

25 Oct 2012

Project: **Tillamook SFC NoComInvRed**

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Total Benefits: **\$10,518,666**

Total Costs: **\$8,336,015**

BCR: **1.26**

Project Number:

Disaster #:

Program:

Agency: **Northwest Hydraulics Consultants**

State: **Washington**

Point of Contact: Vaughn Collins

Analyst: Rob Flaner

Project Summary:

Project Number:

Disaster #:

Program:

Agency: Northwest Hydraulics Consultants

Analyst: Rob Flaner

Point of Contact: Vaughn Collins

Phone Number: 206-241-6000

Address: 16300 Christensen Rd, Ste 350, Seattle, Washington, 98188

Email: vCollins@nhc-sea.com

Comments: PA Alternative Project

Structure Summary For:

Tillamook SFC Agg Structures NoComInvRed, 2 Main Ave., Tillamook, Oregon, 97141, Tillamook

Structure Type: Building

Historic Building: No

Contact: Tillamook County

Benefits: \$10,518,666

Costs: \$8,336,015

BCR: 1.26

Mitigation	Hazard	BCR	Benefits	Costs
Drainage Improvement	Damage-Frequency Assessment	1.26	\$10,518,666	\$8,336,015

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Structure and Mitigation Details For: Tillamook SFC Agg Structures NoComInvRed, 2 Main Ave., Tillamook, Oregon, 97141, Tillamook

Benefits: \$10,518,666

Costs: \$8,336,015

BCR: 1.26

Hazard: **Damage-Frequency Assessment - Flood**

Mitigation Option: Drainage Improvement

Latitude:

Longitude:

Project Useful Life: 50

Mitigation Information

Basis of Damages: Expected Damages

Number of Damage Events: 3

Number of Events with Know Recurrence Intervals: 3

Expected Damages Before and After Mitigation

Analysis Year: 2010

Analysis Duration: 21

Utilities (\$/day):

Year Built: 1990

User Input Analysis Duration:

Buildings (\$/day):

Roads/Bridges (\$/day):

Damages Before Mitigation

Damage Year:

RI: 22.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Displacement (\$)	\$1,693,000
Inventory Loss (\$)	\$8,622,000
Content loss (\$)	\$8,313,000

Damages After Mitigation

RI: 22.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Displacement (\$)	\$1,229,000
Inventory Loss (\$)	\$6,331,000
Content loss (\$)	\$6,375,000

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Building Loss (\$)	\$2,983,000
Total	\$21,611,000
Total Inflated	

Building Loss (\$)	\$2,279,000
Total	\$16,214,000

Damage Year:

RI: 6.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Displacement (\$)	\$931,000
Inventory Loss (\$)	\$3,678,000
Content loss (\$)	\$4,159,000
Building Loss (\$)	\$1,624,000
Total	\$10,392,000
Total Inflated	

RI: 6.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Displacement (\$)	\$720,000
Inventory Loss (\$)	\$2,547,000
Content loss (\$)	\$3,120,000
Building Loss (\$)	\$1,229,000
Total	\$7,616,000

Damage Year:

RI: 100.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Displacement (\$)	\$2,665,000
Inventory Loss (\$)	\$14,871,000
Content loss (\$)	\$13,764,000
Building Loss (\$)	\$5,724,000
Total	\$37,024,000
Total Inflated	

RI: 100.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Displacement (\$)	\$2,123,000
Inventory Loss (\$)	\$12,059,000
Content loss (\$)	\$11,126,000
Building Loss (\$)	\$4,628,000
Total	\$29,936,000

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Agency: **Northwest Hydraulics Consultants**

State: **Washington** Point of Contact: Vaughn Collins

Analyst: Rob Flaner

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual:	\$3,189,611
Present Value:	\$44,019,012

Annual:	\$2,427,430
Present Value:	\$33,500,346

Annual:	\$762,181
Present Value:	\$10,518,666

Mitigation Benefits: \$10,518,666

Mitigation Costs: \$8,336,015

Benefits Minus Costs: \$2,182,651

Benefit-Cost Ratio: 1.26

Cost Estimate

Project Useful Life (years): 50

Construction Type:

Mitigation Project Cost: \$8,060,000

Detailed Scope of Work: Yes

Annual Project Maintenance Cost: \$20,000

Detailed Estimate for Entire Project: Yes

Final Mitigation Project Cost: \$8,336,015

Years of Maintenance: 50

Cost Basis Year:

Present Worth of Annual Maintenance Costs: \$276,015

Construction Start Year:

Estimate Reflects Current Prices: Yes

Construction End Year:

Project Escalation:

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Justification/Attachments

Field	Description	Attachments
Expected damages before mitigation	From Hazus analysis	
Historic damages before mitigation	See attached BCA methodology memorandum.	
Mitigation Project Cost	See cost estimate contained in BCA Methodology memorandum.	
Project useful life	Used FEMA recommended 50-year project life for major infrastructure projects.	
Unknown Frequency - Damages after Mitigation	See attached BCA methodology memorandum.	
Year Built	This field is not applicable to this analysis since recurrence intervals have been determined for all events analyzed.	