This paper provides basic information about the Federal project planning process and associated Benefit Cost Ratio (BCR) calculations, the Administration's scoring metric used to select the highest value project via the U. S. Army Corps of Engineers (COE) Civil Works (CW) methods for budgeting, and how these metrics may impact Alternative Financing of future projects. It suggests ways that project sponsors can use current processes to improve the viability of their project submissions and how policies might be amended to enhance future project recommendations.

BENEFIT/COST ANALYSIS

Definition and Purpose

A COE CW project is a proposed solution to a problem, such as a flooding problem or a navigation channel that cannot accommodate larger ships. When the Corps analyzes the problem it considers, in cooperation with a local sponsor, a number of alternative engineering solutions. The project's Benefit to Cost Ratio (BCR) is the outcome of a planning process used to establish the most economically productive investment in a particular planning context. Only those CW projects where the direct economic benefits exceed the direct economic costs of building and maintaining those projects are recommended for authorization. A BCR of 1.0 indicates that the Present Value (PV) of the discounted benefits equals the PV of the discounted costs. Project costs and benefits are generally estimated over 30-50 years. A project with the highest net benefits **(project benefits minus project costs**) is called the National Economic Development (NED) project and normally becomes the recommended plan. A cost-sharing local sponsor may prefer an alternative project that may cost more or less than the NED project alternative, but usually delivers fewer benefits relative to costs vice the NED plan. This is called the Locally Preferred Plan (LPP) and is acceptable if the sponsor agrees to fund additional costs that are not part of the NED project plan.

Issues

1. **Limitations:** In recent years because of limited budgets and the large number of authorized projects in the construction queue, the Administration has used a higher BCR (2.5) to focus only on projects that generate the highest returns. Accordingly many authorized, eligible projects with BCRs lower than 2.5 are not considered for the budget. If projects are not funded within 5 years, they will be considered for de-authorization by the Congress.
2. **Harmonizing Conflicting Parameters:** Because CW projects most often have a project life of 50 years the NED analysis is very sensitive to the interest rate used to discount costs and benefits to obtain present value (PV) amounts. A project that has a BCR greater than 1 at a given discount (interest) rate will have a lower BCR at a higher interest rate over the same time period. Section 80 of the 1974 Water Resources Development Act (WRDA) requires the Corps of Engineers to use an annually adjusted discount rate that is currently 2.75% for project evaluation and BCR analysis. This rate is calculated annually and can only change by +/- 0.25%. However, policy applicable to all federal projects and contained in OMB Circular A-94 requires that a discount rate of 7% be used when a project is considered for budget scoring. Unfortunately local sponsor expectations are created when a project is justified but then are upset when budget restrictions prevent their projects from being funded and built. This is because a multi-year project may have a higher BCR at a lower interest rate and a lower BCR over the same time frame at a higher interest rate.
3. **Objective/Subjective Considerations:** In addition to its sensitivity to interest rates, other BCR calculation issues include benefits that are subjective, cannot be quantified, or are not normally considered. These include important social or environmental factors, possible changes in the relative values of costs and benefits over the project life (although the Corps does a constant dollar initial analysis), changes in project benefits during economic variation (such as flood damages avoided, life/health/safety), or changes in project costs (such as project design changes).
4. **Local Conditions:** Density and property values affect flood damage risk reduction and related project justifications. Coastal projects outside of the northeast and rural areas with low housing and industrial density sometimes result in low BCRs. Structural measures in low-density areas generally have lower BCRs and do not compete well with

densely built urban areas. However, low-cost structural and/or non-structural measures may still be justified based on avoided costs (such as costs of evacuation or flood proofing, averted loss of life, and acquisition of real estate).

5. **Non-structural considerations:** these include real estate buyouts and relocations which may also be considered for their impacts on life, safety and other social effects.
6. **Local impact on national needs:** For projects with a LPP, OMB uses the BCR for the entire authorized project (including additional LPP contributed funds) rather than the NED project where the federal interest and federal cost share only is applied. This may disqualify some worthy projects because the BCR always drops (sometimes considerably) from the NED plan to the LPP. This policy pertains to CW and is within the control of the Assistant Secretary for Civil Works (ASA(CW)) and OMB. One project in northern CA asked to have their LPP de-authorized in WRDA16 (after authorization in WRRDA14) so that OMB would use only the NED BCR for budgeting purposes.
7. **Leveraging the Private Sector in support of Public projects**: Given the accelerated delivery and cost savings associated with P3/P4 projects, as well as the ability of USACE to execute more projects within its existing budget than would otherwise be possible, traditional benefit cost ratios (BCR) used to prioritize projects may not reflect the underlying value of some proposed P3 projects. In this regard, the budget prioritization process does not account for or recognize benefits accrued based on an alternative finance and delivery approach. These include accelerated delivery of public benefits, higher return on federal investment due to more timely and efficient construction, ability to deliver more projects important to NED and public safety, cost avoidance, incentivized efficiency savings, reduced life cycle costs, shifting more risk from the federal government to the local sponsor and/or private financing entity, and private vice federal financing where the user pays more costs. This constraint also impacts projects requiring new start appropriations. Some federal projects already plan for an efficiently financed schedule (such as dam safety) where the advantages of P3s/P4s alternatives may not be as readily apparent.

Potential Policy or Legislative Solutions

1. The BCR required for Congressional authorization is different than the BCR OMB applies for budgeting purposes. Many communities would like to see the congressional authorization standard applied to the budget process **by aligning BCR methodologies.** If the interest rate used for both project justification and budget scoring were more closely aligned at either the authorization or the OMB rate for budgeting this issue may be resolved. However, if that rate is less than 7% it may make projects with longer term payoffs more competitive than those with shorter term ones. Also, with a fixed annual budget, project discount rates may be defined differently to stay within budget.
2. Project social and environmental benefits and costs could be more formally considered during project justification **by better balancing subjective and objective factors.** Congress enables these considerations in some cases. For example, purely environmental projects are currently analyzed separately. Congress may provide specific funding for small projects and it may set aside portions of the construction appropriation for rural, coastal, small navigation, and other projects that do not compete as well in the cost/benefit analysis process with more dense, wealthier urban areas.
3. BCR's for flood risk management or coastal projects should give **special consideration** to the existing inventory of structures to avoid inducing development within the floodplain consistent with the wise use of floodplains. Sponsors should focus on all costs and benefits, to include potential use of P3s/P4s in their project justification analyses.
4. **Changes in current NED/LPP policies** would be necessary to maximize the Federal Return on Investment **(FROI)**. For example, OMB could consider using the NED project BCR for budgeting and scoring LPP projects as these are the only federal funds involved in project development and construction. Additional sponsor funded project aspects would not apply to the federal analysis. Methods to account for risk sharing should be considered in FROI analyses.
5. **To better leverage some LPP projects,** in the absence of a policy change, it may it may be better for local sponsors to forgo an LPP and continue with an NED plan. If the NED plan is budgeted the local sponsor could then pursue a post-authorization modification of the project under Sec 408 (33 USC 408, COE Engineering Circular 1165-2-220). Therefore the sponsor could have the project budgeted using the NED plan and then augment it with its own funds.

OMB SCORING

Definition and Purpose

'Scoring' is used to indicate how much of the cost of any federal project is 'scored' or counted against an agency's budget in any given year. For instance, a $200M construction project may be built over 5 years. In some cases, depending on how the funds are authorized and appropriated, OMB will score the entire $200M during the first year the project is budgeted/appropriated. Alternatively, OMB may score $40 M each year for 5 budget years, or the amount actually budgeted to be spent by the agency during each year of the construction period. The Corps CW program often budgets only the amount required for project construction each year which falls under the latter case. Additionally, the Anti Deficiency Act prohibits the making of contracts which exceed currently available appropriations or which purport to obligate appropriations not yet made. This drives the requirement to score multi-year project total costs (Federal and partners), including P3s/P4s, in the first year of the project's life which often makes them less competitive for scarce Federal funds.

Issues

1. **OMB policy:** considers P3/P4 and other alternative financed projects as capital leases and scores the entire project construction amount in the first year it is appropriated. For very large projects, say $0.5B - $3B, this scoring method may result in displacing many or all other projects in the approximately $1.5 - $2.0B annual CW Construction budget.
2. **OMB Circular A 11**: defines OMB scoring rules. Long term projects and the payments associated with the contracts that deliver the project(s) are generally treated for budget scoring purposes as a capital lease or lease purchase, thereby requiring the entire project cost (an amount equal to the Government's total obligations over the life of the project) to be scored against the legislation in the year in which the budget authority is first made available. When the total value of a project is 'scored' in the first year, this very large amount may preclude favorable consideration of some projects compared to others. A very large capital infrastructure project might be excluded from the budget because it crowds out too many other projects or, conversely, uses a large portion of the available budget ceiling and eliminates a number of smaller projects from consideration. Given that the entire CW Construction budget is about $2B a year, scoring projects in this manner may inhibit the Corps from entering into agreements for any very large infrastructure projects, including P3s and P4s. There is the potential to rethink these rules to leverage funding better.

Potential Policy or Legislative Solutions

1. For very large capital projects, **combining the use of multi-year contracting authority with a change in scoring rules,** even if only temporarily for pilot projects, would enhance the possibility of more proposed projects being budgeted and executed. Having a separate "major construction" fund may not be possible within today's constraints.
2. **OMB should consider changes** to its Circular A-11 and a re-interpretation of the Anti Deficiency Act and the Federal Acquisition Streamlining Act (1994). OMB has considered modifying this policy before, but has elected not to make this change. Local, state, and Federal officials should collaborate to see how their project development and budgeting processes might be effected, to include the use of P3s/P4s where their use is appropriate.
3. Another approach to resolve the scoring of an entire project in the first year of appropriation would be **to authorize multiyear contracting authority** for these projects to federal agencies, similar to the continuing contracts authority that was available to the Corps in the past. This means amending Section 103 in future appropriations bills.

In conclusion, as described above, there are ways project sponsors can improve project prospects absent changes in the current BCR and Scoring rules. There are also changes that may better enable addressing our nation's infrastructure, to include P3s/P4s. **Even if only used as exceptions for use in pilot projects**, some changes include aligning BCR rates, better use of NED/LPP analyses to mutual benefit, re-interpreting OMB Circular A-11, and expanding the use of long term contracts.

SUMMARY OF ISSUES AND POTENTIAL SOLUTIONS

Subject	Issue	Potential Resolution
BCR	Many more projects authorized than can be built	(1)Provide more funding, (2) use P3 or Alternative Financing to leverage more funds to build more projects, (3) Align the authorizing and budgeting BCRs.
	Use of different interest rates by Congress for project authorization and by the Administration for budgeting	Use the same (or aligned) interest rate for both purposes.
	Failure to recognize social, environmental or other factors in project analysis, e.g. areas with lower property values do not compete well with wealthier areas	The Congress should (and sometimes does) accommodate these social/subjective factors, such as "economic justice", setting aside funds for small projects, or other Congressional exceptions.
	Low density areas, e.g. low density coastal and rural areas, towns, and small cities do not compete well.	See above.
	Policy waivers often required for some non-structural solutions	Revise policy to make these exceptions a standard practice.
	Using the LPP BCR instead of the NED BCR for generally lowers the BCR for LPP projects.	(1) The Administration would have to make rule and/or process changes to be approved by OMB to use the NED BCR for all projects. (2) If LPP accepts the NED BCR then, after budgeting, submits a Section 408 change to construct the LPP. This could enhance the Federal Return on Investment (**FROI**), especially if coupled with higher funding levels from private, local, and state sources. Infrastructure projects would be scored and prioritized differently to compete within the "infrastructure pot". Prioritizing projects using FROI would be **one factor** used in the prioritization process.
Scoring	The budget scoring/ranking process for CW projects does not account for many of the other advantages of P3/P4/Alternatively Financed projects	The Administration could develop a separate ranking process for these projects based on the additional advantages they have nationally and regionally, or grant exceptions for pilot projects.
	P3/P4 (and conventional) projects are considered to be capital leases and the total cost of the contract must be scored in the first year of the project. Large capital projects may displace other worthy projects under current budget caps. Long term contracting authority is lacking in some projects. Reference: *The Crisis in the Federal Government's Infrastructure* Additional Approaches to the Current Federal Budgetary Scoring Regime Note: Setting BCR and Scoring rules are primarily Executive Branch functions, but the Legislative Branch can influence how these tools are used through guidance in law (authorization and appropriations legislation).	(1)OMB should consider changing this accounting rule for projects that are built (not leased) over many years. (2)Add additional funding to the Corps construction appropriation to accommodate very large projects if most of the funding (50-90%) would be from local, state, or private sources. (3) Congress should consider granting more long term contracting authority to SecArmy through appropriate changes to Sec 103 of Civil Works appropriations bills. Prepared by Members of the Privatization, Outsourcing, and Financing Transactions Committee, American Bar Association, Public Contract Law Section Jan 29, 2018