

# Capital Appropriation Proposal

**Budget:** 2015/2016 Mid Biennial Review , **Scenario:** Executive Proposed, **Fund:** Landfill Reserve Fund , **Project:** All

## SW CH AREA 7 CLOSURE

**1033542**

Department	Natural Resources and Parks
Agency	Solid Waste
Council District(s)	9
Agency Contact	Zahid Khan
Fund	3910 Landfill Reserve
Type of Project	Standalone
MPA Status	NA
Baseline Approval Date	
Location	16645 228th Avenue SE, Maple Valley, WA 98038



Proposed Appropriation	FY15-16	FY17-18	FY19-20	Total Budget
Planning	\$128,251	\$193,289	\$0	\$321,540
Preliminary Design	\$2,122,381	\$710,585	\$0	\$2,832,966
Final Design	(\$1,569,623)	\$1,807,542	\$0	\$237,919
Implementation	\$4,082,945	\$7,729,616	\$13,408,070	\$25,220,631
One Percent for Art	\$0	\$0	\$0	\$0
Closeout	\$185,466	\$257,556	\$0	\$443,022
Acquisition	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$4,949,420</b>	<b>\$10,698,588</b>	<b>\$13,408,070</b>	<b>\$29,056,078</b>

Schedule and Cost	Current Start	Current Finish	ITD Projected Expense *	ITD Appropriation	Proposed Appropriation	Estimate At Completion	Baseline Budget At Completion
Planning	2/16/11	4/17/19	\$109,900	\$0	\$128,251	\$321,539	\$0
Preliminary Design	6/22/11	9/30/19	\$2,027,486	\$0	\$2,122,381	\$2,832,987	\$0
Final Design	10/1/12	12/31/19	\$446,992	\$2,245,000	(\$1,569,623)	\$2,482,919	\$0
Implementation	2/1/13	10/30/20	\$6,796,553	\$7,027,794	\$4,082,945	\$32,248,406	\$0
One Percent for Art			\$0	\$0	\$0	\$0	\$0
Substantial Completion	3/31/21	3/31/21					
Closeout	4/1/14	3/31/21	\$147,516	\$0	\$185,466	\$443,021	\$0
Acquisition			\$0	\$0	\$0	\$0	\$0
<b>Total</b>			<b>\$9,528,447</b>	<b>\$9,272,794</b>	<b>\$4,949,420</b>	<b>\$38,328,872</b>	<b>\$0</b>

\* ITD Projected through the end of the current year

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## Current Scope

This project consists of a five-stage construction of final cover system over a projected area of about 60 acres of Refuse Area 7 between the year 2011 and 2020. The staged construction are planned in 2013, 2015, 2016, 2018, and 2020. The work includes preliminary and final design, preparation of contract documents, and the installation of liner, landfill gas, leachate, and surface water control facilities.

## Justification

The Washington State Administrative Code (WAC 173-351) requires that final cover be placed upon the completion of a landfill unit. A staged approach was selected for the construction of final closure facilities in order to increase the efficiency of the landfill gas collection system. Peak landfill gas production typically occurs about five years after placement of refuse. The installation of final cover in stages will enhance gas collection from the older in-place refuse and will reduce the generation of leachate. This project is required to comply with permit conditions for operating the landfill.

## Project Status

Additional air space capacity added: Approx. 1.48 million Cubic Yard by deciding to continue landfilling through to the Lift# 7 with max elevation of 800 ft. Stage 2 closure is planned to be completed by the end of 2015. (up to the elevation of max. 700 ft)

## Change Since Last Request

The final lift, Lift#7 with elevation to 800 ft above mean sea level closure has been included in the project scope. As a result, the project has been revised to be completed by March 31, 2021. Accordingly, both budget and schedule have been revised to match the revised completion date of the project. Additional Approx. \$14.12 million (2015 \$\$) has been added to the project budget.

## Alternative Analysis

Alternatives considered are: Single Alternative.

## Funding and Revenue Discussion

Fund 3910 - LANDFILL RESERVE FUND

## Risk Discussion

Project risks are: Cost, Schedule, Permit Acquisition, Coordination with Other Agencies, Projects or Programs. Risk mitigation applied by the project team includes the use of risk registers and risk assignment/assessment.

## Other Agency Involvement

Other agencies involved are: State, KC Other.

## Art Eligibility

No, this project is not eligible for 1% Art. Project not visually or physically accessible to the public

## Operating Impact

None

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## Equity and Social Justice Impact

Implementation of this project will bring the following Equity and Social Justice impacts: 1). Opportunities for the small contracting and suppliers (SCS) and women & minority firms to participate in every phases of the project. 2) Provide opportunities for apprentices program & employment 3) This project is for compliance with the Federal, DOE, and County health and environmental control regulations. 4) Will discharge its obligation for disposing the MSW following the best engineering method.

## Energy Utilization Impact

1) Design and implement closure cover system to control stormwater run-off through gravitational method 2) Designed to reduce GHG emissions at least by 63% through controlling fugitive emissions and LFG collections. 3) Minimizes the use of soil in the closure cover system and thus saves energy on processing soil. 4) All construction works are limited to day light period only.

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**Budget:** 2015/2016 Mid Biennial Review , **Scenario:** Executive Proposed, **Fund:** Landfill Reserve Fund , **Project:** All

## SW CH LFG PIPELINE UPGRADE

**1124105**

Department	Natural Resources and Parks
Agency	Solid Waste
Council District(s)	9
Agency Contact	Zahid Khan
Fund	3910 Landfill Reserve
Type of Project	Standalone
MPA Status	NA
Baseline Approval Date	
Location	16645 228th Avenue SE, Maple Valley, WA 98038



Proposed Appropriation	FY15-16	FY17-18	FY19-20	Total Budget
Planning	\$89,716	\$0	\$0	\$89,716
Preliminary Design	\$50,375	\$0	\$0	\$50,375
Final Design	\$18,705	\$0	\$0	\$18,705
Implementation	\$4,367,288	\$0	\$0	\$4,367,288
One Percent for Art	\$0	\$0	\$0	\$0
Closeout	\$220,120	\$0	\$0	\$220,120
Acquisition	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$4,746,204</b>	<b>\$0</b>	<b>\$0</b>	<b>\$4,746,204</b>

Schedule and Cost	Current Start	Current Finish	ITD Projected Expense *	ITD Appropriation	Proposed Appropriation	Estimate At Completion	Baseline Budget At Completion
Planning	1/1/15	9/1/15	\$171,099	\$81,383	\$89,716	\$171,099	\$0
Preliminary Design	9/2/15	12/31/15	\$213,139	\$162,764	\$50,375	\$213,139	\$0
Final Design	1/1/16	3/31/16	\$55,000	\$244,146	\$18,705	\$262,851	\$0
Implementation	4/1/16	12/30/16	\$50,292	\$1,066,592	\$4,367,288	\$5,433,879	\$0
One Percent for Art			\$0	\$0	\$0	\$0	\$0
Substantial Completion	1/2/17	1/2/17					
Closeout	1/2/17	12/29/17	\$0	\$85,143	\$220,120	\$305,263	\$0
Acquisition			\$0	\$0	\$0	\$0	\$0
<b>Total</b>			<b>\$489,530</b>	<b>\$1,640,028</b>	<b>\$4,746,204</b>	<b>\$6,386,231</b>	<b>\$0</b>

\* ITD Projected through the end of the current year

# Capital Appropriation Proposal

**Budget:** 2015/2016 Mid Biennial Review , **Scenario:** Executive Proposed, **Fund:** Landfill Reserve Fund , **Project:** All

## Current Scope

Build a new pipeline on native soil to add redundancy to the landfill gas (LFG) conveyance pipeline from the North Flare Station (NFS) to the BioEnergy Washington (BEW) facility and build a new Booster Blower System (BBS), providing a holistic solution to collect landfill gas. This includes design and construction of a 9,500 foot length pipeline and new BBS.

## Justification

Current operation of the LFG pipeline requires a high level of maintenance and monitoring requiring the existing line to be periodically shut-off, resulting in a loss of LFG energy reclamation. The addition of a new pipeline will provide the redundancy needed to ensure safe and reliable operation of the existing LFG delivery conveyance system, allow the existing line to function as a secondary backup and permit LFG supply and maintenance to function concurrently. The new BBS will serve a critical function in the pipeline operating under negative pressure. New Booster Blowers are essential due to the significant increase of the pipeline length and to add redundancy for maintaining negative pressure.

## Project Status

A consultant was hired and the Alternative Analysis for the project was completed in June 2015. The project team is finalizing the Project Charter and amending the existing Design Consultant contract to include design for the pipeline, BBS and environmental analysis.

## Change Since Last Request

The preferred alignment route goes over virgin soil outside of the refuse area with no buffer zone interference and is 9500 feet in length. The original plan for the pipeline assumed that it would follow the same alignment as the existing pipeline from the NFS to BEW plant, estimated to cost \$1.6M and be 2600ft in length. Additionally, a new BBS will be designed and constructed. This holistic solution increases the scope, implementation schedule and estimated budget to \$6.2M (2015 dollars) for the project.

## Alternative Analysis

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The Landfill Gas Conveyance Pipeline Alternative Analysis Report (June 2015) initially identified 16 LFG pipeline route alternatives for design. These alternatives were comprised of six routes and various options for each route. This list was analyzed and four options were considered viable - Routes 2,3,4, and 5.

-Route 2 extends along the central ridge of the CHRLF and parallels the existing LFG conveyance pipeline. This route is outside of the buffer zone and is the most direct of the routes, however it would require consideration for significant landfill settlement as it would be constructed over waste.

-Route 3 extends along the west edge of the CHRLF along the west Perimeter Road until the alignment reaches the South Berm Road crossing. At the junction where the West Perimeter Road intersects with the South Berm Road, Route 3 would continue to the BEW tie in through one of four Options. All Route 3 alignments are located outside of the landfill's buffer zone and on native soil thus eliminating the need for settlement mitigation.

-Route 4 extends from the NFS to the BEW facility across the East Main Hill along the outside edge of the buffer zone. Route 4 would parallel the existing LFG pipeline, however further east than Route 2. This would place Route 4 over older and thinner waste deposits and therefore settlement mitigation would be minimal. The installation of Route 4 could potentially interfere with potential plans for future refuse excavation and relining.

-Route 5 is a holistic evaluation that includes the construction of a new South Flare Station to be constructed next to the BEW facility. This would minimize the need for a pipeline, however the existing LFG conveyance system would need to be modified to connect to this new facility. Constructing a new Flare Station would be at a cost of around \$15M.

More detailed descriptions of the Alternatives and their Options are available within the Landfill Gas Conveyance Pipeline Alternative Analysis Report (June 2015). Route 3 is the recommended option and is reflected in this budget request.

## Funding and Revenue Discussion

Fund 3910 - Landfill Reserve

## Risk Discussion

Project risks are: Engineering/Technical Uncertainty, Environmental Compliance, Cost, Schedule, Community Involvement/Concerns, Coordination with Other Agencies, Projects or Programs. Risk mitigation applied by the project team includes the use of risk registers and risk assignment/assessment.

## Other Agency Involvement

Other agencies involved are: Choose a Value, State, KC Other.

## Art Eligibility

No, this project is not eligible for 1% Art. Project not visually or physically accessible to the public

## Operating Impact

None

## Equity and Social Justice Impact

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This project will bring in positive impacts on Equity and social justices and will include: 1). Allow small and minority consultants and business owners participate in the project life cycle 2). Help developing apprentices skills during this high tech involved construction; 3). Public tax payers money will be utilized in developing renewable energy production and utilization 4). Health and safety conditions of the surrounding community will be protected 5) Tangible contribution in County's GDP

## Energy Utilization Impact

Implementation of this project will allow the county to deliver landfill gas produced at Cedar Hills Landfill for conversion into renewable energy (i.e. Pipeline quality gas and electricity). Reduce the Green House Gas (GHG) emissions by more than 63%. Produce renewable energy sufficient enough to heat up about 35,000 homes during the high winter season.