

PCoP Webinar: Dealing With Costs

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US Army Corps of Engineers
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Overview

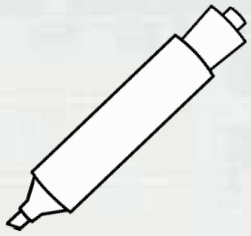
- Present Cost Guidance & Manuals
- Present Cost Basics & Terminology
- Identify Where/How to Obtain Costs
- Present Cost Share
- Discuss Common Cost Issues



Cost Guidance & Manuals

- ER 1105-2-100 – Planning Guidance Notebook
 - ▶ Appendix D for NED Costs
- ER 1110-2-1302 - Civil Works Cost Engineering
- EM 1110-2-1304 - Civil Works Construction Cost Index System (CWCCIS)
- DCW Memorandum – Corps of Engineers Civil Works Cost Definitions and Applicability 25 August 2011
- Procedures Manual: NED Costs (IWR Report 93-R-12)





Used for cost apportionment and allocation; is the monetary outlay, both Federal and non-federal, of constructing a project

FINANCIAL COSTS?

Used by the economist in determining the benefit-to-cost ratio (BCR); includes all of the opportunity costs, both explicit (out of pocket to realize project benefits) and implicit (noncash), of using the resource and is expressed in average annual equivalent terms



Basics & Terminology

- **Financial Costs** - used for cost apportionment and allocation; is the monetary outlay, both Federal and non-federal, of constructing a project

VS.

- **NED Costs** - used by the economist in determining the benefit-to-cost ratio (BCR); includes all of the opportunity costs, both explicit (out of pocket to realize project benefits) and implicit (noncash), of using the resource and is expressed in average annual equivalent terms



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Basics & Terminology (Cont.)

Types of financial costs:

- ▶ **Project First Costs**- Constant Dollar at Current Price Level; used in authorizing documents (Feasibility Reports, Chief's Reports, Post Authorization Change Reports (PACRs), and etc.)
- ▶ **Total Project Costs**- Constant Dollar Cost FULLY FUNDED WITH ESCALATION to the estimated midpoint of construction; used in budgeting (Project Partnership Agreements, Integral Determination Reports, 902 Limit, and etc.)



Basics & Terminology (Cont.)

NED Costs that are **NOT** Financial Costs:

- ▶ **Associated Costs** – are the costs of measures needed over and above project measures to achieve the benefits claimed during the period of analysis (examples: Local Service Facilities (LSF), Aids to Navigation (ATONS), Pipeline Relocations and some P.L. 91-646 benefits)
- ▶ **Interest During Construction (IDC)**- the opportunity cost of capital incurred during the construction period
- ▶ **OMRR&R**- Operation, Maintenance, Repair, Rehabilitation, and Replacement



Basics & Terminology (Cont.)

Project Cost Sharing:

- **Cost Allocation**- the act of distributing financial costs among project purposes (Flood Risk Management, Ecosystem, Navigation, Recreation).
- **Cost Apportionment**- the act of distributing financial costs to the appropriate responsible party (Federal and Non-federal).



Financial Costs

Lands, easements, rights of way, relocations, and disposal facilities (LERRD)*

- + Construction Elements
- + Planning, Engineering, and Design (post feasibility work)
- + Construction Management
- + Environmental & Cultural Mitigation
- + Contingency
- = **Financial Costs (Project First Cost)**

*LERR for navigation projects.



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NED Costs

Financial Costs (Project First Cost)

- + Associated Costs
- + Other Direct Costs
- + Interest During Construction (IDC)
- + Interest and Amortization
- + Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R)
- = **NED Costs or Economic Costs***

*See ER 1105-2-100 Appendix D for full list.



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Where Do You Get Costs?

- In the Chat box share your thoughts on where you get the costs



Where Do You Get Costs?

- Developed by the Cost Estimator with PDT Input
- Will be varying levels of detail through the study
 - ▶ Screening < Draft Report < Final Report
 - ▶ Level 5 (least detail) through Level 1 (most detail)
- Final product is a certified cost estimate and summarized using a Total Project Cost Summary (TPCS)



Level of Detail for Cost Estimates

ER 1110-2-1302: Table 1 (truncated)

Project Phase	Scope and Technical Definition		Risk Level	Minimum Estimate Class
Pre-Budget Development (not recommended for reports)	Extremely Limited		Extremely High	5*
Pre-Authorization				
Initial Alternatives	Very Limited		Very High	4*
Feasibility Alternatives	Very Limited		High	4*
Feasibility – Federal Recommended Plan	Limited-Fair		Moderate	3
National Economic Decision (NED)	Limited-Fair		Moderate	3
Locally Preferred Plan (LPP)	Limited-Fair		Moderate	3
Funding Request Decision Documents	Limited-Fair		Moderate	3
Authorization				
Continuing Authorities Program	Limited		Moderate to High	3-4
Civil Emergency Management Program	Limited		Moderate to High	3-4
Alternative Studies	Limited		Moderate to High	3-4
General Re-Evaluation Report	Limited-Fair		Moderate	3
Limited Re-Evaluation Report	Limited-Fair		Moderate	3
Design Documentation Report	Limited-Fair		Moderate	3
Engineering Decision Report	Limited-Fair		Moderate	3
Post Authorization Change Reports	Fair		Moderate	2-3
Other Funding Decision Documents	Limited-Fair		Moderate	3



Total Project Cost Summary (TPCS)

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)					TOTAL PROJECT COST (FULLY FUNDED)					
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	COST (\$K) C	CNTG (\$K) D	CNTG (%) E	TOTAL (\$K) F	ESC (%) G	COST (\$K) H	CNTG (\$K) I	TOTAL (\$K) J	Program Year (Budget EC): Effective Price Level Date: 2016 1 OCT 15		TOTAL FIRST COST (\$K) K	INFLATED (%) L	COST (\$K) M	CNTG (\$K) N	FULL (\$K) O
										Spent Thru: 10/1/2013 (\$K)						
02	RELOCATIONS	\$455	\$123	27%	\$578	1.5%	\$462	\$125	\$587	\$0	\$587	4.8%	\$494	\$131	\$615	
06	FISH & WILDLIFE FACILITIES, Pond Rest.	\$4,474	\$1,208	27%	\$5,682	1.5%	\$4,539	\$1,226	\$5,765	\$0	\$5,765	23.3%	\$5,590	\$1,511	\$7,107	
06	FISH & WILDLIFE FACILITIES, Monitoring	\$1,310	\$354	27%	\$1,664	1.5%	\$1,328	\$360	\$1,688	\$0	\$1,688	31.8720%	\$1,751	\$475	\$2,226	
06	FISH & WILDLIFE FACILITIES, Adpt. Mgmt.	\$4,900	\$1,323	27%	\$6,223	1.5%	\$4,972	\$1,341	\$6,313	\$0	\$6,313	31.8391%	\$6,555	\$1,768	\$8,323	
11	LEVEES & FLOODWALLS	\$42,957	\$11,598	27%	\$54,555	1.5%	\$43,582	\$11,733	\$55,315	\$0	\$55,315	7.4%	\$46,783	\$12,654	\$59,417	
14	RECREATION FACILITIES	\$3,762	\$1,016	27%	\$4,778	1.5%	\$3,817	\$1,031	\$4,848	\$0	\$4,848	7.3%	\$4,096	\$1,106	\$5,202	
16	BANK STABILIZATION	\$1,191	\$322	27%	\$1,513	1.5%	\$1,208	\$327	\$1,535	\$0	\$1,535	9.4%	\$1,322	\$358	\$1,680	
CONSTRUCTION ESTIMATE TOTALS:		\$59,049	\$15,944		\$74,993	1.5%	\$59,908	\$16,143	\$76,051	\$0	\$76,051	11.2%	\$66,587	\$18,003	\$84,570	
01	LANDS AND DAMAGES	\$9,920	\$2,480	25%	\$12,400	1.5%	\$10,064	\$2,516	\$12,580	\$0	\$12,580	7.8%	\$10,851	\$2,713	\$13,564	
30	PLANNING, ENGINEERING & DESIGN	\$11,719	\$3,164	27%	\$14,883	2.3%	\$11,988	\$3,236	\$15,224	\$0	\$15,224	13.3%	\$13,577	\$3,666	\$17,243	
31	CONSTRUCTION MANAGEMENT	\$5,730	\$1,548	27%	\$7,278	2.3%	\$5,863	\$1,582	\$7,445	\$0	\$7,445	23.9%	\$7,262	\$1,961	\$9,223	
PROJECT COST TOTALS:		\$86,418	\$23,136	26.8%	\$109,554		\$87,823	\$23,477	\$111,300	\$0	\$111,300	11.9%	\$98,257	\$26,343	\$124,600	

CHIEF, COST ENGINEERING

PROJECT MANAGER

CHIEF, REAL ESTATE

ESTIMATED FEDERAL COST: \$60,321
 ESTIMATED USFWS COST: \$31,560
 ESTIMATED NON-FEDERAL COST: \$32,719
 ESTIMATED TOTAL PROJECT COST: \$124,600



Cost Certification

WALLA WALLA COST ENGINEERING MANDATORY CENTER OF EXPERTISE

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

Coastal Storm Risk Management Project

The Coastal Storm Risk Management Project, as presented by the District, has undergone a successful update for the Cost Agency Technical Review (Cost ATR) of remaining costs, performed by the Walla Walla District Cost Engineering Mandatory Center of Expertise (Cost MCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the cost products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of the Cost MCX certifies the estimated total project cost:

FY17 Project First Cost: \$ 73,516,000
Fully Funded Costs: \$127,068,000

Note: Cost ATR was devoted to remaining work. It did not review spent costs, which requires an audit process. It remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management throughout the life of the project.



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Walla Walla District



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Cost Share

- Flood Risk Management
 - ▶ Structural: Non-federal = 35% and 50%; with a minimum of 5% cash
 - ▶ Nonstructural: Non-federal = 35%
- Ecosystem Restoration
 - ▶ Non-federal = 35%; credit exceeding 35% requires ASA(CW) waiver
- Coastal Storm Damage
 - ▶ Initial Construction: Non-federal = 35%; may be higher depending on access and land use
 - ▶ Nourishment: Non-federal = 50%; may be higher depending on access and land use
- Inland Navigation
 - ▶ 50% Federal and 50% Inland Waterways Trust Fund (IWTF)
- Recreation
 - ▶ Non-federal = 50%



Cost Share (Cont.)

Harbor Navigation – Non-fed share of construction, in percent

Project depth	20 feet or less	>20 to 50 feet	Greater than 50 feet
General Navigation Feature	10/10*	25/10*	50/10*
Mitigation	10/10*	25/10*	50/10*
Aids to Navigation	0	0	0
Local Service Facilities (LSF)	100	100	100
LERR	100	100	100

*The second 10% is the amount of total cost of general navigation features that the local sponsor must pay over a period not to exceed 30 years. This amount may be offset by the value of LERR. If the project only involves widening, the cost share is the same as the existing project. However, if there have not been any improvements, the widening is assessed at the **naturally** controlling depth and entrance channels are governed by the deepest protected interior channel depth.



Common Cost Issues During Feasibility

- Using Proper Terminology and Costs
- Current Price Level & Discount Rate
- Incorrect Cost Share Application
- Missing Associated Costs
- Real Estate Costs
- Sunk Costs
- Rounding and Addition Errors

