Division management stated that the contracting process is cumbersome, taking approximately seven months, and therefore has found it necessary to at times circumvent the contracting system by utilizing change orders instead. However, audit work found that the contracting process takes approximately four and a half months, whether or not the contract goes to City Council for approval, which is not as cumbersome as indicated.

The inappropriate use of change orders to circumvent the contracting process appears to be a product of the contracting culture at DIA, and changing organizational culture can be a very challenging and lengthy task. A recent news article reported that taxpayers are paying an outside consultant to repair the workplace culture inside the City’s Public Works Department.24 The Public Works manager commented that there “is a lack of understanding of how difficult it is to change the culture of an organization.” Nevertheless, changes that reduce the risk to the City and tax-payers are worth the effort.

Auditors sought to determine what elements of the Division’s operating structure may be contributing to a culture that allows inappropriate change order practices. We determined that the lack of a comprehensive control structure has resulted in questionable change order practices. We identified four areas of concern, which collectively place the City at risk for change order abuse, misconduct, and errors. First, we determined that DIA does not have updated written policies and procedures needed for effective and efficient construction project management. By not having specific policies in place, Division management fosters an environment that supports circumventing the contracting process through the inappropriate use of change orders instead of creating separate contracts. Second, DIA is in the process of implementing Primavera, an automated contract management system. The system is not utilized consistently by all project managers, which limits management’s ability to oversee projects. Third, the Change Review Board process is ineffective and lacks proper

segregation of duties. Fourth, Division management does not conduct a formal root cause analysis of change orders at the conclusion of each construction project. This reduces opportunities to identify areas for improvement that can be applied to future projects.

**Outdated Policies and Procedures**

Similar to findings in the Public Works Capital Construction Project Management Performance Audit issued by our office in November 2012, we determined that DIA does not have updated written policies and procedures needed for effective and efficient construction project management. During the initial phase of the audit, the audit team requested policies and procedures that are utilized to assist project managers with their day-to-day responsibilities and project management functions. The audit team was informed by various sources that there were no policies and procedures in place, but the Division was in the process of developing them. Management provided the audit team with multiple process flows that are used to assist project managers with the various aspects of managing a project.

At the conclusion of the audit, Division management mentioned that there were indeed policies and procedures in place to assist project managers, but that they were outdated and were still in the process of being updated to reflect current practices. The audit team requested a copy of the outdated policies and procedures. A majority of the policies and procedures were updated over seven years ago and in some instances last revised as far back as 1999. The previous change order approval template required additional signatures which included the Manager of Aviation. Currently, change orders do not require the approval of the Manager of Aviation, meaning an important level of oversight has been removed from the process. The section of the policies and procedures related to change orders provide a good explanation on how to incorporate required support documentation and changes to the contract but do not reflect current practices. The policies and procedures do not specifically outline criteria for how change orders should be used. For example, they do not specify whether change orders are required to be related to the original scope of work of the project. By not having specific policies in place, Division management fosters an environment that supports circumventing the contracting process.

Well written policies and procedures provide employees with a better understanding of their roles and responsibilities, allow management to guide operations without constant intervention, and provide consistency between project activities. Policies and procedures can also assist management in reviewing employee performance against established guidance and hold individuals accountable for their performance.

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Furthermore, policies and procedures can ensure that specific job functions or tasks are being completed as required, sections or departments are operating as effectively and efficiently as possible, and can help reduce misconduct and or inaccuracies. Without updated policies and procedures the potential for increased project costs, scheduling inefficiencies, and poor productivity may negatively impact the Division and lead to additional issues.

**Primavera is Not Utilized Consistently**

DIA is still in the process of implementing Primavera, a change management software system. The build stage was initiated approximately six years ago, and the scheduling module was implemented in 2009. Although the contract management module was implemented in 2012, the change order support documentation for a majority of the projects included in our audit sample was not in Primavera. However, since this system will be fully functioning in the near future, the audit team met with a Primavera administrator to learn about and obtain access to the system, and we attended a Primavera training session. During interviews, the audit team also questioned various project managers and Division management about the utilization of Primavera. The results of these inquiries varied. A few project managers were familiar with Primavera and were starting to utilize it, while others were not. Division management indicated that the system is expected to be fully functioning soon and that all project managers will be required to utilize it.

We also reviewed monthly reports generated from Primavera. Auditors were informed by Division personnel that one project included in our testing was managed in Primavera and, therefore, the change order in the amount of $650,000 would be found within the system. However, the change order documentation was not in Primavera, necessitating a request for a hard copy. In addition, when comparing Primavera reports to the project status report provided by Division management, there was contradicting information. One report stated that a project was in the close-out phase while the other indicated that several tasks still needed to be completed. After further review and follow-up with the project manager, it was determined that he did not update the project status information in Primavera to reflect that the tasks were completed. Although we understand that Primavera has not been fully implemented, this is another area in which consistent policies and procedures would assist in project management.

The Deputy Manager of Aviation for Airport Infrastructure Maintenance should implement specific policies and procedures that assist project managers with all phases of the contracting process, which includes bidding, contract monitoring, change orders, and the close-out process. The policies and procedures should reflect the current process flows and the utilization of Primavera in order to reduce confusion and ensure consistency between project managers. These changes will enhance management’s ability to effectively monitor projects.

**Ineffective Change Review Board and Inadequate Segregation of Duties**

Government departments that manage a lot of construction projects commonly utilize a change review board to provide oversight of proposed changes that would impact the
budget or scope of work of a project. This group of individuals is responsible for making the ultimate decision on when and if a change to the original scope of work of a project should be approved. An effective change review board needs to review and study the impact of the proposed changes on the items in question. After making that evaluation they can then approve the changes, reject the changes, postpone any changes, or request more information in order to make the final decision.

Based on our review of the Division and Change Review Board (Board), there is a lack of segregation of duties as it relates to the review and approval of change orders greater than $50,000. All change orders require approval from the contractor, project manager, a senior agency budget analyst representative, and the Assistant Deputy Manager of Aviation for Planning and Development, who is also noted as the Director of Construction within the Division. If a change order is greater than $50,000, the Deputy Manager of Aviation for Planning and Development and the Chairman of the Board are also responsible for reviewing and approving the change order.

During our testing of change orders greater than $50,000, we discovered that the Assistant Deputy Manager of Aviation was reviewing and approving all change orders, including change orders greater than $50,000, as the Chairman of the Board. Thus, the Assistant Manager of Aviation was in effect reviewing and approving his own approvals, which disregards the important control of segregation of duties. Segregation of duties are established to prevent one individual from having the authority to review and approve his or her own work or approvals. Without establishing this important separation, management oversight and transparency are reduced. Furthermore, the opportunity for errors and or misconduct increases, which places the City at additional risk.

When this issue was brought to the attention of Division management, auditors learned that the Board has not been in place for several years and that the Division is considering removing the review and approval of the Chairman of the Board from the process. According to management, there is no need for the additional review and approval since DIA’s Deputy Manager of Aviation for Planning and Development reviews and approves all change orders greater than $50,000. Removing the Chairman of the Board’s review and approval requirement does not improve or eliminate the identified risk; by reducing the intended internal control and oversight function of the Board, the opportunity for abuse, misconduct, and errors increase.

Audit testing identified two instances where the Chairman of the Board’s signature was missing from change orders greater than $50,000, and one instance where a project manager signed for the DIA Assistant Deputy Manager of Aviation and the Chairman of the Board. According to management, this was most likely the result of the Assistant Deputy Manager of Aviation for Planning and Development being out of the office and the project manager was authorized to sign in his absence. Nevertheless, if a separate individual not included in the normal review process was responsible for reviewing and

The Change Review Board has not been in place for several years, which increases the opportunity for abuse, misconduct, and errors.
approving change orders greater than $50,000, the additional review and approvals would have been in place.

Further, benchmarking information indicated that establishing a threshold that requires an additional review and approval of change orders is a good business practice. For example, Dallas-Fort Worth International Airport requires an additional review and approval by management and finance for change orders greater than $25,000. This additional review and approval helps ensure that the change order is necessary, amounts are accurate and available, and that the change order relates to the original scope of work. Similarly, San Francisco International Airport personnel indicated that change orders are only issued if the change is related to the original scope of work and that additional review and approvals are required for change orders above a specific threshold. Furthermore, Los Angeles International Airport and San Francisco International Airport representatives indicated that they have change review boards in place, the responsibilities of which include review and approval of change orders that meet a certain threshold. The board members are appointed by the Mayor and consist of business leaders from the community. By having a separate board, the transparency of the projects are enhanced and there is increased assurance the projects are managed properly.

The Manager of Aviation should re-evaluate the roles and responsibilities of the Board, including the selection of its members. Specifically, the Board should be designed to address any segregation of duties issues, align with the new organization structure of the DIA Planning and Development Division announced by the Manager of Aviation in March 2013, and provide visibility to the change management process, which includes ensuring proper approvals are obtained.

**Lack of Root Cause Analysis of Change Orders**

Similar to findings in the Public Works Capital Construction Project Management Performance Audit issued in November 2012, the Division does not conduct a formal risk analysis related to change orders that analyzes issues which can be avoided in future projects. DIA has a Post Project Evaluation Form, but it is not completed for every project. The form has a specific section related to change orders, which includes specific questions related to change orders and how the overall project cost and timing were impacted. Although the questions on the form provide useful information, a true analysis should be conducted to find the root cause for all change orders from a trend analysis perspective. Merely providing general change order information on an inconsistent basis does not benefit project managers or the Division as a whole.

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A formalized root cause analysis related to change orders can identify the core issues leading to change orders. Determining underlying project issues can help avoid the same mistakes in future projects. Applying lessons learned to future projects demonstrates responsible use of tax-payer dollars.

Benchmarking indicated that other airports routinely perform change order analyses to identify the root causes of change orders. For example, San Francisco International Airport and Los Angeles International Airport representatives indicated that, after every project, a change order analysis is conducted and the results are utilized to improve the change management process. Los Angeles International Airport takes the information even further by including stricter contract language if the analysis indicates that a contractor’s performance may repeatedly pose the same issues.

The Deputy Manager of Aviation for Airport Infrastructure Maintenance should develop and require that a root cause analysis be conducted at the conclusion of each project to identify trends and make improvements to future projects.
RECOMMENDATIONS

We offer the following seven recommendations to improve the Denver International Airport’s (DIA) Planning and Development Division.

1.1 Change Order Controls – The Manager of Aviation should establish controls to enhance change order practices. These practices should prevent change orders from being created that are not related to the original scope of work.

1.2 Contract Process – The Manager of Aviation should ensure that separate contracts are created for each project to avoid circumventing the established contract process.

1.3 Policies and Procedures – The Deputy Manager of Aviation for Airport Infrastructure Maintenance should implement specific policies and procedures that assist project managers with all phases of the contracting process, which includes bidding, contract monitoring, change orders, and the close-out process.

1.4 Process Flows – The Deputy Manager of Aviation for Airport Infrastructure Maintenance should ensure policies and procedures reflect the current process flows and the utilization of Primavera in order to reduce confusion and ensure consistency between project managers.

1.5 Roles and Responsibilities of the Change Review Board – The Manager of Aviation should re-evaluate the roles and responsibilities of the Change Review Board, including the selection of its members.

1.6 Segregation of Duties – The Manager of Aviation should ensure the Change Review Board is designed to address any segregation of duties issues. This includes alignment with the new organizational structure, ensuring that proper approvals are obtained, and providing visibility to the change management process.

1.7 Root Cause Analysis – The Deputy Manager of Aviation for Airport Infrastructure Maintenance should develop and require that a root cause analysis be conducted at the conclusion of each project to identify trends and make improvements to future projects.
CITY AND COUNTY OF DENVER

Executive Order 8
Memorandum A

Contract Procedures

May 31, 2011
Appendix A – Continued

CONTRACT PROCEDURES

I. INTRODUCTION

A. GENERAL

This memorandum gives the user a guide about the process of contracting for such things as services and construction work and executing the necessary contracts and paperwork. Appendices are included for informational and educational purposes only and they may be updated periodically. The reader is advised to check the agency websites for the most recent version of the Appendices.

This memorandum provides definitions pertinent to the contracting process (Section II), identifies those agencies that have an integral part in the processing of City contracts (Section III), describes common contracting processes (Section IV), and different processes for specific types of contracts and other written instruments (Section V). Hints for expediting contracts are also provided (Section VI) and the expectations for contract compliance are summarized (Section VII).

Contracts legally obligate the City; therefore, they require coordination with several persons or Agencies before the contract can be executed. The process begins when a Department Manager, Agency Head or his/her designee determines that a contract is necessary to do a job or provide a service that the City requires. Department Managers, Agency Heads, and their designees are also referred to in this memorandum as "Initiating Authorities." It is important to note that the Initiating Authority assures that the contract being developed conforms to the following:

- Executive Order No. 8 and all memoranda
- Policies established by the Mayor

To ensure that all requirements of this Executive Order are met, the City uses a systematic process. The following information will be useful for contract preparations and outlines the contracting process.

Questions should be addressed to the City Attorney's office.

B. PURCHASE ORDERS

The following categories of procurements are conducted by the Purchasing Division and are controlled by Fiscal Rule 8:

- Supplies
- Equipment
- Personal Property
- Services for the repair or maintenance of such supplies, equipment and personal property
- Official publications
- Office services common to several departments that have been formally centralized by the Mayor
- Services that cost $5,000 or less
Appendix A – Continued

- Emergency Requirements (See Denver Revised Municipal Code (D.R.M.C.) § 20-94(b), et seq.)

**NOTE:** If the City Attorney determines that a contract is required, then the provisions of this Executive Order apply.

II. DEFINITIONS

For the purposes of this memorandum, the following definitions apply:

**Addendum (Addenda, plural):** Revision(s) to a procurement document, i.e., Request for Proposal (RFP), Request for Qualifications (RFQ), or formal bid.

**Agreement:** A written Contract. ‘Agreement’ is used interchangeably with ‘contract’ in this Memorandum.

**Amendment:** A written instrument changing some of the terms and conditions of a contract.

**Change Order:** A written instrument changing or altering some of the terms and conditions of a construction contract.

**City:** City and County of Denver

**Contract:** A binding agreement between two or more persons or parties, which is legally enforceable. Examples include construction contracts, agreements, amendments, leases, grants, easements, intergovernmental agreements, cooperative agreements, and licenses. ‘Contract’ is used interchangeably with ‘agreement’ in this Memorandum.

**Contract Administration Officer (CAO), Project Manager (PM) or Contract Manager (CM):** Person at the Department or Agency who reports to the Initiating Authority and guides the contract and related documentation from inception to execution.

**Contract Documents:** The Contract together with all attached and incorporated exhibits.

**Contract Approval and Preparation Request:** Electronic request to initiate the contract process.

**Contractor:** Person, partnership, corporation, limited liability company, joint venture, or other entity which has contracted with the City. Other terms for Contractor as they would apply to these procedures: consultant, contracting party, second party, or vendor.

**Consultant:** Contractor for professional services contracts.

**Counterpart:** One of two or more corresponding copies of a contract containing original signatures.

**Disadvantaged Business Enterprise (DBE):** A for-profit small business concern that is at least 51% owned by one or more individuals who are socially and economically disadvantaged, whose management and daily business operations are controlled by such, and is certified by the Director of the Division of Small Business Opportunity or the Colorado Department of Transportation. DBE eligibility criteria are set forth in Department of Transportation (DOT) Federal regulations.
Appendix A – Continued

Electronic Contracting Automation System: An automated, web-based workflow contracting solution in Alfresco supported by a new reporting solution in Enterprise Reporting.

Execution/Execute: The "signing of" or "to sign" a contract. The term includes electronic signatures by the City that are affixed in accordance with this Memorandum and the protocols of Appendix G Contracting Automation Guide.

Initiating Authority: Manager of a City Department, the head of an Agency, or his/her designee requesting a contract or other written instrument.

Minority/Women Business Enterprise: A for-profit small business concern that is at least 51% owned by one or more individuals who are socially and economically disadvantaged, whose management and daily business operations are controlled by such, and is certified by the Director of the Division of Small Business Opportunity.

Procurement: To obtain or acquire by particular method, i.e., Invitation for Bids, Request for Proposal, Purchase Order.

Product: The end result of the contract (including services).

Project: May be the whole or a part of the Product, as indicated in the procurement documents.

Record Contract: The City's official record of contracts in paper and electronic repositories maintained by the Clerk and Recorder.

Scope of Work: A description of the desired Product or services, which may include detailed specifications.

Second Party: See Contractor.

Small Business Enterprise (SBE): A for-profit small business concern which meets the ownership, management and control, size, etc. eligibility criteria set forth in D.R.M.C. § 28-206 and is certified by the Director of the Division of Small Business Opportunity.

Vendor: See Contractor.

Written Instrument: A legal and binding document; a formal document (see also contract and amendment)

III. AGENCIES INVOLVED IN THE CONTRACT PROCESS

The following descriptions are limited to the extent of the Agency's involvement in the contracting process.

A. AUDITOR: Countersigns the Mayor's signature on contracts, conducts performance and financial audits, and is responsible for enforcement of prevailing wage and contractors' lawful employment status requirements.

B. BUDGET & MANAGEMENT OFFICE: For grant and revenue contracts, verifies the chart field and determines whether an ordinance is required to establish an account.
Appendix A – Continued

C. CAREER SERVICE AUTHORITY: Personnel agency of the City which must approve pay rates and approve employment contracts.

D. CITY ATTORNEY: The Municipal Operations or Airport Legal Services Sections of the City Attorney's Office write contracts and provide legal advice concerning matters during the contract process and advice on contract interpretation.

E. CITY COUNCIL: Legislative body that passes ordinances to authorize execution of some contracts as required by the City Charter and Denver's Revised Municipal Code.

F. CLERK & RECORDER (Includes City Clerk’s Office): Attests to the Mayor's signature and keeps the official City copy of contracts.

G. COMMISSION ON THE DISABLED: City agency that serves as a resource to help City agencies comply with the laws and City policies regarding access to facilities for persons with disabilities. Approves lease contracts (when the City is the tenant).

H. DIVISION OF SMALL BUSINESS OPPORTUNITY (DSBO): The office established to develop and enforce programs for enhancing minority (MBE), women (WBE) and small business (SBE) enterprise utilization in city construction, professional design and construction services, and DIA concession contracting, under the City's Construction Empowerment Initiative ordinance. DSBO also develops and enforces programs to comply with federal Disadvantaged Business Enterprise (DBE) requirement.

I. FACILITIES PLANNING AND MANAGEMENT: City Agency that approves certain contracts related to repair and remodelling of City owned buildings and oversees maintenance and operation of many City controlled buildings.

J. MANAGER OF FINANCE: Countersigns and registers the Mayor's signature on contracts, confirms appropriation and fund availability to pay the contractor or service provider and processes financial transactions such as payments to contractors. For Airport contracts, Airport Finance confirms appropriation and fund availability.

K. MAYOR: Contract signing authority who binds the City to the terms of the contract.

L. RISK MANAGEMENT (Insurance): Agency that evaluates City risk and determines the type(s) and limit(s) of insurance and other risk management controls necessary to protect City interests.

IV. COMMON PROCESSES:

Many processes are common to different types of City contracts. The contracting elements described in Table 1 and below may or may not apply to all contracts. Section V discusses particular requirements for specific types of contracts.

See Table 1 (next page) for an overview of the entire contracting process.
### Table 1. Contract Process Overview

<table>
<thead>
<tr>
<th>Phase</th>
<th>Professional Services</th>
<th>Construction</th>
<th>Concession</th>
<th>DIA</th>
<th>Parks</th>
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<td>Scope of Work developed</td>
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<td>Specifications developed</td>
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<td>Insurance requirements determined</td>
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<td>MWBE or DBE goal determined by DBBO</td>
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<td><strong>PROPOSAL PHASE</strong></td>
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<td>Procurement schedule established</td>
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<td>RFP documents prepared</td>
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<td>City Attorney reviews</td>
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<td>Selection committee members approved</td>
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<td>Advertise (see Section IV A 1)</td>
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<td>Addenda issued if necessary</td>
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<td>Proposals received by deadline</td>
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<td><strong>BIDDING PHASE</strong></td>
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<td>Pre-qualification determined (if applicable)</td>
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<td>Prevailing Wage rate schedules obtained (see Section IV A 2)</td>
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<td>Procurement schedule established</td>
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<td>Bid documents prepared</td>
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<td>Advertise (see section IV A 1)</td>
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<td>Pre-Bid Conference conducted</td>
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<td>Bid Opening conducted</td>
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<td><strong>PREPARATION FOR AWARD (Construction)</strong></td>
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<td>Review of bids</td>
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<td>Bid tabulation compiled</td>
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<td>Engineer recommendation made</td>
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<td>DBBO recommendation made</td>
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<td>Lowest responsive, responsible bidder determined</td>
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<td>Contract request submitted</td>
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<td>Notice to Apparent Low Bidder (NTALB)</td>
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<td>Final contract prepared</td>
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<td><strong>PREPARATION FOR AWARD (Prof. Svcs/Concession)</strong></td>
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<td>Review of proposals</td>
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<td>Engineer recommendation made</td>
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<td>DBBO recommendation made</td>
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<td>Best qualified proposer determined</td>
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<td>Proposal notified of selection and Intent to negotiate by issuance of Notice to Apparent Best Proposer</td>
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<td>Negotiations</td>
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<td>Contract request submitted</td>
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<td>Final contract prepared by the Attorney</td>
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<td><strong>CONTRACT EXECUTION</strong></td>
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<td>Contract execution (see Section IV Q)</td>
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</table>

**NOTE 1:** FOR CONSTRUCTION RELATED PROFESSIONAL SERVICES CONTRACTS ONLY

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Appendix A – Continued

A. SELECTION OF CONTRACTOR
All construction contracts must be competitively bid or competitively selected through public advertisement. Except for those cases where sole source contracts are appropriate, it is the City’s policy to advertise for professional services contracts by issuing a Request for Qualifications (RFQ), Request for Proposal (RFP), or other variation of these procurement methods. Some common aspects of this process are described below.

1. ADVERTISING

a) General
All construction contracts must be advertised for three days, excluding Sundays and Holidays, in the City’s legal publication, giving all suppliers, consultants, vendors and contractors equal opportunity to compete for City projects. However, the Initiating Authority may elect to advertise in additional publications or extend the term of advertising. Legal advertisements are published by the Initiating Authority and should contain the following information:

- Contract Name
- Contract Number (if applicable/available)
- Project Description
- Cost Estimate
- Location where documents are available
- Contract Administration Officer Name and Phone Number (optional)
- Bid Opening date/Proposal Due Date
- Bid Opening location/Proposal submittal location
- Pre-bid/Proposal conference (date and location)
- DSBO goal(s) and solicitation (if applicable)
- Pre-qualification requirements (if applicable)
- Advertising dates and publications

Advertising should contain only the words necessary. Combine advertisements to save money whenever possible.

During the advertisement period through the Bid Opening/Proposal Due Date, suppliers, consultants, vendors, and contractors have the opportunity to request procurement documents for which a fee may be assessed.

b) Legal Publication

The Manager of General Services designates official publication(s) to be used for the official advertising of the City. These publications may use print, electronic or other media. All legal advertisements must run for a specific period—usually three days, excluding Sundays and holidays—as provided by applicable law.

c) Advertising on the Internet

Initiating Authorities are required to post the same notices as in subsection a) above on the City’s Internet web site (DenverGov.org) in accordance with the current City policy. If designated by the Manager of General Services, the City’s website may be the City’s official publication.
Appendix A – Continued

d) **Errors, Corrections, Changes, Re-advertising**

When an error in an advertisement has occurred, the applicable publications will be notified by the Initiating Authority of the error. A “Corrected” or “Revised” notice will be published for three business days at the expense of the publication(s), if it is their error, or at the expense of the Initiating Authority, if it is their error.

Any material changes, including changes to any of the minimum required information outlined above in A.1, to the original advertisement shall require re-advertisement. Only the corrected or revised information is required to be advertised. Otherwise, it shall be at the discretion of the Initiating Authority to include other information as deemed necessary.

2. **PREVAILING WAGE AND LIVING WAGE**

Construction contracts and some other types of contracts including those for maintenance of City facilities, must comply with the City’s ordinance requiring payment of prevailing wages, D.R.M.C. §§ 20-76 to 20-79. The Prevailing Wage Section of the Auditor’s Office determines the appropriate wage schedule for each contract subject to the prevailing wage ordinance and also monitors the contractor’s compliance during the term of the contract. Some contracts are subject to the City’s living wage ordinance, D.R.M.C. §§ 20-80 to 20-84. If you have questions about whether these ordinances apply to a contract, please contact the City Attorney’s Office.

3. **BIDDER DISCLOSURE STATEMENT**

D.R.M.C. § 20-69, requires contractors to disclose political contributions and other information such as the names of principals in the corporation. See: **Appendix A. Disclosure Forms.**

B. **CONTRACT PREPARATION AND FINALIZATION**

The process of contracting for products or services begins when a requirement is identified that cannot be satisfied with existing resources. It is important for the Initiating Authority to contact the agency’s Contract Administration Officer as soon as the requirement is identified. The Contract Administration Officer shall initiate contract requests.

For direction and guidance about the electronic aspects of the process, see: **Appendix G Contracting Automation Guide**, as it may be revised from time to time.

Before it is assigned to an Assistant City Attorney for drafting, the contract request requires approval from several agencies. An explanation of the role of each is provided in Part III and the sections noted below:

- Initiating Authority - Section IV.C. at p. 8;
- Budget & Management Office – Section IV.H.1. b)(3) at p.13; Section V.F. at p. 17;
- Risk Management Office -Section IV.D. at p. 8;
- Division of Small Business Opportunity - Section IV.E. at p. 9;
Appendix A – Continued

- Career Service Authority – Section V.J. at p. 18.

The role of the City Attorney is described in Section IV.F. at p. 10. Additionally, the signature process is summarized in Section IV.G. at p. 11. Some contracts also require City Council review and approval, which is discussed in Section IV.H1. at p. 12.

C. INITIATING AUTHORITY

1. FIRST STEPS

Once the Initiating Authority determines that there is a need for a contract and availability of budget (as needed), he initiates a contract request through the Electronic Contracting Automation System (see Appendix G Contracting Automation Guide). A scope or statement of work, all contract exhibits, a Certificate of Good Standing from the Colorado Secretary of State, and other necessary documentation should be uploaded to the electronic system.

The Initiating Authority or designated contract manager is likely to be most familiar with the scope of work, services, or products to be provided via the contract. It is that person's responsibility to provide all information and documentation required by Risk Management, or by the Risk Management office at DIA for airport contracts, to assess the risk and to set the appropriate insurance requirements. Such documentation may include, but is not limited to: complete project descriptions and sample contracts, and scopes or statements of work. (Documentation must be provided to Risk Management prior to advertisement of an RFP or RFQ.) If the scope of work or methods by which the contracted work changes significantly after the original communication with Risk Management, the Initiating Authority or designee must notify Risk Management of those changes.

The Initiating Authority must also provide to the assigned City Attorney all information required to draft the contract.

2. EVIDENCE OF INSURANCE

Evidence of insurance is attached as an Exhibit to the contract. It is the Initiating Authority's responsibility to assure that an acceptable Evidence of Insurance is provided and renewed for all executed contracts and their amendments.

D. RISK MANAGEMENT OFFICE

1. GENERAL

Risk Management sets and approves insurance requirements for all contracts entered into by the City. The City Attorney's Office determines types of acceptable evidence of insurance for the contracts.

2. RISK ASSESSMENT

Based upon information provided by the Initiating Authority (see Section IV. C. above, and its evaluation of the risk under the contract, Risk Management establishes appropriate insurance requirements.
Appendix A – Continued

If the scope of work or methods by which the contracted work changes significantly after the original communication with Risk Management, Risk Management may modify the insurance requirements.

3. EVIDENCE OF INSURANCE

Acceptable Evidence of Insurance is:

- An industry generated certificate of insurance issued by the contractor’s insurance agent or broker, such as an “ACORD” certificate meeting all requirements of the contract; see sample, attached as Appendix B. Acord Certificate of Liability Insurance; or

- Other form of evidence approved by the City Attorney’s Office.

4. STANDARDIZED LANGUAGE

The City Attorney’s Office has standardized insurance language that must be used in all contracts and procurement documents. The most current version of the standardized language must be used. No change to the form shall be made without the express approval of the City Attorney’s Office.

5. QUESTIONS, PROBLEMS, ADVICE, AUTHORITY

Questions or problems pertaining to insurance requirements shall be directed to Risk Management, who retains authority to approve any changes to insurance requirements. Questions or problems pertaining to evidence of insurance shall be directed to the Office of the City Attorney.

E. DIVISION OF SMALL BUSINESS OPPORTUNITY

1. GENERAL – This section only applies to construction contracts, professional design and construction services contracts, and airport concession contracts.

2. GOALS SETTING

The Project Manager must contact DSBO analysts during the initiation phase to determine procedures for the specific type of contract. See Appendix C. Goals Committee Project Information Form. In general, the process is:

a) All construction contracts and professional design construction services contracts for any public facility or area owned by the City must be reviewed for the setting of M/WBE, SBE, and DBE goals by DSBO.

b) A M/WBE, SBE or DBE goal is determined on a project-by-project (contract-specific) basis. Each project is presented by an agency representative before one of three (3) goals committees: Construction (building), Heavy – Highway (streets, bridges, etc.), and Professional Design Construction Services.

c) Airport concession contracts must be reviewed by DSBO for setting an ACDBE goal under federal law.

d) The committees recommend goals and the Director of DSBO makes the final decision.
Appendix A – Continued

e) Contracts for which bids or proposals are sought under the SBE defined selection pool contracting program are excluded from the MWBE program.

3. BID/PROPOSAL PHASE

a) Project Managers must include an invitation to DSBO analysts to attend RFP meetings

b) DSBO analysts attend all pre-bid and pre-proposal meetings, make presentations regarding MWBE, SBE, or DBE requirements. All applicable requirements and necessary DSBO forms for bidding or proposing must be contained within the bid or proposal documents. DSBO language inserts are available through the Compliance Unit Supervisor.

c) DSBO analysts attend the bid openings and provide additional information to bidders regarding submittal of required forms. On professional design qualifications or proposals, DSBO receives a copy of the consultants’ proposals to review for DSBO requirements.

4. REVIEW AND RECOMMENDATION

a) The Project Manager must provide DSBO with a copy of the bid form pages of the three low bidders immediately following bid openings or a copy of each proposal after submission.

b) DSBO reviews information contained within the documents and required submittals (good faith efforts/letters of intent) to determine if the assigned MWBE, SBE or DBE goals have been met or if a responsive good faith effort was submitted. The DSBO Director provides written notification to the appropriate Department Head of the results of DSBO’s determination. Department Heads sign the notification letter as approved if they are in agreement with DSBO’s determination or disapprove if they are not.

5. CONTRACT MODIFICATIONS

If the contract changes materially after goals are set, it needs to be reviewed again by DSBO to determine if the goals are still appropriate.

6. COMPLIANCE MONITORING

The Project Manager and the DSBO analysts monitor the contract through its existence to determine if MWBE, DBE, or ACDBE participation is being met as committed to by the bidder/proposer and for payment information.

F. CITY ATTORNEY

1. INITIATION

Once the contract request has received all necessary pre-approvals, it is forwarded to the appropriate section of the City Attorney’s Office. An Assistant City Attorney will be assigned to draft the contract or to review and revise any form of contract provided by the Contractor or supplied by the Department/Agency, based upon background and other pertinent information submitted by the Initiating Authority.
Appendix A – Continued

After the contract or instrument has been drafted, the Initiating Authority shall review the draft for accuracy, completeness and to ensure it meets the needs intended. Corrections and changes shall be transmitted to the appropriate section of the City Attorney's Office until a final contract is agreed upon.

2. STANDARDIZED FORM LANGUAGE

In all instances where Initiating Authorities have contracts or procurement documents (Invitations for Bid, Requests for Qualification, and Requests for Proposal) where the use of a standardized form is justified and practical, the Initiating Authority shall obtain the City Attorney's approval of such form before its first use. Initiating Authorities must use the most current electronic template, or printed version of the template. No change in the form, wording or provisions shall be made without the express prior approval of the City Attorney's Office. No contract generated using such a form shall be provided to a vendor or contractor without the prior approval of the City Attorney's Office. This provision does not exempt any contract from any requirement of Executive Order No. 8 or its implementing memoranda.

3. QUESTIONS, PROBLEMS, ADVICE, AUTHORITY

Whenever questions or problems arise and a clear solution is not readily available, the appropriate section of the City Attorney's Office shall be consulted. However, the City Attorney shall have authority in matters of legal significance only, and those that are of administrative significance shall be determined by the Initiating Authority.

G. CONTRACT SIGNING PROCESS

1. ELECTRONIC SIGNATURES

The City has implemented a system to process and store contracts electronically, from initial request stages through execution. The key to a valid electronic signature is that the electronic signature must be logically associated with the contract and can be attributed to the person signing the contact by proper security of the electronic signature process.

By policy until 2011, the City required the Manager or head of the expending agency to sign the contract. The purpose of this signature was to ensure that the agency's manager authorized the contract and so the Mayor could confirm that had happened. In the electronic contract management system, the Manager or agency head must still approve each contract; however, that approval will be electronic and the manager's signature will not appear on a contract. The system is designed so the contract cannot move forward for the Mayor's signature without the Manager's prior approval.

It is important to the integrity of our City contracts that our officials and their staff follow the signature procedures and security measures provided by the electronic system by not loaning PIN numbers (in the case of the Charter signatories) or improperly delegating signature or approval responsibilities. Agency heads and department managers will need to personally approve their contract requests and contracts unless they delegate that task in writing to others on their staff. The agency head or manager remains responsible for any contract authorized under the delegation.
Appendix A – Continued

Please see Appendix G for additional detail.

2. INITIAL SIGNATURES

When the City Attorney’s Office returns the contract to the Initiating Authority, the agency should obtain the contractor’s signature and approval by the Manager and any other approving authority. A City Attorney will then approve the contract as to form. At this point, contracts that require City Council approval shall follow the Council Process outlined in Section IV.H. below.

Note: The signature of the Contractor (referred to sometimes as second or other party or vendor) is generally required before the approval by the Initiating Authority. However, if the City is to receive money (usually involving State or Federal funding) and the other party insists that all the signatures of the City be obtained first, the execution by the other party may be delayed until all City signatures have been obtained by the Initiating Authority. Additional exceptions, when absolutely necessary, are at the discretion of the City Attorney.

3. SIGNATURES REQUIRED BY CHARTER

Once signed by the contractor, approved by the Initiating Authority and any other required approving authority, approved as to form by the City Attorney, and approved by City Council if required (see Section IV.H. below), each City Contract must be signed, countersigned, and attested as follows:

a) Signed by the Mayor or Acting Mayor;

b) Attested by the Clerk and Recorder or Deputy;

c) Countersigned by the Manager of Finance or Acting Finance Signatory; and,

d) Countersigned by the Auditor.

4. DISTRIBUTION OF THE CONTRACT

After the contract has been signed by all as noted above, the Contract Administrator will provide a copy to each of the outside parties.

H. CITY COUNCIL

1. GENERAL

Certain contracts and other written instruments may not be signed by the Mayor until they have been approved by the City Council. A bill for an ordinance authorizing the City’s execution of contracts meeting certain criteria (see below) is considered by City Council. Types of contracts or written instruments requiring Council approval may be specified in the Charter, Revised Municipal Code, or Executive Orders. Additionally, the Mayor may request that other contracts or written instruments be presented to City Council for approval. Except for government grant contracts (see Section V.F. at p. 17), the necessary bill for an ordinance shall be drafted by the City Attorney’s Office.

The following types of contracts must be approved by City Council:
Appendix A – Continued

a) Expenditure Contracts:

(1) Contracts that may require the City to expend $500,000 or more or sell personal property worth $500,000 or more, and amendments which cause the total contract to exceed that amount;

(2) Change Orders which cause a construction contract to equal or exceed $500,000; and,

(3) Exception for Denver International Airport: Contracts for design or construction at the Airport do not require City Council approval unless they exceed $5,000,000.00.

NOTE: Although not included in the contracting process, Purchase Orders of $500,000 or more must also receive City Council approval. See Executive Order 33 Requisitioning and Purchasing Under Centralized Purchasing Services, February 1, 2003.

b) Revenue Contracts:

(1) Contracts by which the City will receive $500,000 or more, and amendments that cause the total contract to exceed that amount;

(2) All contracts where the provider of services will receive a percentage of the revenue generated (e.g., Concession agreements); and,

(3) Federal, State and private grants require an authorizing ordinance if they:
   1) exceed $500,000, 2) require a matching contribution by the City in the form of an expenditure for which a budget appropriation has not previously been approved by Council; or 3) the City Council president has required the Mayor to submit the grant to City Council. If a special revenue fund has not been established for a grant, then an ordinance creating such a fund must be filed. (These ordinances are filed by the Budget and Management Office at the Initiating Authority’s request only after the City Attorney’s Office has approved the form of contract.)

(4) Exceptions:

The following revenue contracts and grants at Denver International Airport do not require City Council approval:

- Federal grant agreements not requiring any matching funds from the City’s General Fund;
- Farm leases;
- Residential leases less than one year and under $100,000.00;
- Storage, office, or support space leases on Airport Property provided the lease is ancillary to and in support of an existing concession or airline lease which has been submitted to Council for approval;
- Leases or licenses to place vending machines on Airport property;
- Leases or licenses not exceeding a term of one year for the purpose of offering seasonal services or information to the public; and,
- Leases, licenses, or easements for the privilege of placing utility lines or pipes, conducting surveys or investigations, or accessing construction sites, on, under, or adjacent to airport property.

The entire Executive Order 8 can be viewed at http://govorcl02/Executive_Order/Adobe%20Format/8.pdf.
Appendix B – Memorandum No. 8B

MEMORANDUM No. 8B

TO: All Agencies Under the Mayor

FROM: Douglas J. Friednash
City Attorney

DATE: January 3, 2012

SUBJECT: Competitive Selection Policy

This Memorandum No. 8B shall be attached to and become a part of Executive Order 8, dated May 31, 2011, subject “Contracts and Other Written Instruments of and for the City.”

1. Denver owes a duty to its citizens to exercise strong financial stewardship. It is the policy of the City and County of Denver to maintain a fair, open, and competitive market for the goods and services it purchases. This not only important in order to maintain the quality of key government services and to minimize costs, but also sets a high ethical standard and promotes greater transparency.

2. Denver’s Charter and Code require many contracts to be competitively bid or selected; such as, construction contracts and purchases of supplies, equipment, personal property and connected services. Agencies must continue to follow competitive selection requirements specified in the Charter or Code in selecting contractors or vendors.

3. All other contracts also should be competitively bid or selected, absent special circumstances. Special circumstances may include, among others: emergency situations; supplies or services indispensable to the City that are obtainable only from a single source; situations where standardization of equipment or continuity of service is required; acquisition of interests in real property through purchase or lease; supplies or services required by reason of preferences based on professional advice or judgment; situations where competition does not exist, such as membership in professional organizations, attendance at meetings or conventions; supplies or services provided by other governments, or supplies or services which cost $5,000 or less.

4. Selection procedures for those contracts not subject to competitive selection requirements stated in the Charter or the Revised Municipal Code.
   a. Contracts of $100,000 or more. Formal advertisement by official publication, as specified by the Manager of General Services, is preferred and should generally precede the issuance of any invitation to bid or request for proposal for contracts not covered by the Charter or Code estimated to amount to one hundred thousand dollars ($100,000.00) or more. If formal advertisement is not used, bids or proposals shall be requested in writing from at least three (3) responsible bidders or proposers dealing in the supplies or services required. Agencies may not subdivide their contracts to avoid these requirements.
Appendix B – Continued

b. Contracts less than $100,000. Any invitation to bid or request for proposal for a contract not covered by the Code or Charter which is estimated to amount to less than one hundred thousand dollars ($100,000.00) should be requested in writing from at least three (3) responsible bidders or proposers dealing in the supplies or services required, or may be requested by other informal procedure upon notice calculated to inform potential bidders or proposers in a manner that will achieve maximum competition and maximum economy to the city without advertising.

c. Agencies shall document the method of solicitation and require written responses from all bidders or proposers.

5. Agencies should limit the duration of contracts to three to five years at which time a new solicitation should be initiated absent special circumstances. Special circumstances may include, among others, contracts that require a contractor to make significant capital investments to meet the City’s needs, like some concession agreements; supplies or services indispensable to the City that are obtainable only from a single source; situations where standardization of equipment or continuity of service is required; situations where competition does not exist; supplies or services provided by other governments; or situations where economic factors make it unfavorable for the city to re-bid a contract.

6. It will be the applicable manager’s responsibility to authorize and justify any deviation from this policy. Each request for a contract shall specify whether a competitive selection process was used, shall state the method of selection (advertisement, written solicitation of 3 or more contractors, or other procedure); and if necessary, shall state the justification for not using a competitive selection process. Each request for a contract or amendment of a contract in excess of three years, shall state the justification for the longer term.
## Appendix C – Change Order Tables

<table>
<thead>
<tr>
<th>Contract</th>
<th>Original Contract Amount</th>
<th>Change Orders</th>
<th>Change Order Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Water Quality Pond</td>
<td>$1,307,081</td>
<td>1</td>
<td>$9,621</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>$736,994</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>$26,771</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>$51,784</td>
</tr>
<tr>
<td><strong>Change Order Total</strong></td>
<td></td>
<td><strong>4</strong></td>
<td><strong>$825,170</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract</th>
<th>Original Contract Amount</th>
<th>Change Orders</th>
<th>Change Order Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydronic System Optimization</td>
<td>$7,382,465</td>
<td>1</td>
<td>$650,000</td>
</tr>
<tr>
<td><strong>Change Order Total</strong></td>
<td></td>
<td><strong>1</strong></td>
<td><strong>$650,000</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract</th>
<th>Original Contract Amount</th>
<th>Change Orders</th>
<th>Change Order Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSCF Ductwork Improvements</td>
<td>$4,124,427</td>
<td>1</td>
<td>$13,747</td>
</tr>
<tr>
<td><strong>Change Order Total</strong></td>
<td></td>
<td><strong>1</strong></td>
<td><strong>$13,747</strong></td>
</tr>
</tbody>
</table>

Source: Project Spreadsheet Report, provided by DIA Planning and Development Division management as of December 14, 2012.
May 16, 2013

Mr. Kip R. Memmott, MA, CGAP, CICA
Director of Audit Services
Office of the Auditor
City and County of Denver
201 West Colfax Ave., Dept. 705
Denver, CO 80202

Dear Mr. Memmott:

The Office of the Auditor has conducted a performance audit of the Denver International Airport Planning and Development Division (the "Audit"). The objective of the Audit was to evaluate how "the Division manages change orders, including verification that change orders are necessary and administered properly."

We at Denver International Airport take very seriously our position in the community and adhere to City established policies and procedures, which are designed to produce projects that are constructed in a cost effective and top quality manner. We take great pride in our ability to keep work on track at DIA while operating efficiently and effectively within the rules and regulations set forth by the City. We are committed to continuous improvement in all our processes. We appreciate and will utilize the recommendations set forth in the Audit to improve the overall operation of DIA.

This responsive memorandum provides a written response for each recommendation set forth in the Auditor's Report final draft which was sent to us on May 1, 2013. We understand that this Audit is a process and that we have the opportunity to continue the discussion regarding the revised final audit report, so we reserve the right to submit additional comments. This response complies with D.R.M.C. § 20-276(b). Please note that our response to these recommendations including target dates for implementation is dependent upon available and anticipated resources.
AUDIT FINDING(S):

RECOMMENDATION 1.1 Change Order Controls – The Manager of Aviation should establish controls to enhance change order practices. These practices should prevent change orders from being created that are not related to the original scope of work.

RESPONSE/ACTION PLAN:

Aviation will review current change order policies and practices and compare them with all City executive orders and contracting rules to insure Aviation policies and procedures are in compliance. Current policies will be updated to correct any deviations.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Aviation will work with the City Attorney's office to review the existing change order policy and make changes to insure we are in compliance with current rules by September 1, 2013.</td>
<td>Mike Steffens – 303-342-4481 Max Taylor – 303-342-2564</td>
</tr>
</tbody>
</table>

RECOMMENDATION 1.2 Contract Process – The Manager of Aviation should ensure that separate contracts are created for each project to avoid circumventing the established contract process.

RESPONSE/ACTION PLAN:

Aviation will review policies to insure proper controls are in place so that the established contract process is in accordance with Executive Order #8 as well as other City requirements.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Aviation will work with City Attorney to verify City requirements and to review and amend the current change order approval procedure by September 20, 2013.</td>
<td>Mike Steffens – 303-342-4481 Max Taylor – 303-342-2584</td>
</tr>
</tbody>
</table>

RECOMMENDATION 1.3 Policies and Procedures – The Deputy Manager of Aviation for Planning and Development should implement specific policies and procedures that assist project managers with all phases of the contracting process, which includes bidding, contract monitoring, change orders, and the close-out process.

RESPONSE/ACTION PLAN:

Aviation staff will be assigned to review and rewrite the project manager's manual to reflect current requirements and procedures. Training will be provided to all project managers and project support staff.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>Recommendation</td>
<td>(Generally expected within 60 to 90 days)</td>
<td>implementation</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Agree</td>
<td>The rewrite of the project manager’s manual is currently underway. The draft of the new manual will be submitted for management review by August 31, 2013.</td>
<td>Woods Allee – 303-342-2632</td>
</tr>
</tbody>
</table>

**RECOMMENDATION 1.4 Process Flows** – The Deputy Manager of Aviation for Planning and Development should ensure policies and procedures reflect the current process flows and the utilization of Primavera in order to reduce confusion and ensure consistency between project managers.

**RESPONSE/ACTION PLAN:**

In conjunction with the response to recommendation 1.3, Aviation staff will incorporate the current process flows into the rewrite of the project manager’s manual and this will be included in the project management training as well.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>This recommendation will be included in the rewrite of the project manager’s manual referenced in 1.3 above.</td>
<td>Woods Allee – 303-342-2632</td>
</tr>
</tbody>
</table>

**RECOMMENDATION 1.5 Roles and Responsibilities of the Change Review Board** – The Manager of Aviation should reevaluate the roles and responsibilities of the Change Review Board, including the selection of its members.

**RESPONSE/ACTION PLAN:**

Aviation will review the concept, role and responsibility of the Change Review Board and revise or rewrite the policy and procedure that governs the approval of proposed change orders.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>An aviation working group will be assigned to evaluate the change order approval process and to present policy changes that address the concerns of this audit. The policy will be submitted for the approval of the Manager of Aviation. The first draft of the proposal will be submitted by September 30, 2013 and the final policy will be</td>
<td>Mike Steffens – 303-342-4481</td>
</tr>
</tbody>
</table>
RECOMMENDATION 1.6 Segregation of Duties – The Manager of Aviation should ensure the Change Review Board is designed to address any segregation of duties issues. This includes alignment with the new organizational structure, ensuring that proper approvals are obtained, and providing visibility to the change management process.

RESPONSE/ACTION PLAN:

As a part of recommendation 1.5 the Change Review Board policy and procedure will incorporate segregation of duties to insure proper change order controls.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>The implementation of this recommendation will be included in 1.6 above.</td>
<td>Mike Steffens – 303-342-4481</td>
</tr>
</tbody>
</table>

RECOMMENDATION 1.7 Root Cause Analysis – The Deputy Manager of Aviation for Planning and Development should develop and require that a root cause analysis be conducted at the conclusion of each project to identify trends and make improvements to future projects.

RESPONSE/ACTION PLAN:

Aviation will utilize the recently developed project completion form and will conduct a formal review of the information submitted to determine lessons learned and to apply them to future projects. Modifications will be made to the project manager’s manual as needed based on the findings of this review.

<table>
<thead>
<tr>
<th>State your agreement or reason for disagreement with Recommendation</th>
<th>Target date to complete implementation activities (Generally expected within 60 to 90 days)</th>
<th>Name and phone number of primary individual responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>A formal process will be developed and implemented by September 30, 2013.</td>
<td>Mike Steffens – 303-342-4481</td>
</tr>
</tbody>
</table>

Sincerely,

Dave LaPorte
Deputy Manager of Aviation