

Preliminary Cost Analysis Overview

DATA COLLECTION PROCESS TO-DATE

- ▶ WSDOT provided a database containing costs for all construction projects completed between 2003 and 2012. The database includes data for 2,292 projects
- ▶ Each project is broken down into cost components called “work operation codes” that identify the different phases and cost components of each project. There are more than 250 codes in the database
- ▶ WSDOT has been very collaborative, and we are still working together to understand and refine the dataset

OVERVIEW OF CONTENTS

- ▶ BERK has compiled a preliminary analysis of the construction cost data. This analysis will be further refined over time by working with WSDOT to delve deeper into the definitions of certain work operation codes
- ▶ This presentation includes our first cut at separating costs into project phases and by project type. All costs have been adjusted to 2012 dollars

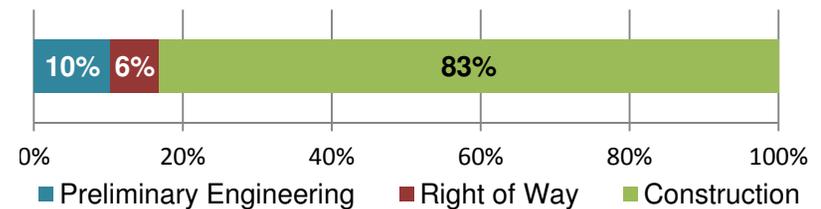
Preliminary Cost Analysis

Costs by Project Phase

WSDOT categorizes project costs into three overarching phases:

- Preliminary Engineering.** Includes engineering costs incurred prior to the date of construction, such as locating and designing, making surveys and maps, preparing plans, specifications and estimates, traffic counts, and other related general engineering preparatory to the letting of a contract for construction.
- Right of Way.** Includes appraisal fees, purchase of land or interest therein, and relocation assistance for persons displaced by the purchases.
- Construction.** Includes all expenditures for the construction phase, such as payments to prime contractors, state force labor costs, supervision of construction activities, inspection and testing, and general project management during construction.

WSDOT Project Phase	2003-2012 Cost	% of Total
Preliminary Engineering	1,013,655,000	10%
Right of Way	633,539,000	6%
Construction	8,172,501,000	83%
Total	9,819,695,000	100%



- The Construction phase makes up approximately 83% of all costs over the last 10 years
- Preliminary Engineering is second largest, at about 10% of total project costs from 2003-2012
- Right of Way comprises about 6% of total project costs

Preliminary Cost Analysis

Costs by Work Operation Code

Project Phase	2003-2012 Cost	
Construction	8,148,481,000	83%
Planning	874,226,000	9%
Right of Way	637,572,000	6%
Design	83,692,000	1%
Environmental Review	61,307,000	1%
Permitting	12,348,000	0%
Mitigation	2,070,000	0%
TOTAL	9,819,695,000	

To align the data more closely with the goals of this project, BERK assigned each of the 250 work operation codes to the 7 project phases shown in the table above.

- Construction comprises about 83% of total project expenditures
- Planning is the second largest cost area, at 9% of total project costs
- Using these definitions, Right of Way generates about 6% of total project costs

Note: This analysis is preliminary and we will continue to work with WSDOT to refine this analysis and align definitions

Construction Components	2003-2012 Cost	
Contractor Payments	7,212,167,000	89%
Project Management	494,462,000	6%
Inspection/Testing	291,941,000	4%
Audit and Legal Costs	13,979,000	0%
IT Components	6,608,000	0%
Other Construction Costs	129,323,000	2%
TOTAL	8,148,481,000	

Since the construction phase is the largest, we have further broken down these work operation codes into the subcategories identified above.

- The largest component of construction costs is payments to prime contractors, which makes up 89% of construction costs. BERK is continuing to work with WSDOT to further breakdown this cost item into more detail relevant to this study
- Project management accounts for about 6% of construction costs
- Inspection and testing of materials, components, and final work comprises about 4% of construction costs

Preliminary Cost Analysis

Costs by Project Type

WSDOT Project Category	# of Projects	2003-2012 Cost	
Urban Mobility	111	3,211,400,000	33%
Paving/Safety Restoration	801	1,425,670,000	15%
Structures Preservation	193	1,097,822,000	11%
HOV Lanes	22	1,076,627,000	11%
Rural Mobility	35	783,297,000	8%
Collision Prevention	383	604,786,000	6%
Collision Reduction	141	363,404,000	4%
All Weather Highways/Freight	17	327,865,000	3%
Unstable Slopes	176	225,509,000	2%
Trunk System Completion	4	183,826,000	2%
Catastrophic Reduction	87	145,945,000	1%
Major Drainage/Electrical Systems	139	114,949,000	1%
Fish Barrier Removal	46	49,839,000	1%
Noise Reduction	12	42,018,000	0%
Program Support/Discretionary Buckets	9	25,488,000	0%
Urban Bicycle Connections	8	23,651,000	0%
Bridge Restrictions	3	22,927,000	0%
Weigh Stations/Other	13	22,137,000	0%
Rest Area Preservation	30	21,572,000	0%
Wetland Monitor	25	6,275,000	0%
Stormwater Runoff	16	5,752,000	0%
Scenic Byways	7	4,627,000	0%
Bicycle Touring Routes	2	2,030,000	0%
Air Quality	1	807,000	0%
New Safety Rest Areas	1	51,000	0%
Project Type Not Listed	10	31,421,000	0%
TOTAL	2,292	9,819,695,000	

Each of the 2,292 projects included in the database is categorized as a specific project type, shown in the table to the left.

- 33% of expenditures over the last 10 years were spent on Urban Mobility projects
- Paving/Safety Restoration was the second largest project type, at 15% of costs
- Structure Preservation and HOV Lanes each comprised about 11% of total project costs over the last 10 years
- Rural Mobility projects comprised about 8% of total costs
- Collision Prevention and Collision Reduction comprised approximately 6% and 4% of costs, respectively
- Many “mitigation” type projects are identified, such as noise reduction, fish barrier removal, wetland monitor, and stormwater runoff

Preliminary Cost Analysis

Next Steps

- ▶ Continue to work with WSDOT to refine analysis and align definitions of work operation codes
- ▶ Gather additional data to provide detail on the components of the payments to prime contractors relevant to this study
- ▶ Analyze the dataset in relationship to the cost drivers identified in this study