



KING COUNTY AUDITOR'S OFFICE

JUNE 1, 2021

Maximizing Impact with Limited Resources—Programmatic Alternatives Analysis: Essential Concepts and Audit Criteria

In an environment in which there are more projects and initiatives than there is funding, it is essential for King County to prioritize the activities that are most likely to help it achieve its goals. One tool agencies can use to help ensure they prioritize the projects that add the most value is programmatic alternatives analysis. This technical paper summarizes key elements of effective programmatic alternatives analysis in a questionnaire format that agencies can use to assess their own processes.

Alternatives analysis is the comparison of options for achieving an objective, and it includes analysis of the costs, risks, and effectiveness of each alternative to determine which is most likely to help an entity achieve its goals. Within county agencies, alternatives analysis can occur at various levels (i.e., project, program, sub-portfolio, and portfolio) and for a range of types of investments (e.g., capital projects or provision of services). By *programmatic alternatives analysis*, we are referring to the decision-making processes agencies use to ensure they fund those projects, or sets of projects, that are most likely to help the agency achieve its goals and objectives.¹

For example, programmatic alternatives analysis occurs when agencies rank a program's or portfolio's individual projects for implementation to help ensure the most beneficial work is conducted, or is conducted first. In the capital project environment, agencies use programmatic alternatives analysis to allocate resources among different projects in its Capital Improvement Program (CIP), deciding which provide the most value in achieving the agency's and the county's goals. In contrast, project-level alternatives analysis can help an agency select the best option for completing an individual project. Whereas project-level alternatives analysis can help an agency identify the best route for a trail or the best technology for a water treatment facility, programmatic alternatives analysis helps an agency identify which trails or water treatment facilities should be funded and prioritized for construction.

We developed this questionnaire to assist with our review of agencies' programmatic alternatives analysis practices knowing it would need to be scaled for different types and sizes of programs and that not all questions would apply to all reviews. However, there are key principles that do apply to all reviews. These include:

- Analysis assesses how well projects meet the organization's needs and strategic objectives.
- Analytical methodology ensures that costs, benefits, and risks of competing projects are calculated consistently and accurately.
- Analysis is complemented by ongoing monitoring to test results, assess performance at both the project and program levels, and identify course corrections as needed.

¹ In this document, we use the term "programmatic alternatives analysis" to refer generally to analysis that occurs at both the program and portfolio levels in King County agencies. In reading this document, one could replace the word "program" with "portfolio" or "sub-portfolio" if that level of organization is more appropriate to a particular agency.

When we perform our audits and oversight work, the King County Auditor's Office (KCAO) will look to the elements of analysis and decision-making included in this questionnaire, among others, as initial criteria for assessing the effectiveness of agencies' programmatic alternatives analysis practices.

We based this questionnaire on recognized sources of best practices in portfolio and program management, capital decision-making, and alternatives analysis, such as guidance published by the Project Management Institute, Axelos Global Best Practice, and the U.S. Government Accountability Office. Many items also encompass requirements in the County's business planning and budgeting processes. A list of key sources is included after the questionnaire.

KCAO Questionnaire: Assessing Programmatic Alternatives Analysis

A. Preparing for Analysis

Effective project selection is dependent on the visibility of the organization's strategic objectives in relation to the program. Ideally, an entity's strategic objectives provide the basis for prioritizing projects, or sets of projects, and project results, in turn, provide evidence of whether the program is working or requires adjustment. This process requires up-to-date project and program performance information, well-defined strategic goals and objectives, a clear link between the program's approach and these larger goals, and criteria for allocating resources in this context.

Program Information

- ✓ Do supervisors and managers have access to accurate and consistent project data for the program, such as an inventory of projects with current summary information about costs, benefits, schedules, risks, and performance?

Strategic Planning

- ✓ Does the program have clear strategic goals and objectives that align with county goals related to the program?
- ✓ Do the program's strategic goals and objectives align with countywide goals, such as equity and social justice and sustainable development?
- ✓ Has the agency developed metrics for the program that:
 - model contribution toward agency and countywide goals and objectives
 - measure performance and set targets for achieving objectives
 - allow for regular monitoring of benefits at both the project and program levels?
- ✓ Are the agency's business planning documents current and do they describe how the program furthers both agency and county goals, including the countywide goal of advancing equity and social justice?

- Program Need**—Program need is the gap between an entity's current capabilities and those necessary to meet its larger strategic goals and objectives. Program need provides the rationale for investment in the program and serves as foundational criteria for selecting and ranking program components.

- ✓ Was a program need defined clearly and independently of a solution?
- ✓ Was the definition of program need based in criteria (e.g., gap analysis)?
- **Functional Requirements**—Functional requirements are the general parameters that projects must meet to address gaps between current capabilities and the capabilities necessary to achieve the entity's objectives.
 - ✓ Were functional requirements defined clearly and independently of a solution?
 - ✓ Were functional requirements defined before analysis?
 - ✓ Do functional requirements address program need?
 - ✓ Were functional requirements prioritized to reflect relative importance?
 - ✓ Were functional requirements based in criteria (e.g., gap analysis)?
- **Selection Criteria**—Selection criteria are the metrics and attributes used to rate and rank projects.
 - ✓ Were selection criteria defined clearly and independently of a particular solution?
 - ✓ Were selection criteria established before starting analysis?
 - ✓ Were selection criteria based on program need and tied to functional requirements?
 - ✓ Were selection criteria developed to assess benefits, costs, and risks of projects in relation to the county's goals of equity and social justice and sustainable development?
 - ✓ Were selection criteria developed with input from community partners, management, and other key stakeholders?
 - ✓ Were criteria weighted to reflect relative importance?
 - ✓ Were criteria defined such that they can be assessed consistently for each project and allow for multi-criteria analysis with rankings based on benefits, costs (including total life cycle costs, efficiencies, and savings), and risks?
- **Assumptions**—Were assumptions and constraints used to develop requirements clearly documented during the planning process?

B. Analysis

To ensure decision-makers select and prioritize projects with the best chances of meeting the agency's goals and objectives, programmatic alternatives analyses must provide consistent and comprehensive cost, benefit, and risk information about competing projects.

- **Alternatives Considered**
 - ✓ Were efforts made to ensure a diverse range of projects were considered?
 - ✓ Were projects developed with input from community partners?
 - ✓ Did the alternatives considered include the status quo?
 - ✓ Were all projects screened for viability (i.e., technically feasible, affordable within the current fiscal environment, capable of meeting the program need and technical requirements)?
 - ✓ Were reasons for eliminating projects from consideration documented?

Benefits

- ✓ Were projects' benefits documented consistently and in sufficient detail to enable a meaningful comparison?
- ✓ Were benefits linked to strategic objectives, program need, and functional requirements?
- ✓ Were monetary benefits quantified over the full life cycle of each viable project?
- ✓ If a net present value (NPV) could not be calculated for each project's benefits, did the team document why and describe the method used?
- ✓ Were non-monetary benefits identified and analyzed, with an attempt to quantify across all viable projects?

 Costs

- ✓ Were the costs of each project documented consistently and in sufficient detail to enable a meaningful comparison of alternatives?
- ✓ Did analysis include development of a comprehensive, well-documented, accurate, and credible life cycle cost estimate² for each viable project?
- ✓ If NPV could not be determined for each project's costs, did the team document why and describe the method used (and why that method was applied)?

 Risks

- ✓ Were risks and mitigation strategies identified for each project?
- ✓ Were all types of risks considered (e.g., cost, schedule, technical feasibility, dependencies with other projects, procurement, etc.)?
- ✓ Were risks ranked in terms of significance to meeting program need and functional requirements?
- ✓ Was there an assessment of overall risk of an investment in meeting the agency's strategic objectives?

 Assumptions—Assumptions specify the environment in which the analysis applies. What assumptions were made in order to facilitate the analysis?

- ✓ Were assumptions documented and justified?
- ✓ Was the impact of cost, benefit, or effectiveness assumptions quantified and included in comparative information for each project?

 Constraints—Constraints are requirements or other factors that cannot be changed or eliminated to achieve a more cost-beneficial approach.

- ✓ Were constraints documented and justified?
- ✓ Was there an analysis of the constraints of each project?

 Sensitivity Analysis—A sensitivity analysis describes the effects of assumptions and uncertainties on the results of the analysis.

² Life cycle costs include all initial costs, the ongoing costs of operation and maintenance (including staffing), and any costs of decommissioning or disposal.

- ✓ Did the team perform a sensitivity analysis to model the effects of uncertainty (e.g., data limitations or modeling assumptions) in the estimates of benefits and costs and the ranking of projects?
 - ✓ Did life cycle cost estimate (LCCE) include a confidence interval or range to provide a comparable view of the risk or uncertainty associated with each project?
 - ✓ Did the agency apply lessons learned from past experiences in which estimated benefits or costs were not accurate?
- Project Dependencies**
- ✓ Were project dependencies and opportunities for combining efforts on multiple projects considered?
 - ✓ Was analysis of project sequencing conducted?

C. Post Analysis and Ongoing Monitoring

Once analysis is complete, results should be validated and ongoing monitoring should be conducted to track program performance and progress toward goals. Monitoring enables managers to test assumptions, update estimates, and adjust program components to optimize outcomes.

- Validation**
- ✓ Were steps taken to validate the results of the analysis to test estimates, reexamine assumptions, and verify rankings in the context of program need and strategic objectives?
 - ✓ Are follow up analyses being conducted to determine whether estimates of costs and benefits were accurate?
- Risk Mitigation**
- ✓ Were risks and mitigation strategies captured and incorporated into program management planning?
- Evaluating Program Effectiveness**
- ✓ Does the agency have a plan for periodic, results-oriented evaluations of program effectiveness?
 - ✓ Are results being used to determine whether a course correction is advisable?
 - ✓ Are results being considered when proposing reauthorizations or increased program funding?
 - ✓ Are lessons learned tracked and used to inform future investment decisions?
- Ongoing Monitoring**
- ✓ Is there a full review of the program at least annually to ensure it remains aligned with strategic objectives; the projects and programs continue to support strategy and are performing as expected; the project and program dependencies and opportunities to combine efforts between projects and programs are leveraged; and new projects are analyzed and prioritized?
 - ✓ Is there monitoring of spending by category as a high-level check on whether the resources allocation aligns with priorities?

- ✓ Is there a practice of regular and consistent progress reports (or a dashboard) that includes each project, performance against baseline, progress against milestones, status of risks and dependencies, actual and projected spend versus budget, and benefits forecast versus plan?

D. Process Controls

Many of the checklist items above help reduce the risk of bias and ensure that programmatic alternatives analyses provide accurate information that can help an entity identify and implement the right projects to achieve its goals. In addition, effective alternatives analyses rely on analyst expertise, independence, and transparency to help ensure unbiased and reliable results.

Expertise

- ✓ Did the team include individuals with expertise in program management, risk management, environmental sustainability, equity and social justice, community engagement, scheduling, operations, technology, earned value management, budget analysis, and other areas necessary (e.g., due to the technical nature of the program)?
- ✓ Did the team include a cost expert responsible for development of a credible cost estimate for competing projects?
- ✓ Were other key departments and internal and external stakeholders involved early in review and prioritization of new projects to enhance collaboration and quality?

Independence

- ✓ Was the team conducting the analysis independent of contractors, agency staff, or consultants managing the projects?
- ✓ Was there an independent verification of the analysis and the results?
- ✓ Was the analysis of alternatives conducted without a predetermined ranking of projects?

Documentation and Transparency

- ✓ Were the programmatic alternatives analysis process and results clearly documented and communicated to management and other stakeholders?

Key Sources

AXELOS, *Management of Portfolios*, January 31, 2011.

AXELOS, *Managing Successful Programmes, 4th Edition*, August 30, 2011.

King County Office of Equity and Social Justice, "Equity and Social Justice Strategic Plan, 2016–2022," [201609-ESJ-SP-FULL.pdf \(kingcounty.gov\)](#) (accessed May 20, 2021)

King County Performance, Strategy and Budget, "Minimum Standards for 2021-2022 Business Plans," [psb-best-practices.ashx \(kingcounty.gov\)](#) (accessed May 20, 2021)

King County Performance, Strategy and Budget, "Portfolio Management Guidance for King County," [bus-plan-min-standards-2021-22.ashx \(kingcounty.gov\)](#) (accessed May 20, 2021)

Project Management Institute, *The Standard for Portfolio Management – Third Edition*, 2013.

Project Management Institute, *The Standard for Program Management – Fourth Edition*, 2017.

United States Department of Energy, "Analysis of Alternatives Guide,"

<https://www.directives.doe.gov/directives-documents/400-series/0413.3-EGuide-22/@@images/file> (accessed May 20, 2021)

United States Executive Office of the President, Office of Management and Budget. "Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs,"

<https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A94/a094.pdf> (accessed May 20, 2021)

United States General Accounting Office, Accounting and Information Management Division. "Executive Guide, Leading Practices in Capital Decision-Making," <https://www.gao.gov/special.pubs/ai99032.pdf> (accessed May 20, 2021)

United States General Accounting Office, "GAO-16-22 Amphibious Combat Vehicle,"

<https://www.gao.gov/assets/680/673405.pdf> (accessed May 20, 2021)