



Hurdle Rate as a Component Of Capital Planning

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1 INTRODUCTION

This discussion on hurdle rates has been developed by the Strategic Planning and Performance Management Working Group of the ACI NA Finance Committee to provide thought leadership and practical working models for airport management and managers.

The challenge of evaluating projects and then deciding which projects ultimately are included in an airport's multi-year capital plan are two distinct steps in the planning process. This treatment focuses on the first step of project evaluation, and does not attempt to tackle project prioritization or the methods used to ultimately decide if a project should be pursued.

Applying the theory and practice embodied in the following pages leaves the airport manager with a pool of viable and financially justified non-prioritized competing projects.

1.1 Scope

Create ACI NA white paper describing how to develop an airport-by-airport specific minimum rate-of-return for projects (Hurdle Rate), with descriptions, examples, and considerations for implementing policy, procedures and methodologies used to develop an objective framework for project justification using risk assessment and rate-of-return evaluation.

1.2 Limitations of this Discussion

Many airports already have in place, either formally or informally, all or components of the concepts presented. This discussion in no manner attempts to dictate a must-do or must-have policy to any airport, but rather is intended to present ideas to assist in developing a policy or procedure or improving one already in place.

There is no "one size fits all" hurdle rate or model for developing and applying a hurdle rate. Each airport or organization is unique with different strategic goals, factors and circumstances influencing the evaluation process implemented.

2 IMPLEMENTING A HURDLE RATE

2.1 What is an airport specific Hurdle Rate

The term hurdle rate is sometimes referred to as the corporate discount rate, cutoff rate, benchmark, or risk adjusted cost of capital. With no equity ownership and/or equity market, airports are left with a challenge in attempting to perform a traditional cost of capital calculation for use in establishing an airport specific hurdle rate.

From a purely academic vantage point, and considering the challenge in computing a hurdle rate using tradition conventions, the most relevant hurdle rate calculation for most airports will be based on the opportunity costs specific to the airport.

For airports with debt, actual total debt carrying costs as a percentage (inclusive of all costs of issuance and ongoing maintenance fees) easily serves as a base minimum hurdle rate. For airports without debt, the return generally available from investing in securities with risks equivalent to the risks of the project(s) being evaluated serves as a base minimum hurdle rate.

From a purely practical standpoint, an airport specific hurdle rate may be influenced by factors and considerations that are not directly correlated to the airport but rather how the airport's opportunity cost calculated minimum rate of return on proposed business projects compares to the minimum rate of return (borrowing rate) of lenders and investors in the local community.

Once determined, the airport specific hurdle rate is used as the expected minimum rate of return on proposed business projects.

2.2 Factors to consider when developing a Hurdle Rate Policy

Quantifiable factors

- Airport Use Agreement (AUA) model – compensatory vs. residual – does the Airport's ability to generate cash for capital projects impact the determination of the "cost of capital" for project evaluation?
- Debt constrained vs. non-debt constrained – does the current debt capacity of the airport or larger governmental body (e.g.: City) limit new debt thus requiring a higher return for projects that are justified using rate of return as the basis?
- Current cash on hand balances – are there political pressures that identify cash-on-hand as seed money for low value or low return economic development initiatives? If so, then a higher required hurdle rate may be prudent to establish.
- Other factors such as risk and uncertainty of projected cash flows, long payback periods, and larger project size may require an adjustment to the required hurdle rate.

Non-Quantifiable factors in developing a hurdle rate policy

- Is the management team looking for a comprehensive, objective, multi-faceted framework to evaluate and prioritize projects?

- Is there need for multiple pre-determined hurdle rates based on the project category or type to adjust for risk or making it easier for certain projects to compete for funding? Is the management team looking for just a “rate” to one-dimensionally evaluate and qualify that projects meet a minimum return threshold?
- How do superior, long-range, long-term projects, long payback projects not get rejected when competing with short term, high yielding projects?
- Can innovation be rewarded in a rate of return analysis?
- Economic development outcomes – does creation of jobs, preserving current economic activity and investing in projects that stimulate the local economy have relevance and influence?
- How do projects that have non-financial environmental or perceived social benefits compete against lower cost, higher return, environmentally unfriendly projects?

2.3 Benefits of implementing a Hurdle Rate Policy

The most significant benefit of adopting a Hurdle Rate Policy is simplifying the decision making process of project planning. The decision-making process for accepting or rejecting proposed projects can be consistently approached, appropriately evaluated, and more confidently aligned to overall airport strategic financial objectives and governing body policies.

For capital budget planning, a robust hurdle rate policy provides an objective framework for creating a non-prioritized pool of competing projects by not only focusing on the pre-determined financial quality test (expected minimum rate of return) but also factors such as payback period and total gross profitability.

For operating budget planning, a hurdle rate policy provides an agreed objective evaluation criteria when making decisions to deploy an airport’s limited resources.

Keeping in mind projects at an airport are not all proposed and approved based on the quality of the financial return generated by the project; the most appropriate hurdle rate policies anticipate and define when a project is subject to a return on investment calculation and when other non-financial and financial considerations are acceptable project justification criteria.

2.4 Project evaluation with an adopted Hurdle Rate Policy

A required rate of return on projects promotes quality when consistently used to evaluate ROI justified projects

A hurdle rate evaluation framework consistently promoted and applied to all projects anticipated to increase revenue or decrease expense will weed-out poor or low return projects which prevents, or limits, time spent in pursuing projects of poor financial quality.

Some projects, on their own merit, are highly subject to various biases. The bias or biases of the project proposer, the project evaluator, or the methods used to evaluate the

project can cause the wrong conclusion to be reached. Biases can obscure the rate of return a project actually can and will yield. (See Section 4.1 for more on project evaluation bias).

Creation of a pool of viable projects that compete

Utilization of a hurdle rate, when evaluating projects, is a first step to creating a non-prioritized pool of competing projects. Those financially viable projects, based on clearing the predetermined hurdle rate, enter the pool of projects for consideration. Those projects competing for resources that do not clear the minimum hurdle are not considered. Further, those projects that do not meet the hurdle rate are returned to the project's requestor for refinement or possibly the identification and alignment with one of the non-financial project justification considerations identified uniquely in the airport's hurdle rate policy.

Prioritization of viable and justified competing projects

While the focus of this effort is not on how to prioritize viable and justified projects, just a few thoughts on prioritization:

- Stratify projects using a need vs. want exercise
- Use the result of hurdle rate analysis (rate of return) to stratify ROI justified projects
- Align projects to the goals and strategic objectives of the organization and stratify as such
- Create a value matrix and assign points to each project according to the merits of the project and use the perceived value scoring to stratify the projects
- Subjectively evaluate the pool of projects as a leadership team and prioritize the pool of competing projects through negotiation

Prioritization should produce a refined project pool that will promote and advance the overall organizational goals.

Future viability of projects under different circumstances not currently existing

Some projects may not be viable, or acceptable, under the current conditions available. However the significance of the project may make it one to consider should conditions and scenarios alter at a time in the future. A prudent measure may be to track such projects on a list of "potential" projects that is readily available and reviewed yearly, but not anticipated in the organizations capital plan.

2.5 The effect of approved projects on rates and charges

Return on investment justified projects remaining in the capital plan, may have some effect on an airport's rates and charges to the airport's air carriers. With the many rate models that exist, a capital project may or may not directly impact rates. Sharing the hurdle rate calculations with air carrier partners for those projects justified using an ROI focus may be a compelling and powerful component when explaining the nature of the project.



3 DEALING WITH UNCERTAINTY (RISK) IN PROJECT EVALUATION AND RATE OF RETURN CALCULATIONS

3.1 Methods to Adjust Project Assumptions for Uncertainty (Risk)

Uncertainty in assumptions can be handled in evaluation models in many ways. Depending on the evaluation model used (IRR, MIRR) different point in time (one dimensional) adjustment for risk can be made.

If utilizing an IRR based hurdle rate evaluation model, risk is reflected by adjusting anticipated cash flows and possibly the timing of the cash flows.

If utilizing an MIRR based hurdle rate evaluation model, risk may be adjusted in the discount rate used for cash outflows, the reinvestment rate used for cash inflows, and possibly the timing of the anticipated cash flows

3.2 Identifying and Evaluating Project Uncertainty (Risk) using scenario analysis

The hurdle rate is a risk-adjusted cost of capital used to discount future project costs and benefits. Increased hurdle rates are applied to projects considered to be risky.

Using hurdle rates is preferable to ignoring risk or treating it as an intangible. However, hurdle rates have limitations. For one thing, organizations are frequently unclear about what hurdle rate should be applied. Studies have shown that the rates used by firms vary considerably. According to finance theory, the "correct" hurdle rate is the "opportunity cost" of the investment, which is the return available from investing in securities equivalent to the risk of the project being evaluated. Most companies don't adjust the hurdle rate for risk nearly enough.

A more fundamental problem is reflected in research on real options (we have not discussed these) showing that the discount rate needs to vary with time and with project management strategy. For example, an irreversible project investment would call for a higher hurdle rate. Note that the discount rate is not a constant, but changes depending on when the future discounted outcomes are expected to occur. Using a constant hurdle rate for a project implicitly assumes that uncertainty increases over time in a specific way (i.e. geometrically). Hence hurdle rates tend to create a bias toward short-term, quick-payoff projects because they severely penalize project benefits that occur in the longer term.

Traditionally, financial analyses combine single "point" estimates of a model's variables to predict a single result. This is the standard Excel model — a spreadsheet with a single estimate of results.

Estimates of model variables must be used because the values which actually occur are not known with certainty. Instead of a single point estimate, as a minimum that estimate could be represented as a range; possibly as low as say X and as high as Y. With a range, the level of uncertainty in the input can be propagated through the model logic to understand how it and any of a multitude of uncertain input variables are affecting an output. A picture of a possibility of outcomes, instead of one single outcome, can now be derived.

In reality, however, many things just don't turn out the way planned. Maybe estimates were too conservative others too optimistic. The combined errors in each estimate often lead to a real-life result that is significantly different from the estimated result. The decision to pursue a project based on "expected" result might be the wrong decision; a

decision not made may have been made if a more complete picture of all possible outcomes had been created.

Business decisions, technical decisions, and scientific decisions all use estimates and assumptions. Using Monte Carlo simulation allows uncertainty in estimates to be identified and displayed in results that show all possible outcomes. Simulation is used to combine all the uncertainties in a modeling situation as variables are no longer reduced to a single number. Instead, variables are expressed in ranges of possible values and some measure of likelihood of occurrence for each possible value. In many instances there is enough prior data available to characterize these likelihoods in the form of a probability distribution. All of the uncertainty information is used by the simulation-based model to analyze every possible outcome. It's just as if you ran hundreds or thousands of "what-if" scenarios all at once!

The concepts that need to be expounded on are how risk can be identified, how it can be quantified and how it can be injected into the project evaluation model. A valuable method is creating a stress tree type analysis that can be roughly estimated from the probable range of values and a mean or most-likely value.

All this added information sounds like it might complicate decision making, but in fact, one of simulation's greatest strengths is its power of communication. Simulation of uncertainty gives results that graphically illustrate the risks present in the project being evaluated. This graphical presentation is easily understood, and easily explained. Simulation of inputs should be considered as a viable evaluation method anytime an ROI analysis is done in Excel that could be affected by uncertainty.

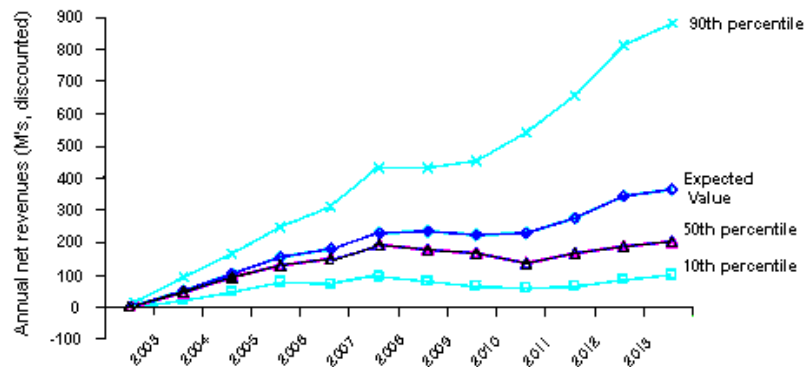


Figure 7: Evolution of risk values over time

Follow this link for an article on Characterizing Risks with Probabilities:
<http://www.maxwideman.com/quests/portfolio/probabilities.htm>

3.3 ACRP Report 106 – A Business Planning and Decision Making Approach

An in-depth treatment on risk evaluation, planning and decisions making can be found in this soon to be released report.

4 OTHER PROJECT CONSIDERATIONS AND JUSTIFICATIONS BEYOND HURDLE RATE

4.1 Identification of the different kinds of biases impacting project evaluation and judgment

An excellent treatment on evaluation biases can be found at:
<http://www.maxwideman.com/guests/portfolio/reason1.htm>

Project evaluation conclusions can be unintentionally influenced by biases. Being aware of the potential for such manipulation and working to overcome biases should be included project hurdle rate evaluation.

Comfort Zone Biases	Perception Biases	Motivation Biases	Errors in Reasoning	Groupthink
People tend to do what is comfortable rather than what is important	People's beliefs are distorted by faulty perceptions	People's motivations and incentives tend to bias their judgments	People use flawed reasoning to reach incorrect conclusions	Group dynamics add additional distortions
<p>People:</p> <ul style="list-style-type: none"> • Become attached to the status quo. • Value things more highly if they already own them. • Ignore information inconsistent with their current beliefs. • Fail to learn and correct their beliefs despite strong evidence that they should do so. • Keep doing the same things, even if they no longer work well. • Distort their views of reality in order to feel more comfortable. 	<p>People:</p> <ul style="list-style-type: none"> • Anchor on information that is readily available, vivid or recent. • Make insufficient adjustments from their initial anchors. • Ascribe more credibility to data than is warranted. • Overestimate what they know. • Underestimate the effort involved to complete a difficult task. • Give different answers to the same question posed in different ways. 	<p>People:</p> <ul style="list-style-type: none"> • Unconsciously distort judgments to "look good" and "get ahead." • Take actions as if concerned only with short-term consequences. • Attribute good decisions to skill, bad outcomes to others' failures or bad luck. • Escalate commitments to avoid questioning earlier decisions. • Favor actions that shield them from potentially unfavorable feedback. 	<p>People:</p> <ul style="list-style-type: none"> • Simplify inappropriately. • Are persuaded by circular reasoning, false analogies, and other fallacious arguments. • Are surprised by statistically likely "coincidences." • Base the credibility of an argument on its manner of presentation. • Abhor risk but seek bigger risks to avoid a sure loss. • Cannot solve even simple probability problems in their heads. 	<p>Groups:</p> <ul style="list-style-type: none"> • "Dive in" without having all of the necessary information. • Are excessively cautious in sharing data. • Avoid expressing opposing views. • Jump to conclusions prematurely or get bogged down trying to reach agreement. • Create illusions of invulnerability and ignore external views of the morality of their actions.

4.2 Potential justifications beyond rate of return

Health, Safety & Security

Enhancement of customer experience

Environmental

Regulatory

Funding Opportunities (Grants or Passenger Facility Charges)

Replacement of existing infrastructure

Many times, projects affected by the above list move ahead of projects that undergo a rigorous examination through the hurdle rate process. An organization's long term capital plan may be entirely consumed by these types of projects, placing the pool of hurdle rate evaluated projects farther into the future. In other words, a project that enhances a customer experience without measureable returns may be advanced while a project clearing the hurdle may be delayed.



5 RATE OF RETURN COMPUTATION METHODS

5.1 Payback period

The payback period is the number of years it takes to recover the initial cost of the project. The company establishes the maximum acceptable payback period in which a successful project can repay the cost of capital to make it. If the project's payback period is less than the maximum acceptable payback period, accept the project. If the project's payback period is greater than the maximum acceptable payback period, reject the project.

Advantages:

- It is computationally simple and easy to understand.
- It focuses on cash flow.
- It provides some information on the risk of the project.
- It provides a crude measure of liquidity.

Cons:

- This method ignores the time value of money and any cash flows beyond the payback period.
- The cutoff period is arbitrary.
- It does not lead to value-maximizing decisions.

SIMPLE EXAMPLE 1 - Two competing projects are brought forward for consideration using available cash on hand and a hurdle rate policy including a payback period of 25 years:

- (A) A Hangar will cost \$12M to construct. Upon completion, a tenant has a signed lease and will pay \$50,000 per month.
- (B) A project to attract more traffic to a general aviation reliever airport includes building a "shelter" for GA pilots to relax in and includes showers, sleeping quarters, a commercial kitchen and an exterior patio and will cost \$4.5M to construct. There is no specific tenant and the only possible revenue will come from fuel flowage fees on the presumed increased traffic.

Conclusion: Based on the facts given, project (A) has a payback period of, presuming the hangar will be occupied continuously, twenty (20) years. Project (B) has no revenue stream and therefore no payback period. Project (B) should not proceed until there is a payback period shorter than project (A) or other, non-financial, measurements are realized.

5.2 Discounted payback period

The discounted payback period is the number of years it takes to recover the initial investment in present value terms. The discount rate used is the project's cost of capital.

Advantages:

- It incorporates the time value of money.
- It considers the riskiness of the project's cash flow through the cost of capital.

Disadvantages:

- It requires an estimate of the cost of capital in order to calculate the payback.
- It ignores any cash flows beyond the discounted payback period.

EXAMPLE 2 - Two competing tenants have approached the airport to construct the same hangar in the previous example for \$12M. The airport does not have readily available cash and is considering using borrowed money at 4.25%. The hurdle rate policy includes a provision requiring a discounted payback period of 25 years or less:

- (A) Upon completion of the hangar in question, a tenant has agreed to a lease resulting in rental income of \$50,000 per month.
- (B) Upon completion of the hangar in question, a competing tenant has agreed to a lease resulting in income of \$100,000 per month.

Conclusion: Based on the facts given and discounting revenue streams at 4.25%, the project with tenant (A) has a payback period of approximately 54 years. The project with tenant (B) has a payback period of approximately 15 years. The hangar project should proceed forward with the offer from tenant (B) since the discounted payback period is within the hurdle rate policy

5.3 Average accounting rate of return

The average accounting rate of return is the ratio of a project's average net income to its average book value (both calculated over the life of the project).

Advantages:

- The method is most grounded in actual numbers.

Disadvantages:

- This method is based on accounting income, not cash flows and does not account for the time value of money.

5.4 The profitability index (PI)

The profitability index is the present value of a project's future cash flows divided by the initial cash outlay. The decision rule is to accept a project if its profitability index is greater than one.

Advantages:

- It considers all cash flows of the project.
- It considers the time value of money.
- It considers the risk of future cash flows through the cost of capital.
- It is useful in ranking and selecting projects when capital is rationed.

Disadvantages:

- It requires an estimate of the cost of capital in order to calculate the profitability index.
- It may not give the correct decision when used to compare mutually exclusive projects.

5.5 Net present value (NPV)

Net present value for a normal project is the present value of all the expected future cash flows minus the initial cost of the project, using the project's cost of capital. A project that has a positive net present value should be accepted because it is expected to increase the value of the firm.

Advantages:

- This method focuses on cash flows, not accounting earnings.
- It discounts all the cash flows.
- It makes appropriate adjustment for time value of money.
- It can properly account for risk differences between projects through the cost of capital.

Disadvantages:

- This method depends on correctly determining the discount rate, the calculation of which is subject to many variables that must be estimated.
- It does not capture managerial flexibility (option value) well.

5.6 Internal rate of return (IRR)

The internal rate of return is the discount rate that makes the present value of the expected future cash flows equal to the initial cost of the project. If the IRR is greater than the project's cost of capital, it should be accepted because it is expected to increase firm value. If the IRR is equal to the project's cost of capital, the NPV is zero.

Advantages:

- The initial calculations are easier to perform and understand.
- It properly adjusts for time value of money.
- It uses cash flows rather than earnings.
- It accounts for all cash flows.
- Project IRR is a number with intuitive appeal.
- It considers the risk of future cash flows through the cost of capital in the decision rule.

Disadvantages:

- The method can yield abnormally high rates of return by overestimating the value of reinvesting cash flow over time.
- There might be mathematical problems with multiple IRRs or no real solutions.
- There are scale and timing problems.
- It requires an estimate of the cost of capital in order to make a decision.
- It may not give the value-maximizing decision when used to compare mutually exclusive projects.
- It may not give the value-maximizing decision when used to choose projects when there is capital rationing.
- It cannot be used in situations in which the sign of the cash flows of a project change (positive and negative cash flow) more than once during the project's life.

5.7 Modified internal rate of return (MIRR)

While the internal rate of return (IRR) assumes the cash flow from a project are reinvested at the IRR, the modified IRR assumes that positive cash flows are reinvested at the firm's cost of capital, and the initial outlays are financed at the firm's financing cost. Therefore, MIRR more accurately reflects the cost and profitability of a project.

Advantages:

- By using the firm's cost of capital as one variable, it has a figure that is grounded in a verifiable current reality and is the same for all alternatives being evaluated.
- It considers all cash flows of the project.
- It considers the time value of money.

- It considers the riskiness of future cash flows through the cost of capital in the decision rule.

Disadvantages:

- The method overcomes the tendency to overestimate return by using the company's current cost of capital as the rate of return on reinvested cash flow.
 - It requires an estimate of the cost of capital in order to make a decision.
 - It may not give the value-maximizing decision when used to compare mutually exclusive projects.
 - It may not give the value-maximizing decision when used to choose projects when there is capital rationing.
-

6 Post-mortem (Look-back) analysis of rate of return justified projects

Much can be learned from evaluating the outcomes produced by projects that were proposed, justified and implemented based on the promise of financial return (increased revenue or decreased expenses). A hurdle rate policy that requires post-mortem, or look-back, analysis provides accountability for completing the hard work of quantifying the financial results of an implemented project.

Beyond verifying the financial objectives of a project have been achieved, evaluating projects after implementation provides airport leadership with a history of the quality of estimates used when projects are recommended base on rate of return calculations. The result may identify certain biases or optimism in project cash flows.

Post-mortem analysis also provides a structured process to evaluate if projects are not “working” as intended and in some instances allows focusing resources to accomplish the intended result(s).

Many entities do not employ this type of analysis as it can be very time consuming. As transparency and accountability increases, it will be a task that continues to grow in scope. A proper hurdle rate policy will address the need for and length of a Post-mortem analysis. Some relief can be implemented by establishing that once a project has been deemed to have achieved, or failed to meet, the expected rate of return, analysis is halted and moved to a type of historical tracking document.

7 APPENDICES

7.1 **Example #1: Hurdle Rate Policy**

(Based on Indianapolis International Airport)

1.0 **Establishment of Hurdle Rate:**

- (A) Purpose of Hurdle Rate Policy. It is the policy of the <<Entity>> (“Authority”) to pursue capital projects that (1) maintain the infrastructure of the Authority to a high standard of quality, (2) provide for sufficient capacity to accomplish the Authority’s mission in providing air service, (3) create a safe and secure environment for air service, (4) maintain satisfactory regulatory compliance with federal, state, and environmental laws, rules, and regulations, and (5) provide the highest risk-adjusted investment return. The ability to accomplish capital projects relies on the Authority’s access to capital and is bounded by the Authority’s access to free cash flow and the desire of the Authority to maintain a cost competitive airport system as measured by the rates and charges charged to airlines operating at the airport. This hurdle rate policy is established to provide guidelines on setting a hurdle rate and utilizing a hurdle rate as part of the Authority’s capital budgeting and approval process.
- (B) Setting the Hurdle Rate. The <<Person or Department>> shall calculate an appropriate investment rate of return that the Authority expects to receive from undertaking capital projects (“Hurdle Rate”). Such Hurdle Rate shall be submitted to the Finance and Audit Committee, which shall establish an approved Hurdle Rate no later than December 31 of each calendar year for the ensuing calendar year. If a new Hurdle Rate is not approved by the committee, the previously approved Hurdle Rate will continue to be the Hurdle Rate utilized under this policy.
- (C) Initial Rate. The initial Hurdle Rate set under this policy shall be 12.50%

2.0 **Calculation of IRR:**

- (A) Projects Subject to Hurdle Rate Policy. All capital projects proposed to the committee for budgetary approval shall be subject to this policy, except for the following types of projects:
- (1) Projects that are intended to repair or replace existing infrastructure or equipment for which the Authority receives grant or PFC funding of not less than seventy-five percent (75%) of the project cost,
 - (2) Projects that are required by regulation by an outside legislative or regulatory authority, and
 - (3) Projects that, if not undertaken, would have a significant negative impact on the health, safety, or security of the Authority or any users of Authority property.
- (B) Responsibility for Calculation. The risk-adjusted IRR shall be calculated by the <<Person or Department>> of the Authority for each project that is required to have an IRR calculation under this Hurdle Rate Policy in conjunction with the manager / sponsor of each project.

- (C) Presentation of Results. The results of the IRR calculations shall be shared with the appropriate committee(s) as part of the justification to approve the capital project budget.

3.0 Utilization of and Exceptions to Hurdle Rate Policy:

This Hurdle Rate Policy is not intended to be utilized as a standalone tool to recommend capital projects for approval. Certain projects under Section 2.0(A) of this Policy are exempt from this Hurdle Rate Policy. Furthermore, the committee(s) shall, at its sole discretion, choose whether to recommend any project to the Authority Board for budgetary approval whether or not the IRR for such project exceeds the Hurdle Rate established under this policy based on other business justifications.

The Hurdle Rate is intended to be a target aggregate rate of return that the Authority expects to achieve or exceed in undertaking capital projects subject to this Hurdle Rate Policy.

4.0 Reporting:

The Treasurer or the highest ranking Authority staff person acting in a Treasury capacity shall provide annual reports to the appropriate committee(s) and provide: (1) the projected internal rate of return for capital projects subject to this policy which are budgeted or proposed to be budgeted for the subsequent calendar year and (2) a <<insert number of years>>-year historical analysis of projects subject to this policy with (a) the actual life-to-date internal rate of return on the projects and (b) the initially projected internal rate of return on the projects. The management report should include analysis of variance and comments on the potential reasons for the variance of actual to projected results.

7.2 Example #2: Financial Objectives/Hurdle Rate/Project Prioritization Matrix (Based on Seattle-Tacoma International Airport)

The <<entity's>> strategic financial objective is to maintain its financial viability by generating cash to cover operating costs while maximizing the <<entity's>> direct contribution to its capital investments, including:

- Mandated capital projects
- Maintenance capital projects
- Capital projects of strategic importance
- Capital projects of financial benefit
- Capital projects of economic benefit

A variety of measures of financial return are used. In some cases, it is most appropriate to measure return based on net present value of cash flow. When a return-on-investment approach is used, the <<entity's>> goal is to achieve a minimum <<Enter HURDLE RATE>> percent return on revenue-generating proposed business transactions and/or business-driven projects. The major components of this return include but are not limited to:

- Risk of the transaction
- Entity's cost of money
- Need to invest in infrastructure that fosters broad economic benefit to the region

For each transaction, the <<entity>> balances the rate of return with a reasonability check that may include, among other considerations, the following:

- Consistency with <<entity's>> Strategic Plan
- Market value
- State of the economy
- State of the related industry
- Entity's competitive position
- Costs / funding
- Risk to the Entity

The <<entity's>> Financial Officer is delegated the responsibility to administer and monitor adherence to this policy. The CFO or an operating director may recommend to the Executive Director exceptions to the policy due to competitive, economic, or other market- or customer driven conditions. The CFO shall provide the Executive Director with a written analysis of any potential exception prior to the recommendation being made.

MATRIX FOR PROJECT REVIEW

CIP Category	Project Type	Financial	Economic Impact	Environmental
Renewal / Enhancement	Renewal & Replacement Infrastructure Upgrades	Cost/Benefit analysis; NPV / IRR analysis if appropriate; impact on business plan profitability assessed CPE impact if appropriate	Generally no incremental impact; primarily related to preservation of existing business activity and jobs.	Environmental impacts evaluated through SEPA review; consistency with Entity environmental strategies assessed.
Compliance	Health, Safety & Security Environmental Regulatory			
Revenue / Capacity Growth	Business expansion New Business Development	NPV/IRR analysis CPE impact if appropriate	Incremental impacts assessed	
Regional Transportation	Freight Mobility Terminal Access Airport Access	Cost / Benefit Analysis CPE impact if appropriate	Primarily related to preservation of existing business activity and jobs	
Economic Opportunities	Economic Development Property Redevelopment Property Acquisition	NPV/IRR analysis CPE impact if appropriate	Incremental impacts assessed	

Risk Assessment

- Risk Assessment will be applied to any of the following revenue generating investments:
 - Entity projects
 - Economic Development projects
 - Airport non-aeronautical projects
- Aeronautical projects are excluded because their associated revenues are formula driven
- Three risk factors assessed
 - Security of Revenues
 - Payback Period (number of years of income= to capital cost)
 - Entity capital contribution
- Based on assessment, each project is awarded a risk score: 1-9
- Each score correlates to a risk adjusted discount rate: 7%-11%

Security of Revenues (0 = low risk, 1 = risk)

Provides monopoly or essential facility in which the entity has experience
Business has stable / growing revenues
Strong lease agreement and good credit tenant
Revenues are predictable with low volatility

Payback Period

<5 years = 1
5-15 years = 2
>15 years = 3

Post Contributed Capital

Significant contribution from partner = 0
Most or all provided by Entity = 1

Discount Rates to Apply (Used Below in Analysis)

Risk Score	Discount Rate
1-3	7%
4	7.5%
5	8%
6	8.5%
7	9%
8	10%
9	11%

MATRIX FOR PROJECT REVIEW – ANALYSIS

Financial Analysis

(Note: For projects < than \$1 million, finance manager may waive some analysis requirements)

Assign CIP Category and Project Type Based on matrix

Assess risk

Use "risk scoring" sheet to score projects and assign a discount rate.

Evaluate property value

If the project uses property and there is an alternative use or sale option, estimate its value

Include as a contribution and as a residual value at the end of the project

For many projects, it is appropriate to analyze with and without a property contribution

Calculate IRR, if appropriate

Calculate IRR for projects that generate cash flows (e.g. revenues or cost savings)

Use the modified IRR calculation

Use 6% for finance rate and investment rate (note, these rates might change over time)

Calculate NPV

Use risk adjusted discount rate

Calculate for projects that generate cash flows (e.g. revenues or cost savings)

For projects with no cash flows, project cost may be substituted for NPV or can be discounted if spread over several years

Provide the following information

Key assumptions and risks

Funding plan - if appropriate

Payback period

First year positive cash flow (calculate assuming 100% debt financed)

Coverage (assuming 100% debt financed) in years 1 and 5

Income Statement effect	Current	Year 1	Year 5
NOI			
NOI after depreciation			
CPE if applicable			

<u>RISK SCORING RECAP SHEET (example)</u>			
Description of Risk Factor		Value	Totals
Security of Revenues (0=low risk, 1= high risk)			
	Provides monopoly or essential facility	1	
	Entity's experience in business	1	
	Business has stable/growing revenues	1	
	Strong lease agreement and good credit tenant	1	
	Revenues are predictable w/ low volatility	1	
Payback Period			
	< 5 years = 1	3	
	5 – 15 years = 2		
	> 15 years = 3		
Entity Contributed Capital			
	Significant contribution from partner = 0	1	
	Most or all provided by Entity = 1		
	TOTAL SCORE		9
	DISCOUNT RATE from table above		11.0%

Commission Memo Template for Investment Decision Matrix

FINANCIAL IMPLICATIONS

Budget / Authorization Summary

Original Budget	
Budget Transfers	
Revised Budget	
Previous authorizations	
Current request for authorization	
Total Authorizations, including this request	
Remaining budget to be authorizes	

Project Cost Breakdown

Construction costs	
Sales tax	
Outside professional services	
Other	
Total	

Source of Funds

- CIP
- Budget Status
- Funding

Financial Analysis Summary

CIP Category	
Project Type	
Risk adjusted Discount Rate	If appropriate
Key risk factors	Brief description of major risks identified, if appropriate
Project cost for analysis	
Business Unit (BU)	
Effect on business performance	Identify if the BU has positive NOI after depreciation and forecasted effect of the project in the first 5 years, if appropriate
MIRR/NPV	Modified IRR and NPV if project generates cash flows
CIP Impact	If project is aeronautical

ECONOMIC IMPACTS

If project generates new economic effects (positive or negative) provide information on the on-going (exclusive of construction related) number of direct jobs and state and local government tax receipts.

If there are no new effects, provide a brief statement on the economic benefits of the business unit.

ENVIRONMENTAL / COMMUNITY BENEFITS

If project generates environmental effects (positive or negative) provide description of the effects and the environmental effects diagram. Describe the SEPA status of the project.

Provide information on any community implications, positive or negative.

TRIPLE BOTTOM LINE SUMMARY

Provide a brief summary of the Triple Bottom Line Assessments detailed above under Financial Implication, Economic Impacts and Environmental / Community Benefits.

7.3 Links to Hurdle Rate Related Files on ACI Website

7.3.1 Hurdle Rate as a Component of Capital Planning Document

7.3.2 ACI Hurdle Rate Models and Templates (5 tab Excel Sheet)

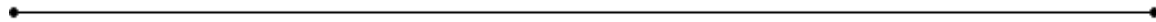
MIRR Template

IRR Template

Master Calculation Capital Budget Book

Post-Mortem analysis example

Capital Budget Influenced by Hurdle Rate Policy



8 ACKNOWLEDGMENTS

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Version Control

Version	Date	Author	Change Description
4	8/20/2013	RBT	Initial drafting of document, updated with additional considerations and items to be expounded on
10	6/15/2014	DA & RBT	Draft for CFO Conference - Denver
FINAL	9/7/2014	DA	Final for ACI-NA National - Atlanta