

**METRO**  
**The Oregon Zoo**

***Construction Management***

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**September 2001**

A Report by the Office of the Auditor



**METRO**

2001-10797-AUD

**Alexis Dow, CPA**  
**Metro Auditor**

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**METRO**  
Office of the Auditor

September 6, 2001

To the Metro Council and Executive Officer:

In September 1996, Metro-area voters approved a \$28.8 million bond measure to enable the Oregon Zoo to improve exhibits, construct natural habitats for threatened Oregon animals, provide better access to the zoo and become more self-sufficient. Metro initiated The Great Northwest Project to implement the bond measure. This report discusses our evaluation of the project's accomplishments to date, what will likely be accomplished during the remainder of the project and the adequacy of the management processes used to achieve the project's goals.

Many planned components of the project have been completed, resulting in increased zoo attendance and revenues, reduced zoo reliance on property taxes for operating costs and better accessibility to zoo exhibits and facilities. The zoo, however, could have used a more structured approach to planning and managing the project, resulting in the project's budget being better aligned with scope of work envisioned. It would also help establish procedures for initiating and monitoring projects, define staff roles and responsibilities, and generate more realistic cost estimates, budgets and schedules. Such a structured approach would have applicability not only for this project, but for other Metro construction projects as well.

We have made several recommendations for improving Metro's management of large projects and for completing the Great Northwest Project. The Executive Officer agreed with these recommendations and is in the process of developing agency-wide guidelines for managing large projects. Such guidelines will provide a needed framework for assuring that large projects are carried out economically, efficiently and effectively.

The last section of this report contains the Executive Officer's response to the report and our recommendations. We appreciate the cooperation and assistance provided by Metro management and staff during this review.

Very truly yours,

A handwritten signature in black ink that reads "Alexis Dow". The signature is fluid and cursive.

Alexis Dow, CPA  
Metro Auditor

Auditor: Douglas U'Ren, Certified Internal Auditor

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## Executive Summary

In September 1996, Metro-area voters approved a \$28.8 million bond measure to enable the Oregon Zoo to improve exhibits, construct natural habitats for threatened Oregon animals, provide better access to the zoo and become more self-sufficient. The zoo then initiated a project – The Great Northwest Project – to implement the bond measure. We reviewed what Metro and the Oregon Zoo have accomplished with funds spent to date, and what they are likely to accomplish during the remainder of the project. We also assessed the adequacy of the management processes used to achieve the goals and objectives of the bond measure.

Many planned components of the Great Northwest Project have been completed. The zoo has a new main entrance, a new restaurant/catering facility, two new pathways and a new educational facility. It also has two new exhibits – one featuring mountain goats, the other featuring sea lions, sea otters, a research station and tide pool animals. These additions helped increase attendance and revenues, reduce the zoo's reliance on property taxes for operating costs and make the zoo's facilities more accessible.

Several issues of concern were also noted. The zoo has been unable to build some planned exhibits due to a combination of unexpectedly high construction costs and early cost estimates that were incomplete and overly optimistic. The zoo responded by increasing the project budget, stretching the construction schedule and cutting a lion exhibit. Stretching the construction schedule provided time to generate additional funds by increasing interest earned on unspent bond proceeds and by seeking donations. The project's final phase – primarily a set of forest exhibits for bears, cougars, eagles and other animals – is now scheduled for completion four years beyond the original estimate of Spring 2001. However, with remaining project funds at about \$4.9 million, compared with early estimates to construct the forest exhibits ranging from \$7 million to \$9 million, it will be a challenge for the zoo to build the number and kind of exhibits originally envisioned unless additional funding is found.

A more structured approach to planning and managing the project would have enabled the zoo to better align the project's budget with the scope of work envisioned. It would also help establish various procedures for initiating and monitoring projects, define staff roles and responsibilities, and generate more accurate and realistic cost estimates, budgets and schedules. Such an approach would have applicability not only for this project, but for Metro's many other construction projects as well. Our more specific recommendations with regard to such an approach are listed on the following pages.

## Recommendations

### Improving Project Management Practices Metro-Wide

The following recommendations, if implemented, would better ensure that projects achieve expectations and will be carried out economically, efficiently and effectively.

1. Define and document the authority, roles and responsibilities of the organizations and positions that are involved in overseeing major projects, including department managers, project managers, the Chief Operating Officer and Executive Officer and the Metro Council.
2. Develop a system for reviewing, approving and revising the cost, scope, schedule and priorities of major projects.
3. Designate a “Project Coordinator” in each department that conducts a significant number of projects. This coordinator would receive training in project management, ensure that projects are properly planned and administered, and help develop guidelines and procedures for administering projects at Metro.
4. Implement the recommendations contained in a previously issued audit report on Metro contracting which called for establishing minimum qualifications for project managers and developing a system to formally evaluate their performance.
5. Develop a system of procedures and controls to ensure for each project that:
  - roles, responsibilities and authority of project managers and project team members – including contractors – are clearly defined and communicated
  - project managers are adequately qualified and trained to carry out their responsibilities
  - goals are clearly defined and measurable
  - the project’s scope and priorities provide the best means of achieving the project’s goals and objectives
  - the project’s scope can be carried out within its budget
  - the project budget is complete, including a contingency for unforeseen problems
  - a project management plan is developed and monitored. The plan should describe how all the project management systems are to operate. There are a number of project management software packages that can facilitate plan development.
  - project milestones and performance indicators are established
  - project status, scope changes, progress, performance and other issues are communicated to its stakeholders, including the Executive Officer and Council, at regular intervals.

6. Before undertaking future construction work that will utilize the CM/GC approach, Metro should obtain a written opinion from a qualified construction consultant as to whether the project scope and project budget are in balance. The consultant could be an architect, a construction firm or a construction consultant.
7. When using the CM/GC approach in future construction projects, Metro should obtain written assurance from the project architect or a qualified construction consultant that the contractor's proposed Guaranteed Maximum Price and reimbursable expenditures budget are reasonably priced.

### **Completing the Great Northwest Project**

1. Define and document the authority, roles and responsibilities of the managers, staff and groups that will be involved with the remaining parts of the project. This includes the Zoo Director, Deputy Zoo Director, construction coordinator, design staff, division managers and working groups.
2. Develop a list of the project priorities that provides the best opportunity for completing the work scope described in the 1996 bond measure and use this list to plan the remaining affordable elements of the project.
3. Develop a project plan that includes the following:
  - an approved procedure for setting and revising the project's scope
  - a documented assessment of significant project risks and how they will be managed
  - a time management system that identifies the key project management activities that must be carried out, assigns responsibility for performing these activities to members of the project team and ensures they are performed in the required time frames. Examples of key project management activities include administering contracts, monitoring and reporting project performance and coordinating decisions.
  - performance measures linked to the bond measure that address the project's scope, cost, schedule and quality goals
  - an information system that will provide stakeholders with timely information as to the project's performance, progress, status and issues, as well as updates on how well the project plan is functioning.

## Introduction and Background

The Great Northwest Project, a multifaceted project for improving the Oregon Zoo, was the outgrowth of a bond issue approved by voters in September 1996. The project was established with an initial budget of \$30.5 million, and while a formal goal for completing it was never established, zoo management initially believed it would be completed in 2001. Although there were many positive aspects of this project, the project's budget rose to \$35.6 million, its scope was scaled back, and completion of the smaller-scoped version of the project is not expected until 2005. As part of our audit program for Metro, we examined this project in greater depth to determine what lessons might be learned for this and future Metro construction projects.

### Background on the Great Northwest Project

In September 1996, voters approved a \$28.8 million general obligation bond measure for the Great Northwest Project at the Oregon Zoo. The purposes of the measure were to:

- create a new exhibit containing such Oregon animals as cougars, black bears, wolverines, eagles, heron, salmon and sea otters
- construct a new main entry, including a restaurant and gift shop to help generate revenue for the zoo
- provide new resources for teachers and children, including a family farm exhibit and classrooms
- save \$4 million in maintenance costs
- build a new pathway linking the Africa exhibit to the main part of the zoo.

As the project developed, contracts were let to the following major firms:

- The lead architect for the Great Northwest Project was **Ankrom Moisan Associated Architects**, a firm headquartered in Portland. The architect in turn hired two major sub-consultants to assist in developing designs and monitoring construction work:
  - **The Portico Group**, based in Seattle, Washington, designed the new exhibits.
  - **Mayer/Reed**, located in Portland, developed landscape designs and specifications.
- **Hoffman Construction Company** of Portland was the project's construction manager/general contractor (CM/CG). Under the CM/CG contracting approach, Hoffman oversaw the construction process, subcontracts with other firms such as excavation, electrical and mechanical contractors, and received a fixed percentage of direct construction costs (3.6 percent) for its oversight role.

The planned project was divided into four major phases, as shown in table 1.

**Table 1  
Main Phases of the Great Northwest Project**

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| <b>Phase</b> | <b>Main activity</b>  |
|--------------|---|
| 1            | Provide a new path connecting the Africa exhibits to the main zoo pathway, so visitors do not have to backtrack to return to the center of the zoo; place new pre-fabricated classrooms in the former bear grottoes.  |
| 2            | Build a new restaurant and banquet building, a new gift shop, move the main entry to a site closer to a new light rail station and build a Cascade Crest exhibit, which features mountain goats in an alpine meadow setting.  |
| 3            | Build several new exhibits featuring ocean habitat, including sea lions, sea otters, a Steller Cove research station and a tide pool.   |
| 4            | Build forest exhibits containing homes for most of the animals covered in the bond measure, including wolverines, black bears, bobcats, cougars, eagles, trout and Great blue heron; build a family farm exhibit; and build a new lion exhibit to replace exhibit displaced by Steller Cove exhibits. |

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The project's budget has changed several times. It was initially set at \$30.5 million – \$28.8 million from the bonds, \$1.7 million from interest on unspent bond proceeds. After Hoffman Construction was hired in early 1997, it was determined that the project could not be fully constructed for the budgeted amount. In 1998, the Council approved raising the budget to \$34.6 million. Of the approximately \$4 million increase, \$2 million came from a transfer of funds from the Zoo Operating Fund, and an additional \$2 million was expected from donations. In 2000, the project budget was raised to \$35.6 million by recognizing an additional \$1 million in interest that had been earned on unspent bond proceeds. Table 2 summarizes project resources and expenditures through April 2001.

**Table 2**  
**Resources and Expenditures of the Great Northwest Project**

| <u>Project Resources</u>  | <u>Amount</u>        |
|---|----------------------|
| Funds provided by general obligation bonds                                      | \$ 28,800,000        |
| Interest earned on unspent bond proceeds (estimate)                             | 2,800,000            |
| Donations earmarked for Great NW  | 2,000,000            |
| Transfer from Zoo Operating Fund  | <u>2,000,000</u>     |
| TOTAL RESOURCES   | 35,600,000           |
| <br>  |                      |
| <u>Project Expenditures</u>   |                      |
| Construction contract expenditures  | 24,300,000           |
| Architectural services  | 4,200,000            |
| Project management  | 300,000              |
| Owner purchased items (furnishings, equipment, 1%<br>for art, etc.)             | 1,600,000            |
| Fees, permit costs and other expenditures                                       | <u>300,000</u>       |
| TOTAL EXPENDITURES  | <u>\$ 30,700,000</u> |
| <br>  |                      |
| <b>Remaining funds available for the<br/>Great NW project at April 30, 2001</b> | <b>\$ 4,900,000</b>  |

Management currently estimates that completing the Great Northwest Project (not including the lion exhibit) will require increasing the budget to \$37.6 million.

**Audit Objectives** This audit had two main objectives. The first was to review the results of the project – that is, to determine what Metro and the Oregon Zoo have accomplished with funds spent to date, and what they are likely to accomplish during the remainder of the project. The second was to identify an appropriate framework for managing and controlling large-dollar construction projects and evaluate the Zoo’s management processes in the context of this framework.

The second objective has potential implications both for the Great Northwest Project and for other Metro projects. Although three of the four phases of the Great Northwest Project have been completed, the final phase is still in the planning stage, meaning that the recommendations contained in this report still apply to this project. More significantly, the recommendations could also be applied to other construction projects that Metro and its affiliate, the Metropolitan Exposition-Recreation Commission (MERC), are planning or have under way. This includes the \$116 million expansion of the Oregon Convention Center.

**Audit Approach** We carried out the audit by interviewing key participants in the project, including Metro and zoo staff and members of the design team. We also reviewed an extensive array of records and reports, including bond measure documents, project files and contracts, Metro Council resolutions and meeting minutes and Metro budget reports. We also prepared a questionnaire for the deputy zoo director.

Our audit was performed from November 2000 through June 2001 in accordance with generally accepted government auditing standards.

## **Project Has Provided Significant Benefits, But Scope Is Less Than Initially Proposed**

Through April 2001, the Oregon Zoo had spent \$30.7 million of the Great Northwest Project's \$35.6 million budget. Many of the project's planned components have been completed. These components have led to a number of benefits: attendance and revenues are up, the zoo is less reliant on property taxes as a revenue source, and exhibits have been improved and made more accessible. However, completion of the project will take four years longer than expected, the project's scope has been narrowed from the plans originally announced, and there is some question as to whether sufficient revenue will be available to complete the final phase of the scaled-down version.

### **Three of Project's Four Phases Have Been Completed**

The zoo has completed three of the project's four planned phases, as shown in table 3 on the following page. A formal goal for completing the entire project was never established. Until at least March 1998, zoo management told the Metro Council that the last phase (the forest exhibits, which contain most of the animal habitats that were described in the bond measure) would be completed by Spring 2001. Completion of this phase is now scheduled for 2005, according to recent management estimates.

**Table 3**  
**Status of Main Phases of the Great Northwest Project**

| <b>Phase</b> | <b>Main activity</b>   | <b>Status</b>              |
|--------------|--|----------------------------|
| 1            | Provide a new path connecting the Africa exhibits to the main zoo pathway, so visitors do not have to backtrack to return to the center of the zoo; place new pre-fabricated classrooms in the former bear grottoes. | Completed in December 1997 |



|   |   |                             |
|---|---|-----------------------------|
| 2 | Build a new restaurant and banquet building, a new gift shop, move the main entry to a site closer to a new light rail station, and build a Cascade Crest exhibit, which features mountain goats in an alpine meadow setting. | Completed in September 1998 |
|---|---|-----------------------------|



- 3 Build several new exhibits featuring ocean habitat, including sea lions, sea otters, a Steller Cove research station and a tide pool. Completed in July 2000



- 4 Build forest exhibits containing homes for most of the animals covered in the bond measure, including wolverines, black bears, bobcats, cougars, eagles, trout and Great blue heron; build a family farm exhibit; and build a new lion exhibit to replace exhibit displaced by Steller Cove exhibits. Forest exhibits and family farm not yet begun; new lion exhibit deferred and transferred to separate funding source

Appendix A provides a more detailed view of the project's status.

**Progress in Accomplishing Project Goals Could Not Be Evaluated, But a Variety of Benefits Can Be Cataloged**

We were unable to assess the extent to which the project's declared goals have been achieved. Zoo management indicated that the bond measure had three overall goals: to provide better homes for animals; to make the zoo easier to use; and to enable the zoo to become financially more self-sufficient. Although it appears the zoo has made significant headway toward achieving at least two of these goals, we were unable to assess the extent of the progress because management did not develop a system to measure performance related to these goals. A performance measurement system would translate the broadly written bond measure goals into a set of measurable, operational goals, then provide a means for tracking and reporting actual performance made toward achieving the goals.

Although we could not evaluate the project's accomplishments in relationship to the stated goals, a variety of indicators show that the completed phases of the project have benefited the zoo and its patrons in a number of ways:

- ***Zoo attendance increased steadily between FY 1997 and 2001,*** despite the impacts of major construction work associated with the Great Northwest Project and a nearby light rail station. It appears that at least some of this higher attendance was spurred by the new exhibits and facilities funded by the zoo's 1996 bond measure.
- According to our calculations, ***the zoo is becoming less dependent on property tax revenues to fund its operations.*** In FY 1999, property taxes provided the zoo with about 41% of its total revenue. By FY 2001, that level had dropped to about 37%. These results are in line with a Metro Council policy requiring that the zoo derive no more than 50% of its operating support from property taxes.
- ***Revenue from admission fees and food and gift shop sales has increased significantly.*** It appears that much of the increased revenue can be attributed to the new exhibits and facilities funded by the 1996 bond measure.
- With the completion of a new path to the Africa exhibits, ***zoo patrons no longer have to backtrack to return to the center of the zoo.***
- ***The Cascade Crest (mountain goat) exhibit received a Best Project of the Year award*** in 1999 from the American Society of Landscape Architects.
- ***Access to the zoo has improved*** by relocating the main entrance closer to a new light rail station.

Two aspects of the project team's management of the project were also notable:

- ***The project had an excellent construction safety record.*** According to a May 2000 construction status report prepared by the CM/GC, no lost time accidents occurred through a construction project that required over 200,000 man-hours of labor to complete.
- According to management estimates, ***construction on phases 1-3 will cost about \$100,000 less than the maximum allowed*** under Metro's contract with Hoffman Construction.

**Part of Planned Work Has Been Deferred, and Availability of Sufficient Funds for Final Phase Is Uncertain**

Once the project was under construction, project managers found that it could not be completed within the project's original budget of \$30.5 million. One reason was that a very active local construction market in 1997 and 1998 created a temporary labor scarcity that led to unexpectedly high bids for some construction work. Although the project's budget has been raised to \$35.6 million, one aspect of the initial project has been deferred, and the scope of the final phase remains uncertain. More specifically:

- The original project budget included funds to construct a lion exhibit to replace one that was torn down to make way for the Steller Cove exhibits. The lion exhibit has since been deferred, transferred to a different project, and management expects it will be funded with donations. The lion exhibit is now listed as a separate, \$1.9 million project in Metro's Capital Improvement Plan.
- There is some question as to whether phase 4 of the project can be fully completed with the remaining funds. Through April 2001, actual project costs had totaled \$30.7 million, leaving \$4.9 million unspent from the revised \$35.6 million budget. Early estimates indicated, however, that the Forest exhibits would cost between \$7 million and \$9 million. Since only \$4.9 million in funds remain, it appears that the number and/or scope of forest exhibits built will have to be reduced in comparison to the original concepts unless additional sources of funding are developed. We were unable to assess the financial feasibility of completing the forest and lion exhibits since a detailed project plan has not been developed yet. Management currently expects the forest exhibits, not including the train station changes, to cost about \$7 million. They plan to seek additional donations to close the shortfall between remaining funds and this \$7 million estimate.
- Some work completed in preparation for the remainder of the project may or may not be fully utilized. According to our analysis, Metro has paid Portico, the project's exhibit designer, slightly more than \$300,000 for design work on exhibits and improvements that have either been deferred to phase 4 or canceled. The exhibits that are partially designed but not built include lions, cougars, family farm, black bear, eagle canyon and train station. It is unclear how much of this design work will eventually be used.

## **Metro Needs a More Comprehensive Approach For Managing Major Projects**

The remaining phase of the Great Northwest Project – and Metro construction projects in general – would benefit from a more comprehensive planning and management approach. A stronger planning and management system would have enabled the zoo to better align the project's budget with the scope of work and the bond measure and to ensure that cost estimates, budgets and schedules were more accurate and realistic. Both for this project and for future construction projects, Metro would benefit by developing policies and procedures for initiating, managing and monitoring projects; defining the roles and responsibilities of Metro managers overseeing budgets; and using available expertise to better ensure budgets and schedules are reasonable and achievable.

### **Effective Management Framework Requires Multiple Systems**

A well-developed set of project management systems needs to have a number of components, according to our research on recognized practices. This research indicated that an effective management framework usually needs to have the elements shown in table 4 (on the following page), such as systems for managing time, cost, quality and risk. Having these systems in place and operating effectively does not guarantee that a project will be successful. For example, these systems could not have prevented the unexpectedly high bids for some of the construction work that was performed. However, the systems do enhance the odds of reaching desired goals and using resources efficiently and effectively.

**Table 4  
Elements of an Effective Framework for Project Management**

| <b>Element</b>                   | <b>Purpose</b>   |
|----------------------------------|--|
| Scope management system          | Ensures the project’s scope is clearly defined, will achieve the project’s objectives and will adequately control scope changes  |
| Time management system           | Identifies the key project management activities that need to be carried out and ensures they are performed in the required time frames  |
| Cost management system           | Provides accurate estimates of project costs and ensures the project work scope, as defined, can be completed within the approved budget   |
| Human resource system            | Identifies the roles, responsibilities and authority of the project team and major stakeholders and ensures members of the project team have the skills needed to carry out their responsibilities                 |
| Quality management system        | Identifies quality standards that will be followed, describes how project results will be monitored to determine if they comply with the standards and identifies how unsatisfactory performance will be addressed |
| Communications management system | Ensures timely development, collection, distribution of appropriate performance information to project stakeholders and retention of key information and documents   |
| Risk management system           | Identifies the major project risks and determines how they should be managed to best ensure the project’s objectives are achieved and undesired outcomes, such as cost and schedule overruns, are avoided          |
| Procurement management system    | Ensures services are obtained in accordance with established requirements at reasonable cost   |
| Written project plan             | Integrates the various systems and provides control over project changes   |

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Source: Adapted from A Guide to the Project Management Body of Knowledge

**Metro Took Steps to Manage the Project, But Some Components Were Lacking**

The steps Metro took put part of this structure into effect. Metro's Executive Officer took several actions to help ensure the project would be properly managed. In a letter to the zoo's director at the time, he outlined his expectation that the project would be completed on time and within budget while protecting the safety and welfare of the zoo's animals and its patrons. He appointed an independent citizen committee to advise him on the project and also appointed an experienced construction project manager to oversee the project.<sup>1</sup>

Teams were formed to plan and oversee the project. A planning team, composed of zoo managers and staff, made design and construction decisions and worked with a number of subcommittees that addressed specialized issues, such as those affecting the restaurant or the Steller Cove exhibit. A project management team, which was composed of representatives from the zoo, the design team and the general contractor, developed a written procedure for controlling design and construction changes to the project. Metro's Executive Officer met with zoo management at least twice a month; however, documentation of project-related decisions made during those meetings is lacking.

Although these initiatives formed part of a project management framework, they did not provide a complete set of the systems shown in Table 4. In addition, the systems in place did not always provide adequate documentation of decisions. A few examples of weaknesses found are described below.

*Managing Cost and Scope*

We found no evidence of a defined process for ensuring that the project's initial \$30.5 million budget would be adequate to accomplish the goals and provide the deliverables described in the 1996 bond measure. This amount soon turned out to be insufficient. Shortly after the bond measure passed, the architects gave Metro a cost estimate that totaled \$38 million for construction work alone, and management told us the contractor's initial construction estimate was about \$50 million. The initial budget also did not include estimates for furnishings and equipment, project management expenses and certain administrative (indirect construction) costs that Hoffman Construction was allowed to charge to the project.

Another component of a system for effectively controlling cost and scope is the expertise of the architectural firm. We found that this expertise was apparently not used as fully as it could have been. Under the contract between the zoo and Hoffman Construction, the total cost of work on each phase of the project could not exceed a dollar amount that was

<sup>1</sup> The project has seen several construction project managers. The first manager oversaw phases 1 and 2 of the project, while the second manager coordinated phase 3. For phase 4, the zoo hired a construction superintendent and intends to manage the construction work in-house.

mutually agreed upon. This dollar amount is known as the “guaranteed maximum price.” A high guaranteed maximum price increases the risk of overpaying the contractor. Having the architectural team review this amount for reasonableness gives the owner (in this case, Metro) information to use in deciding whether the amount should be approved. The architectural team reviewed Hoffman’s early cost estimates and expressed concerns about them, but we found no evidence that Metro addressed the team’s concerns or asked the team to review the budgets and prices eventually submitted to the Council.

*Defining Roles and Responsibilities*

A written project management plan was not prepared and did not sufficiently define and document the roles, responsibility and authority levels of project team members and other Metro officials. One consequence was that we were unable to determine if project scope and cost decisions and approvals were made at appropriate management levels. Another consequence was that decisions made or reviewed by the Executive Officer and other managers were not documented.

*Documenting Key Systems and Procedures*

The only project-specific procedures we were able to locate pertained to controlling design and construction changes that occurred during construction work. Other key systems were undocumented. For example, we found no evidence of a formal system to ensure that planned construction work would best accomplish the goals and provide the facilities and exhibits described in the 1996 bond measure. Given the broad scope of the bond measure language and the limited dollars to carry out that scope, a well-defined system for prioritizing the work scope was essential.

*Evaluating Contracting Risk*

Metro’s contract with the general contractor, Hoffman Construction Company, called for work to be done on a cost-plus basis within guaranteed maximum amounts. Due to the large size of this contract (over \$20 million), its complexity and cost-plus structure, it was relatively high risk in nature. We found no evidence that the zoo or project management team formally and comprehensively assessed the risks of this contract and developed procedures and practices designed to control those risks. Examples of contract risks include: being charged excessive prices for materials and services, being charged for services not received or needed, work not being done according to contract specifications, and not receiving services provided for in contract.

**Framework Could Be Useful Metro-Wide**

Because Metro is involved in many construction projects, there is merit in applying the lessons learned in the Great Northwest Project not only to the remainder of this project, but also to Metro as a whole. Although individual Metro departments may have adequate project management systems in place, there is no overall oversight system to ensure that

projects are properly managed and controlled. Such an oversight system could ensure, for example, that:

- project managers and members of project teams are properly qualified and trained to effectively carry out projects
- roles, responsibilities and authority of project managers and other significant project stakeholders are sufficiently defined, appropriate, communicated and documented
- project scope is feasible given available funds, and priorities are clear
- project budgets anticipate all costs that can be reasonably foreseen, such as the costs of the 1% for Art program, managing the project, and equipping and furnishing buildings once they have been constructed
- key project milestones and performance indicators are established
- the scope, costs and schedules of major projects are adequately monitored after the Metro Council has approved them
- project status, scope changes, progress, performance and other issues are communicated to stakeholders at appropriate intervals

Another reason implementing such an oversight system would be desirable is that while the Metro Council authorizes and reviews these projects, the Council's monitoring systems are designed to operate at a much higher level. For example, Metro has a Capital Improvement Planning process, but its primary function is to help the Council set priorities among different projects and best meet the region's needs using limited financial resources. The Capital Improvement Plan is not oriented toward setting priorities within individual projects that are as large and complex as the Great Northwest Project, nor is it directly concerned with setting a clear scope for projects or their schedules. Similarly, although the Council has an opportunity to review projects in conjunction with its review and approval of Metro's annual budgets. However, the budget process focuses on a single year of planned activities, whereas large projects, such as Great Northwest, can span several years. In addition, the budget process is not typically used to set or revise the goals and priorities of individual projects or to comprehensively review their results.

For these reasons, we think Metro should examine the issues raised in this report from an agency-wide perspective. Our recommendations, both for Metro as a whole and for the Great Northwest Project in particular, are contained at the beginning of this report.

## **Appendix A**

Exhibits and Facilities Described in 1996 Bond Measure

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## Exhibits and Facilities Described in 1996 Bond Measure

| <u>Exhibits</u>   | <u>Status</u>    |                      |                             |
|---|------------------|----------------------|-----------------------------|
|   | <u>Completed</u> | <u>Planned</u>       | <u>Deleted from Project</u> |
| <b><i>Mountain</i></b>                                      |                  |                      |                             |
| Marmots   | ✓                | - not a live display |                             |
| Mountain goats  | ✓                |                      |                             |
| Snow cave*  | ✓                |                      |                             |
| <b><i>Forest</i></b>  |                  |                      |                             |
| Bald eagles   |                  | ✓                    |                             |
| Beavers   | ✓                |                      |                             |
| Black bears   |                  | ✓                    |                             |
| Bobcats   |                  | ✓                    |                             |
| Cougars   |                  | ✓                    |                             |
| Great blue herons   |                  | ✓                    |                             |
| Great grey owls   |                  |                      | ✓                           |
| River otters  | ✓                |                      |                             |
| Spotted owls*   |                  | ✓                    |                             |
| Tree house elevator   |                  |                      | ✓                           |
| Trout & salmon  |                  | ✓                    |                             |
| Wolverines  |                  | ✓                    |                             |
| Giant fallen log w/mountain<br>beavers, snakes, salamanders |                  | ✓                    |                             |
| <b><i>Waters (Steller Cove)</i></b>                         |                  |                      |                             |
| Harbor seals  |                  | ✓                    |                             |
| Research station  | ✓                |                      |                             |
| Sea lions   | ✓                |                      |                             |
| Sea otters  | ✓                |                      |                             |
| Tide pool animals   | ✓                |                      |                             |
| <b><i>Lion Exhibit</i></b>                                  |                  |                      | ✓**                         |
| <b><i>Family Farm Exhibit</i></b>                           |                  | ✓                    |                             |
| <b><u>Improved Access</u></b>                               |                  |                      |                             |
| New pathway linking Africa<br>Rain Forest to entrance       | ✓                |                      |                             |
| Relocate zoo entrance                                       | ✓                |                      |                             |
| <b><u>New Revenue Sources</u></b>                           |                  |                      |                             |
| New restaurant  | ✓                |                      |                             |
| New gift shop   | ✓                |                      |                             |
| <b><u>Education Classrooms</u></b>                          |                  |                      |                             |
|   | ✓                |                      |                             |

\* Not listed in bond measure, but included with Great Northwest project

\*\* Now a separate project

## **Response to the Report**

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METRO

August 30, 2001

Honorable Alexis Dow, CPA  
Metro Auditor  
600 NE Grand Avenue  
Portland, OR 97232-2736

Re: Construction Management Audit of The Oregon Zoo (August, 2001)

Dear Auditor Dow:

I have reviewed your final draft report on the management of the Great Northwest construction project at The Oregon Zoo. I appreciate the hard work and professional expertise that you and your staff invested in the audit. The report does an excellent job describing the successes of the Great Northwest Project and identifying the lessons we should learn from it. This letter constitutes my response required by Metro Code.

I concur with the report's recommendations for improving project management practices Metro-wide. By the end of 2001, I will issue project management guidelines standardizing Metro's construction management practices for large-scale projects and implement the guidelines, subject as always to resource constraints.

While I believe the success of the first three phases of the Great Northwest Project speaks well for the project's management, I concur with the report's recommendations for completing Phase IV. I will use the project management guidelines mentioned above to complete the project.

I am extremely pleased with the progress of the Great Northwest Project. By every measure, so is the public. I am confident that we will achieve similar success with Phase IV. I hired a Zoo director in 1998 who has a record of building world-class exhibits at a reasonable cost. I also recruited an outstanding group of business and civic leaders to serve on the board of the Oregon Zoo Foundation. The board and the thousands of dedicated Foundation members have done a truly remarkable job accelerating the fundraising for the project. I fully expect the Foundation to meet, and perhaps exceed, its goals.

Zoo Director Tony Vecchio and I appreciate your assistance and guidance. We look forward to finishing a project the public will be proud of.

Sincerely,



Mike Burton  
Executive Officer

cc: Tony Vecchio, Zoo Director



# Metro Auditor Report Evaluation Form

**Fax... Write... Call...  
Help Us Serve Metro Better**

Our mission at the Office of the Metro Auditor is to assist and advise Metro in achieving honest, efficient management and full accountability to the public. We strive to provide Metro with accurate information, unbiased analysis and objective recommendations on how best to use public resources in support of the region's well-being.

Your feedback helps us do a better job. If you would please take a few minutes to fill out the following information for us, it will help us assess and improve our work.



**Name of Audit Report:** The Oregon Zoo: Construction Management

Please rate the following elements of this report by checking the appropriate box.

|                        | <b>Too Little</b>        | <b>Just Right</b>        | <b>Too Much</b>          |
|------------------------|--------------------------|--------------------------|--------------------------|
| Background Information | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Details                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Length of Report       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Clarity of Writing     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Potential Impact       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Suggestions for our report format: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Suggestions for future studies: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other comments, ideas, thoughts: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name (optional): \_\_\_\_\_

**Thanks for taking the time to help us.**

Fax: 503.797.1831  
Mail: Metro Auditor, 600 NE Grand Avenue, Portland, OR 97232-2736  
Call: Alexis Dow, CPA, Metro Auditor, 503.797.1891  
Email: [dowa@metro.dst.or.us](mailto:dowa@metro.dst.or.us)