Step 8. Conduct cost analyses early and often

Why is this important?

Development is a constant back and forth process between the aspirations and goals for a project and the realities of the available budget. Too often critical design components – components that may impact the long term viability of a project – are eliminated to save money. To make the problem worse, this "trade-off" often occurs at a point when the design is fairly far advanced; i.e., when it's too late to adjust the design and the only option is to eliminate specific components.

Close attention to cost from the earliest stages of the project will help ensure that the evolving design *can be built for the available budget*. Some tradeoffs will be inevitable as the process unfolds, but if costs are analyzed and controlled on an ongoing basis, these tradeoffs can be minimized so as not to affect critical design components.

When should this be done?

The Design Advisor recommends that cost analyses be conducted at a minimum of seven separate times during the development process (see the **Design/Development Matrix**):

Concept Phase

Upon completion of the site evaluation

Predevelopment Phase

Upon completion of early Schematic Design.

Development Phase

Upon completion of late Schematic Design.

Upon completion of late Schematic redesign, as required (for example, by funding agencies).

Upon completion of Design Development.

Upon completion of the Contract Documents.

During the Bidding process.

Who should do this?

The owner/developer and the design team, with input from a property manager and a contractor, if at all possible. Consider using a cost estimator to provide an independent professional opinion.

(Note: The Design Advisor strongly recommends obtaining professional design assistance as early as possible in the development process; i.e. prior to formally assembling the project design team (see **Step 4.**). Developers should look to these professionals for help in early stage cost estimating as well.)

What should be done?

- Develop cost analyses that build on each other over the various phases of development.
- Print the **Cost Analyses Checklist** and add it to the Project Book. Use it to make sure that a continuous series of cost analyses – at ever increasing levels of detail and accuracy – are conducted over the course of your development process. Add photocopies of the analyses to the Project Book as they are completed.

How can doing this move my project forward?

- Accurate cost estimates add credibility and reality to each phase of the development process.
- They also substantially reduce the need for cost cuts during later phases of the development, ensuring that original design concepts and components make it into the built project.
- Accurate estimates are also critical for ensuring the reliability of the project Feasibility Study and the credibility of the financial package/loan application.
- Finally, accurate estimates at all phases of the development help reduce or eliminate surprises during the bidding process.

Additional resources

A number of tools are available to help developers conduct cost analyses. For square foot estimates, data collected by three national companies – R.S. Means, Craftsman and Marshall & Swift – can be used. Craftsman Book Company has a resource available on line at no cost at *www.building-cost.net*. R.S. Means also provides some information gratis at their website *www.rsmeans.com*. Marshall & Swift's site is *www.marshallswift.com*.

For analyses based on material and quantity "take-offs," software tools are available from these companies and from the Enterprise Foundation. Craftsman can be reached at 1-800-829-8123 or www.craftsman-book.com. R.S. Means is at 800-448-8182 or www.*rsmeans.com*. Marshall & Swift is at 800-452-2367 or *www.marshallswift.com*. The Enterprise Foundation is at 410-964-1230 or *www.enterprisefoundation.org*

THE COST ANALYSES CHECKLIST
INTRODUCTION

The Cost Analysis Process

Cost analyses should become increasingly detailed and accurate as the development process moves forward. In the early phases (Concept and Predevelopment) estimates based on square foot costs, modified by costs associated with special site conditions, will be sufficient.

However, as the design becomes more detailed (during the Development phase), so will the cost estimates, moving away from square foot methods to more accurate analyses based on the costs of individual materials and products. Instead of a rough estimate based on the overall size and complexity of the project, the developer will have a far more accurate estimate based on the amount of brick, the number and type of windows, the total linear feet of countertop, etc. to be included in the project.

These later estimates are based on "take offs," in which accurate quantities of individual materials or products are extracted from (i.e."taken off") the design drawings.

Cost Analysis Tools

A number of tools are available to help developers conduct these cost analyses. For square foot estimates, data collected by three national companies—R.S. Means, Craftsman and Marshall & Swift—can be used. Craftsman Book Company has a resource available on line at no cost at *www.building-cost.net*. R.S. Means also provides some information gratis at their website *www.rsmeans.com*. Marshall & Swift's site is *www.marshallswift.com*.

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At all stages, cost estimators, contractors and/or architects with knowledge of local cost conditions can provide invaluable advice and input. They should be an integral part of any cost estimating team.

Using The Cost Analyses Checklist

The Design Advisor recommends that cost analyses be conducted a minimum of seven times over the course of a development project. The Cost Analyses Checklist is a simple method for ensuring that these analyses are conducted and completed. It provides a

timeline indicating when each analysis should be undertaken, together with brief descriptions of what type and level of analysis should be conducted at each point during the timeline. Completing all the analyses called for on the Checklist will go a long way toward ensuring that the design goals for a project are realistic and achievable.

THE COST ANALYSES CHECKLIST

Analysis #1 **Date Completed _____**

When: Upon Completion of the Site Evaluation

What: A square foot-based analysis, using the estimated gross square footage of the building.
Plus a "best judgement" estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).
Plus a contingency of 15-20% to account for possible inaccuracies, inflation, change orders, unknowns, etc.

Analysis #2 **Date Completed _____**

When: Upon Completion of Early Schematic Design

What: A square foot-based analysis, using the actual gross square footage of the building.
Plus a "best judgement" estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).
Plus a "best judgement" estimate of additional costs to account for special design considerations (e.g. artwork, special types of construction, balconies, etc.).
Plus a contingency of 15-20%.

Analysis #3 **Date Completed _____**

When: Upon Completion of Late Schematic Design

What: A quantities-based analysis, using preliminary take-offs of the primary systems and materials in the project.
Plus a detailed estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).
Plus a series of "allowances"—bulk costs for standard components (e.g. kitchens, bathrooms, heating systems, etc.) based on experience and local knowledge.
Plus a contingency of 12-20%.

Analysis #4 (if required) **Date Completed _____**

When: Upon Completion of Late Schematic Redesign
(if required during the funding application process)

What: A quantities-based analysis, using preliminary take-offs of the primary systems and materials in the project.
Plus a detailed estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).
Plus a series of "allowances"—bulk costs for standard components (e.g. kitchens, bathrooms, heating systems, etc.) based on experience and local knowledge.
Plus a contingency of 12-18%.

Analysis #5 **Date Completed _____**

When: Upon Completion of Design Development Drawings

What: A quantities-based analysis, using more detailed take-offs of both primary and secondary systems and materials in the project.
Plus a detailed estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).
Plus a series of more detailed "allowances," if required.
Plus a contingency of 10-15%.

Analysis #6 **Date Completed _____**

When: Upon Completion of the Contract Documents

What: A quantities-based analysis, using detailed take-offs of all systems and materials in the project.
Plus a contingency of 10-15%.

Analysis #7 **Date Completed _____**

When: During the bidding/negotiating process.

What: As bids are negotiated and accepted, maintain a 5-10% budget reserve above the negotiated bid to cover potential change orders over the course of construction.